Shanghai Yongming Electronic Co., Ltd.

Liquid Aluminum Electrolytic Capacitors

LIQUID ALUMINUM ELECTROLYSIS CAPACITOR



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◇ Surface-mount type

V4M
Ultra-compact products
3.95mmLMAX

P28

V3MC
Ultra-high capacity
Low-impedance, miniaturized products

P30

V3M
Low impedance, low profile
High-capacity products

P32

VMM
5mm Low-Profile Product

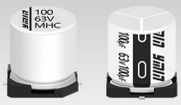
P35

VK7
7mm-high, miniaturized product
4000~6000H

P42

VKO
Compact size
6000~8000H

P45

VKM
Long-life, miniaturized products
7000~10000H

P52

VKG
Long service life
8000~12000H

P59

VKL
125° C high-temperature resistance long service life
2000~5000H

P66

VKL(R)
High-temperature resistance, low impedance
High-reliability product (2,000-hour rating)

P70

◇ Lead-wire type

L3M
Low impedance, low profile
High-capacity products

P72

LMM
Slim products

P74

LK7
7mm-high, miniaturized product
5000~6000H

P79

LK
Compact size
6000~8000H

P82

KCX
Ultra-compact size; suitable for fast-charging power supplies.
2,000 – 3,000 hours; lightning strike resistance

P93

KCG
High-temperature resistance, long service life, high voltage, high capacity
105° C 4000h / 115° C 2000h, lightning surge resistance

P96

LKZ
Long service life
10000~15000H

P125

LLK
Long service life
12000~20000H

P132

LKX
Pen-style design, long service life
7000~12000H

P134

LKL
High-temperature resistant, long-life product
130℃ 2000~5000H

P138

LKL(R)
High-temperature resistant, high-reliability products
135℃ 3000H

P143

LKJ
Long-life, miniaturized products are suitable for...
Smart meter 5,000 – 10,000 hours

P146

KCM
Ultra-compact size, high voltage rating, long service life
105° C 3000h, lightning surge resistance, low leakage current

P98

LKF
Reference standard
7000~10000H

P101

LKM
Long-life, miniaturized products
7000~10000H

P109

LKG
Long service life
8000~12000H

P117

LKD
Compact Size, High Capacity, Long Lifespan
low temperature rise, low internal resistance

P149

LKE
Long life, high frequency, low impedance

P151

LKC NEW
Long life, high frequency, low impedance

P154

LKV NEW
Long life, high frequency, low impedance
85℃ 8000H

P156

◇Substrate independent type

IDC3 NEW
105° C High Energy Density Product

P158

CW3
105° C Miniature Type

P164

SW3
105° C Long-life, Miniature Type

P168

CW6
105° C Long-life, Miniature Type

P171

◇ Bolt-on type

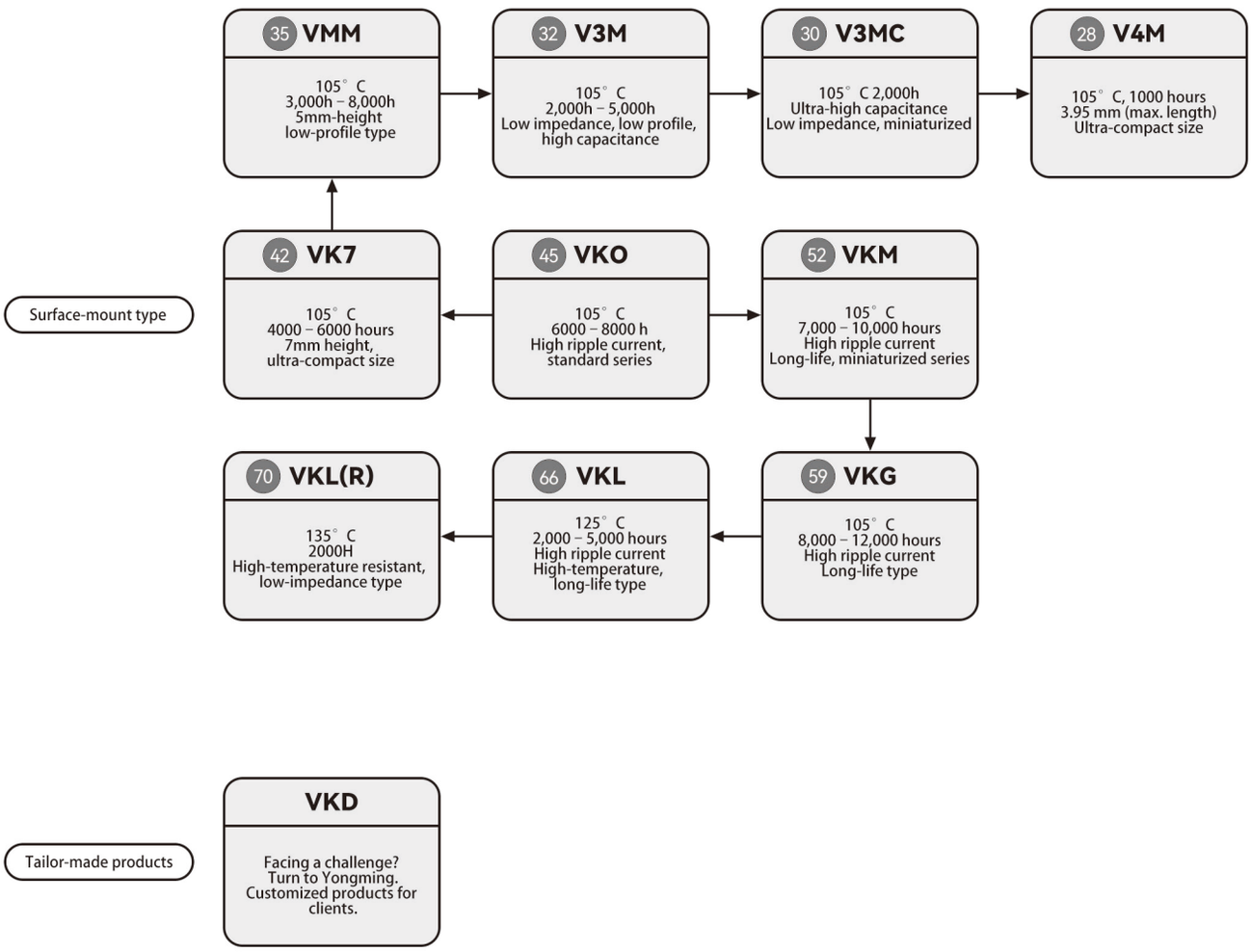
EW3
105° C High Energy Density Product

P178

Product List

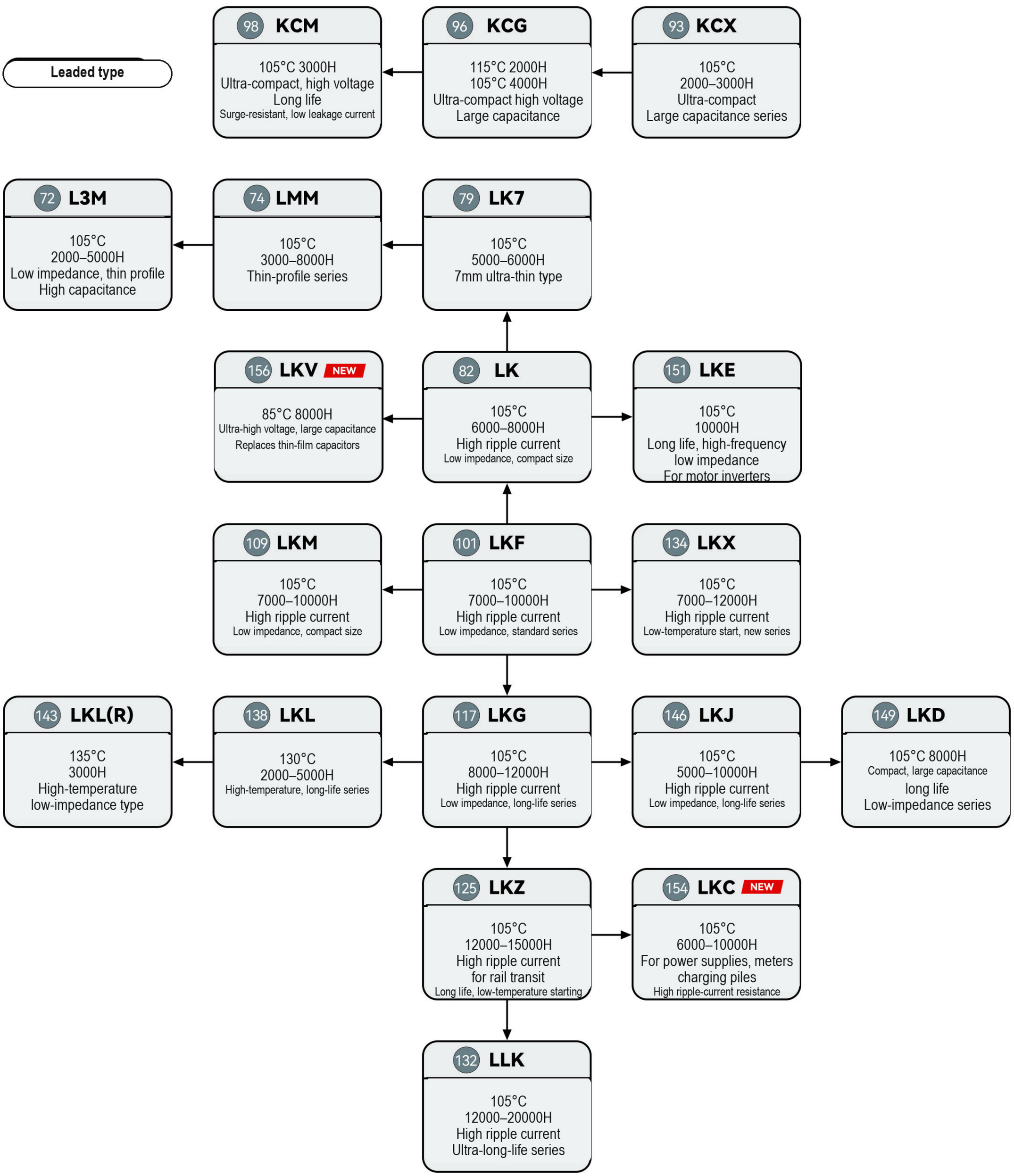
category	series	Features	Reference standard	Miniaturized products	Long-life product	High-temperature resistant products	Low-impedance product	AEC — Q200	Custom-made products	Rated voltage range (V)	Rated Capacitance Range (μF)	Operating temperature range (℃)	life (Hrs)	page
Surface-mount type	V4M	3.95mmLMAX Ultra-compact product		●				●		6.3~100	1~220	-55~+105	1000	28
	V3MC	high capacity, low impedance, compact size.					●	●		6.3~35	220~2700	-55~+105	2000	30
	V3M	Low-impedance, low-profile, high-capacity products		●			●	●		6.3~100 160	10~2200	-55~+105 -40~+105	2000~5000	32
	VMM	5mm-high, low-profile product		●	●			●		6.3~100 160~500	0.47~4700	-55~+105 -40~+105	3000~8000	35
	VK7	7mm-high compact product		●	●			●		6.3~100 160~400	1.0~680	-55~+105 -40~+105	4000~6000	42
	VKO	Compact size	●					●		10~100 160~500	0.47~10000	-55~+105 -40~+105	6000~8000	45
	VKM	Long-life, miniaturized products		●	●			●		10~100 160~500	0.47~4700	-55~+105 -40~+105	7000~10000	52
	VKG	Long service life		●	●			●		10~100 160~500	0.47~4700	-55~+105 -40~+105	8000~12000	59
	VKL	High-temperature resistant, long-life product		●	●	●		●		10~100 160~450	0.47~4700	-40~+125 -25~+125	2000~5000	66
	VKL(R)	High-temperature resistance, low impedance		●	●	●	●	●		10~50	47~3300	-55~+135	2000	70
	VKD	Customized products							●	Voltage requirements	Capacity requirements	Temperature requirements	Service life requirements	/
Radial lead type	L3M	Low-impedance, low-profile, high-capacity products		●			●	●		6.3~100 160	10~2200	-55~+105 -40~+105	2000~5000	72
	LMM	Slim products		●	●			●		6.3~100 160~500	0.47~4700	-55~+105 -40~+105	3000~8000	74
	LK7	7mm-high, ultra-compact product		●	●			●		6.3~400	1.0~680	-40~+105	5000~6000	79
	LK	Compact size; high frequency and low impedance	●		●		●	●		10~120 160~500	0.47~10000	-55~+105 -40~+105	6000~8000	82
	KCX	Ultra-compact size; lightning-resistant.		●	●		●			400~500	4.7~270	-40~+105	2000~3000	93
	KCG	High-temperature resistance, long service life high voltage, high capacity Lightning strike resistance		●		●	●			400	10~120	-40~+105	105℃ 4000 115℃ 2000	96
	KCM	Ultra-compact size, high voltage rating		●	●					400~450	8.2~180	-40~+105	3000	98
	LKF	Standard Series – High Frequency, Low Impedance	●		●		●	●		10~120 160~500	0.47~4700	-55~+105 -40~+105	7000~10000	101
	LKM	Long-life, miniaturized, high-frequency, low-impedance components.		●	●		●	●		10~120 160~500	0.47~4700	-55~+105 -40~+105	7000~10000	109
	LKG	Long life, high frequency, low impedance		●	●		●	●		10~120 160~500	0.47~10000	-55~+105 -40~+105	8000~12000	117
	LKZ	Long life, high frequency, low impedance		●	●		●	●		6.3~120 160~600	2.2~22000	-55~+105 -40~+105	12000~15000	125
	LLK	Ultra-long-life product	●		●		●	●		160~400 450	1.0~68	-40~+105 -25~+105	12000~20000	132
	LKX	Long-life pen-style product	●		●			●		35~100 160~450	12~1800	-55~+105 -40~+105	7000~12000	134
	LKL	High-temperature resistant, long-life product		●	●	●	●	●		10~120 160~500	0.47~8200	-55~+105 -40~+105	2000~5000	138
	LKL(R)	High-temperature resistant, high-reliability products		●	●	●	●	●		10~100	10~12000	-55~+135	3000	143
	LKJ	Long-life, miniaturized components suitable for smart meters.		●	●		●	●		6.3~120 160~500	0.47~15000	-55~+105 -40~+105	5000~10000	146
	LKD	Compact Size, High Capacity, Long Lifespan		●	●					400~600	100~560	-40~+105	8000	149
	LKE	Long life, high frequency, low impedance; specialized for variable-frequency motor drives.			●		●	●		10~120 160~250	22~10000	-55~+105 -40~+105	10000	151
	LKC	Designed for ultra-low temperatures and extreme cold; suitable for power supplies, electricity meters, and charging piles.		●	●			●		400~500	4.7~220	≤Φ14.5 -55~+105℃ ≥Φ16 -65~+105℃	6000~10000	154
	LKV	Ultra-high voltage, high capacitance; capable of replacing film capacitors.								800	15~150	-25~+85	8000	156
Base plate independent type	IDC3	Ultra-high capacity and high energy density		●				●		6.3~600	100~450000	-40~+105	3000	158
	CW3	Ultra-low temperature, high stability, low leakage current		●	●		●	●		350~500	47~1000	-40~+105	3000	164
	SW3	High Ripple Current Resistance – Standard Series	●		●			●		50~800	56~60000	-40(-25℃)~+105	3000	168
	CW6	Ultra-low temperature, high stability, low leakage current		●	●	●		●	●	350~600	82~1000	-40~+105	6000	171
Bolt-on type	EW3	Wide-temperature standard product	●		●			●		10~600	680~4720000	-25~+105	3000	178

Product System Diagram

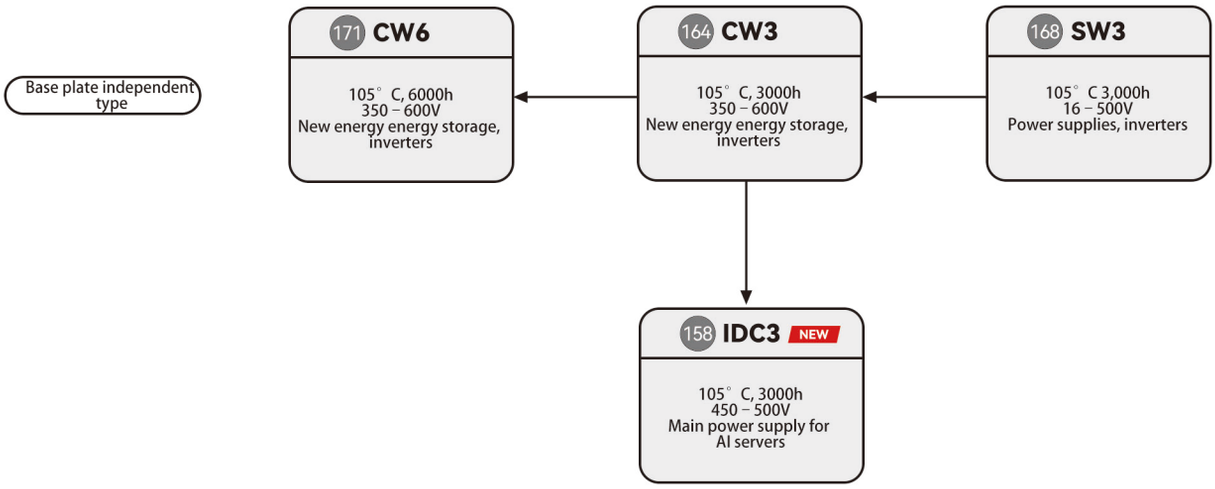


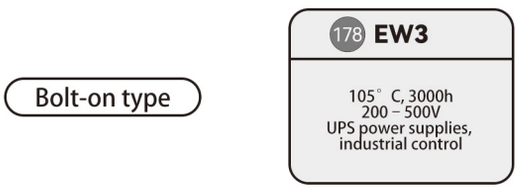
Product System Diagram

Leaded type



Product System Diagram





■ Surface-mount type, leaded type

1	2	3

series	code
V4M	V4M
V3MC	V3MC
V3M	V3M
VMM	VMM
VK7	VK7
VKO	VKO
VKM	VKM
VKG	VKG
VKL	VKL
VKL(R)	VKL(R)
L3M	L3M
LMM	LMM
LK7	LK7
LK	LK
KCX	KCX
KCG	KCG
KCM	KCM
LKF	LKF
LKM	LKM
LKG	LKG
LKZ	LKZ
LLK	LLK
LKX	LKX
LKL	LKL
LKL(R)	LKL(R)
LKJ	LKJ
LKD	LKD
LED	LED
LKE	LKE
LKC	LKC
LKV	LKV

4	5	6	7

diameter	code	high	code
3.5	F	3.95	039
3.55	W	4.5	045
4	A	5	050
4.5	G	5.4	054
5	B	5.7	057
5.5	H	5.8	058
6.3	C	6.5	065
7	T	7	070
8	D	7.7	077
10	E	8	080
12	Z	8.5	085
12.5	L	9	090
13	S	9.5	095
14.5	U	10	100
16	I	10.5	105
18	J	11	110
20	N	11.5	115
22	K	12	120
25	M	12.5	125
		13	130
		13.5	135
		14	140
		14.5	145
		15	150
		16	160
		16.5	165
		17	170
		18	180
		19	190
		20	200
		21	210
		22	220
		23	230
		25	250
		28	280
		30	300
		31.5	315
		32	320
		35.5	355
		36	360
		40	400
		41.5	415
		45	450
		50	500

8	9

Voltage (V)	code
6.3	0J
10	1A
16	1C
20	1D
25	1E
27	1N
35	1V
40	1G
50	1H
63	1J
70	1L
80	1K
90	1F
100	2A
110	2R
120	2K
125	2B
130	1Q
140	2Q
160	2C
180	2M
200	2D
250	2E
270	2N
300	2S
315	2F
320	1U
330	2U
350	2V
375	2P
400	2G
420	2T
450	2W
480	2L
500	2H
550	2I
600	2J
630	2Y
650	2X
800	2g

10	11	12

Capacitance (μF)	code
0.1	R10
0.22	R22
0.33	R33
0.47	R47
0.56	R56
0.68	R68
0.82	R82
1.0	1R0
2.2	2R2
3.3	3R3
3.9	3R9
4.7	4R7
5.6	5R6
6.8	6R8
8.2	8R2
10	100
12	120
15	150
22	220
33	330
47	470
56	560
68	680
82	820
100	101
120	121
150	151
180	181
220	221
330	331
470	471
560	561
680	681
820	821
1000	102
1500	152
2200	222
3300	332
4700	472
6800	682
10000	103
22000	223
33000	333

13

Capacity range	code
±20%	M
±10%	K
0%~+10%	R
0%~-10%	T
-10%~+20%	V
-20%~+5%	L
-10%~+5%	G
-10%~+15%	H
0%~+40%	I
±15%	J
-20%~+50%	A
-5%~-20%	B
-5%~+20%	E
-15%~+5%	C
-15%~-5%	D
0%~+20%	F
0%~+15%	N
-5%~+15%	W
-20%~+0%	S
-20%~+10%	P
0%~+5%	Q
-15%~+20%	u

14

Supplementary Code (Domestic)	
O	Guidewire 30F/35F
F	Guidewire22F/27F
A	Leg-cutting and forming diagram A
B	Leg-cutting and forming diagram B
C	Leg-cutting and forming diagram C
D	Leg-cutting and forming diagram D
E	Leg-cutting and forming diagram E
Q	Lead cutting and 90° bending Figure F, Type A (Right)
P	Lead cutting and 90° bending Figure F, Type B (Left)
X	Leg-cutting and forming diagram G
G	Leg-cut double 90° bend Figure H, Type A (Right)
H	Leg-cut double 90° bend Figure H, Type B (left)
K	Taped Packaging Diagram A
L	Taped Packaging Diagram B
V	SMD
TM	Coating film
CG	Automotive-grade
TJ	transparent
SLYP	Plastic disc
Inclusion Dependency (IND)	
2	Lead 30F/35F
3	Lead 33F/38F
4	Straight Cut (Diagram A)
5	Cut & Form (Diagram B)
6	Cut & Form (Diagram C)
7	Cut & Form (Diagram D)
8	Cut & Form (Diagram E)
9	Lead 22F/27F
M	Taping (Diagram A)
N	Taping (Diagram B)

■ Base plate independent type

1	2	3	4	5	6	7	8	9

series	code
SW3	SW3
CW3	CW3
CW6	CW6
IDC3	IDC3

voltage(V)	code
16	2F
25	2N
35	1N
40	1H
50	2Q
63	1R
68	1C
75	2A
80	1B
100	2R
110	2S
120	1D
125	1X
160	2C
180	1A
200	2D
220	1P
250	2E
300	2K
315	2X
330	2T
350	2V
360	2Z
375	2F
400	2G
410	2B
420	2I
450	2W
475	2Y
500	2H
525	2U
550	2L
600	2M
630	2J

Capacitance (μF)	code
0.1	0R1
1.0	1R0
10	100
100	101
1000	102
10000	103
2200	222
3300	332
4700	472

Capacity range	code
±5%	D
±10%	K
±15%	V
±20%	M
0%~+5%	F
+10%	T
+15%	C
+20%	A

Tape and Reel / Carrier Tape	code
Non-taped	N

Tail post type	code
Column without a tail	N

outer diameter	code
22	22
25	25
28	28
30	30
35	35
40	40
42	42
45	45
50	50

code	length	Terminal Type Code
30	30	S2
40	40	S3
50	50	S4
100	A0	
101	A1	
109	A9	
110	B0	
111	B1	
115	B5	
120	C0	
125	C5	
200	K0	
205	K5	
208	K8	
210	L0	
215	L5	

Code rule: The first two digits plus the number of trailing zeros.

■ Bolt-on type

1	2	3	4	5	6	7	8	9

series	code
EW3	EW3

voltage (V)	code
16	2F
25	2N
35	1N
40	1H
50	2Q
63	1R
68	1C
75	2A
80	1B
100	2R
110	2S
120	1D
125	1X
160	2C
180	1A
200	2D
220	1P
250	2E
300	2K
315	2X
330	2T
350	2V
360	2Z
375	2F
400	2G
410	2B
420	2I
450	2W
475	2Y
500	2H
525	2U
550	2L
600	2M
630	2J

Capacitance (μF)	code
0.1	0R1
1.0	1R0
10	100
100	101
1000	102
2200	222
3300	332
4700	472
5600	562
6800	682
8200	822
10000	103
27000	273
33000	333
330000	334
3300000	335

Capacity range	code
±5%	D
±10%	K
±15%	V
±20%	M
0%~+5%	F
+10%	T
+15%	C
+20%	A

Tape and Reel /Carrier Tape	code
3-pin taped	Y
2-pin taped	I

Tail post type	code
With tail post	M
Without tail post	N

outer diameter	code
51	51
64	64
77	77
90	90
100	A0

code	length	Terminal Type Code
30	30	M5
40	40	M6
50	50	M8
100	A0	
101	A1	
109	A9	
110	B0	
111	B1	
115	B5	
120	C0	
125	C5	
200	K0	
205	K5	
208	K8	
210	L0	
215	L5	

● About Environmentally Friendly Products

Environmental issues are currently receiving widespread international attention; to protect the global environment, our company is actively promoting initiatives to improve environmental performance.
We have addressed the challenge of "lead-free" manufacturing—a key issue in the electronics industry—by carefully selecting materials for electrode terminal plating and outer packaging sleeves, thereby achieving lead-free status for our products.

◆ Our company's corresponding content

1. Electrode terminal plating types

Product Categories		Electrode terminal plating material
Surface-mount type	Standard Model	Sn
	Sleeve type	Sn
Leaded type		Sn
Base plate independent type		Sn
Screw terminal type		No electroplating used

※ Please contact us separately if you require specifications other than the terminal plating materials listed above.

2. Outer packaging sleeve material (measure for achieving lead-free status)

Product Categories		Outer packaging sleeve material
Surface-mount type	Standard Model	PET
引线型	Sleeve type	PET
Base plate independent type		PET
Screw terminal type		PET

※Please contact us separately if you wish to pursue options other than the outer packaging sleeve mentioned above.

◆ Compliant with EU REACH regulations

Our company's products comply with the EU REACH guidelines regarding substances in articles.

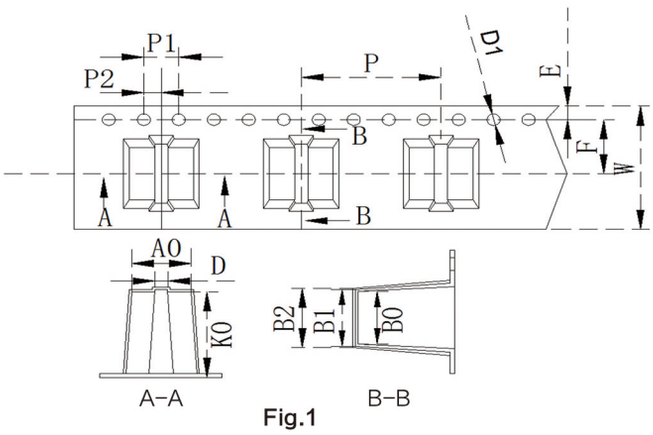


Fig.1

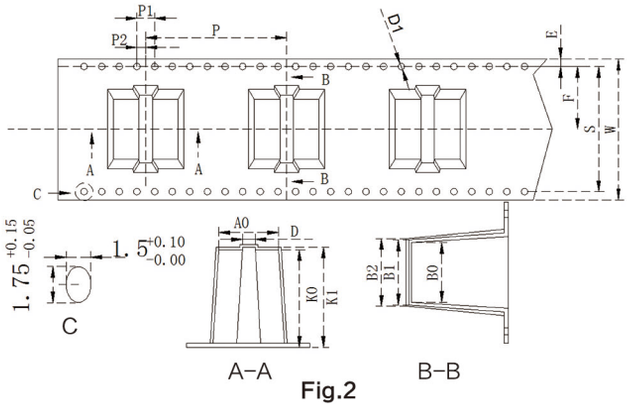


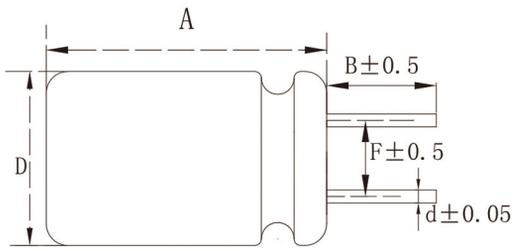
Fig.2

unit:

standard / Product Name	W	A0	B0	B1	B2	D	D1	E	F	K0	K1	P	t	
Φ4×3.95	12	4.6	4.6	5.2	5.9	1.6	1.5	1.75	5.5	4.6	/	8.0	0.4	
Φ4×5.4~5.8	12	4.6	4.6	5.2	5.9	1.6	1.5	1.75	5.5	6.3	/	8.0	0.4	
Φ5×3.95	12	5.7	5.7	6.3	7.1	1.6	1.5	1.75	5.5	4.6	/	12.0	0.4	
Φ5×5.4~5.8	12	5.7	5.7	6.3	7.1	1.6	1.5	1.75	5.5	5.8	/	12.0	0.4	
Φ5×7.7~7.9	16	5.7	5.7	6.3	7.1	1.6	1.5	1.75	7.5	8.3	8.6	12.0	0.4	
Φ5×10	16	5.7	5.7	6.3	7.1	1.6	1.5	1.75	7.5	9.6	9.9	12.0	0.5	
Φ5×12	16	5.7	5.7	6.3	7.1	1.6	1.5	1.75	7.5	11.7	12.0	12.0	0.5	
Φ6.3×3.95	16	7.0	7.0	8.0	8.7	1.6	1.5	1.75	7.5	4.6	/	12.0	0.4	
Φ6.3×5.4~5.8	16	7.0	7.0	8.0	8.7	1.6	1.5	1.75	7.5	5.9	/	12.0	0.4	
Φ6.3×7.7	16	7.0	7.0	8.0	8.7	1.6	1.5	1.75	7.5	8.3	8.6	12.0	0.4	
Φ6.3×7.7No grooving	16	7.0	7.0	8.0	8.7	1.6	1.5	1.75	7.5	8.1	/	12.0	0.4	
Φ6.3×10	16	6.8	6.8	8.1	8.7	1.6	1.5	1.75	7.5	10	10.3	12.0	0.5	
Φ6.3×12	16	6.8	6.8	8.1	8.7	1.6	1.5	1.75	7.5	11.7	12.0	12.0	0.5	FIG.1
Φ8×5.7~6.2	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	7.5	7.2	/	16.0	0.4	
Φ8×7.7~7.9	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	11.5	8.3	8.6	16.0	0.4	
Φ8×10	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	11.5	10.7	11.0	16.0	0.4	
Φ8×11~12.5	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	11.5	12.7	13.0	16.0	0.4	
Φ8×13.5~14.5	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	11.5	13.7	14.0	16.0	0.5	
Φ8×15.5~16.5	24	8.7	8.7	9.9	11.3	2.0	1.5	1.75	11.5	17.2	17.5	16.0	0.5	
Φ8×20.5	32	8.7	8.7	9.9	11.3	2.0	1.5	1.75	14.2	21.2	21.5	24.0	0.5	
Φ10×5.7~6.9	24	10.7	10.7	11.0	13.3	2.0	1.5	1.75	11.5	7.5	/	16.0	0.4	
Φ10×7.7~8.4	24	10.7	10.7	11.9	13.3	2.0	1.5	1.75	11.5	8.7	9.0	16.0	0.4	
Φ10×10	24	10.7	10.7	11.9	13.3	2.0	1.5	1.75	11.5	10.7	11.0	16.0	0.4	
Φ10×13~14.5	24	10.7	10.7	11.9	13.3	2.0	1.5	1.75	11.5	14.7	15.0	16.0	0.5	
Φ10×16~16.5	24	10.7	10.7	11.9	13.3	2.0	1.5	1.75	11.5	16.7	17.0	16.0	0.5	
Φ10×21	32	10.7	10.7	11.9	13.3	2.0	1.5	1.75	14.2	21.2	21.5	24.0	0.5	
Φ12.5×13.5~14.5	32	13.4	13.4	16.0	17.4	2.5	1.5	1.75	14.2	14.2	14.5	24.0	0.4	
Φ12.5×16.5~17	32	13.4	13.4	16.0	17.4	2.5	1.5	1.75	14.2	17.2	17.5	24.0	0.5	
Φ12.5×21	32	13.4	13.4	16.0	17.4	2.5	1.5	1.75	14.2	21.2	21.5	24.0	0.5	
Φ16×16.5~17	44	17.5	17.5	22.1	23.5	2.5	1.5	1.75	20.2	17.2	17.5	28.0	0.5	FIG.2
Φ16×21~21.5	44	17.5	17.5	22.1	23.5	2.5	1.5	1.75	20.2	21.7	22.0	28.0	0.5	
Φ18×16.5~17	44	19.2	19.2	23.0	24.4	3.3	1.5	1.75	20.2	17.2	17.5	32.0	0.5	
Φ18×21~21.5	44	19.2	19.2	23.0	24.4	3.3	1.5	1.75	20.2	21.7	22.0	32.0	0.5	

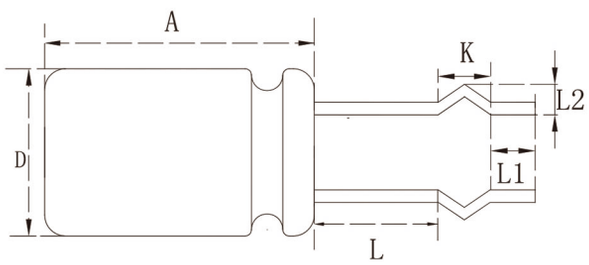
This specification applies to aluminum electrolytic capacitors manufactured by the company that have undergone lead cutting and taping/forming processes, covering technical requirements, acceptance criteria, and inspection specifications.

Lead Trimming Drawing-A



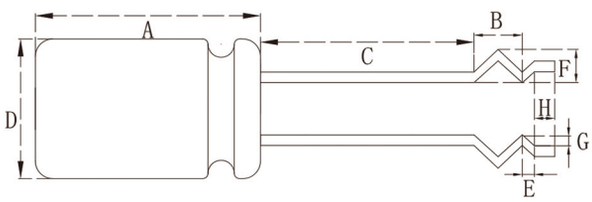
D	5	6.3	8	10	12.5	14.5	16	18	tolerance
B	2.5~10								±0.5
d	0.5		0.6		0.7	0.8			±0.05
F	2.0	2.5	3.5	5.0		7.5			±0.5

Lead Trimming Drawing-B



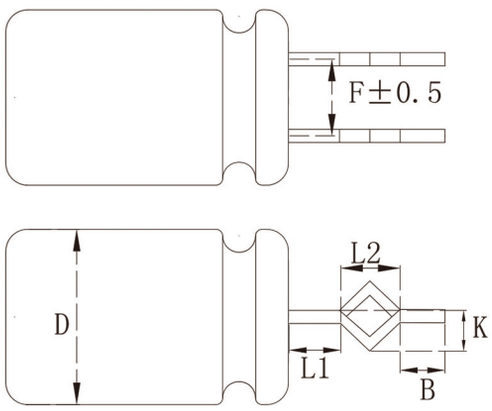
D	A	L±0.5	K±0.5	L2±0.3	L1±0.5	Note
≤Φ14.5	≤25	2.5~22	2.5	1.5	2.5~5.0	Outer K-profile forming

Lead Trimming Drawing-A



D	A	C±0.5	B±0.5	E±0.3	F±0.3	G±0.3	H±0.5	Note
≤Φ14.5	≤25	2.5~22	3.0	1.2	1.8	0.8	2.0~5.0	internal and external K-forming

Lead Trimming Drawing-D

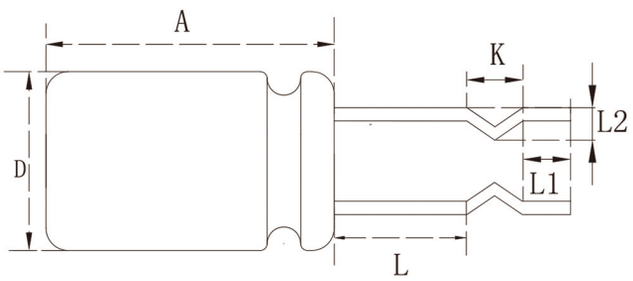


ΦD	8	error
F	3.5	±0.5
L1	2.5~21.0	±0.5
L2	3.5	±0.5
K	1.2	±0.2
B	1.2	±0.5

Cutting and braiding product specifications

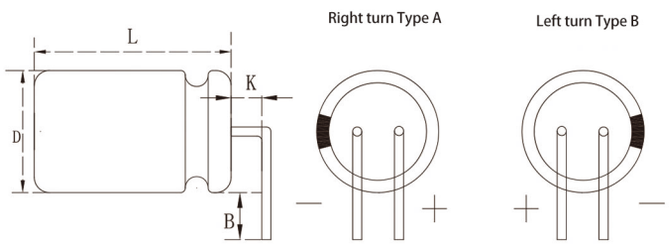
This specification applies to the lead-cutting and tape-forming aluminum electrolytic capacitor products manufactured by our company, including technical requirements, judgment criteria, and acceptance specifications.

Lead cutting and shaping diagram E



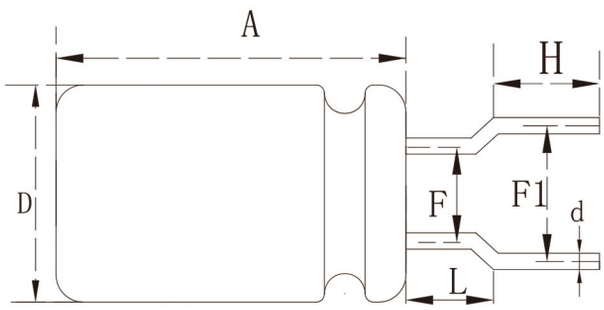
D	A	L±0.5	K±0.5	L2±0.3	L1±0.5	Notes
≤Φ12.5	≤25	2.5~22	2.5	1.5	2.0~5.0	Internal K-forming

Lead wire cutting and forming diagram F (forming bend 90°)



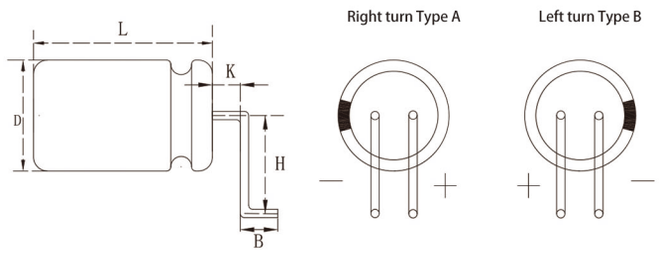
D	Φ5~Φ14.5	Φ16~Φ18	tolerance
K	2.0	2.5	±0.5
B	2.0~10		±0.5
type	Right turn Type A / Left turn Type B		/

Lead cutting and shaping diagram G



D	Φ5			Φ6.3		Φ8	tolerance
d	0.5			0.5		0.6	±0.05
F	2.0			2.5		3.5	±0.5
F1	2.5	3.5	5.0	3.5	5.0	5.0	±0.5
L	2.5			2.5		2.5	±0.5
H	2.0~10						±0.5

Lead wire cutting and forming H diagram (forming double bend 90°)

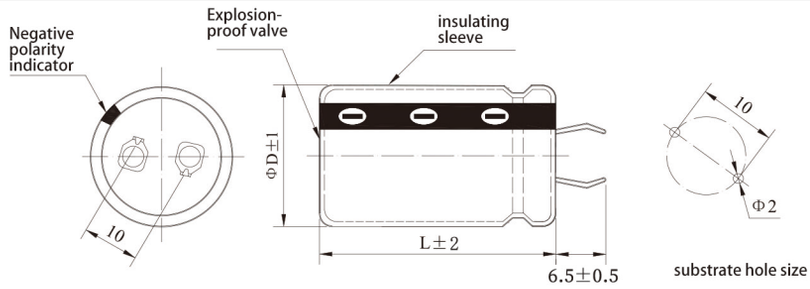


D	Φ5	Φ6.3	Φ8	Φ10	Φ12.5	tolerance
K	2.0	2.0	2.0	2.0	2.0	±0.5
H	7.0	7.0	7.0	7.0	7.0	±0.5
B	2.0~10					±0.5
type	Right turn Type A / Left turn Type B					/

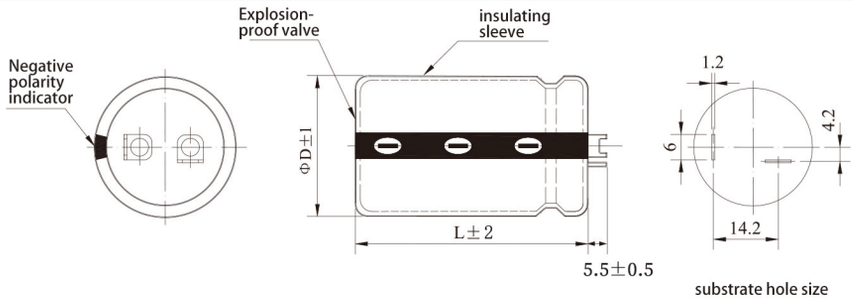
Cutting and braiding product specifications

This specification applies to the lead-cutting and tape-forming products of self-supporting aluminum electrolytic capacitors manufactured by our company, including technical requirements, judgment criteria, and acceptance specifications.

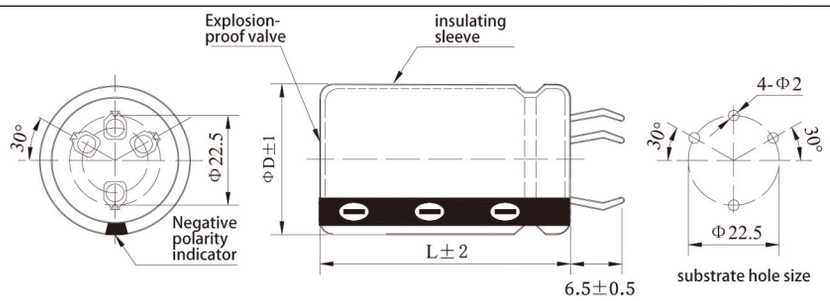
M type (two solder pins, 6.5mm lead-out)
(D=22~50)
N type (two solder pins, 4.0mm lead-out)
(D=22~50)



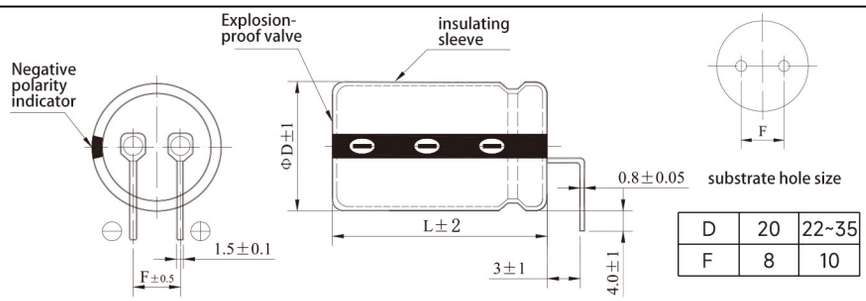
T-type (please specify when ordering)
(D=30~50)



S-type (please specify when ordering)
(D=30~50) The mounting feet are for fixing and should be insulated from other circuits.

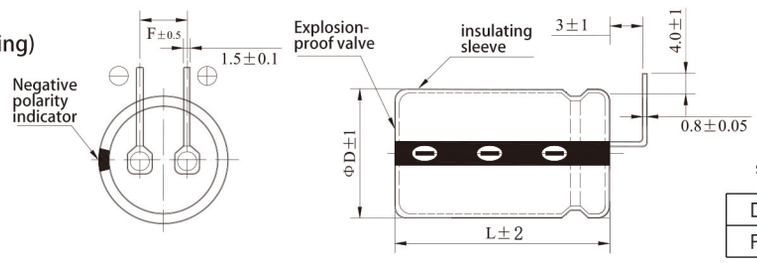


Type R (please specify when ordering)
(D=22~50)



D	20	22~35
F	8	10

L-type (please specify when ordering)
(D=22~50)

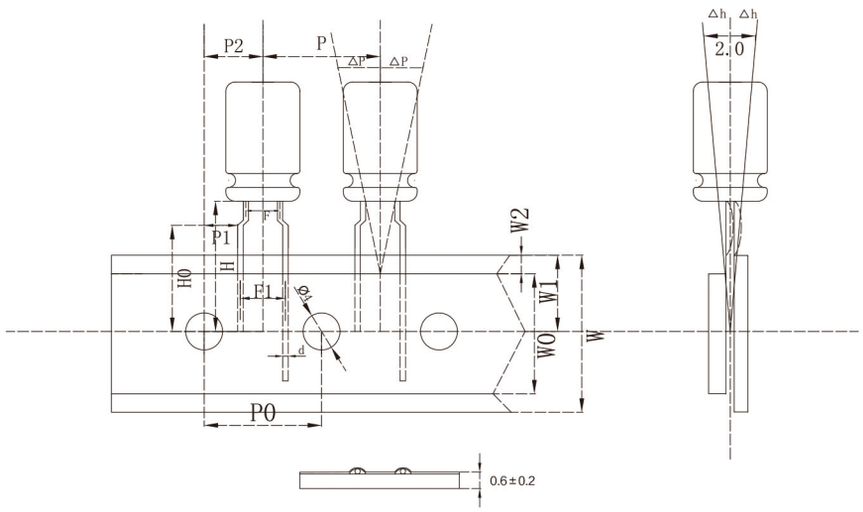


D	20	22~35
F	8	10

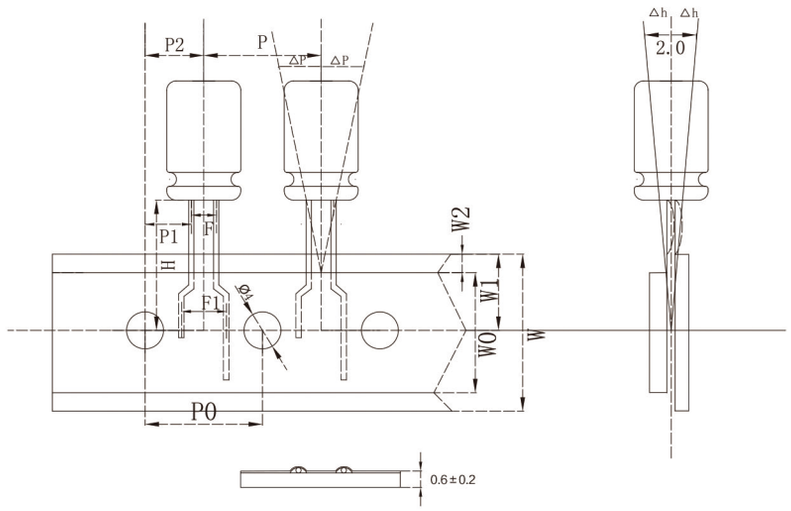
Cutting and braiding product specifications

This specification applies to the lead-cutting and tape-forming aluminum electrolytic capacitor products manufactured by our company, including technical requirements, judgment criteria, and acceptance specifications.

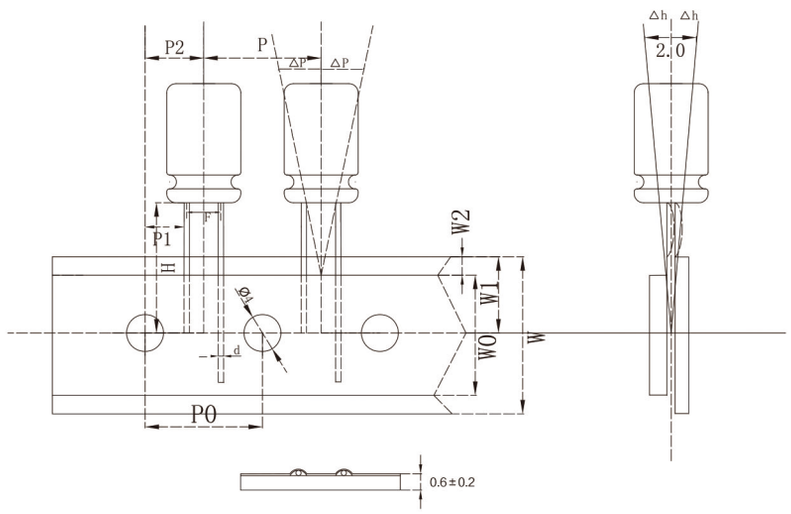
Braided tape external dimensions diagram A



Braided tape external dimensions diagram B



Φ4－Φ8

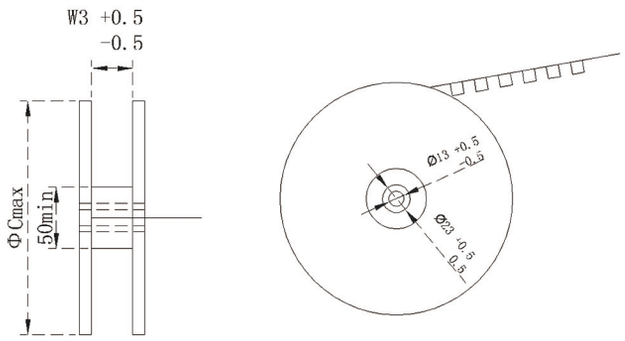


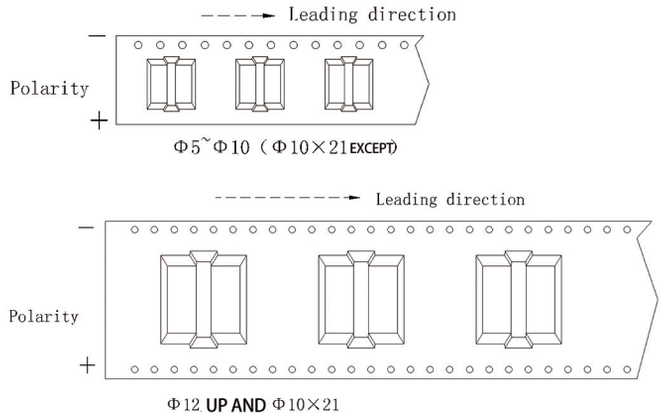
Φ10－Φ12.5

Tape and reel specifications

PROJECT	MARK	Φ3.55/Φ4		Φ5				Φ6.3/Φ7			Φ8		Φ10	Φ12.5	Φ13	ALLOWABLE DIFFERENCE
LEAD WIRE PROCESSING MARKINGS		U7	T8	U1	U4	U5	T1	U2	U6	T2	U3	T3	T4	T5		
SHAPE AND DIMENSION DIAGRAM		IMGA	IMGB	IMGA	IMGA	IMGA	IMGB	IMGA	IMGA	IMGB	IMGA	IMGB	IMGB	IMGB		
LEAD WIRE DIAMETER	Φd	0.45		0.5							0.5/0.6		0.6			±0.05
MAIN BODY SPACING	P	12.7												15		±1.0
PERFORATION SPACING	P0	12.7												15		±0.2
PERFORATION AND LEAD WIRE SPACING	P1	5.1	5.6	3.85	5.1	4.6	5.35	3.85	4.6	5.1	3.85	4.6	3.85	5.0		±0.7
PERFORATION AND MAIN BODY SPACING	P2	6.35												7.5		±1.0
LEAD WIRE SPACING	F1	2.5	5.0	5.0	2.5	3.5	5.0	5.0	3.5	5.0	5.0	5.0	5.0			+0.8~-0.2
LEAD WIRE SPACING	F	1.5		2.0				2.5			3.5		5.0			±0.5
BACKING PAPER WIDTH	W	18.0														±0.3
TAPE WIDTH	W0	12.5														MIN
PERFORATION AND BACKING PAPER SPACING	W1	9.0														±0.5
TAPE AND BACKING PAPER SPACING	W2	2.0~3.0									0.5~2.0					/
LOWER BODY POSITION	H	18.5														±0.75
LEAD WIRE BENDING HEIGHT	H0	16	--	16			--	16		--	16	--				±0.5
PERFORATION DIAMETER	ΦD0	4.0														±0.3
MAIN BODY TILT ANGLE	Δh	1.0														MAX
MAIN BODY TILT ANGLE	Δp	1.0														MAX
TOTAL BRAIDING THICKNESS	t	0.6														±0.2
PACKAGING QUANTITY		3000		2100				1700			1000		672	440	420	

Packaging Quantity Table





size	W3 (mm)	ΦC (mm)	Material tray / (pcs)	Inner box		Outer box	
				Number of trays (pieces)	Maximum packaging quantity: pcs/box	Number of inner boxes (pieces)	Maximum packaging quantity: pcs/box
Φ4×3.95	14	382	2500	8	20000	3	60000
Φ4×5.4~5.8	14	382	2000	8	16000	3	48000
Φ5×3.95	14	382	1500	8	12000	3	36000
Φ5×5.4~5.8	14	382	1200	8	9600	3	28800
Φ5×7.7~7.9	18	382	900	6	5400	3	16200
Φ5×10	18	382	700	6	4200	3	12600
Φ5×12	18	382	500	6	3000	3	9000
Φ6.3×3.95	18	382	1500	6	9000	3	27000
Φ6.3×5.4~5.8	18	382	1200	6	7200	3	21600
Φ6.3×7.7	18	382	900	6	5400	3	16200
Φ6.3×10	18	382	700	6	4200	3	12600
Φ6.3×12	18	382	500	6	3000	3	9000
Φ8×5.7~6.2	26	382	800	5	4000	3	12000
Φ8×7.7~7.9	26	382	600	5	3000	3	9000
Φ8×10	26	382	500	5	2500	3	7500
Φ8×12.5	26	382	400	5	2000	3	6000
Φ8×13.5	26	382	400	5	2000	3	6000
Φ8×14.5	26	382	350	5	1750	3	5250
Φ8×16.5	26	382	350	5	1750	3	5250
Φ8×20.5	26	382	175	5	875	3	2625
Φ10×5.7~6.9	26	382	800	5	4000	3	12000
Φ10×7.7~8.4	26	382	600	5	3000	3	9000
Φ10×10	26	382	500	5	2500	3	7500
Φ10×12~13.5	26	382	400	5	2000	3	6000
Φ10×14.5	26	382	350	5	1750	3	5250
Φ10×16.5(17)	26	382	350	5	1750	3	5250
Φ10×21	34	382	175	4	700	3	2100
Φ12.5×13.5(14)	34	382	250	4	1000	3	3000
Φ12.5×16.5(17)	34	382	200	4	800	3	2400
Φ12.5×21	34	382	175	4	700	3	2100
Φ16×16.5	46	382	150	3	450	3	1350
Φ16×21.5(21)	46	382	120	3	360	3	1080
Φ18×16.5	46	382	150	3	450	3	1350
Φ18×21.5(21)	46	382	120	3	360	3	1080

Diameter <16mm, Height <30mm

① Packaging quantity of products other than KC*

Product Type	Long lead wires and products with clipped leads 5.0mm and above.				Lead wire processed products							
					Cut feet below 5.0				Bending type			
project / diameter	high	Bagged	Boxed	boxed	high	Bagged	Boxed	boxed	Diameter/ Height	Bagged	Boxed	boxed
4	7~12	1000	10000	60000		1000	18000	72000	Diameter 4	1000	10000	60000
5	7~12	1000	6000	36000	7~9	1000	12000	48000	7~12	1000	6000	36000
	14~16	1000	6000	24000	10~12	1000	10000	40000	14~16	1000	6000	24000
6.3~7	7~8	1000	8000	32000	7~9	1000	8000	32000	7~9	1000	8000	32000
	9~14	1000	4000	24000	10~14	1000	6000	24000	10~14	1000	5000	20000
	15~17	1000	5000	20000	15	1000	5000	20000	15	1000	5000	20000
	18~20	750	3750	15000	20	750	3750	15000	20	750	3750	15000
8	7	500	6000	24000	5~9	500	5000	20000	7	500	6000	24000
	9~10	500	5000	20000	10~13	500	4000	16000	9~10	500	5000	20000
	11~12	500	4000	16000	14~16	500	3000	12000	11~12	500	4000	16000
	13	500	4000	16000	21~25	500	2000	8000	13	500	4000	16000
	14~18	500	3000	12000					14~18	500	3000	12000
	19~23	500	2500	10000					19~23	500	2500	10000
	24~27	400	1600	6400					24~25	400	1600	6400
10	7~12.5	500	3000	12000	7~11	500	3000	12000	7~14	350	2800	11200
	13~14	500	2500	10000	12~14	500	2500	10000	15~25	250	2000	8000
	15~18	500	2000	8000	15~18	500	2000	8000	27	250	1000	6000
	19~22	250	1750	7000	19~25	250	1500	6000				
	23~27	250	1000	6000								
12.5	12~13	200	1200	7200	12~17	200	1600	6400	12~17	200	1600	6400
	14~15	150	1200	7200	18~22	175	1400	5600	18~22	175	1400	5600
	16~17	125	1000	6000	23~25	125	1000	4000	23~25	125	1000	4000
	18~22	100	800	4800								
	23~27	100	800	3200								
14.5	16	100	800	3200	16~23	216	216	2160	16~23	216		2160
	20~27	60	120	960	25~27	198	198	1584	25~27	198	198	1584

Braided items		
diameter	Boxed	boxed
4	2500	25000
5	2100	21000
6.3	1700	17000
7	1400	14000
8	1000	10000
Height of 8*20 or above	1000	8000
Height below 10*17	672	6720
10*20~25 height	672	5376
12.5*12~16	440	4400
12.5*20~25	440	3520
13*12~16	420	3360
13*20~25	420	3360

② Packaging quantity of KC* products

KC* Products: Standard Packaging Quantity for 90-Degree Forming and Bending

External dimensions	PCS/bag	bag/each small box	box/each large carton	PCS/per large box
6.3*9~14	1000	8000	4	32000
6.3*14~15	750	6000	4	24000
6.3*20	500	4000	4	16000
7*15~20	500	4000	4	16000
8*14及以下	500	4000	4	16000
8*15~20	350	2800	4	11200
8*21~25	250	2000	4	8000
10*7~14	350	2800	4	11200
10*15~25	250	2000	4	8000
12.5*10~25	150	1200	4	4800

KC* products: Packaging quantity standard for trimmed tips less than 5mm

External dimensions	PCS/bag	bag/each small box	box/each large carton	PCS/per large box
6.3*7~10	1000	8000	4	32000
6.3*11~13	1000	7000	4	28000
6.3*15~17	1000	5000	4	20000
6.3*18~19	750	4500	4	18000
6.3*20	750	3750	4	15000
7*11	1000	5000	4	20000
7*15~20	500	3000	4	12000
8*10~13	500	4000	6	24000
8*14	500	3000	6	24000
8*15~16	500	4000	4	16000
8*17~20	350	2800	4	11200
8*21~25	250	2000	4	8000
10*7~11	500	3000	4	12000
10*12~14	500	2500	4	10000
10*15~18	500	2000	4	8000
10*19	250	1500	4	6000
12.5*12.5~19	200	1600	4	6400
12.5*20~25	150	1200	4	4800

KC* Products: Packaging quantity standards for products with long legs and those with more than 5mm of trimmed legs.

External dimensions	PCS/bag	bag/each small box	box/each large carton	PCS/per large box
6.3*7~9	1000	8000	4	32000
6.3*10~14	1000	4000	6	24000
6.3*15~19	1000	5000	4	20000
6.3*20	750	3750	4	15000
7*15~20	500	3000	4	12000
8*10~12	500	5000	4	20000
8*13	500	4000	4	16000
8*14~18	500	3000	4	12000
8*19~23	500	2500	4	10000
8*24~25	400	1600	4	6400
10*7~12.5	500	3000	4	12000
10*13~14	500	2500	4	10000
10*15~18	500	2000	4	8000
10*19~21	250	1750	4	7000
10*22~25	250	1000	6	6000
12.5*12.5~15	200	1200	6	7200
12.5*16~17	125	1000	6	6000
12.5*18~20	100	800	6	4800
12.5*21~25	100	800	4	3200

8mm ⩽ Diameter < 16mm, Height ⩾ 30mm
Diameter ⩾ 16mm, Full Height

Product Type	φ8~φ10 standard products and lead-wire processed products			
diameter	high	Bagged	Boxed	boxed
8	30~35	350	1400	5600
	40~45	300	1200	4800
	50	250	1000	4000
10	30	150	1200	4800
	35	150	900	3600
	40~45	150	750	3000
	50~60	150	600	2400

Product Type	Special long-legged horizontal display box		
diameter	high	Boxed	Boxed
8	50	392	2352
10	50	234	1872
12.5	30	303	1818
	35	264	1584
	40	228	1368
	45 ~ 50	189	1134
16	60	80	640
18	60	72	576

Product Type	φ12.5~18, Height 16~50, standard product vertical box packaging quantity		
diameter	high	Boxed	boxed
12.5	30 ~ 50	280	1120
13	30 ~ 50	266	1064
14.5	30 ~ 50	204	816
16	16 ~ 25	176	1056
	30 ~ 50	176	704
18	16 ~ 25	140	840
	30 ~ 50	140	560
20	16 ~ 25	114	684
	30 ~ 51	114	456
22	20 ~ 25	93	558
	30 ~ 51	93	372
25	20 ~ 25	70	420
	30 ~ 51	70	280

Product Type	Products with φ10 and above cut feet and products bent at 90° are placed vertically in boxes.		
diameter	Boxed	boxed	Remark
16	176	1760	Product body height + cut-off length ⩽ 25mm
18	140	1400	
20	114	1140	
10	408	3264	40mm ⩾ Product body height + cut-off length > 25mm
12.5	280	2240	
13	266	1596	
16	176	1408	
18	140	1120	
20	104	832	
22	93	744	
25	70	560	
10	408	2448	55mm ⩾ Product body height + cut-off length > 40mm
12.5	280	1680	
13	266	1596	
16	176	1056	
18	140	840	
20	104	624	
22	93	558	
25	70	420	

Notes:

1. The packaging quantity for all bent products is calculated based on a cut-off length of 4.5mm;

2. When the product body height + cut-off length > 55mm, all products will be packaged according to the standard horizontal box arrangement;

3. φ12.5 and above: Cut-off products and 90-degree bent products must be boxed; φ10: Cut-off products and 90-degree bent products... If a special customer requires boxing, then boxing is required; otherwise, boxing is not required; all products will be packaged according to the corresponding standard packaging method.

■ Quantity of self-standing aluminum electrolytic capacitors packaged on substrate

Product Dimensions		Inner box			Minimum number of packages
diameter	high	Quantity per layer	Total number of floors	Number of boxes	
Φ22	20~30	135	3	2	810
	35~55	135	2	2	540
	60~100	135	1	2	270
Φ25	20~30	104	3	2	624
	35~55	104	2	2	416
	60~100	104	1	2	208
Φ30	20~30	72	3	2	432
	35~55	72	2	2	288
	60~100	72	1	2	144
Φ35	20~30	50	3	2	300
	35~55	50	2	2	200
	60~100	50	1	2	100
Φ40	25~30	40	3	2	240
	35~55	40	2	2	160
	60~100	40	1	2	80

■ Quantity of bolt-type aluminum electrolytic capacitors in packaging

diameter	high	Minimum number of packages	Minimum Order Quantity
Φ51	80~130	40	80
Φ64	80~130	24	48
Φ77	80~240	15	30
Φ90	80~240	12	36
Φ100	80~240	4	16

Important Notes:

1) Verification of operating environment, installation environment, and rated performance

• Please verify that the operating and installation environments comply with the capacitor's catalog and specifications.

2) Operating temperature, ripple current, and service life

• Please operate within the temperature and ripple current ranges specified in the catalog and specifications.

① Do not operate at high temperatures (exceeding the maximum operating temperature).

② Do not allow excessive current (exceeding the rated ripple current) to flow through the capacitor.

• Capacitor service life can be estimated using a calculation formula based on accelerated test results. However, as the estimated life involves a margin of error, it cannot be treated as a guaranteed value. Please use the estimated result as a reference when selecting a capacitor with sufficient service life. Please consult us regarding life estimation methods; also, contact us if the ripple voltage fluctuation range exceeds 70 Vp-p.

3) Circuit application

• Capacitors are polarity-sensitive. Do not apply reverse voltage or AC voltage. For circuits where polarity reversal occurs, please select a bipolar capacitor. However, bipolar capacitors cannot be used in AC circuits.

• Do not use capacitors in circuits involving rapid, repetitive charge-discharge cycles. Please consult us regarding capacitors for use in such circuits.

• If the product has been stored for an extended period (over 12 months), it must be recharged before use.

4) Applied voltage

• Do not apply overvoltage (voltage exceeding the rated working voltage) to the capacitor.

5) Capacitor insulation

• Please ensure complete electrical isolation between the capacitor and the circuit in the following cases:

① Between the aluminum case and the negative terminal, positive terminal, or circuit wiring.

② Between the dummy terminals (used for structural reinforcement) of snap-in type capacitors and the positive terminal, negative terminal, or circuit wiring.

• The capacitor's outer sleeve does not guarantee electrical insulation. Do not use it in applications requiring insulation.

6) Operating environment restrictions

• Do not use the capacitor in the following environments:

① Environments exposed to direct splashing of water, salt water, or oil, or environments subject to condensation. ② Environments filled with harmful gases (hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, bromine, etc.).

③ Environments exposed to ozone, ultraviolet rays, or radiation.

④ Harsh environments where vibration or shock conditions exceed the limits specified in the product catalog or specifications.

⑤ Do not reuse capacitors that have been assembled onto equipment and previously energized; capacitors removed solely for the purpose of checking electrical characteristics during periodic maintenance are the only exception.

7) Design of the installation environment

• When mounting capacitors onto a printed circuit board (PCB), verify the following points before proceeding with the design:

① Ensure that the capacitor terminal spacing matches the hole spacing on the PCB.

② Do not route wiring or circuit board traces over the capacitor's pressure relief vent.

③ Please leave a certain amount of clearance at the pressure relief vent of the capacitor, in accordance with the product catalog or specifications.

Product Diameter	Spacing
Φ4 – Φ16 mm	2 mm or more
Φ18 – Φ25 mm	3 mm or more

④ If the pressure relief vent of an aluminum electrolytic capacitor faces the printed circuit board (PCB), provide a vent hole in the PCB directly opposite the vent.
⑤ Do not place heat-generating components near the capacitor or on the opposite side of the PCB (directly beneath the capacitor).

8) Pre-installation information

Do not reuse capacitors that have already been assembled into equipment and energized. Capacitors removed solely for electrical characteristic testing during periodic maintenance are the only exception.

- Capacitors may develop a recovery voltage. In such cases, discharge the capacitor using a resistor of approximately 1 kΩ.
- Leakage current may increase in capacitors stored for long periods. In such cases, apply voltage through a 1 kΩ resistor to restore characteristics.

8-1) During installation - 1

- Verify the capacitor's ratings (capacitance and voltage) before installation.
- Verify the capacitor's polarity before installation.
- Do not drop the capacitor. Do not use a capacitor that has been dropped.
- Do not deform the capacitor during installation.

8-2) During installation - 2

- Ensure the capacitor's terminal spacing matches the PCB hole spacing before installation.
- Do not apply excessive force when using an automatic insertion machine to bend leads and secure the capacitor to the PCB.
- Be mindful of impact forces caused by automatic insertion or assembly equipment, such as vacuum nozzles, testers, and alignment mechanisms.
- If the assembly is subject to vibration or shock, use auxiliary tools or adhesives to reinforce the capacitor's mounting stability.

9) Storage conditions

- Do not store capacitors in high-temperature or high-humidity environments. Store indoors at temperatures between 5° C and 35° C and relative humidity below 75%.
- Do not store capacitors in environments where they may come into direct contact with water, salt water, or oil.
- Do not store capacitors in environments containing harmful gases (e.g., hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, bromine). • Do not store capacitors in environments exposed to ozone, ultraviolet (UV) radiation, or ionizing radiation.

10) Cleaning of Printed Circuit Boards (PCBs)

- Do not use halogenated solvents to clean capacitors. If cleaning is necessary, use cleaning-resistant capacitors and ensure usage remains within the limits specified in the product catalog or delivery specifications.
- When cleaning cleaning-resistant capacitors, strictly monitor the cleaning agent for contamination (e.g., conductivity, pH value, specific gravity, water content).
- After cleaning, do not store cleaning-resistant capacitors in an environment containing cleaning fluid residues or in a sealed container.

Additionally, thoroughly dry the PCB and capacitors using hot air after cleaning. Ensure the hot air temperature remains below the maximum operating temperature.

11) Fixing Agents and Coating Agents

- Do not use fixing agents or coating agents that contain halogenated solvents.
- Before applying fixing agents or coating agents, clean the area between the PCB and the capacitor seal to ensure no flux residue or contaminants remain.
- Ensure any cleaning agents remaining on the capacitor are fully dried before applying fixing agents or coating agents.
- Do not completely seal off the capacitor's sealing area when applying fixing agents or coating agents.

12) Soldering Iron

- Soldering conditions (temperature, duration) must not exceed the limits specified in the product catalog or delivery specifications.
- If terminal spacing does not match the PCB hole spacing and adjustment is required before soldering, ensure no stress is applied to the capacitor body.
- When performing manual rework with a soldering iron, ensure the solder is fully melted before removing the iron to avoid applying stress to the capacitor terminals.
- Do not allow the tip of the soldering iron to touch the capacitor body.

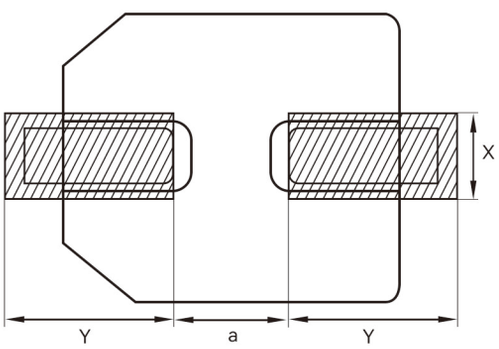
13) Wave Soldering

- Do not immerse the capacitor body in molten solder during the soldering process. Use the PCB as a barrier and solder only the side of the board opposite the capacitor.
- Soldering conditions (preheating, soldering temperature, terminal immersion time) must not exceed the limits specified in the product catalog or delivery specifications.
- Do not allow flux to adhere to any part of the capacitor other than the terminals.
- During soldering, take care to prevent other components from tipping over and contacting the capacitor.

14) Reflow Soldering

- Soldering conditions (preheating, soldering temperature, duration, number of reflow cycles) must not exceed the limits specified in the product catalog or delivery specifications.
- When using infrared heaters, note that infrared absorption rates vary depending on the capacitor's color and material; monitor the heating temperature carefully.
- Please contact us if reflow soldering conditions outside the specified limits are required.

15) Recommended SMD Land Pattern Dimensions



Unit: mm

Reference standard			
Product diameter	X±0.10	Y±0.10	a±0.10
Φ4	1.60	2.60	1.00
Φ5	1.60	3.00	1.40
Φ6.3	1.60	3.50	1.90
Φ8	2.20	4.20	3.10
Φ10	2.30	4.40	4.00
Φ12.5	2.50	5.70	4.00
Φ16	2.50	6.90	6.00
Φ18	2.50	7.90	6.00

16) Disposal

- If the capacitor comes into contact with water, saline solution, oil, or other conductive liquids, condensation may occur, potentially leading to malfunction. Contact of oil with the sealing rubber or pressure relief vent can compromise airtightness. Please ensure the operating environment remains dry and clean. Do not use the capacitor if it has been submerged in contaminated water, such as rainwater.
- Do not store or use the capacitor in environments containing harmful gases—such as hydrogen sulfide, nitrous acid, sulfurous acid, chlorine, bromine, or ammonia—as the infiltration of these gases can cause corrosion.

- Do not place capacitors in locations exposed to ozone, ultraviolet (UV) radiation, or other forms of radiation.
- Dust accumulation on capacitor terminals can absorb moisture, potentially leading to terminal corrosion.

If significant dust buildup is observed between terminals, disconnect the power and—after ensuring the capacitor is fully discharged—gently wipe the terminals with a paper or cloth dampened with water or ethanol. Do not use chemical cleaning agents.

- Do not use capacitors in environments subject to excessive vibration or mechanical shock.

17) Critical Precautions

Subjecting aluminum electrolytic capacitors to the following conditions will cause rapid deterioration of their characteristics:

- Reverse voltage
- Voltage exceeding the rated value
- Ripple current exceeding the rated value
- Rapid charge/discharge cycles

Under these conditions, the capacitor may generate excessive heat and internal pressure may rise, causing the pressure relief vent to open and resulting in the venting of internal gas or electrolyte leakage.
In some instances, capacitor failure may be accompanied by the ejection of combustible materials, potentially leading to explosion or fire.

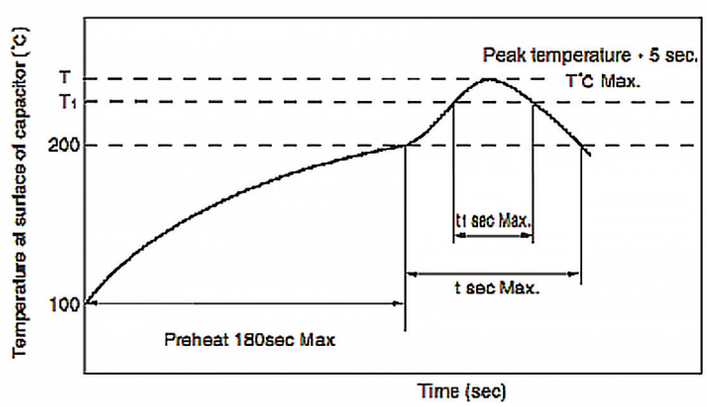
18) When using surface-mount aluminum electrolytic capacitors, the following conditions must be met:
Permissible conditions for lead-free reflow soldering
For capacitors with case sizes of Φ4 to Φ10 mm:

- The capacitor surface temperature must remain below T° C.
- The duration for which the capacitor surface temperature exceeds 200° C must not exceed t seconds. The duration for which it exceeds T1° C must not exceed t1 seconds.
- Preheating must be controlled within the range of 100° C to 200° C for a maximum of 180 seconds.

Product Category	Product Dimensions	T(℃)①	T1(℃)	t(sec)②	t1(sec)③	Number of reflow cycles
Liquid-type Surface-mount aluminum electrolytic capacitor	Φ4~Φ6.3	250	230	90	40	2
	Φ8	240	230	90	30	2
	Φ10	235	230	60	30	2

① Peak temperature
② Time above 200° C (MAX)
③ Time above T1 (MAX)

Temperature profile standards vary depending on the reflow method.
Reflow soldering may be performed up to two times; however, sufficient cooling time must be allowed between the first and second passes.
Please contact us if conditions exceed the specified limits.



• Conditions for lead-free reflow soldering
Aluminum case size: Φ12.5 mm – 18 mm
• Capacitor surface temperature must remain below T° C.
• Duration with surface temperature above 200° C must not exceed t seconds; duration above T1° C must not exceed t1 seconds.
• Preheat: 100° C – 200° C within 150 seconds.

Product Dimensions	T(℃)①	T1(℃)	t(sec)②	t1(sec)	Number of reflow cycles
Φ12.5~Φ18	240	230	60	30	2

• Vibration-resistant products with auxiliary terminals
For surface-mount capacitors with a case size of Φ8 or larger.
• If soldering errors occur, perform manual re-soldering. Set the soldering iron tip temperature to 380 ± 10° C and solder the capacitor for 3 ± 0.5 seconds.
18) Requirements for using screw-terminal products (failure to adhere to specified conditions may result in serious accidents such as explosions or fires)
• Regarding operating temperature and ripple current:
• Ensure that operating and storage environments comply with the capacitor usage specifications outlined in the product manual.
• Select capacitors based on maximum load conditions regarding operating temperature and ripple current ranges. Excessive current flowing through the capacitor can cause abnormal heating, short circuits, fires, or other serious accidents.
• Capacitors generate heat during operation; be aware that they can raise the internal temperature of the equipment. Verify the ambient temperature around the capacitor to ensure proper equipment operation.
• Permissible ripple current decreases as the ambient temperature (temperature surrounding the capacitor) rises. Select the permissible ripple current based on the anticipated maximum ambient temperature.
• Capacitor characteristics change with frequency variations; determine the operating frequency before selecting a capacitor. Note that at low frequencies, impedance increases for capacitors of the same rating, potentially generating significant heat.
• Regarding applied voltage and other operating conditions:
• Generally, capacitors are polarized. Applying reverse voltage or AC voltage can lead to serious accidents such as short circuits or fires. For AC applications, select capacitors specifically designed for AC use.
• Use bipolar capacitors in circuits where polarity reversal occurs; however, do not use them in AC circuits.
• Do not apply voltage exceeding the rated voltage. If an AC component is superimposed on a DC voltage, ensure the peak value does not exceed the rated voltage. Excessive voltage can cause serious accidents such as short circuits or fires.
• Specifications for surge voltage exist, but they are subject to specific conditions and do not guarantee long-term operation. Do not apply voltage exceeding the rated voltage, even for a short period; select capacitors according to the requirements.
• When connecting multiple capacitors in parallel, give full consideration to wiring impedance. Ensure that wiring impedance and capacitor polarity are aligned correctly.
• When connecting multiple capacitors directly, use capacitors of the same specifications. Connect voltage-balancing resistors in parallel. Design the circuit so that equal voltage is applied to all capacitors, and ensure that the voltage across any single capacitor does not exceed its rated voltage.
• Select capacitors that match the expected service life of the equipment. If aluminum electrolytic capacitors are used beyond their service life, failures such as short circuits may occur; therefore, perform regular inspections and replace them in a timely manner.

• Avoid rapid, repetitive charge-discharge cycles. When the application involves processes like welding, use capacitors specifically designed for such purposes. Control circuits for rotating equipment (e.g., servo motors) also involve repetitive charging and discharging; consult the manufacturer before selecting a capacitor for these applications.
• Even without rapid discharge, continuous large voltage fluctuations—such as those found in commercial power supplies operating in harsh environments, voltage-doubler rectifier circuits, or filtering applications with continuous voltage swings—can lead to degraded lifespan characteristics or premature failure. Carefully verify operating conditions and select a capacitor specifically suited for the application.
• Pre-installation Information
• Confirm the capacitor specifications and install it within the limits defined by those specifications.
• Ensure correct polarity during connection. Do not use the capacitor if reverse voltage has been applied, even if there are no visible defects; doing so can result in catastrophic failure.
• Impacts (such as dropping the unit) can impair electrical performance; avoid subjecting the capacitor to physical shock and inspect the packaging for damage before use.
• Take care not to deform the capacitor during installation. Deformation can lead to serious issues such as electrolyte leakage or short circuits.
• Do not reuse capacitors that have been energized as part of a group test or those used for periodic electrical performance testing.
• Installation Method
• Do not route circuit traces or patterns near the pressure relief vent. If the vent activates, expelled electrolyte could cause short circuits or fires.
• Do not place heat-generating components near the capacitor. Localized high temperatures (e.g., from radiant heat) can significantly shorten the capacitor's lifespan. Additionally, if the temperature of the mounting board exceeds the internal temperature of the capacitor, it can impede internal heat dissipation, also drastically reducing lifespan; verify temperature distribution during equipment design.
• Ensure the pressure relief vent functions correctly. Leave a clearance of at least 5 mm above the vent. If the escaping gas is obstructed when the vent activates, the resulting rise in internal pressure could lead to serious accidents, such as explosion or fire. • Screw-terminal type capacitors
• If a capacitor must be mounted horizontally, position it so that the positive terminal faces sideways. If the positive terminal is positioned lower than the negative terminal, internal corrosion may occur over time. Failure to observe this may also result in leakage of the mixture (core fixing material) from the pressure relief vent.
• Screw-terminal type capacitors should be mounted with the pressure relief vent (cap end) facing downward.
• Recommended torque and permissible current (maximum allowable current) for screw-terminal type capacitors are as follows: (Note: Please consult us in advance if the capacitor is to be used in equipment subject to high vibration.)

terminal	Recommended torque (N • m) • m	Terminal Current Rating (A)
M5	2.2(1.5~3.0)	60
M6	3.5(3.0~4.0)	100
M8	7.5(7.0~8.0)	120

• For terminal-bolt types (M5 terminal with 13mm/10mm diameter, M6 terminal with 17mm diameter), the wiring thickness should ideally be 2mm or less.
If the thickness exceeds 2mm, a longer screw must be used; improper contact area due to screw fastening can lead to malfunctions caused by overheating.
• Incomplete or slanted screw fastening can cause serious issues such as localized overheating or fire; ensure the screw is inserted straight and fully tightened.

• For M5 terminals, the recommended washer hole diameter is Φ6 mm; an excessively large hole can lead to poor contact between the terminal surface and the washer, potentially causing localized overheating, fire, or other serious failures.
• Do not apply pressure (such as squeezing with mounting hardware) to the lead-out area (the seal between the aluminum case and the cap).
• Operating Environment
• Storage
• Store indoors at temperatures between 5° C and 35° C and humidity below 75% RH (at 25° C), avoiding direct sunlight. The maximum storage period is 3 years.
If stored longer than 3 years, the risk of leakage current increases; voltage treatment (re-aging) may be required.
If the storage period exceeds 5 years, replace the capacitor with a new one.
• If storage conditions exceed the specified temperature or humidity limits, ensure the environment is brought within the specified operating range.
• Keep the capacitor in its original packaging whenever possible.
• Even after a single discharge, charge may regenerate due to the dielectric absorption (recovery voltage) phenomenon. Do not touch the terminals with bare hands, as there is a risk of electric shock.
Fully discharge the capacitor using a resistor (approx. 1 kΩ) or a discharge tool before use.
• Trial Operation
• Do not touch the terminals directly, as there is a risk of electric shock.
• Ensure no conductive materials come into contact with the terminals to prevent short circuits.
• Do not allow conductive solutions, such as acids or alkalis, to come into contact with the capacitor.
• Verify that the operating environment complies with the specifications defined in the design documentation.
• Maintenance and Inspection
• Capacitors used in industrial equipment require periodic inspection.
Inspection items:
(1) Appearance: Check the status of the pressure relief vent (e.g., obvious bulging due to vent activation) and look for visible abnormalities such as electrolyte leakage.
(2) Electrical performance: Capacitance, dissipation factor (tan δ), leakage current, and other parameters specified in the catalog. Electrical measurements should be performed at a standard temperature of 20° C.
Allow the capacitor to stabilize at 20° C until the internal temperature reaches equilibrium before measuring.
Evaluate whether the capacitor remains suitable for use. Perform maintenance and inspection only after the power is turned off and the capacitor is fully discharged.
• Replace all capacitors that have exceeded their shelf life. Mixing old and new capacitors in the same circuit can cause uneven current distribution. Uneven voltage distribution can lead to valve
actuation, short circuits, etc.
• In an emergency:
• If a gas leak occurs during installation, immediately turn off the main switch or unplug the power cord.
• If the capacitor's pressure relief valve actuates, high-temperature gas will be expelled if the temperature exceeds 100° C. Avoid bringing your face close to the gas or the area of discharge.
• If expelled gas enters the eyes, immediately rinse them thoroughly with clean water. If gas is inhaled, rinse your mouth immediately. The gas may contain vaporized hydrogen or organic solvents.
• If electrolyte comes into contact with the skin, wash it off immediately with soap and water. Never allow it to enter the mouth.
19) Other
• The electrical characteristics of the capacitor vary with changes in ambient temperature and operating frequency. Please design your circuit taking these variations into account.
• When mounting capacitors on double-sided printed circuit boards (PCBs), avoid placing unnecessary PCB holes or through-holes (vias) for top-to-bottom connection directly beneath the capacitor.
• When connecting two or more capacitors in parallel, consider current balancing.
• When connecting two or more capacitors in series, consider voltage balancing and connect voltage-dividing resistors in parallel with the capacitors.

V4M

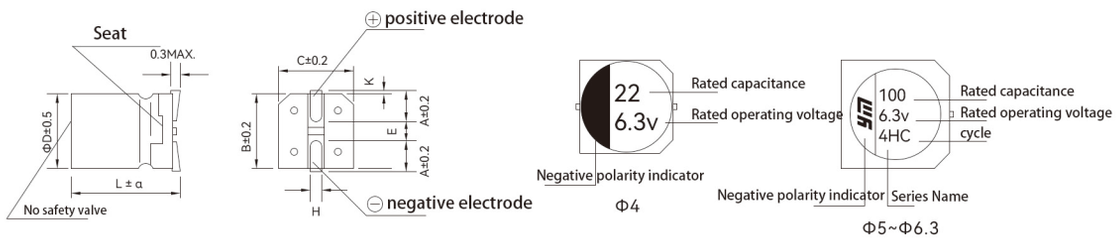
- ◆ 3.95mm maximum height, ultra-compact V-CHIP product
- ◆ 1000 hours of operation at 105℃
- ◆ Compliant with AEC-Q200 RoHS directive
- ◆ Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering



■ Main technical parameters

project	characteristic
Operating Temperature Range	－55~+105℃
Nominal Voltage Range	6.3~100V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V) 6.3 10 16 25 35 50 63 80 100 tg δ 0.38 0.32 0.20 0.16 0.14 0.14 0.16 0.16 0.16 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V) 6.3 10 16 25 35 50 63 80 100 Impedance ratio Z(－40℃)/Z(20℃) 10 10 6 6 4 4 6 6 6
Durability	After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: 6.3~100WV 1000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
4	3.95	4.3	4.3	1.8	0.75±0.10	1.0	0.5MAX	+0 -0.25
5	3.95	5.3	5.3	2.1	0.75±0.10	1.5	0.7MAX	
6.3	3.95	6.6	6.6	2.6	0.75±0.10	1.8	0.7MAX	

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.70	1.00	1.37	1.50

V4M

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0											4×3.95	6
2.2											4×3.95	10
3.3											4×3.95	13
4.7							4×3.95	12	4×3.95	14	5×3.95	17
5.6											4×3.95	17
10									4×3.95	20	5×3.95	23
10					4×3.95	17	5×3.95	21	5×3.95	23	6.3×3.95	27
18							4×3.95	27	5×3.95	35		
22											6.3×3.95	58
22	4×3.95	20	5×3.95	25	5×3.95	27	6.3×3.95	35	6.3×3.95	38		
33					4×3.95	34	5×3.95	44				
33	5×3.95	27	5×3.95	32	6.3×3.95	37	6.3×3.95	44				
39									6.3×3.95	68		
47			4×3.95	34								
47	5×3.95	34	6.3×3.95	42	6.3×3.95	46						
56					5×3.95	54						
68	4×3.95	34					6.3×3.95	68				
82			5×3.95	54								
100	6.3×3.95	54			6.3×3.95	68						
120	5×3.95	54										
180			6.3×3.95	68								
220	6.3×3.95	68										

Voltage (V)	63		80		100	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.2					4×3.95	7
1.8			4×3.95	10		
2.2					5×3.95	10
3.3	4×3.95	13				
3.9			5×3.95	16	6.3×3.95	16
5.6	5×3.95	17				
6.8			6.3×3.95	22		
10	6.3×3.95	27				

V3MC

◆Ultra-high capacity, low impedance, miniaturized V-CHIP product with a 2000-hour warranty

◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

◆Compliant with AEC-Q200 RoHS directive. Please contact us for details.

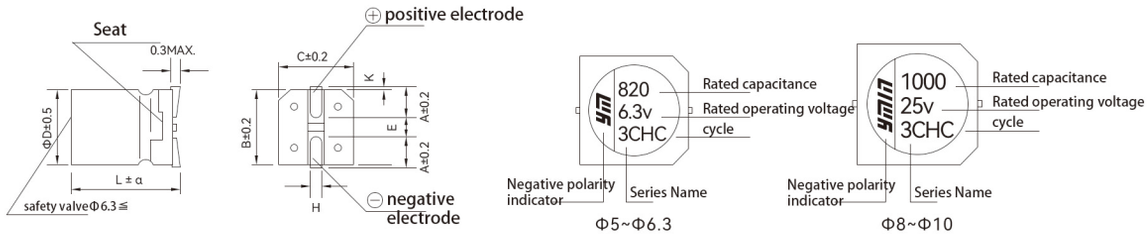




■ Main technical parameters

project	characteristic
Operating Temperature Range	－55~+105℃
Nominal Voltage Range	6.3~35V
Rated capacitance range	220~2700μF
Capacity Tolerance	±20% (120Hz 25℃)
Leakage Current (μA)	6.3~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 tg δ: 0.26 / 0.19 / 0.16 / 0.14 / 0.12 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 Impedance ratio MAX Z(－40℃)/Z(20℃): 3 / 3 / 3 / 3 / 3
Durability	After being dried in a 105℃ oven with rated voltage applied for 2000 hours, and then placed at room temperature for 16 hours at 20℃, the capacitor's performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD×L	A	B	C	E	H	K	α
6.3×7.7	2.6	6.6	6.6	1.8	0.75±0.20	0.7MAX	±0.4
8×10	3.0	8.3	8.3	3.1	0.90±0.20	0.7MAX	±0.5
10×10	3.5	10.3	10.3	4.4	0.90±0.20	0.7MAX	±0.7

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.35	0.50	0.83	1.00

V3MC

■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ω max./100 kHz 25±2° C)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
330										6.3×7.7	0.24	610
470							6.3×7.7	0.24	610			
560				6.3×7.7	0.24	610				8×10	0.12	860
820	6.3×7.7	0.24	610				8×10	0.12	860			
1000										10×10	0.09	1200
1200				8×10	0.12	860						
1500							10×10	0.09	1200			
1800	8×10	0.12	860									
2200				10×10	0.09	1200						
2700	10×10	0.09	1200									

Voltage (V)	35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
220	6.3×7.7	0.24	610
470	8×10	0.12	860
680	10×10	0.09	1200

V3M

◆Low impedance, thin, high capacity V-CHIP products

◆2000~5000 hours at 105℃

◆Compliant with AEC-Q200 RoHS directive

◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering

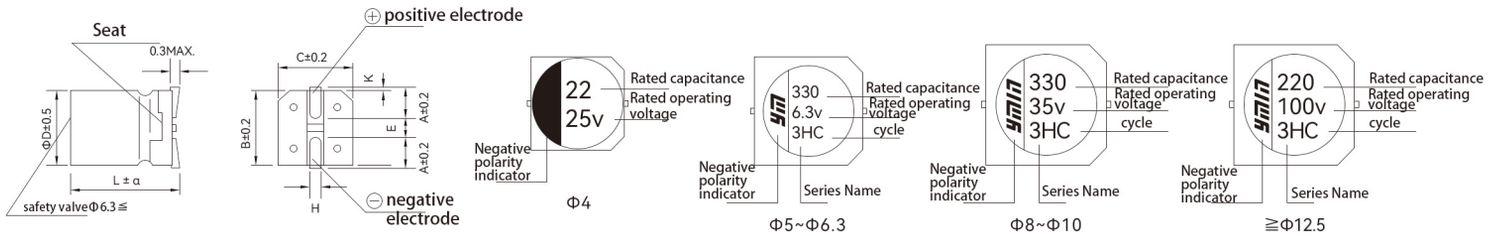




■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃ ; 160V －40~+105℃
Nominal Voltage Range	6.3~160V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160WV I≦0.02CV+10(μA) C: Nominal Capacity (μF) V: Rated Voltage (V) Reading after 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 / 160 tg δ: 0.26 / 0.19 / 0.16 / 0.14 / 0.12 / 0.12 / 0.12 / 0.12 / 0.12 / 0.14 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 / 160 Impedance ratio Z(－40℃)/Z(20℃): 3 / 3 / 3 / 3 / 3 / 3 / 5 / 5 / 5 / 5
Durability	After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: ≦Φ10 2000h ; >Φ10 5000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
4	5.8	4.3	4.3	1.8	0.75±0.20	1.0	0.5MAX	±0.3
5	5.8	5.3	5.3	2.1	0.75±0.20	1.5	0.7MAX	±0.3
6.3	5.8	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.3
6.3	7.7	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.4
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
12.5	13.5	13	13	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	14.5	13	13	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	16.5	13	13	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	21	13	13	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	16.5	17	17	5.5	1.20±0.30	6.7	0.70±0.30	±1.0
16	21	17	17	5.5	1.20±0.30	6.7	0.70±0.30	±1.0
18	16.5	19	19	6.7	1.20±0.30	6.7	0.70±0.30	±1.0
18	21	19	19	6.7	1.20±0.30	6.7	0.70±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.35	0.50	0.83	1.00

V3M

■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
22										4×5.8	2.00	160
33										4×5.8	2.00	160
47							4×5.8	2.00	160	5×5.8	0.720	240
68				4×5.8	2.00	160	5×5.8	0.72	240	5×5.8	0.720	240
100	4×5.8	2.00	160				5×5.8	0.72	240	6.3×5.8	0.520	300
150				5×5.8	0.72	240	6.3×5.8	0.52	300	6.3×7.7	0.320	600
220	5×5.8	0.72	240	6.3×5.8	0.52	300	6.3×5.8	0.52	300	6.3×7.7	0.320	600
330	6.3×5.8	0.52	300	6.3×7.7	0.32	600	6.3×7.7	0.32	600			
470	6.3×7.7	0.32	600	6.3×7.7	0.32	600				8×10	0.16	850
680	6.3×7.7	0.32	600				8×10	0.16	850			
820										10×10	0.120	1190
1000				8×10	0.16	850	10×10	0.12	1190			
1500	8×10	0.16	850	10×10	0.12	1190				12.5×13.5	0.116	1420
2200	10×10	0.12	1190									

Voltage (V)	35			50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10				4×5.8	4.60	85						
10				5×5.8	1.76	165						
22	4×5.8	2.00	160	5×5.8	1.76	165						
33	5×5.8	0.72	240									
47	5×5.8	0.72	240	6.3×5.8	1.36	195						
68	6.3×5.8	0.52	300									
100	6.3×5.8	0.52	300	6.3×7.7	0.68	350						
150	6.3×7.7	0.32	600									
220				8×10	0.36	670				12.5×13.5	0.36	1050
330	8×10	0.16	850	10×10	0.24	900						
470				12.5×13.5	0.24	1340	12.5×16.5	0.28	1250	16×16.5	0.20	1500
560	10×10	0.12	1190									
680							16×16.5	0.164	1740	16×21	0.132	2040
820							18×16.5	0.16	1880	18×21	0.126	2140
1000	12.5×14.5	0.116	1420	16×16.5	0.160	1820						
1200							16×21	0.108	2430			
1500				16×21	0.100	2440						

V3M

■ List of Standard Products

Voltage (V)	100			160		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100				12.5×16.5	4.60	1040
150	12.5×13.5	0.36	1050	16×21	3.28	1520
220	12.5×16.5	0.22	1250	18×21	2.58	2140
330	16×16.5	0.20	1500			
470	16×21	0.132	2040			
560	18×21	0.126	2140			

VMM

◆ All-voltage, miniature, flat V-chip products

◆ 3000~8000 hours at 105℃

◆ Compliant with AEC-Q200 RoHS directive

◆ Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering





■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃；160~500V －40~+105℃
Nominal Voltage Range	6.3~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	6.3	10	16	25	35	50	63	80
tg δ	0.32	0.28	0.24	0.20	0.18	0.16	0.16	0.14
Rated voltage (V)	100	160	200	250	350	400	450	500
tg δ	0.14	0.15	0.15	0.15	0.20	0.20	0.20	0.25

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	6.3	10	16	25	35	50	63	80
Impedance ratio Z(－40℃)/Z(20℃)	14	12	10	10	10	7	7	7
Rated voltage (V)	100	160	200	250	350	400	450	500
Impedance ratio Z(－40℃)/Z(20℃)	7	10	10	10	10	10	10	12

Durability

After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements.

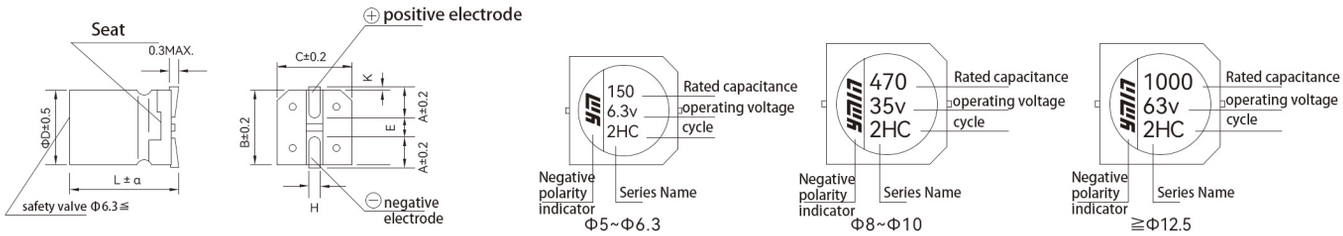
Capacity change rate	Within ±30% of the initial value			
Loss tangent	Below 300% of the specified value			
Leakage current	Below the specified value			
Load life	6.3~100WV		160~500WV	
	External Dimensions	Load life	External Dimensions	Load life
	ΦD*5.7 (6.2, 6.9)	3000	ΦD*5.7 (6.2, 6.9)	3000
	ΦD*7.7 (7.9, 8.4)	4000	ΦD*7.7 (7.9, 8.4)	5000
	Others Φ5~Φ6.3	5000	Others Φ5~Φ6.3	6000
	Others Φ8	6000	Others Φ8	7000
	Others Φ10 and above	8000	Others Φ10 and above	8000

High Temperature Storage

After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
5	5.7	5.3	5.3	2.1	0.75±0.20	1.5	0.7MAX	±0.3
5	7.9	5.3	5.3	2.1	0.75±0.20	1.5	0.7MAX	±0.3
5	10	5.3	5.3	2.1	0.75±0.20	1.5	0.7MAX	±0.5
6.3	5.7	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.3
6.3	7.7	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.3
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
8	6.2	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.3
8	7.9	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.3
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	12.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	14.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	16.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	6.9	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.3
10	8.4	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.3
10	10	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
10	12.5	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
10	13	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
10	14.5	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
10	16.5	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
10	21	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
12.5	13.5	13	13	4.7	0.90±0.20	4.4	0.7MAX	±1.0
12.5	14.5	13	13	4.7	0.90±0.20	4.4	0.7MAX	±1.0
12.5	16.5	13	13	4.7	0.90±0.20	4.4	0.7MAX	±1.0
16	16.5	17	17	5.5	1.2±0.30	6.7	0.7±0.30	±1.0
16	21	17	17	5.5	1.2±0.30	6.7	0.7±0.30	±1.0
18	17	19	19	6.7	1.2±0.30	6.7	0.7±0.30	±1.0
18	21	19	19	6.7	1.2±0.30	6.7	0.7±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.65	1.00	1.37	1.50

VMM

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)
0.47											5×5.7	4
1.0											5×5.7	8
1.2											5×5.7	9
1.5											5×5.7	10
1.8											5×5.7	11
2.2											5×5.7	12
2.7											5×5.7	14
3.3											5×5.7	16
3.9											5×5.7	18
4.7											5×5.7	20
5.6											5×5.7	22
6.8											5×5.7	24
8.2											5×5.7	26
10	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	29
12											5×5.7	32
15	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	35
18											5×7.7	40
18											6.3×5.7	55
22	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×5.7	26	5×7.7	57
22											6.3×5.7	57
27											6.3×5.7	60
33	5×5.7	30	5×5.7	30	5×5.7	30	5×5.7	30	6.3×5.7	55	6.3×7.7	72
33											8×6.2	72
39	5×5.7	33	5×5.7	33	5×5.7	33	5×7.7	49	6.3×5.7	61	6.3×7.7	80
39											8×6.2	80
47	5×5.7	37	5×5.7	37	5×5.7	37	5×7.7	54	6.3×5.7	67	6.3×7.7	88
47											8×6.2	88
56	5×5.7	40	5×5.7	40	5×7.7	53	5×7.7	60	6.3×7.7	74	8×6.2	100
56					6.3×5.7	53			8×6.2	74		
68	5×5.7	45	5×5.7	45	5×7.7	58	6.3×5.7	100	6.3×7.7	105	8×7.9	120
68					6.3×5.7	58		100	8×6.2	105	10×6.9	120
82	5×5.7	50	6.3×5.7	71	5×7.7	64	6.3×7.7	115	6.3×7.7	116	8×7.9	140
82					6.3×5.7	64	8×6.2	115	8×6.2	116	10×6.9	140
100	5×5.7	55	6.3×5.7	78	6.3×5.7	70	8×6.2	160	8×7.9	160	8×7.9	150
100											10×6.9	150
120	5×5.7	61	6.3×5.7	85	6.3×5.7	77	6.3×7.7	180	8×7.9	180	10×8.4	180
120							8×6.2	180				
150	6.3×5.7	85	6.3×5.7	85	6.3×7.7	109	8×6.2	200	8×7.9	180	10×8.4	220
150					8×6.2	109			10×6.9	210		

VMM

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)
180	6.3×5.7	94	6.3×7.7	94	8×6.2	120	8×7.9	170	10×8.4	225	10×10	310
180							10×6.9	225			8×12.5	310
220	6.3×5.7	103	6.3×7.7	103	8×6.2	132	10×6.9	250	10×8.4	315	10×12.5	340
270	6.3×7.7	123	6.3×7.7	163				250	10×8.4	350	10×12.5	375
270	8×6.2	123	8×6.2	163	8×7.9	180	10×8.4	310				
330	8×6.2	135	8×6.2	175					10×10	420	12.5×13.5	415
330	6.3×7.7	135			8×7.9	200	10×8.4	345			10×14.5	415
390	8×6.2	166	8×7.9	196	10×6.9	220			10×12.5	525	12.5×13.5	455
390			10×6.9	196			10×8.4	380				
470	8×7.9	200	8×7.9	210	10×8.4	295	10×10	490	10×13	570	12.5×13.5	500
470	10×6.9	200	10×6.9	210								
560	8×7.9	231	10×8.4	253	10×8.4	325	10×12.5	580	12.5×13.5	586	12.5×14.5	550
560	10×6.9	231										
680	8×7.9	254	10×8.4	275	10×10	420	10×12.5	640	12.5×13.5	640	12.5×16.5	610
680	10×6.9	254										
820	10×8.4	304	10×8.4	345	10×10	465	12.5×13.5	710	12.5×14.5	710	16×16.5	680
820	8×10	304										
1000	10×8.4	362	10×10	450	10×12.5	580	12.5×13.5	780	12.5×16.5	780	16×16.5	680
1000	8×10	362										
1200	8×12.5	430	10×12.5	540	10×13	600	12.5×13.5	860	12.5×16.5	850	18×17	750
1200	10×10	430										
1500	10×12.5	520	10×13	600	12.5×13.5	665	12.5×16.5	925	16×16.5	925	16×21	830
1800	10×12.5	520	12.5×13.5	730	12.5×13.5	730	12.5×16.5	1010	16×16.5	1010	18×21	910
2200	10×13	570	12.5×13.5	800	12.5×14.5	860	16×16.5	1100	18×17	1100		
2700	10×16.5	686	12.5×13.5	810	12.5×16.5	980	16×16.5	1230	18×21	1230		
2700	12.5×13.5	686										
3300	10×16.5	760	12.5×16.5	970	16×16.5	1130	18×17	1350				
3300	12.5×13.5	760										
3900	12.5×14.5	830	12.5×16.5	1060	16×16.5	1250	18×21	1480				
4700	12.5×16.5	910	16×16.5	1360	18×17	1580	18×21	1650				

VMM

■ List of Standard Products

Voltage (V)	63		80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)
0.47	5×5.7	4	5×5.7	4	5×5.7	4						
1.0	5×5.7	8	5×5.7	8	5×5.7	8	5×5.7	15	5×5.7	15	5×5.7	15
1.2	5×5.7	9	5×5.7	9	5×5.7	9	5×5.7	18	5×5.7	18	5×5.7	18
1.5	5×5.7	10	5×5.7	10	5×5.7	10	5×5.7	18	5×5.7	18	5×7.7	22
1.8	5×5.7	11	5×5.7	11	5×5.7	11	5×5.7	18	5×7.7	22	5×7.7	22
2.2	5×5.7	12	5×5.7	12	5×5.7	12	5×7.7	20	5×7.7	22	6.3×5.7	22
2.7	5×5.7	14	5×5.7	14	5×5.7	14	5×7.7	22	6.3×5.7	31	6.3×7.7	35
3.3	5×5.7	16	5×5.7	16	5×5.7	16	6.3×5.7	22	6.3×5.7	35	6.3×7.7	35
3.3											8×6.2	35
3.9	5×5.7	18	5×5.7	18	5×5.7	18	6.3×5.7	22	6.3×7.7	40	6.3×7.7	40
3.9									8×6.2	40	8×6.2	40
4.7	5×5.7	20	5×5.7	20	5×5.7	20	6.3×7.7	28	6.3×7.7	45	8×6.2	50
4.7							8×6.2	28	8×6.2	45		
5.6	5×5.7	22	5×5.7	22	5×7.7	22	6.3×7.7	40	8×6.2	50	8×7.9	55
5.6							8×6.2	40			10×6.9	55
6.8	5×5.7	24	5×5.7	24	5×7.7	24	8×6.2	45	8×7.9	65	8×7.9	65
6.8											10×6.9	65
8.2	5×5.7	26	5×7.7	26	6.3×5.7	26	8×6.2	51	8×7.9	65		
8.2									10×6.9	65	10×8.4	80
10	5×5.7	29	5×7.7	28	6.3×5.7	28	8×7.9	56	8×7.9	72		
10							10×6.9	56	10×6.9	72	10×8.4	95
12	5×7.7	45	6.3×5.7	31	6.3×7.7	31	8×7.9	62	8×10	90	10×8.4	105
12	6.3×5.7	45			8×6.2	31	10×6.9	62	10×8.4	90		
15	5×7.7	50	6.3×7.7	38	6.3×7.7	34	8×10	87	10×8.4	105	10×10	125
15	6.3×5.7	50	8×6.2	38	8×6.2	34	10×8.4	87				
18	6.3×5.7	55	6.3×7.7	44	8×6.2	44	10×8.4	95	10×10	125	10×12.5	140
18			8×6.2	44								
22	6.3×5.7	60	6.3×7.7	49	8×7.9	60	10×10	110	10×12.5	180	10×12.5	180
22			8×6.2	60	10×6.9	60						
27	6.3×7.7	65	8×6.2	65	8×7.9	78	10×12.5	150	10×13	225	10×14.5	225
27	8×6.2	65			10×6.9	78						
33	6.3×7.7	72	8×7.9	78	10×8.4	86	10×12.5	165	10×14.5	250	12.5×13.5	270
33	8×6.2	72	10×6.9	78								
39	8×6.2	80	8×7.9	86	10×8.4	110	10×13	185	12.5×13.5	300	12.5×14.5	300
39			10×6.9	86								
47	8×7.9	88	10×8.4	110	10×8.4	140	12.5×13.5	300	12.5×13.5	330	12.5×16.5	375
47	10×6.9	88										
56	8×7.9	98	10×8.4	140	10×10	170	12.5×13.5	330	12.5×14.5	340	12.5×16.5	375
56	10×6.9	98										

VMM

■ List of Standard Products

Voltage (V)	63		80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)
68	8×7.9	110	10×8.4	155	10×12.5	200	12.5×14.5	365	12.5×16.5	375	16×16.5	450
68	10×6.9	110										
82	10×8.4	155	10×10	180	10×13	250	12.5×16.5	440	16×16.5	450	16×16.5	450
100	10×8.4	180	10×10	200	12.5×13.5	310	12.5×16.5	440	16×16.5	480	18×17	500
120	10×10	200	10×12.5	250	12.5×13.5	320	16×16.5	525	18×17	575	16×21	540
150	10×12.5	250	12.5×13.5	310	12.5×13.5	320	18×17	630	16×21	575	18×21	670
180	10×12.5	275	12.5×13.5	320	12.5×16.5	390	18×17	630	18×21	690		
220	12.5×13.5	320	12.5×13.5	320	12.5×16.5	480	18×21	835				
270	12.5×13.5	350	12.5×14.5	390	16×16.5	530						
330	12.5×13.5	390	12.5×16.5	480	16×16.5	590						
390	12.5×16.5	440	16×16.5	530	18×17	700						
470	12.5×16.5	480	16×16.5	590	16×21	700						
560	16×16.5	550	18×17	700	18×21	850						
680	16×16.5	610	16×21	700								
820	18×17	730	18×21	850								
1000	18×17	750										
1200	16×21	830										
1500	18×21	910										

VMM

■ List of Standard Products

Voltage (V)	350		400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s./ 105° C, 120 Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)
1.0	5×7.7	18	5×7.7	18	6.3×5.7	20	6.3×7.7	20
1.2	5×7.7	20	6.3×5.7	20	6.3×7.7	24	6.3×7.7	20
1.2	6.3×5.7	20			8×6.2	24		
1.5	6.3×5.7	25	6.3×7.7	28	6.3×7.7	28	8×6.2	20
1.5					8×6.2	31		
1.8	6.3×7.7	31	6.3×7.7	31	8×6.2	37	8×7.9	25
1.8	8×6.2	31	8×6.2	31				
2.2	6.3×7.7	40	6.3×7.7	40	8×7.9	44	8×7.9	30
2.2	8×6.2	44	8×6.2	44	10×6.9	44		
2.7	8×6.2	48	8×6.2	48	8×7.9	48	8×10	36
2.7					10×6.9	48		
3.3	10×6.9	55	8×7.9	55	8×7.9	55	10×8.4	36
3.3			10×6.9	55	10×6.9	55		
3.9	8×7.9	62	8×7.9	62	10×8.4	66	8×12.5	44
3.9	10×6.9	62	10×6.9	62			10×10	44
4.7	8×7.9	70	10×6.9	70	10×8.4	72	8×14.5	50
4.7	10×6.9	70					10×10	50
5.6	8×10	84	8×10	84	10×10	88	10×12.5	55
5.6	10×8.4	84	10×8.4	84				
6.8	8×10	84	8×12.5	88	10×12.5	105	10×12.5	60
6.8	10×8.4	88	10×8.4	88				
8.2	8×12.5	105	10×10	105	10×12.5	120	10×13	66
8.2	10×10	105						
10	10×10	105	10×12.5	120	10×13	126	10×14.5	72
10							12.5×13.5	86
12	10×12.5	126	10×12.5	126	12.5×13.5	150	12.5×14.5	95
15	10×13	132	12.5×13.5	150	12.5×13.5	150	12.5×14.5	105
18	10×14.5	145	12.5×13.5	150	12.5×14.5	165	12.5×16.5	125
22	12.5×13.5	150	12.5×14.5	165	12.5×16.5	200	16×16.5	150
27	12.5×14.5	165	12.5×16.5	182	16×16.5	234	16×16.5	165
33	12.5×16.5	182	12.5×16.5	200	16×16.5	258	18×17	180
39	12.5×16.5	200	16×16.5	234	18×17	310	16×21	215
47	16×16.5	258	16×16.5	258	16×21	340	18×21	258
56	18×17	310	18×17	310	18×21	380		
68	18×17	340	16×21	340				
82	18×21	380	18×21	380				
100	18×21	410						

VK7

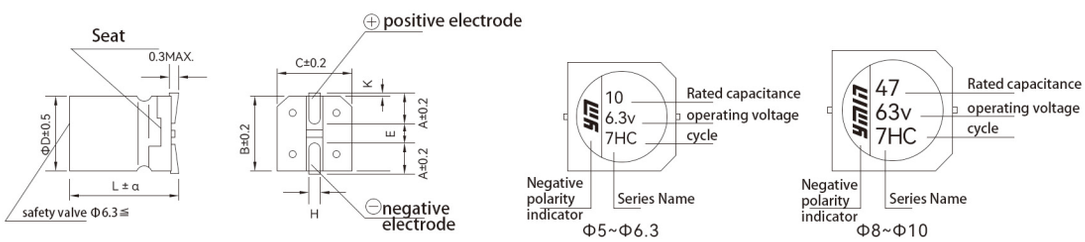
◆7mm high, ultra-compact, designed for high-end power supplies
◆4000~6000 hours of operation at 105℃
◆Compliant with AEC-Q200 RoHS directive
◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering



■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃；160~400V －40~+105℃
Nominal Voltage Range	6.3~400V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~400WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V) 6.3 10 16 25 35 50 63 tg δ 0.32 0.28 0.24 0.20 0.16 0.14 0.14 Rated voltage (V) 80 100 160 200 250 350 400 tg δ 0.12 0.12 0.15 0.15 0.15 0.15 0.15 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V) 6.3 10 16 25 35 50 63 Impedance ratio Z(－40℃)/Z(20℃) 14 12 8 6 4 4 4 Rated voltage (V) 80 100 160 200 250 350 400 Impedance ratio Z(－40℃)/Z(20℃) 4 4 5 5 5 7 7
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: Φ5 4000h; Φ6.3 5000h; Φ8、Φ10 6000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
5	7.9	5.3	5.3	2.2	0.75±0.20	1.5	0.7MAX	±0.3
6.3	7.7	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.3
8	7.9	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.3
10	8.4	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.3

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.65	1.00	1.37	1.50

VK7

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
2.2											5×7.9	31
2.7											5×7.9	31
3.3											5×7.9	31
3.9											5×7.9	31
4.7							5×7.9	50	5×7.9	50	5×7.9	31
5.6							5×7.9	50	5×7.9	50	5×7.9	31
6.8							5×7.9	55	5×7.9	50	5×7.9	31
8.2							5×7.9	55	5×7.9	50	5×7.9	31
10	5×7.9	55	5×7.9	55	5×7.9	55	5×7.9	60	5×7.9	50	5×7.9	31
12	5×7.9	55	5×7.9	55	5×7.9	55	5×7.9	60	5×7.9	60	5×7.9	37
15	5×7.9	60	5×7.9	60	5×7.9	60	5×7.9	60	5×7.9	60	5×7.9	44
18	5×7.9	60	5×7.9	60	5×7.9	60	5×7.9	60	5×7.9	60	6.3×7.7	55
22	5×7.9	60	5×7.9	70	5×7.9	70	5×7.9	60	5×7.9	70	6.3×7.7	65
27	5×7.9	70	5×7.9	70	5×7.9	70	5×7.9	70	6.3×7.7	80	6.3×7.7	78
33	5×7.9	80	5×7.9	80	5×7.9	80	5×7.9	85	6.3×7.7	90	8×7.9	85
39	5×7.9	80	5×7.9	80	5×7.9	80	5×7.9	85	6.3×7.7	98	8×7.9	100
47	5×7.9	90	5×7.9	90	5×7.9	90	5×7.9	90	6.3×7.7	105	8×7.9	120
56	5×7.9	90	5×7.9	90	5×7.9	90	6.3×7.7	98	8×7.9	115	8×7.9	125
68	5×7.9	90	5×7.9	90	5×7.9	90	6.3×7.7	105	8×7.9	125	10×8.4	140
82	5×7.9	100	5×7.9	98	6.3×7.7	105	6.3×7.7	115	8×7.9	140	10×8.4	160
100	5×7.9	105	6.3×7.7	115	6.3×7.7	115	8×7.9	125	8×7.9	170	10×8.4	180
120	5×7.9	110	6.3×7.7	115	6.3×7.7	128	8×7.9	140	10×8.4	180		
150	6.3×7.7	115	6.3×7.7	135	8×7.9	140	8×7.9	170	10×8.4	210		
180	6.3×7.7	135	8×7.9	160	8×7.9	170	10×8.4	190				
220	6.3×7.7	160	8×7.9	170	8×7.9	190	10×8.4	220				
270	8×7.9	170	8×7.9	190	10×8.4	220						
330	8×7.9	180	10×8.4	220	10×8.4	240						
390	8×7.9	190	10×8.4	240	10×8.4	260						
470	8×7.9	200	10×8.4	260								
560	10×8.4	240										
680	10×8.4	280										

VK7

■ List of Standard Products

Voltage (V)	63		80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0									5×7.9	20	5×7.9	20
1.2									5×7.9	20	5×7.9	20
1.5									5×7.9	22	5×7.9	22
1.8									5×7.9	22	5×7.9	22
2.2	5×7.9	30	5×7.9	30	5×7.9	28	5×7.9	20	6.3×7.7	25	6.3×7.7	25
2.7	5×7.9	30	5×7.9	30	5×7.9	28	5×7.9	20	6.3×7.7	35	6.3×7.7	35
3.3	5×7.9	30	5×7.9	30	5×7.9	28	6.3×7.7	22	6.3×7.7	40	6.3×7.7	40
3.9	5×7.9	30	5×7.9	30	5×7.9	28	6.3×7.7	22	8×7.9	50	8×7.9	50
4.7	5×7.9	30	5×7.9	30	5×7.9	28	6.3×7.7	22	8×7.9	55	8×7.9	55
5.6	5×7.9	30	5×7.9	30	5×7.9	28	8×7.9	50	8×7.9	65	8×7.9	65
6.8	5×7.9	30	5×7.9	30	6.3×7.7	30	8×7.9	55	8×7.9	72	10×8.4	80
8.2	5×7.9	30	5×7.9	30	6.3×7.7	40	8×7.9	60	10×8.4	95	10×8.4	95
10	5×7.9	30	6.3×7.7	50	6.3×7.7	50	8×7.9	65	10×8.4	108	10×8.4	108
12	6.3×7.7	50	6.3×7.7	55	8×7.9	75	10×8.4	95				
15	6.3×7.7	56	6.3×7.7	70	8×7.9	85	10×8.4	115				
18	6.3×7.7	70	6.3×7.7	75	8×7.9	100						
22	8×7.9	75	8×7.9	85	8×7.9	120						
27	8×7.9	85	8×7.9	100	10×8.4	130						
33	8×7.9	100	8×7.9	120	10×8.4	150						
39	8×7.9	120	10×8.4	130								
47	10×8.4	130	10×8.4	150								
56	10×8.4	150	10×8.4	160								
68	10×8.4	160										

Voltage (V)	350		400	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×7.7	25	6.3×7.7	25
1.2	6.3×7.7	30	6.3×7.7	30
1.5	6.3×7.7	35	6.3×7.7	35
1.8	6.3×7.7	40	6.3×7.7	40
2.2	8×7.9	50	8×7.9	50
2.7	8×7.9	55	8×7.9	55
3.3	8×7.9	70	8×7.9	70
3.9	10×8.4	80	10×8.4	80
4.7	10×8.4	95	10×8.4	95
5.6	10×8.4	108		

VKO

◆ Compact size, high frequency and high ripple current resistant, designed for high-end power supplies

◆ 6000~8000 hours of operation at 105℃

◆ Compliant with AEC-Q200 RoHS directive

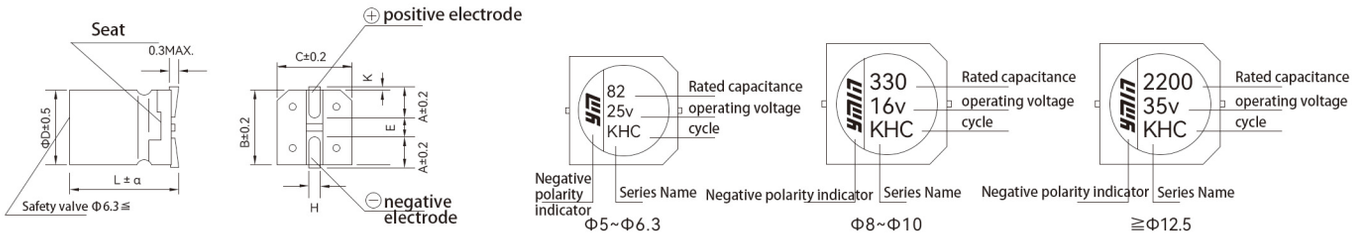
◆ Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering



■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃；160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~400WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 tg δ 0.28 0.24 0.20 0.16 0.14 0.14 0.12 0.12 Rated voltage (V) 160 200 250 350 400 450 500 tg δ 0.15 0.15 0.15 0.15 0.15 0.20 0.25 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V) 10 16 25 35 50 63 80 100 Impedance ratio Z(－40℃)/Z(20℃) 6 4 3 3 3 3 3 3 Rated voltage (V) 160 200 250 350 400 450 500 Impedance ratio Z(－40℃)/Z(20℃) 5 5 5 7 7 7 8
Durability	After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: Φ5~Φ6.3: 6000小时; ≧Φ8: 8000小时
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
5	10	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
5	12	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
6.3	12	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	12.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	14.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	16.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	20.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	13	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	14.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	16.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	21	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
12.5	13.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	14.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	16.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	21	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	16.5	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
16	21	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
18	16.5	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0
18	21	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)		120	1K	10K	100K≦
coefficient	0.47~8.2	0.42	0.60	0.80	1.00
	10~39	0.45	0.75	0.90	1.00
	47~180	0.50	0.80	0.95	1.00
	220up	0.60	0.85	0.95	1.00

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■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47									5×10	20	5×10	22
1.0									5×10	30	5×10	33
1.8									5×10	36	5×10	40
2.2									5×10	38	5×10	44
2.7									5×10	46	5×10	51
3.3									5×10	53	5×10	58
3.9									5×10	70	5×10	77
4.7									5×10	88	5×10	97
5.6									5×10	90	5×10	99
6.8									5×10	93	5×10	102
8.2									5×10	97	5×10	108
10	5×10	55	5×10	70	5×10	90	5×10	100	5×10	100	5×10	110
12									5×10	110	5×10	120
15	5×10	75	5×10	90	5×10	110	5×10	120	5×10	120	5×10	145
18									5×10	130	5×10	155
22	5×10	90	5×10	110	5×10	120	5×10	160	5×10	145	6.3×10	160
27									6.3×10	215	6.3×10	225
33	5×10	105	5×10	120	5×10	150	5×10	215	6.3×10	215	6.3×10	225
39	5×10	135	5×10	150	5×10	180	5×10	215	6.3×10	315	6.3×10	250
47	5×10	142	5×10	160	5×10	210	6.3×10	310	6.3×10	350	6.3×12	250
47											8×10	260
56	5×10	150	5×10	170	5×10	290	6.3×10	310	6.3×12	350	8×10	350
56									8×10	450		
68	5×10	160	5×10	180	5×10	310	6.3×10	390	6.3×12	350	8×12.5	480
68									8×10	450	10×10	490
82	5×10	170	5×10	210	6.3×10	310	6.3×10	390	8×10	585	8×12.5	480
82											10×10	490
100	5×10	180	5×10	290	6.3×10	310	8×10	441	8×10	585	8×14.5	550
100											10×10	500
120	5×10	210	6.3×10	310	6.3×10	390	8×10	441	8×12.5	630	8×16.5	620
120									10×10	650	10×13	630
150	5×10	290	6.3×10	390	6.3×12	404	8×12.5	830	8×14.5	760	8×20.5	775
150					8×10	441	10×10	765	10×10	650	10×14.5	810
180	6.3×10	290	6.3×10	390	6.3×12	404	8×12.5	830	8×16.5	860	8×20.5	775
180					8×10	441	10×10	765	10×13	875	10×16.5	900
220	6.3×10	310	6.3×12	404	6.3×12	404	8×12.5	830	8×16.5	860	10×16.5	900
220			8×10	441	8×10	441	10×10	765	10×13	875		
270	6.3×10	390	6.3×12	404	8×12.5	830	8×16.5	1150	8×20.5	1080	10×21	1080
270			8×10	441	10×10	765	10×13	1150	10×16.5	1250	12.5×14.5	1022

VKO

■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
330	6.3×12	404	6.3×12	650	8×12.5	830	8×16.5	1170	10×16.5	1250	10×21	1080
330	8×10	441	8×10	765	10×10	765	10×13	1150	12.5×14.5	1022	12.5×16.5	1080
390	6.3×12	650	8×12.5	830	8×14.5	1150	8×20.5	1350	10×21	1430	12.5×21	1415
390	8×10	765	10×10	765	10×13	1150	10×16.5	1550	12.5×14.5	1022		
470	6.3×12	650	8×12.5	830	8×16.5	1170	8×20.5	1350	10×21	1430	12.5×21	1415
470	8×10	765	10×10	765	10×13	1150	10×16.5	1550	12.5×16.5	1080		
560	8×12.5	830	8×12.5	830	8×20.5	1350	10×16.5	1550	12.5×16.5	1598	16×21	1800
560	10×10	765	10×10	765	10×13	1150	12.5×14.5	1808				
680	8×12.5	830	8×16.5	1125	8×20.5	1350	10×21	1590	12.5×21	1850	16×21	1890
680	10×10	765	10×13	1150	10×16.5	1550	12.5×16.5	1910				
820	8×12.5	830	8×20.5	1350	10×16.5	1550	10×21	1590	16×21	2170	18×21	2460
820			10×14.5	1350	12.5×14.5	1808	12.5×16.5	1910				
1000	8×16.5	1125	8×20.5	1350	10×21	1808	12.5×21	2250	16×21	2460	18×21	2460
1000	10×13	1150	10×14.5	1350	12.5×14.5	1808						
1200	8×16.5	1125	10×16.5	1550	12.5×16.5	1910	12.5×21	2250	18×21	2710		
1200	10×14.5	1350	12.5×14.5	1808								
1500	8×20.5	1350	10×21	1590	12.5×21	2250	16×21	2620	18×21	2710		
1500	10×14.5	1350	12.5×14.5	1808								
1800	10×21	1590	10×21	1590	12.5×21	2250	16×21	3270				
1800	12.5×14.5	1808	12.5×16.5	1910								
2200	10×21	1590	12.5×21	2250	16×21	2620	18×21	3270				
2200	12.5×14.5	1808										
2700	10×21	1590	12.5×21	2250	16×21	2620						
2700	12.5×16.5	1910										
3300	12.5×21	2250	16×21	2620	18×21	3270						
3900	12.5×21	2250	16×21	2925								
4700	16×21	2620	18×21	3270								
5600	16×21	2620	18×21	3270								
6800	18×21	3110										
8200	18×21	3270										

VKO

■ List of Standard Products

Voltage (V)	80		100		160		200		250		350	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×10	23	5×10	23								
1.0	5×10	34	5×10	34	6.3×10	50	6.3×10	50	6.3×10	95	6.3×10	68
1.2					6.3×10	55	6.3×10	55	6.3×10	95	6.3×10	95
1.5					6.3×10	60	6.3×10	60	6.3×10	95	6.3×10	95
1.8	5×10	42	5×10	42	6.3×10	65	6.3×10	65	6.3×10	95	6.3×10	104
2.2	5×10	46	5×10	46	6.3×10	75	6.3×10	75	6.3×10	104	6.3×10	120
2.7	5×10	54	5×10	54	6.3×10	80	6.3×10	80	6.3×10	113	6.3×12	120
2.7											8×10	130
3.3	5×10	61	5×10	61	6.3×10	90	6.3×10	95	6.3×10	113	6.3×12	120
3.3											8×10	130
3.9	5×10	80	5×10	80	6.3×10	90	6.3×10	104	6.3×10	113	8×10	130
4.7	5×10	100	5×10	100	6.3×10	104	6.3×12	115	6.3×12	125	8×10	130
4.7							8×10	135	8×10	135		
5.6	5×10	105	6.3×10	105	6.3×10	104	6.3×12	115	8×10	135	8×12.5	135
5.6							8×10	135			10×10	150
6.8	5×10	110	6.3×10	110	6.3×10	122	8×10	135	8×10	135	8×12.5	135
6.8											10×10	150
8.2	5×10	125	6.3×10	125	6.3×12	125	8×10	135	8×12.5	150	8×16.5	180
8.2					8×10	130			10×10	150	10×13	190
10	5×10	135	6.3×10	135	8×10	130	8×12.5	150	8×12.5	150	8×16.5	180
10							10×10	150	10×10	150	10×13	220
12	6.3×10	150	6.3×10	216	10×10	140	8×16.5	230	8×16.5	230	10×16.5	260
15	6.3×10	150	6.3×10	216	8×12.5	135	8×16.5	250	8×16.5	250	10×16.5	280
15					10×10	140	10×13	260	10×13	250	12.5×14.5	530
18	6.3×10	216	6.3×12	240	8×12.5	135	8×20.5	315	8×20.5	315	10×21	550
18			8×10	216	10×10	140	10×14.5	290	10×14.5	290	12.5×14.5	530
22	6.3×10	216	6.3×12	240	8×16.5	250	8×20.5	315	8×20.5	315	12.5×16.5	600
22			8×10	216	10×13	250	10×14.5	290	10×14.5	290		
27	6.3×12	240	8×10	369								
27	8×10	260										
33	6.3×12	240	8×12.5	410	8×20.5	315	10×21	575	10×21	575	12.5×21	865
33	8×10	260	10×10	369	10×14.5	450	12.5×14.5	670	12.5×14.5	650		
39	8×10	260	8×12.5	410								
39			10×10	369								
47	8×12.5	410	8×16.5	510	10×21	580	12.5×21	870	12.5×21	870	16×21	960
47	10×10	450	10×13	510	12.5×14.5	650						
56	8×12.5	410	8×16.5	510	10×21	600	12.5×21	870	12.5×21	870	16×21	960
56	10×10	450	10×13	565	12.5×16.5	670						
68	8×12.5	410	8×20.5	660	12.5×16.5	770	16×21	1150	16×21	1150	18×21	1150

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■ List of Standard Products

Voltage (V)	80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
68	10×10	450	10×14.5	660						
82	8×16.5	510	8×20.5	660	12.5×21	1040	16×21	1150	16×21	1150
82	10×13	565	10×16.5	710						
100	8×16.5	510	10×16.5	710	12.5×21	1040	16×21	1150	18×21	1350
100	10×13	565	12.5×14.5	833						
120	8×20.5	660	10×21	950	16×21	1260	18×21	1670	18×21	1350
120	10×14.5	660	12.5×14.5	833						
150	10×16.5	710	10×21	950	18×21	1670	18×21	1670		
150	12.5×14.5	833	12.5×16.5	880						
180	10×21	950	12.5×21	1290	18×21	1670				
180	12.5×14.5	833								
220	10×21	950	12.5×21	1290						
220	12.5×16.5	1020								
270	12.5×21	1290	16×21	1460						
330	12.5×21	1290								
330			16×21	1560						
390	16×21	1460	18×21	1990						
470	16×21	1560	18×21	1990						
560	18×21	1990								
680	18×21	1990								

VKO

■ List of Standard Products

Voltage (V)	400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×10	68	6.3×10	77	6.3×12	40
1.2	6.3×10	77	6.3×10	77	6.3×12	40
1.5	6.3×10	77	6.3×10	85	6.3×12	40
1.8	6.3×10	90	6.3×12	90	8×10	72
1.8			8×10	90		
2.2	6.3×10	90	8×10	90	8×12.5	72
2.7	6.3×12	110	8×10	90	8×12.5	76
2.7	8×10	117				
3.3	8×10	117	8×12.5	130	8×12.5	76
3.3			10×10	130		
3.9	8×10	117	8×12.5	130	8×14.5	92
3.9			10×10	130		
4.7	8×12.5	135	8×12.5	130	8×16.5	102
4.7			10×10	130	10×13	102
5.6	8×14.5	180	8×16.5	135	10×14.5	117
5.6	10×10	180	10×13	180		
6.8	8×16.5	180	8×20.5	200	10×14.5	117
6.8	10×13	180	10×13	180		
8.2	8×16.5	180	8×20.5	200	10×16.5	152
8.2	10×13	180	10×14.5	205		
10	8×20.5	250	10×16.5	205	10×21	216
10	10×14.5	250	12.5×14.5	315	12.5×14.5	234
12	12.5×14.5	290	12.5×16.5	340	12.5×16.5	240
15	10×21	310	10×21	300	12.5×16.5	240
15	12.5×14.5	310	12.5×16.5	410		
18	10×21	310	12.5×21	410	12.5×21	288
18	12.5×16.5	330				
22	12.5×21	500	12.5×21	410	16×21	423
33	16×21	670	16×21	650	18×21	508
47	18×21	1035	18×21	950		
56	18×21	1035				

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- ◆ Compact size, high frequency and high ripple current resistant, designed for high-end power supplies
- ◆ 7000~10000 hours of operation at 105℃
- ◆ Compliant with AEC-Q200 RoHS directive
- ◆ Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering



■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	
Durability	After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements.
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

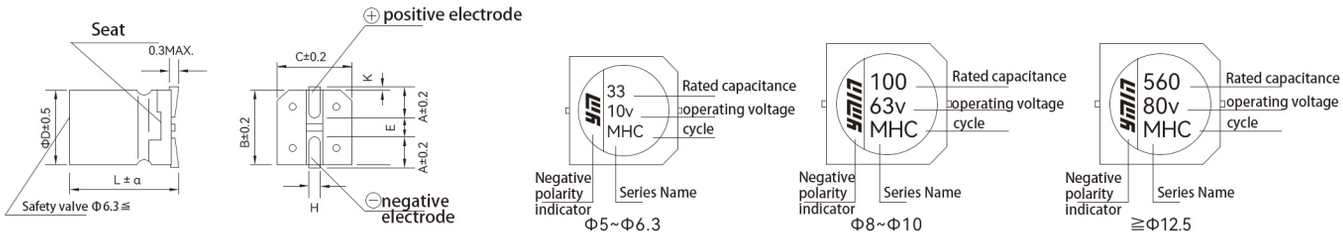
Rated voltage (V)	10	16	25	35	50	63	80	100
tg δ	0.28	0.24	0.20	0.16	0.14	0.14	0.12	0.12
Rated voltage (V)	160	200	250	350	400	450	500	
tg δ	0.15	0.15	0.15	0.15	0.15	0.20	0.25	

Rated voltage (V)	10	16	25	35	50	63	80	100
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3
Rated voltage (V)	160	200	250	350	400	450	500	
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	7	7	7	8	

Capacity change rate	Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value	
Leakage current	Below the specified value	
Load life	Φ5 7000h	Φ6.3 9000h
	≧Φ8 10000h	

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
5	10	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
5	12	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
6.3	12	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	12.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	14.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	16.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	20.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	13	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	14.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	16.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	21	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
12.5	13.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	14.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.5
12.5	17	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	21	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	17	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
16	21	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
18	17	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0
18	21	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)		120	1K	10K	100K≦
coefficient	0.47~8.2	0.42	0.60	0.80	1.00
	10~39	0.45	0.75	0.90	1.00
	47~180	0.50	0.80	0.95	1.00
	220以上	0.60	0.85	0.95	1.00

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■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47									5×10	21	5×10	23
1.0									5×10	31	5×10	35
1.2											5×10	35
1.5											5×10	41
1.8									5×10	32	5×10	41
2.2									5×10	39	5×10	45
2.7											5×10	52
3.3									5×10	54	5×10	59
3.9									5×10	54	5×10	78
4.7									5×10	89	5×10	98
5.6									5×10	91	5×10	100
6.8									5×10	94	5×10	103
8.2									5×10	98	5×10	109
10	5×10	56	5×10	71	5×10	91	5×10	101	5×10	101	5×10	111
12	5×10	60	5×10	80	5×10	100	5×10	110			5×10	121
15	5×10	76	5×10	91	5×10	111	5×10	121	5×10	121	5×10	150
18											5×10	173
22	5×10	91	5×10	111	5×10	121	5×10	160	5×10	238	5×10	228
27									5×10	286	5×10	250
33	5×10	106	5×10	121	5×10	151	5×10	215	5×10	314	6.3×10	344
39	5×10	136	5×10	151	5×10	181	5×10	345	6.3×10	344	6.3×10	344
47	5×10	143	5×10	161	5×10	211	5×10	345	6.3×10	385	6.3×10	385
56	5×10	151	5×10	171	5×10	310	5×10	414	6.3×10	385	6.3×12	492
56											8×10	525
68	5×10	161	5×10	181	5×10	345	6.3×10	486	6.3×10	390	6.3×12	724
68											8×10	724
82	5×10	171	5×10	211	5×10	414	6.3×10	540	6.3×12	487	8×10	724
82									8×10	724		
100	5×10	181	5×10	345	5×10	443	6.3×10	550	6.3×12	687	8×10	902
100									8×10	724		
120	5×10	211	5×10	345	6.3×10	486	6.3×10	550	8×10	800	8×12.5	902
120											10×10	979
150	5×10	345	5×10	414	6.3×10	540	6.3×12	660	8×12.5	950	8×14.5	950
150							8×10	660	10×10	975	10×13	1130
180	5×10	345	6.3×10	486	6.3×10	550	8×10	900	8×14.5	1190	8×16.5	1190
180									10×13	1230	10×14.5	1190
220	5×10	414	6.3×10	540	6.3×12	660	8×10	945	8×14.5	1190	10×14.5	1200
220					8×10	660			10×13	1230		
270	6.3×10	486	6.3×10	540	8×10	900	8×12.5	1250	8×16.5	1420	10×16.5	1300

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■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
270							10×10	1250	10×14.5	1420	12.5×14.5	1500
330	6.3×10	540	6.3×12	550	8×10	945	8×14.5	1330	10×14.5	1450	10×16.5	1580
330			8×10	550			10×13	1330			12.5×14.5	1650
390	6.3×10	540	8×10	660	8×12.5	1250	8×16.5	1420	10×16.5	1580	10×21	1870
390					10×10	1250	10×13	1760	12.5×14.5	1650	12.5×17	1870
470	6.3×12	545	8×10	900	8×12.5	1330	10×14.5	1850	12.5×14.5	2050	12.5×17	2100
470	8×10	550			10×10	1330						
560	6.3×12	880	8×10	900	8×14.5	1420	10×14.5	1960	12.5×17	2050	12.5×21	2410
560	8×10	900			10×13	1760					16×17	2500
680	8×10	900	8×12.5	1250	8×16.5	1500	10×16.5	2120	12.5×17	2250	16×17	2730
680			10×10	1330	10×13	1760	12.5×14.5	2120				
820	8×10	1180	8×14.5	1420	10×14.5	1850	12.5×14.5	2360	12.5×21	2410	16×21	2620
820			10×13	1760					16×17	2730		
1000	8×12.5	1250	8×16.5	1500	10×16.5	1960	12.5×17	2480	16×17	3010	16×21	2860
1000	10×10	1330	10×13	1850	12.5×14.5	2120						
1200	8×14.5	1420	10×14.5	1850	10×21	2120	12.5×21	2900	16×21	3280	18×21	3300
1200	10×13	1760			12.5×14.5	2120						
1500	8×16.5	1500	10×16.5	1960	10×21	2480	12.5×21	2900	18×21	3280		
1500	10×13	1760	12.5×14.5	2120	12.5×17	2480	16×17	3250				
1800	10×14.5	1850	10×21	1960	12.5×17	2480	16×21	3450	18×21	3300		
1800			12.5×14.5	2120								
2200	10×16.5	1960	10×21	2480	12.5×21	2900	16×21	3630				
2200	12.5×14.5	2120	12.5×17	2480	16×17	3250						
2700	10×21	2250	12.5×17	2480	16×21	3450	18×21	4010				
2700	12.5×14.5	2250										
3300	12.5×17	2480	12.5×21	2900	16×21	3630						
3900	12.5×17	2900	16×21	3250	18×21	3650						
4700	12.5×21	3250	16×21	3450	18×21	4010						
4700	16×17	3450										

VKM

■ List of Standard Products

Voltage (V)	80		100		160		200		250		350	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×10	24	5×10	24								
1.0	5×10	37	5×10	37	5×10	68	5×10	50	5×10	56	5×10	73
1.2	5×10	37	5×10	37	5×10	68	5×10	55	5×10	56	5×10	90
1.5	5×10	43	5×10	43	5×10	95	5×10	60	5×10	56	5×10	90
1.8	5×10	43	5×10	43	5×10	95	5×10	65	5×10	65	5×10	95
2.2	5×10	47	5×10	47	5×10	95	5×10	75	5×10	98	6.3×10	125
2.7	5×10	55	5×10	55	5×10	95	5×10	80	5×10	98	6.3×10	125
3.3	5×10	62	5×10	62	5×10	95	5×10	95	5×10	98	6.3×10	131
3.9	5×10	81	5×10	81	5×10	95	5×10	95	6.3×10	135	6.3×12	131
3.9											8×10	131
4.7	5×10	101	5×10	101	5×10	95	6.3×10	125	6.3×10	135	6.3×12	140
4.7											8×10	140
5.6	5×10	106	5×10	106	6.3×10	110	6.3×10	125	6.3×10	140	8×10	140
6.8	5×10	111	5×10	111	6.3×10	125	6.3×10	140	6.3×12	140	8×12.5	200
6.8									8×10	140	10×10	210
8.2	5×10	121	5×10	121	6.3×10	125	6.3×12	140	8×10	170	8×14.5	220
8.2							8×10	140			10×13	270
10	5×10	150	5×10	220	6.3×12	132	8×10	170	8×10	210	8×14.5	250
10					8×10	140					10×13	270
12	5×10	163	6.3×10	267	8×10	150	8×12.5	240	8×12.5	240	8×20.5	340
15	5×10	200	6.3×10	267	8×10	150	10×13	320	10×13	320	8×20.5	360
15											10×14.5	460
18	5×10	240	6.3×10	267	8×12.5	160	8×14.5	280	8×14.5	280	10×16.5	480
18					10×10	160	10×13	320	10×13	320	12.5×14.5	585
22	6.3×10	267	6.3×10	290	8×12.5	160	8×16.5	320	8×16.5	320	10×21	585
22					10×10	250	10×13	320	10×13	320	12.5×14.5	585
27	6.3×10	267	6.3×12	420	8×14.5	250						
27			8×10	450	10×13	250						
33	6.3×10	267	8×10	450	8×16.5	350	10×16.5	708	10×16.5	708	12.5×17	960
33					10×13	360						
39	6.3×12	400	8×10	565	8×20.5	580						
39	8×10	420			10×14.5	635						
47	6.3×12	420	8×12.5	585	10×16.5	680	10×21	745	10×21	850	12.5×21	1115
47	8×10	470	10×10	624			12.5×17	960	12.5×17	960	16×17	1060
56	8×10	470	8×14.5	624	10×16.5	850					16×21	1115
56			10×10	624	12.5×14.5	850	12.5×17	960	12.5×17	960		
68	8×10	520	8×16.5	735	10×21	850	12.5×21	1270	12.5×21	1270	16×21	1115
68			10×13	750	12.5×14.5	850	16×17	1270	16×17	1270		
82	8×12.5	624	8×16.5	780	10×21	1020	12.5×21	1270	12.5×21	1270	18×21	1530

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■ List of Standard Products

Voltage (V)	80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
82	10×10	668	10×14.5	900	12.5×17	1155	16×17	1270	16×17	1270
100	8×14.5	735	10×14.5	1040	12.5×17	1155	12.5×21	1360	16×21	1360
100	10×10	744					16×17	1270		
120	8×16.5	744	10×16.5	1170	12.5×21	1390	16×21	1360	16×21	1500
120	10×13	892	12.5×14.5	1240	16×17	1420				
150	10×14.5	980	12.5×14.5	1368	16×21	1520	16×21	1660	18×21	1920
180	10×14.5	980	12.5×17	1530	16×21	1850	18×21	2020		
220	10×16.5	1040	12.5×21	1620	18×21	2320				
220	12.5×14.5	1040								
270	10×21	1240	12.5×21	1750						
270	12.5×17	1240	16×17	1750						
330	12.5×17	1368	16×21	2140						
390	12.5×21	1640	16×21	2210						
390	16×17	1750								
470	12.5×21	1750	18×21	2270						
470	16×17	1750								
560	16×21	2110								
680	16×21	2270								
820	18×21	2270								

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■ List of Standard Products

Voltage (V)	400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	5×10	73	5×10	73	6.3×10	45
1.2	5×10	76	5×10	78	6.3×10	45
1.5	5×10	76	6.3×10	90	6.3×10	45
1.8	6.3×10	87	6.3×10	95	8×10	80
2.2	6.3×10	105	6.3×10	100	8×10	80
2.7	6.3×10	125	6.3×10	100	8×12.5	85
3.3	6.3×10	131	8×10	120	8×12.5	85
3.9	6.3×12	140	8×10	135	8×14.5	102
3.9	8×10	140				
4.7	8×10	140	8×12.5	135	8×16.5	130
4.7			10×10	135		
5.6	8×12.5	200	8×14.5	140	10×14.5	130
5.6	10×10	220	10×13	200		
6.8	10×13	270	8×16.5	220	10×14.5	130
6.8			10×13	200		
8.2	8×14.5	250	8×16.5	220	10×14.5	240
8.2	10×13	270	10×13	200		
10	8×16.5	270	8×20.5	260	10×16.5	260
10	10×13	270	10×14.5	350		
12	10×14.5	320	10×16.5	360	12.5×17	270
15	10×14.5	340	10×16.5	370	12.5×17	270
15			12.5×14.5	370		
18	10×16.5	360	12.5×17	410	12.5×17	470
18	12.5×14.5	360				
22	10×21	570	12.5×17	450	12.5×21	470
22	12.5×17	570				
33	12.5×21	850	12.5×21	710	16×21	700
33	16×17	900	16×17	740		
47	16×21	1100	16×21	1215	18×21	720
56	16×21	1155	18×21	1300		
68	18×21	1460				

VKG

◆Long lifespan, withstands high frequency and high ripple current, designed for high-end power supplies

◆8000~12000 hours at 105℃

◆Compliant with AEC-Q200 RoHS directive

◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering



■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃；160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100
tg δ	0.28	0.24	0.20	0.16	0.14	0.14	0.12	0.12
Rated voltage (V)	160	200	250	350	400	450	500	
tg δ	0.15	0.15	0.15	0.15	0.15	0.20	0.25	

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3
Rated voltage (V)	160	200	250	350	400	450	500	
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	7	7	7	8	

Durability

After applying the rated voltage for a specified time in a 105℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements.

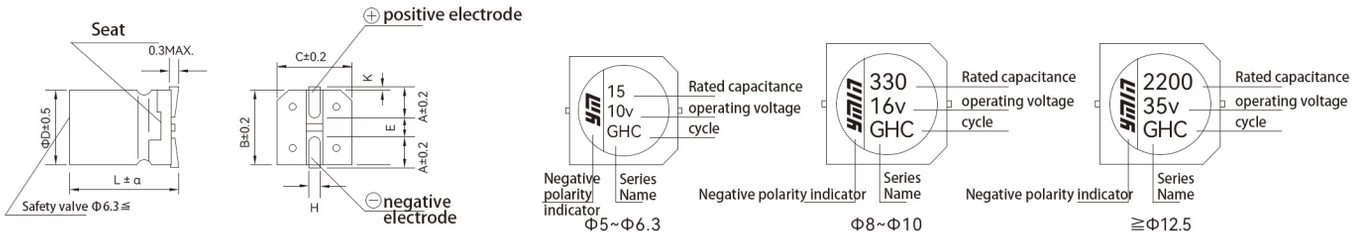
Capacity change rate	Within ±20% of the initial value		
Loss tangent	Below 200% of the specified value		
Leakage current	Below the specified value		
Load life	10~100WV	Φ5 8000h	Φ6.3 10000h
		≧Φ8 12000h	
	160~500WV	Φ5~Φ6.3 10000h	
		≧Φ8 12000h	

High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
5	10	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
5	12	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
6.3	12	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	12.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	14.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	16.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	20.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	13	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	14.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	16.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	21	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
12.5	13.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	14.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.5
12.5	16.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	21	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	16.5	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
16	21	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
18	16.5	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0
18	21	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)		120	1K	10K	100K≦
coefficient	0.47~8.2	0.42	0.60	0.80	1.00
	10~39	0.45	0.75	0.90	1.00
	47~180	0.50	0.80	0.95	1.00
	220以上	0.60	0.85	0.95	1.00

VKG

■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47									5×10	22	5×10	24
1.0									5×10	32	5×10	35
1.2									5×10	32	5×10	35
1.5									5×10	38	5×10	42
1.8									5×10	38	5×10	42
2.2									5×10	40	5×10	46
2.7									5×10	40	5×10	56
3.3									5×10	55	5×10	60
3.9									5×10	55	5×10	79
4.7									5×10	90	5×10	99
5.6									5×10	92	5×10	101
6.8									5×10	95	5×10	105
8.2									5×10	97	5×10	110
10	5×10	57	5×10	72	5×10	92	5×10	102	5×10	102	5×10	112
12									5×10	122	5×10	122
15	5×10	77	5×10	92	5×10	112	5×10	122	5×10	122	5×10	170
18									5×10	170	6.3×10	278
22	5×10	92	5×10	112	5×10	122	5×10	170	6.3×10	180	6.3×10	356
27									6.3×10	180	6.3×10	356
33	5×10	107	5×10	122	5×10	152	5×10	220	6.3×10	356	6.3×12	400
33											8×10	482
39	5×10	137	5×10	152	5×10	182	6.3×10	240	6.3×10	356	6.3×12	400
39											8×10	482
47	5×10	144	5×10	162	5×10	212	6.3×10	350	6.3×12	356	6.3×12	520
47									8×10	395	8×10	520
56	5×10	152	5×10	172	5×10	320	6.3×10	495	6.3×12	666	8×10	520
56									8×10	666		
68	5×10	162	5×10	182	6.3×10	350	6.3×12	550	8×10	666	8×12.5	520
68							8×10	580			10×10	535
82	5×10	172	5×10	212	6.3×10	550	6.3×12	550	8×12.5	740	8×12.5	722
82							8×10	580	10×10	666	10×10	650
100	5×10	182	6.3×10	350	6.3×10	550	6.3×12	550	8×12.5	740	8×16.5	722
100							8×10	580	10×10	666	10×13	722
120	5×10	320	6.3×10	550	6.3×12	550	8×10	864	8×14.5	970	8×16.5	722
120					8×10	580			10×13	985	10×13	722
150	6.3×10	350	6.3×10	550	6.3×12	550	8×12.5	960	8×16.5	970	8×20.5	890
150					8×10	580	10×10	980	10×13	985	10×16.5	998
180	6.3×10	350	6.3×10	550	8×10	864	8×12.5	960	8×20.5	1220	10×16.5	998
180							10×10	980	10×14.5	1370		

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■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
220	6.3×10	550	6.3×12	550	8×12.5	960	8×12.5	1270	8×20.5	1220	10×21	1200
220			8×10	580	10×10	980			10×16.5	1370	12.5×16.5	1250
270	6.3×10	550	8×10	580	8×12.5	960	8×16.5	1270	10×21	1580	10×21	1200
270					10×10	980	10×13	1330	12.5×14.5	1752	12.5×16.5	1250
330	6.3×12	550	8×10	864	8×14.5	960	10×13	1330	10×21	1580	12.5×21	1570
330	8×10	580							12.5×16.5	1752		
390	8×10	580	8×12.5	960	8×16.5	1270	8×20.5	1720	10×21	1870	12.5×21	1570
390			10×10	980	10×13	1270	10×16.5	1850				
470	8×10	864	8×12.5	960	10×13	1330	10×16.5	1850	12.5×21	2050	16×21	1990
470			10×10	980			12.5×14.5	1890				
560	8×12.5	960	8×16.5	1270	8×20.5	1530	10×21	2250	12.5×21	2410	16×21	2410
560	10×10	980	10×10	1330	10×14.5	1850	12.5×16.5	2330				
680	8×12.5	960	8×16.5	1270	10×16.5	1850			16×21	2410	18×21	2730
680	10×10	980	10×13	1330			12.5×21	2330				
820	8×14.5	1170	8×20.5	1530	10×21	2250	12.5×21	2480	16×21	2960	18×21	2730
820	10×13	1270	10×14.5	1850	12.5×16.5	2330						
1000	8×16.5	1270	8×20.5	1530	10×21	2330	12.5×21	2480	18×21	3010		
1000	10×13	1330	10×16.5	1850	12.5×16.5	2330						
1200	8×20.5	1530	10×16.5	1960	12.5×21	2480	16×21	2900				
1200	10×14.5	1760										
1500	8×20.5	1530	10×21	1960	12.5×21	2480						
1500	10×16.5	1850	12.5×16.5	2330			16×21	3250				
1800	10×21	1960	10×21	2250	16×21	2900						
1800	12.5×16.5	2330	12.5×16.5	2480			18×21	3630				
2200	10×21	1960	12.5×21	2480	16×21	3450	18×21	3630				
2200	12.5×16.5	2330			16×21	3250						
2700	12.5×21	2480	12.5×21	2900	18×21	3630						
3300	12.5×21	2480	16×21	3450	18×21	3630						
3900	16×21	2900	16×21	3250								
4700	16×21	3450	18×21	3630								

VKG

■ List of Standard Products

Voltage (V)	80		100		160		200		250		350	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×10	25	5×10	25								
1.0	5×10	36	5×10	36	6.3×10	52	6.3×10	52	6.3×10	72	6.3×10	81
1.2	5×10	36	5×10	36	6.3×10	57	6.3×10	57	6.3×10	72	6.3×10	99
1.5	5×10	44	5×10	44	6.3×10	64	6.3×10	64	6.3×10	72	6.3×10	99
1.8	5×10	44	5×10	44	6.3×10	70	6.3×10	70	6.3×10	108	6.3×10	99
2.2	5×10	48	5×10	48	6.3×10	77	6.3×10	77	6.3×10	117	6.3×10	130
2.7	5×10	56	5×10	56	6.3×10	85	6.3×10	85	6.3×10	117	6.3×12	144
2.7											8×10	144
3.3	5×10	63	5×10	63	6.3×10	95	6.3×10	108	6.3×10	140	8×10	144
3.9	5×10	82	5×10	82	6.3×10	108	6.3×10	108	6.3×12	140	8×10	155
3.9									8×9	144		
4.7	5×10	102	5×10	102	6.3×10	108	6.3×12	130	6.3×12	144	8×12.5	155
4.7							8×10	153	8×10	144	10×10	180
5.6	5×10	107	6.3×10	107	6.3×10	130	6.3×12	130	8×10	144	8×12.5	200
5.6							8×10	153			10×10	170
6.8	5×10	112	6.3×10	112	6.3×12	130	8×10	153	8×10	160	8×14.5	220
6.8					8×10	117					10×10	240
8.2	5×10	127	6.3×10	127	8×10	140	8×10	160	8×12.5	160	8×16.5	290
8.2									10×10	144	10×13	315
10	6.3×10	170	6.3×10	275	8×10	140	8×12.5	170	8×12.5	290	8×20.5	290
10							10×10	180	10×10	365	10×14.5	350
12	6.3×10	248	6.3×12	300	8×12.5	168	8×16.5	220	8×16.5	270	10×16.5	360
12			8×10	300	10×10	168						
15	6.3×10	275	6.3×12	400	8×12.5	261	8×16.5	290	8×16.5	290	10×16.5	370
15			8×10	416	10×10	261	10×13	365	10×13	380	12.5×14.5	490
18	6.3×10	275	6.3×12	400	8×14.5	290	8×20.5	370	8×20.5	370	10×21	490
18			8×10	416	10×10	261	10×14.5	380	10×14.5	400	12.5×14.5	510
22	6.3×12	400	8×12.5	462	8×14.5	350	8×20.5	370	8×20.5	370	10×21	550
22	8×10	416	10×10	500	10×13	380	10×14.5	400	10×14.5	400	12.5×16.5	1060
27	6.3×12	400	8×12.5	585	8×16.5	350						
27	8×10	416	10×10	624	10×13	380						
33	6.3×12	400	8×12.5	585	8×20.5	650	10×21	650	10×21	650	12.5×21	1060
33	8×10	416	10×10	624	10×14.5	760	12.5×14.5	760	12.5×14.5	760		
39	8×12.5	462	8×16.5	585	10×16.5	650						
39	10×10	500	10×13	624	12.5×14.5	760						
47	8×12.5	462	8×16.5	585	10×21	750	12.5×21	980	12.5×21	980	16×21	1150
47	10×10	500	10×13	624	12.5×14.5	760						
56	8×12.5	585	10×13	750	10×21	920	12.5×21	980	12.5×21	980	18×21	1320
56	10×10	585			12.5×16.5	1180						

VKG

■ List of Standard Products

Voltage (V)	80		100		160		200		250		350	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
68	8×16.5	585	8×20.5	770	12.5×16.5	1280	16×21	1300	16×21	1300	18×21	1530
68	10×13	624	10×14.5	780								
82	8×20.5	624	10×16.5	780	12.5×21	1280	16×21	1390	16×21	1420		
82	10×13	624	12.5×14.5	858								
100	8×20.5	800	10×21	1040	12.5×21	1280	16×21	1420	18×21	1950		
100	10×16.5	780	12.5×16.5	975								
120	10×16.5	780	12.5×21	1430			18×21	1950	18×21	1950		
120	12.5×14.5	858			16×21	1420						
150	10×21	1040	12.5×21	1430	18×21	1890	18×21	1950				
150	12.5×16.5	975										
180	10×21	1040	16×21	1620	18×21	1890						
180	12.5×16.5	975										
220	12.5×21	1430	16×21	1620								
270	12.5×21	1430	16×21	1750								
330	12.5×21	1620	18×21	2210								
390	16×21	1750	18×21	2210								
470	18×21	2210										
560	18×21	2210										

VKG

■ List of Standard Products

Voltage (V)	400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×10	77	6.3×10	81	6.3×12	48
1.2	6.3×10	81	6.3×10	81	6.3×12	48
1.5	6.3×10	81	6.3×10	81	6.3×12	48
1.8	6.3×10	81	6.3×12	86	8×12.5	84
1.8			8×10	86		
2.2	6.3×10	100	8×10	95	8×12.5	90
2.7	8×10	144	8×10	126	8×14.5	110
3.3	8×10	160	8×12.5	140	8×14.5	110
3.3			10×10	150		
3.9	8×12.5	160	8×12.5	140	8×16.5	130
3.9	10×10	220	10×10	150		
4.7	8×12.5	160	8×14.5	175	10×13	130
4.7	10×10	220	10×10	180		
5.6	8×14.5	240	8×16.5	190	10×16.5	140
5.6	10×13	250	10×13	200		
6.8	8×16.5	270	8×20.5	230	10×16.5	250
6.8	10×13	280	10×14.5	210		
8.2	8×20.5	290	8×20.5	230	10×21	250
8.2	10×14.5	315	10×14.5	280		
10	8×20.5	315	10×16.5	230	10×21	280
10	10×14.5	350	12.5×14.5	360	12.5×14.5	320
12	10×21	450	12.5×16.5	460	12.5×16.5	460
15	10×21	490	10×21	410	12.5×21	480
15	12.5×16.5	550	12.5×16.5	460		
18	12.5×16.5	550	12.5×21	500	16×21	480
22	12.5×21	1000	12.5×21	500	16×21	520
33	16×21	1060	16×21	730	18×21	740
47	18×21	1180	18×21	1200		
56	18×21	1530				

VKL

◆High temperature resistance, long lifespan, high frequency and high ripple current resistance, designed for high-end power supplies

◆2000~5000 hours at 125℃

◆Compliant with AEC-Q200 RoHS directive

◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering



■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －40~+125℃；160~450V －25~+125℃
Nominal Voltage Range	10~450V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~450WV I≦0.02CV+10(μA) C: Nominal Capacity (μF) V: Rated Voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	

Rated voltage (V)	10	16	25	35	50	63	80
tg δ	0.28	0.24	0.20	0.16	0.14	0.14	0.12
Rated voltage (V)	100	160	200	250	400	450	
tg δ	0.12	0.15	0.15	0.15	0.20	0.20	

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	10	16	25	35	50	63	80
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3
Rated voltage (V)	100	160	200	250	400	450	
Impedance ratio Z(－40℃)/Z(20℃)	3	5	5	5	7	7	

Durability

After applying the rated voltage for a specified time in a 125℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements.

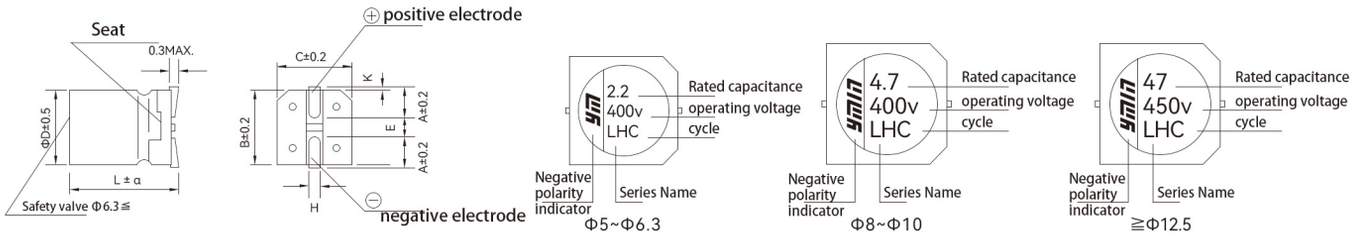
Capacity change rate	10~100WV Within ±30% of the initial value			
	160~450WV Within ±20% of the initial value			
Loss tangent	10~100WV Within ±300% of the initial value			
	160~450WV Within ±200% of the initial value			
Leakage current	Within the specified value			
Load life	10~100WV		160~450WV	
	External dimensions	Load life	External dimensions	Load life
	ΦD=5、6.3	2000h	ΦD=5、6.3	2000h
	ΦD=8、10	3000h	ΦD=8	3000h
	ΦD≧12.5	5000h	ΦD≧10	5000h

High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
5	10	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
5	12	5.3	5.3	2.1	0.75±0.20	1.3	0.7MAX	±0.5
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
6.3	12	6.6	6.6	2.6	0.75±0.20	1.8	0.7MAX	±0.5
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	12.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	14.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	16.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
8	20.5	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	13	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	14.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	16.5	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
10	21	10.3	10.3	3.5	0.90±0.20	4.6	0.7MAX	±0.5
12.5	13.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	14.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	16.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
12.5	21	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	16.5	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
16	21	17.0	17.0	5.5	1.20±0.30	6.7	0.7±0.30	±1.0
18	16.5	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0
18	21	19.0	19.0	6.7	1.20±0.30	6.7	0.7±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)		120	1K	10K	100K≦
coefficient	0.47~8.2	0.42	0.60	0.80	1.00
	10~39	0.45	0.75	0.90	1.00
	47~180	0.50	0.80	0.95	1.00
	220以上	0.60	0.85	0.95	1.00

VKL

■ List of Standard Products

Voltage (V)	10		16		25		35		50		63	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0									5×10	32	5×10	32
1.5									5×10	32	5×10	32
1.8									5×10	32	5×10	32
2.2									5×10	45	5×10	45
2.7									5×10	45	5×10	45
3.3									5×10	63	5×10	63
3.9									5×10	63	5×10	63
4.7									5×10	90	5×10	90
5.6									5×10	90	5×10	90
6.8									5×10	94	5×10	94
8.2									5×10	98	5×10	98
10	5×10	72	5×10	72	5×10	72	5×10	81	5×10	98	5×10	108
15									5×10	108	5×10	118
22	5×10	72	5×10	72	5×10	72	5×10	81	6.3×10	170	6.3×10	180
33									6.3×10	245	6.3×12	265
33											8×10	280
47	5×10	114	5×10	114	5×10	114	6.3×10	240	6.3×12	320	8×10	420
47									8×10	330		
56									8×10	330	8×10	420
100	5×10	114	6.3×10	200	6.3×10	240	8×10	324	8×12.5	500	8×16.5	590
100									10×10	550	10×13	590
150	6.3×10	162	6.3×10	240	8×10	324	8×12.5	380				
150	6.3×10	200					10×10	324				
220	6.3×10	324	8×10	324	8×12.5	380	8×12.5	650	10×16.5	940	10×21	860
330	6.3×12	380	8×10	380	8×14.5	650	10×13	850	12.5×16.5	980	12.5×21	1050
330	8×10	324			10×13	650						
470	8×10	620	8×12.5	650	10×13	850	10×16.5	1000	12.5×21	1050	16×21	1570
1000	10×13	1000	10×16.5	1000	10×21	1155	12.5×21	1500	18×21	2290		
2200	12.5×16.5	1500	12.5×21	1500	18×21	2400						
3300	12.5×21	1780	18×21	2400								
4700	18×21	2400										

VKL

■ List of Standard Products

Voltage (V)	80		100		160		200		250		400	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47					6.3×10	48	6.3×10	68	6.3×10	68	6.3×10	54
1.0	5×10	32	5×10	32	6.3×10	48	6.3×10	68	6.3×10	68	6.3×10	54
1.5	5×10	32	5×10	32	6.3×10	48	6.3×10	68	6.3×10	68	6.3×10	68
1.8	5×10	32	5×10	32	6.3×10	68	6.3×10	72	6.3×10	81	6.3×10	68
2.2	5×10	45	5×10	45	6.3×10	68	6.3×10	81	6.3×10	81	6.3×10	80
2.7	5×10	45	5×10	45	6.3×10	68	6.3×10	81	6.3×10	81	8×10	100
3.3	5×10	63	5×10	63	6.3×10	72	6.3×10	85	6.3×10	90	8×10	110
3.9	5×10	63	5×10	63	6.3×10	72	6.3×10	90	6.3×12	110	8×12.5	125
4.7	5×10	90	5×10	90	6.3×10	81	6.3×12	110	6.3×12	110	8×12.5	125
4.7									8×10	90	10×10	125
5.6	5×10	90	6.3×10	90	6.3×10	85	8×10	117	8×10	117	8×14.5	130
6.8	5×10	90	6.3×10	90	6.3×12	90	8×10	117	8×10	162	10×13	208
8.2	5×10	90	6.3×10	90	8×10	107	8×12.5	165	8×12.5	165	8×20.5	250
8.2							10×10	160	10×10	160	10×14.5	260
10	6.3×10	108	6.3×10	180	8×10	107	8×14.5	210	8×14.5	210	10×16.5	330
10							10×10	160			12.5×14.5	360
15	6.3×10	180	6.3×12	210	8×12.5	117	8×16.5	210	8×16.5	210	12.5×16.5	410
15			8×10	180								
22	6.3×12	210	8×12.5	230	8×14.5	160	8×20.5	250	8×20.5	250	12.5×21	500
22	8×10	180	10×10	198	10×13	178	10×14.5	250	10×14.5	250		
33	6.3×12	230	8×12.5	280	10×14.5	255	10×21	340	10×21	340	16×21	730
33	8×10	198	10×10	280								
47	8×12.5	280	10×13	350	10×21	400	12.5×21	400	12.5×21	400	18×21	850
47	10×10	280										
56	10×10	280	10×13	350	12.5×16.5	608	12.5×21	500	12.5×21	500		
100	10×16.5	550	12.5×16.5	700	16×21	825	16×21	800	18×21	800		
220	12.5×21	890	16×21	1155								
330	12.5×21	1050	18×21	1400								
470	18×21	1400										

Voltage (V)	450		Voltage (V)	450		Voltage (V)	450		Voltage (V)	450	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	6.3×10	60	**2.7**	8×10	120	**6.8**	10×14.5	260	**15**	12.5×16.5	410
1.0	6.3×10	60	**3.3**	8×12.5	120	**8.2**	8×20.5	260	**22**	12.5×21	500
1.5	6.3×10	60	**3.9**	8×12.5	130	**8.2**	10×14.5	260	**33**	16×21	820
1.8	8×10	84	**4.7**	8×14.5	130	**10**	10×16.5	320	**47**	18×21	980
2.2	8×10	90	**5.6**	10×13	140	**10**	12.5×14.5	360			

VKL(R)

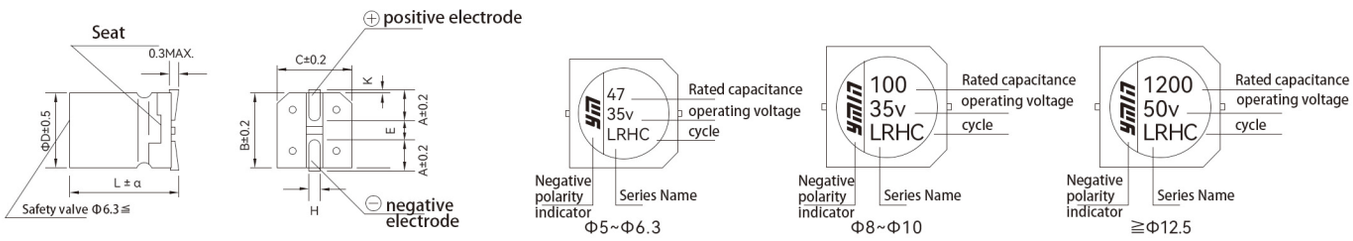
◆High temperature resistance, low impedance, and high reliability V-CHIP products
◆2000-hour lifespan at 135℃
◆Compliant with AEC-Q200 RoHS directive
◆Suitable for high-density, fully automated surface mount technology and high-temperature reflow soldering



■ Main technical parameters

project	characteristic
Operating Temperature Range	－55~+135℃
Nominal Voltage Range	10~50V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~50WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 10 / 16 / 25 / 35 / 50 tg δ: 0.30 / 0.26 / 0.22 / 0.20 / 0.20 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 10 / 16 / 25 / 35 / 50 Impedance ratio Z(－40℃)/Z(20℃): 12 / 8 / 6 / 4 / 4
Durability	After applying the rated voltage for a specified time in a 135℃ oven, and then placing it at room temperature for 16 hours, the capacitor is tested at a test temperature of 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: 2000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



ΦD	L	B	C	A	H	E	K	α
6.3	10	6.6	6.6	2.6	0.75±0.20	1.8	0.5MAX	±0.5
8	10	8.3	8.3	3.0	0.90±0.20	3.1	0.7MAX	±0.5
10	10	10.3	10.3	3.5	0.90±0.20	4.4	0.7MAX	±0.5
12.5	13.5	13.0	13.0	4.7	0.90±0.30	4.4	0.7MAX	±1.0
16	16.5	17.0	17.0	5.5	1.20±0.30	6.7	0.70±0.30	±1.0
16	21	17.0	17.0	5.5	1.20±0.30	6.7	0.70±0.30	±1.0
18	16.5	19.0	19.0	6.7	1.20±0.30	6.7	0.70±0.30	±1.0
18	21	19.0	19.0	6.7	1.20±0.30	6.7	0.70±0.30	±1.0

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.35	0.50	0.83	1.00

VKL(R)

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 135℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 135℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 135℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 135℃ 120Hz)
47										6.3×10	0.5	197
47										8×10	0.4	270
68										8×10	0.4	270
100				6.3×10	0.5	197	8×10	0.4	270	6.3×10	0.5	197
100				8×10	0.4	270				8×10	0.4	270
220	8×10	0.4	270	8×10	0.4	270	10×10	0.3	500	10×10	0.3	500
330	8×10	0.4	270	10×10	0.3	500	10×10	0.3	500			
330	10×10	0.3	500									
470	10×10	0.3	500	10×10	0.3	500				12.5×13.5	0.14	750
560										12.5×13.5	0.14	750
680										12.5×13.5	0.14	750
820							12.5×13.5	0.14	750	16×16.5	0.1	1200
1000							12.5×13.5	0.14	750	16×16.5	0.1	1200
1200							16×16.5	0.1	1200	18×16.5	0.1	1400
1500							16×16.5	0.1	1200	16×21	0.08	1900
1500										18×16.5	0.1	1400
1800							16×16.5	0.1	1200	18×21	0.07	2200
2200							18×16.5	0.1	1400	18×21	0.07	2200
2700							16×21	0.08	1900			
3300							18×21	0.07	2200			

Voltage (V)	50		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 135℃ 120Hz)
47	8×10	0.5	270
100	10×10	0.4	500
390	12.5×13.5	0.18	750
470	16×16.5	0.14	1000
560	16×16.5	0.14	1000
680	18×16.5	0.14	1200
820	18×16.5	0.14	1200
1000	16×21	0.1	1600
1200	18×21	0.08	1900

L3M

◆Low impedance, thin profile, high capacitance

◆2000~5000 hours at 105℃

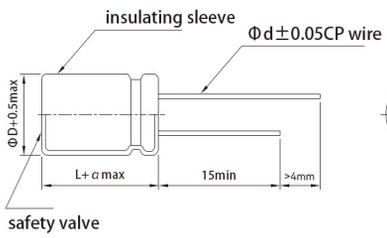
◆Compliant with AEC-Q200 RoHS directive

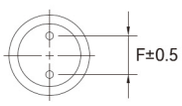


■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃；160V －40~+105℃
Nominal Voltage Range	6.3~160V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Reading in 2 minutes
	160WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Reading in 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 / 160 tg δ: 0.26 / 0.19 / 0.16 / 0.14 / 0.12 / 0.12 / 0.12 / 0.12 / 0.12 / 0.14 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 / 160 Impedance ratio Z(－40℃)/Z(20℃): 3 / 3 / 3 / 3 / 3 / 3 / 5 / 5 / 5 / 5
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: ≦Φ10 2000h ; >Φ10 5000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)





L<20	α=1.0
L≧20	α=2.0

Note: Products ≥ Φ6.3 have a safety valve.

D	4	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.45	0.5(0.45)	0.5	0.6(0.5)	0.6	0.7	0.6	0.8	0.8	0.8
F	1.5	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.35	0.50	0.83	1.00

L3M

■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
150										6.3×7	0.32	600
220										6.3×7	0.32	600
330				6.3×7	0.32	600	6.3×7	0.32	600			
470	6.3×7	0.32	600	6.3×7	0.32	600				8×9	0.16	850
680	6.3×7	0.32	600				8×9	0.16	850			
820										10×9	0.12	1190
1000				8×9	0.16	850	10×9	0.12	1190			
1500	8×9	0.16	850	10×9	0.12	1190				12.5×13	0.116	1420
2200	10×9	0.12	1190									

Voltage (V)	35			50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100				6.3×7	0.68	350						
150	6.3×7	0.32	600									
220				8×9	0.36	670				12.5×13	0.36	1050
330	8×9	0.16	850	10×9	0.24	900						
470				12.5×13	0.24	1340	12.5×16	0.28	1250	16×16	0.20	1500
560	10×9	0.12	1190									
680							16×16	0.164	1740	16×20	0.132	2040
820							18×16	0.16	1880	18×20	0.126	2140
1000	12.5×14	0.116	1420	16×16	0.16	1820						
1200							16×20	0.108	2430			
1500				16×20	0.10	2440						

Voltage (V)	100			160		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/ 100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100				12.5×16	4.60	1040
150	12.5×13	0.36	1050	16×20	3.28	1520
220	12.5×16	0.22	1250	18×20	2.58	2140
330	16×16	0.20	1500			
470	16×20	0.132	2040			
560	18×20	0.126	2140			

LMM

- ◆ Flat, miniaturized design, specifically for high-end power supplies
- ◆ Withstands 3000~8000 hours at 105℃
- ◆ Complies with AEC-Q200 RoHS directive



■ Main technical parameters

project	characteristic
Operating Temperature Range	≦100V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	6.3~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	6.3	10	16	25	35	50	63	80
tg δ	0.32	0.28	0.24	0.20	0.18	0.16	0.16	0.14
Rated voltage (V)	100	160	200	250	350	400	450	500
tg δ	0.14	0.15	0.15	0.15	0.20	0.20	0.20	0.25

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	6.3	10	16	25	35	50	63	80
Impedance ratio Z(－40℃)/Z(20℃)	14	12	10	10	10	7	7	7
Rated voltage (V)	100	160	200	250	350	400	450	500
Impedance ratio Z(－40℃)/Z(20℃)	7	10	10	10	10	10	10	12

Durability

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

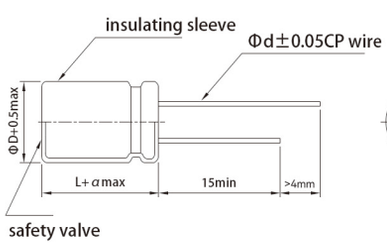
Capacity change rate	Within ±30% of the initial value			
Loss tangent	Below 300% of the specified value			
Leakage current	Below the specified value			
Load life	6.3~100WV		160~500WV	
	External dimensions:	Load life	External Dimensions	life
	ΦD*5	3000	ΦD×5	3000
	ΦD*7	4000	ΦD×7	5000
	Others Φ5~Φ6.3	5000	Others: Φ5－Φ6.3	6000
	Others Φ8	6000	Others: Φ8	7000
	Others Φ10 and above	8000	Others: Φ10 and above	8000

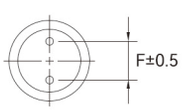
High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)





L≦7	α=1.5
L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

Note: Products ≥ Φ6.3 have a safety valve.

D	4	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.45	0.5(0.45)	0.5	0.6(0.5)	0.6	0.7	0.6	0.8	0.8	0.8
F	1.5	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.65	1.00	1.37	1.50

LMM

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
18											5×7	40
22											5×7	57
33											6.3×7	72
39							5×7	49			6.3×7	80
47							5×7	54			6.3×7	88
56					5×7	53	5×7	60	6.3×7	74		
56											8×7	120
68					5×7	58			6.3×7	105		
68											8×7	140
82					5×7	64	6.3×7	115	6.3×7	116		
82											8×7	150
100									8×7	160		
120							6.3×7	180	8×7	180	10×7	180
150					6.3×7	109			8×7	180	10×7	220
180			6.3×7	94			8×7	170	10×7	225	10×9	310
180											8×12	310
220			6.3×7	103					10×7	315	10×12	340
270	6.3×7	123	6.3×7	163					10×7	350	10×12	375
270					8×7	180	10×7	310				
330									10×9	420	12.5×13	415
330	6.3×7	135			8×7	200	10×7	345			10×14	415
390	8×5	166	8×7	196					10×12	525	12.5×13	455
390							10×7	380				
470	8×7	200	8×7	210	10×7	295	10×9	490	10×12.5	570	12.5×13	500
560	8×7	231	10×7	253	10×7	325	10×12	580	12.5×13	586	12.5×14	550
680	8×7	254	10×7	275	10×9	420	10×12	640	12.5×13	640	12.5×16	610
820	10×7	304	10×7	345	10×9	465	12.5×13	710	12.5×14	710	16×16	680
820	8×9	304										
1000	10×7	362	10×9	450	10×12	580	12.5×13	780	12.5×16	780	16×16	680
1000	8×9	362										
1200	8×12	430	10×12	540	10×12.5	600	12.5×13	860	12.5×16	850	18×16	750
1200	10×9	430										
1500	10×12	520	10×12.5	600	12.5×13	665	12.5×16	925	16×16	925	16×20	830
1800	10×12	520	12.5×13	730	12.5×13	730	12.5×16	1010	16×16	1010	18×20	910
2200	10×12.5	570	12.5×13	800	12.5×14	860	16×16	1100	18×16	1100		
2700	10×16	686	12.5×13	810	12.5×16	980	16×16	1230	18×20	1230		
2700	12.5×13	686										
3300	10×16	760	12.5×16	970	16×16	1130	18×16	1350				
3300	12.5×13	760										
3900	12.5×14	830	12.5×16	1060	16×16	1250	18×20	1480				
4700	12.5×16	910	16×16	1360	18×16	1580	18×20	1650				

LMM

■ List of Standard Products

Voltage (V)	63		80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.5											5×7	22
1.8									5×7	22	5×7	22
2.2							5×7	20	5×7	22		
2.7							5×7	22			6.3×7	35
3.3											6.3×7	35
3.9									6.3×7	40	6.3×7	40
4.7							6.3×7	28	6.3×7	45		
5.6					5×7	22	6.3×7	40			8×7	55
6.8					5×7	24			8×7	65	8×7	65
8.2			5×7	26					8×7	65		
8.2											10×7	80
10			5×7	28		28	8×7	56	8×7	72		
10											10×7	95
12	5×7	45			6.3×7	31	8×7	62	8×9	90	10×7	105
12									10×7	90		
15	5×7	50	6.3×7	38	6.3×7	34	8×9	87	10×7	105	10×9	125
15							10×7	87				
18			6.3×7	44			10×7	95	10×9	125	10×12	140
22			6.3×7	49	8×7	60	10×9	110	10×12	180	10×12	180
27	6.3×7	65			8×7	78	10×12	150	10×12.5	225	10×14	225
33	6.3×7	72	8×7	78	10×7	86	10×12	165	10×14	250	12.5×13	270
39			8×7	86	10×7	110	10×12.5	185	12.5×13	300	12.5×14	300
47	8×7	88	10×7	110	10×7	140	12.5×13	300	12.5×13	330	12.5×16	375
56	8×7	98	10×7	140	10×9	170	12.5×13	330	12.5×14	340	12.5×16	375
68	8×7	110	10×7	155	10×12	200	12.5×14	365	12.5×16	375	16×16	450
82	10×7	155	10×9	180	10×12.5	250	12.5×16	440	16×16	450	16×16	450
82												
100	10×7	180	10×9	200	12.5×13	310	12.5×16	440	16×16	480	18×16	500
100												
120	10×9	200	10×12	250	12.5×13	320	16×16	525	18×16	575	16×20	540
120												
150	10×12	250	12.5×13	310	12.5×13	320	18×16	630	16×20	575	18×20	670
150												
180	10×12	275	12.5×13	320	12.5×16	390	18×16	630	18×20	690		
180												
220	12.5×13	320	12.5×13	320	12.5×16	480	18×20	835				
270	12.5×13	350	12.5×14	390	16×16	530						
330	12.5×13	390	12.5×16	480	16×16	590						
330												

LMM

■ List of Standard Products

Voltage (V)	63		80		100	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
390	12.5×16	440	16×16	530	18×16	700
470	12.5×16	480	16×16	590	16×20	700
560	16×16	550	18×16	700	18×20	850
680	16×16	610	16×20	700		
820	18×16	730	18×20	850		
1000	18×16	750				
1200	16×20	830				
1500	18×20	910				

Voltage (V)	350		400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	5×7	18	5×7	18			6.3×7	20
1.2	5×7	20			6.3×7	24	6.3×7	20
1.5			6.3×7	28	6.3×7	28		
1.8	6.3×7	31	6.3×7	31			8×7	25
2.2	6.3×7	40	6.3×7	40	8×7	44	8×7	30
2.7					8×7	48	8×9	36
3.3			8×7	55	8×7	55	10×7	36
3.9	8×7	62	8×7	62	10×7	66	8×12	44
3.9							10×9	44
4.7	8×7	70			10×7	72	8×14	50
4.7							10×9	50
5.6	8×9	84	8×9	84	10×9	88	10×12	55
5.6	10×7	84	10×7	84				
6.8	8×9	84	8×12	88	10×12	105	10×12	60
6.8	10×7	88	10×7	88				
8.2	8×12	105	10×9	105	10×12	120	10×12.5	66
8.2	10×9	105						
10	10×9	105	10×12	120	10×12.5	126	10×14	72
10							12.5×13	86
12	10×12	126	10×12	126	12.5×13	150	12.5×14	95
15	10×12.5	132	12.5×13	150	12.5×13	150	12.5×14	105
18	10×14	145	12.5×13	150	12.5×14	165	12.5×16	125
22	12.5×13	150	12.5×14	165	12.5×16	200	16×16	150
27	12.5×14	165	12.5×16	182	16×16	234	16×16	165

LMM

■ List of Standard Products

Voltage (V)	350		400		450		500	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
33	12.5×16	182	12.5×16	200	16×16	258	18×16.5	180
39	12.5×16	200	16×16	234	18×16	310	16×20	215
47	16×16	258	16×16	258	16×20	340	18×20	258
56	18×16	310	18×16	310	18×20	380		
68	18×16	340	16×20	340				
82	18×20	380	18×20	380				
100	18×20	410						

LK7

◆7mm high, ultra-compact design, specifically for high-end power supplies

◆5000~6000 hours of operation at 105℃

◆Compliant with AEC-Q200 RoHS directive



■ Main technical parameters

project	characteristic
Operating Temperature Range	－40~+105℃
Nominal Voltage Range	6.3~400V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	6.3~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~400WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	6.3	10	16	25	35	50	63
tg δ	0.32	0.28	0.24	0.20	0.16	0.14	0.14
Rated voltage (V)	80	100	160	200	250	350	400
tg δ	0.12	0.12	0.15	0.15	0.15	0.15	0.15

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	6.3	10	16	25	35	50	63
Impedance ratio Z(－40℃)/Z(20℃)	12	10	8	6	4	4	4
Rated voltage (V)	80	100	160	200	250	350	400
Impedance ratio Z(－40℃)/Z(20℃)	4	4	4	5	5	7	7

Durability

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

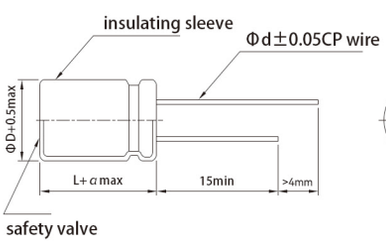
Capacity change rate	Within ±30% of the initial value	
Loss tangent	Below 300% of the specified value	
Leakage current	Below the specified value	
Load life	Φ5、Φ6.3	5000h
	Φ8、Φ10	6000h

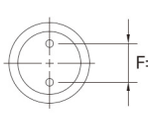
High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±30% of the initial value
Loss tangent	Below 300% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)





D	5	6.3	8(≦100V)	8(≧160V)	10	12.5~13	12.5~13(h≥30)	14.5
d	0.45	0.5	0.5	0.6	0.6	0.7	0.6	0.8
F	2.0	2.5	3.5		5.0	5.0	5.0	7.5
α	1.0				1.5			

Note: Products ≥ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
Correction Factor	0.65	1.00	1.37	1.50

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

LK7

■ List of Standard Products

Voltage (V)	6.3		10		16		25		35		50	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
2.2											5×7	31
2.7											5×7	31
3.3											5×7	31
3.9											5×7	31
4.7							5×7	50	5×7	50	5×7	31
5.6							5×7	50	5×7	50	5×7	31
6.8							5×7	55	5×7	50	5×7	31
8.2							5×7	55	5×7	50	5×7	31
10	5×7	55	5×7	55	5×7	55	5×7	60	5×7	50	5×7	31
12	5×7	55	5×7	55	5×7	55	5×7	60	5×7	60	5×7	37
15	5×7	60	5×7	60	5×7	60	5×7	60	5×7	60	5×7	44
18	5×7	60	5×7	60	5×7	60	5×7	60	5×7	60	6.3×7	55
22	5×7	60	5×7	70	5×7	70	5×7	60	5×7	70	6.3×7	65
27	5×7	70	5×7	70	5×7	70	5×7	70	6.3×7	80	6.3×7	78
33	5×7	80	5×7	80	5×7	80	5×7	85	6.3×7	90	8×7	85
39	5×7	80	5×7	80	5×7	80	5×7	85	6.3×7	98	8×7	100
47	5×7	90	5×7	90	5×7	90	5×7	90	6.3×7	105	8×7	120
56	5×7	90	5×7	90	5×7	90	6.3×7	98	8×7	115	8×7	125
68	5×7	90	5×7	90	5×7	90	6.3×7	105	8×7	125	10×7	140
82	5×7	100	5×7	98	6.3×7	105	6.3×7	115	8×7	140	10×7	160
100	5×7	105	6.3×7	115	6.3×7	115	8×7	125	8×7	170	10×7	180
120	5×7	110	6.3×7	115	6.3×7	128	8×7	140	10×7	180		
150	6.3×7	115	6.3×7	135	8×7	140	8×7	170	10×7	210		
180	6.3×7	135	8×7	160	8×7	170	10×7	190				
220	6.3×7	160	8×7	170	8×7	190	10×7	220				
270	8×7	170	8×7	190	10×7	220						
330	8×7	180	10×7	220	10×7	240						
390	8×7	190	10×7	240	10×7	260						
470	8×7	200	10×7	260								
560	10×7	240										
680	10×7	280										

LK7

■ List of Standard Products

Voltage (V)	63		80		100		160		200		250	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0									5×7	20	5×7	20
1.2									5×7	20	5×7	20
1.5									5×7	22	5×7	22
1.8									5×7	22	5×7	22
2.2	5×7	30	5×7	30	5×7	28	5×7	20	6.3×7	25	6.3×7	25
2.7	5×7	30	5×7	30	5×7	28	5×7	20	6.3×7	35	6.3×7	35
3.3	5×7	30	5×7	30	5×7	28	6.3×7	22	6.3×7	40	6.3×7	40
3.9	5×7	30	5×7	30	5×7	28	6.3×7	22	8×7	50	8×7	50
4.7	5×7	30	5×7	30	5×7	28	6.3×7	22	8×7	55	8×7	55
5.6	5×7	30	5×7	30	5×7	28	8×7	50	8×7	65	8×7	65
6.8	5×7	30	5×7	30	6.3×7	30	8×7	55	8×7	72	10×7	80
8.2	5×7	30	5×7	30	6.3×7	40	8×7	60	10×7	95	10×7	95
10	5×7	30	6.3×7	50	6.3×7	50	8×7	65	10×7	108	10×7	108
12	6.3×7	50	6.3×7	55	8×7	75	10×7	95				
15	6.3×7	56	6.3×7	70	8×7	85	10×7	115				
18	6.3×7	70	6.3×7	75	8×7	100						
22	8×7	75	8×7	85	8×7	120						
27	8×7	85	8×7	100	10×7	130						
33	8×7	100	8×7	120	10×7	150						
39	8×7	120	10×7	130								
47	10×7	130	10×7	150								
56	10×7	150	10×7	160								
68	10×7	160										

Voltage (V)	350		400	
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×7	25	6.3×7	25
1.2	6.3×7	30	6.3×7	30
1.5	6.3×7	35	6.3×7	35
1.8	6.3×7	40	6.3×7	40
2.2	8×7	50	8×7	50
2.7	8×7	55	8×7	55
3.3	8×7	70	8×7	70
3.9	10×7	80	10×7	80
4.7	10×7	95	10×7	95
5.6	10×7	108		

LK



◆ Compact size, withstands high frequency and high ripple current, high frequency and low impedance, designed for high-end power supplies

◆ 6000~8000 hours at 105℃

◆ Compliant with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+105℃；160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	

Rated voltage (V)	10	16	25	35	50	63	80	100
tg δ	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.09
Rated voltage (V)	120	160	200	250	350	400	450	500
tg δ	0.09	0.09	0.08	0.08	0.10	0.10	0.12	0.20

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3
Rated voltage (V)	120	160	200	250	350	400	450	500
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	5	7	7	7	8

Durability

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

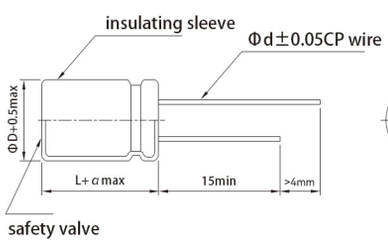
Capacity change rate	Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value	
Leakage current	Below the specified value	
Load life	≦Φ5~Φ6.3	6000h
	≧Φ8	8000h

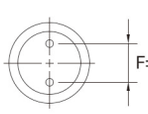
High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)





L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≧30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

Note: Products ≧ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

LK

■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10				5×9	1.10	55	5×9	1.10	70	5×9	1.10	90
15				5×9	1.10	75	5×9	1.10	90	5×9	1.10	110
22				5×9	0.42	90	5×9	0.42	110	5×9	1.10	120
33				5×9	0.42	105	5×9	0.42	120	5×9	0.42	150
39				5×9	0.42	135	5×9	0.42	150	5×9	0.42	180
47				5×9	0.28	142	5×9	0.28	160	5×9	0.28	210
56				5×9	0.28	150	5×9	0.28	170	5×9	0.28	290
68				5×9	0.28	160	5×9	0.28	180	5×11	0.25	310
82				5×9	0.28	170	5×9	0.28	210	5×11	0.25	310
100				5×9	0.28	180	5×9	0.28	290	5×11	0.25	310
120				5×9	0.28	210	5×11	0.25	310	6.3×9	0.25	390
150				5×9	0.28	290	6.3×9	0.25	390	6.3×11	0.25	404
150										8×9	0.17	441
180				5×11	0.28	290	6.3×9	0.25	390	6.3×11	0.17	404
180										8×9	0.17	441
220				5×11	0.25	310	6.3×11	0.17	404	6.3×11	0.17	404
220							8×9	0.17	441	8×9	0.17	441
270				6.3×9	0.25	390	6.3×11	0.17	404	8×11.5	0.17	830
270							8×9	0.17	441	10×9	0.1	765
330				6.3×11	0.17	404	6.3×11	0.17	650	8×11.5	0.10	830
330				8×9	0.17	441	8×9	0.17	765	10×9	0.10	765
390				6.3×11	0.17	650	8×11.5	0.10	830	8×14	0.10	1150
390				8×9	0.17	765	10×9	0.10	765	10×12.5	0.12	1150
470				6.3×11	0.17	650	8×11.5	0.10	830	6.3×15	0.15	605
470				8×9	0.17	765	10×9	0.10	765	8×16	0.10	1170
470										10×12.5	0.10	1150
560				8×11.5	0.10	830	8×11.5	0.10	830	6.3×18	0.1350	665
560				10×9	0.10	765	10×9	0.10	765	8×20	0.0505	1350
560										10×12.5	0.10	1150
680				8×11.5	0.10	830	6.3×15	0.0850	785	6.3×20	0.10	732
680				10×9	0.10	765	8×16	0.10	1125	8×20	0.0505	1350
680							10×12.5	0.13	1150	10×16	0.0505	1550
820				6.3×15	0.14	830	6.3×18	0.07	848	6.3×23	0.0890	805
820				8×11.5	0.10	830	8×20	0.0505	1350	10×16	0.0505	1550
820							10×14	0.0805	1350	12.5×14	0.0505	1808
1000	6.3×15	0.26	350	6.3×18	0.10	880	6.3×20	0.0620	916	6.3×25	0.0800	886
1000				8×16	0.10	1125	6.3×23	0.0580	988	10×20	0.0505	1808
1000				10×12.5	0.10	1150	8×20	0.0505	1350	12.5×14	0.0600	1808
1000							10×14	0.0805	1350			

LK

■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1200	6.3×18	0.20	402	6.3×20	0.0920	950	6.3×25	0.05	1067	10×23	0.05	2050
1200				8×16	0.10	1125	10×16	0.0505	1550	12.5×16	0.05	1910
1200				10×14	0.0805	1350	12.5×14	0.06	1808			
1500	6.3×20	0.16	462	6.3×23	0.08	1026	10×20	0.0420	1590	12.5×20	0.03	2250
1500	6.3×23	0.12	530	8×20	0.0805	1350	12.5×14	0.06	1808			
1500				10×14	0.0805	1350						
1800	6.3×25	0.0980	611	6.3×25	0.0680	1108	10×20	0.0420	1590	12.5×20	0.03	2250
1800				10×20	0.0620	1590	12.5×16	0.05	1910	10×27	0.03	2580
1800				12.5×14	0.06	1808						
2200				10×20	0.0620	1590	10×23	0.03	2050	12.5×25	0.0270	2620
2200				12.5×14	0.06	1808	12.5×20	0.03	2250	14.5×16	0.0270	2620
2700				10×20	0.0620	1590	12.5×20	0.03	2250	12.5×27	0.0260	3050
2700				12.5×16	0.05	1910				12.5×30	0.0250	3110
3300				12.5×20	0.03	2250	10×27	0.0312	2800	12.5×35	0.0250	3215
3300							12.5×25	0.0268	2620	13×27	0.0250	3150
3300							14.5×16	0.0268	2620	14.5×20	0.0250	3180
3300										14.5×23	0.0240	3270
3300										16×25	0.0250	3270
3900				12.5×20	0.03	2250	12.5×30	0.0255	3110	14.5×25	0.0230	3350
3900							16×20	0.0268	2925	16×31.5	0.02	3500
3900										18×25	0.0135	3300
4700				10×27	0.0350	2500	12.5×27	0.0285	3050	14.5×27	0.0220	3460
4700				12.5×25	0.0270	2620	12.5×30	0.0255	3110	18×25	0.0135	3600
4700				14.5×16	0.0280	2450	14.5×20	0.0255	3110			
4700							16×25	0.0246	3270			
5600				12.5×25	0.0270	2620	12.5×35	0.0246	3215	18×31.5	0.0120	3610
5600				12.5×27	0.0270	2680	14.5×23	0.0250	3200			
5600							16×25	0.0246	3270			
6800				12.5×30	0.0155	3110	13×27	0.0255	3280	18×35.5	0.0110	3680
6800				13×27	0.0160	3110	14.5×25	0.0246	3270			
6800				14.5×20	0.0180	2780	16×31.5	0.0213	3500			
6800				16×25	0.0146	3270	18×25	0.0235	3600			
8200				12.5×40	0.0123	3500	16×35.5	0.0220	3610	18×40	0.01	3735
8200				14.5×25	0.0160	3160	14.5×27	0.0238	3450			
8200				16×25	0.0146	3270	18×31.5	0.0220	3610			
10000				14.5×27	0.0150	3280	14.5×27	0.0238	3450			
10000				16×31.5	0.0123	3500						
10000				18×25	0.0135	3600	18×35.5	0.0210	3680			

LK

■ List of Standard Products

Voltage (V)	35			50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47				5×9	5.50	20	5×9	3.00	22	5×9	3.00	23
1.0				5×9	5.50	30	5×9	3.00	33	5×9	3.00	34
1.8				5×9	5.50	36	5×9	3.00	40	5×9	3.00	42
2.2				5×9	1.60	38	5×9	3.00	44	5×9	3.00	46
2.7				5×9	1.60	46	5×9	3.00	51	5×9	1.50	54
3.3				5×9	1.60	53	5×9	3.00	58	5×9	1.50	61
3.9				5×9	1.60	70	5×9	3.00	77	5×9	1.50	80
4.7				5×9	1.60	88	5×9	3.00	97	5×9	1.50	100
5.6				5×9	1.60	90	5×9	1.50	99	5×9	1.50	105
6.8				5×9	1.60	93	5×9	1.50	102	5×9	1.50	110
8.2				5×9	1.60	97	5×9	1.50	108	5×9	1.50	125
10	5×9	1.60	100	5×9	1.60	100	5×9	1.50	110	5×9	1.50	135
12				5×9	1.60	110	5×9	1.50	120	5×11	1.50	150
15	5×9	1.10	120	5×9	1.60	120	5×9	1.50	145	5×11	1.50	150
18				5×9	1.40	130	5×9	1.00	155	6.3×9	1.00	216
22	5×9	1.10	160				5×11	1.00	160	6.3×9	1.00	216
27				5×11	1.40	145	6.3×9	0.60	225	6.3×11	0.64	240
27										8×9	0.64	260
33	5×9	0.42	215	5×11	0.38	215	6.3×9	0.60	225	6.3×11	0.64	240
33										8×9	0.64	260
39	5×9	0.42	215	6.3×9	0.38	215	6.3×9	0.40	250	8×9	0.64	260
47	5×11	0.38	310	6.3×9	0.36	350	6.3×11	0.40	250	8×11.5	0.41	410
47							8×9	0.50	260	10×9	0.41	450
56	5×11	0.38	310	6.3×11	0.36	350	8×9	0.50	350	8×11.5	0.41	410
56				8×9	0.25	450				10×9	0.41	450
68	6.3×9	0.36	390	6.3×11	0.36	350	8×11.5	0.25	480	6.3×15	0.41	420
68				8×9	0.25	450	10×9	0.25	490	8×11.5	0.41	410
68										10×9	0.41	450
82	6.3×9	0.36	390	8×9	0.25	585	8×11.5	0.25	480	6.3×18	0.35	462
82							10×9	0.25	490	8×16	0.29	510
82										10×12.5	0.29	565
100	6.3×11	0.17	404	8×9	0.25	585	6.3×15	0.19	486	6.3×20	0.30	508
100	8×9	0.17	441				8×14	0.25	550	8×16	0.29	510
100							10×9	0.25	500	10×12.5	0.26	565
120	8×9	0.17	441	8×11.5	0.16	630	6.3×18	0.15	524	6.3×23	0.25	560
120				10×9	0.16	650	8×16	0.19	620	8×20	0.22	660
120							10×12.5	0.18	630	10×14	0.20	660
150	8×11.5	0.13	830	6.3×15	0.28	580	6.3×20	0.10	567	6.3×25	0.20	616
150	10×9	0.13	765	8×14	0.12	760	6.3×23	0.09	612	10×16	0.20	710

LK

■ List of Standard Products

Voltage (V)	35			50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
150				10x9	0.12	650	8x20	0.14	775	12.5x14	0.18	833
150							10x14	0.14	810			
180	8x11.5	0.13	830	6.3x18	0.25	626	6.3x25	0.09	661	10x20	0.14	950
180	10x9	0.13	765	8x16	0.12	860	8x20	0.14	775	12.5x14	0.18	833
180				10x12.5	0.12	875	10x16	0.14	900			
220	8x11.5	0.13	830	8x16	0.12	860	10x16	0.14	900	10x20	0.14	950
220	10x9	0.13	765	10x12.5	0.12	875				12.5x16	0.18	1020
270	8x16	0.10	1150	6.3x20	0.2000	677	10x20	0.0877	1080	12.5x20	0.0959	1290
270	10x12.5	0.10	1150	6.3x23	0.1400	731	12.5x14	0.0920	1022			
270				8x20	0.0768	1080						
270				10x16	0.0768	1250						
330	6.3x15	0.11	820	6.3x25	0.10	789	10x20	0.0877	1080	12.5x20	0.0959	1290
330	8x16	0.10	1170	10x16	0.0768	1250	12.5x16	0.0920	1080			
330	10x12.5	0.10	1150	12.5x14	0.0810	1022						
390	6.3x18	0.0950	861	10x20	0.0695	1430	12.5x20	0.0673	1415	10x27	0.0675	1420
390	8x20	0.0505	1350	12.5x14	0.0810	1022				12.5x25	0.0673	1460
390	10x16	0.0505	1550							12.5x25	0.0673	1460
470	6.3x20	0.0880	904	10x20	0.0695	1430	12.5x20	0.0673	1415	12.5x30	0.0571	1760
470	6.3x23	0.0800	950	12.5x16	0.0675	1080	12.5x25	0.0479	1800	14.5x16	0.0760	1460
470	8x20	0.0505	1350							16x20	0.0653	1560
470	10x16	0.0505	1550									
560	6.3x25	0.0760	997	12.5x16	0.0675	1598	10x27	0.06	1800	12.5x27	0.056	1850
560	10x16	0.0420	1550							16x25	0.0480	1990
560	12.5x14	0.0500	1808									
680	10x20	0.0420	1590	12.5x20	0.0600	1850	12.5x30	0.0410	2370	12.5x35	0.0520	1930
680	12.5x16	0.0500	1910				14.5x16	0.0560	1620	13x27	0.055	1920
680							16x20	0.0482	1890	14.5x20	0.0630	1720
680										14.5x23	0.0570	1860
680										16x25	0.0480	1990
820	10x20	0.0420	1590	10x27	0.062	1950	12.5x27	0.0480	2220	14.5x25	0.0520	1990
820	12.5x16	0.0500	1910	12.5x25	0.0625	2170	12.5x35	0.0367	2360	16x31.5	0.0368	2160
820				14.5x16	0.0580	2480	16x25	0.0385	2460	18x25	0.0427	2050
1000	12.5x20	0.0300	2250	12.5x27	0.0580	2520	13x27	0.0430	2480	14.5x27	0.0480	2080
1000				12.5x30	0.0580	2580	14.5x20	0.0480	2180	16x35.5	0.0326	2340
1000				16x20	0.0580	2460	14.5x23	0.0440	2300	18x31.5	0.0346	2230
1000							16x25	0.0385	2460			
1000							18x20	0.0426	2550			
1200	10×27	0.03	2220	12.5×30	0.0580	2580	14.5×25	0.0420	2420	16×40	0.0305	2580
1200	12.5×20	0.03	2250	13×27	0.0520	2560	16×31.5	0.0350	2695	18×31.5	0.0246	2970

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■ List of Standard Products

Voltage (V)	35			50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1200				14.5×20	0.0480	2580	18×25	0.0350	2520			
1200				16×25	0.0455	2710						
1500	12.5×25	0.0270	2620	12.5×40	0.0211	2745	14.5×27	0.0390	2540	18×35.5	0.0246	3160
1500	16×20	0.0270	2925	14.5×23	0.0390	2620	16×31.5	0.0350	2695			
1500				14.5×25	0.03	2680	18×31.5	0.0350	2970			
1500				16×25	0.0240	2710						
1800	12.5×35	0.0210	3215	16×31.5	0.0265	2960	16×40	0.0350	3215	18×40	0.0204	3160
1800	12.5×27	0.0350	2800	18×25	0.0347	2760	18×31.5	0.0350	2970			
1800	14.5×16	0.0210	3180									
1800	16×20	0.0210	3270									
2200	12.5×35	0.0160	3215	14.5×27	0.0280	2780	18×35.5	0.0350	3215			
2200	14.5×20	0.0160	3215	18×31.5	0.0286	2970						
2200	16×25	0.0160	3270									
2700	13×27	0.0250	3020	18×35.5	0.0224	3215	18×40	0.0350	3310			
2700	14.5×23	0.0160	3320									
2700	16×31.5	0.0140	3500									
2700	18×25	0.0270	3600									
3300	14.5×25	0.0150	3400	18×40	0.0204	3410						
3300	16×31.5	0.0123	3500									
3300	18×25	0.0135	3600									
3900	14.5×27	0.0140	3520									
3900	16×35.5	0.01	3610									
3900	18×25	0.0135	3600									
4700	16×40	0.01	3680									
4700	18×35.5	0.01	3680									

Voltage (V)	100			120			160			200		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	5.00	23	5×9	6.60	23						
1.0	5×9	3.00	34	5×9	6.60	34	5×11	40.00	50	5×11	40.00	50
1.2				5×9	6.60	34	5×11	40.00	55	5×11	40.00	55
1.5				5×9	6.60	42	5×11	40.00	60	5×11	40.00	60
1.8	5×9	3.00	42	5×9	6.60	42	5×11	40.00	65	5×11	40.00	66
2.2	5×9	3.00	46	5×9	1.80	46	5×11	40.00	75	5×11	40.00	75
2.7	5×9	3.00	54	5×9	1.80	54	5×11	40.00	80	5×11	40.00	80

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■ List of Standard Products

Voltage (V)	100			120			160			200		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
3.3	5×9	1.50	61	5×9	1.80	61	5×11	40.00	90	6.3×9	30.00	95
3.9	5×9	1.50	80	5×9	1.80	80	5×11	40.00	90	6.3×9	30.00	104
4.7	5×9	1.50	100	5×9	1.80	100	6.3×9	25.00	104	6.3×11	15.00	115
4.7										8×9	15.00	135
5.6	5×11	1.50	105	5×11	1.80	105	6.3×9	25.00	104	6.3×11	15.00	115
5.6										8×9	15.00	135
6.8	5×11	1.50	110	5×11	1.60	110	6.3×9	25.00	122	8×9	15.00	135
8.2	5×11	1.50	125	5×11	1.60	125	6.3×11	22.00	125	8×9	15.00	135
8.2							8×9	22.00	130			
10	5×11	1.50	135	6.3×9	1.21	135	8×9	22.00	130	8×11.5	15.00	150
10										10×9	15.00	150
12	6.3×9	1.00	216	6.3×9	1.21	163	8×11.5	20.00	135	8×14	12.00	220
15	6.3×9	1.00	216	6.3×11	0.83	195	8×11.5	16.00	135	6.3×15	10.00	140
15				8×9	0.83	195	10×9	16.00	140	8×16	8.92	250
15										10×12.5	8.92	260
18	6.3×11	0.64	240	8×9	0.83	215	6.3×15	15.20	145	6.3×18	8.90	168
18	8×9	0.64	216				8×11.5	16.00	135	8×20	6.80	315
18							10×9	16.00	140	10×14	6.80	290
22	6.3×11	0.64	240	8×9	0.83	215	6.3×18	16.00	174	6.3×20	8.00	202
22	8×9	0.64	216				8×16	8.92	250	6.3×23	7.50	242
22							10×12.5	8.92	250	8×20	6.80	315
22										10×14	6.80	290
27	8×9	0.64	369	8×11.5	0.64	369	6.3×20	14.00	209	6.3×25	6.80	290
33	8×11.5	0.41	410	8×11.5	0.50	369	6.3×23	13.50	252	10×20	6.60	575
33	10×9	0.41	369	10×9	0.50	369	8×20	6.80	315	12.5×14	6.60	670
33							10×12.5	6.80	450			
39	8×11.5	0.41	410	8×14	0.41	410	6.3×25	12.00	305			
39	10×9	0.41	369	10×12.5	0.41	410						
47	6.3×15	0.35	450	8×16	0.32	451	10×16	6.60	580	12.5×20	4.65	870
47	8×16	0.29	510	10×12.5	0.32	451	12.5×14	6.60	650			
47	10×12.5	0.29	510									
56	6.3×18	0.30	495	8×20	0.29	510	10×20	6.60	600	12.5×20	4.65	870
56	8×16	0.29	510	10×14	0.29	565	12.5×14	6.60	670			
56	10×12.5	0.26	565									
68	6.3×20	0.28	545	8×23	0.22	660	10×23	4.65	670	12.5×25	4.31	1150
68	8×20	0.22	660	10×16	0.22	660	12.5×16	4.65	770	16×20	4.31	1200
68	10×14	0.22	660									
82	6.3×23	0.25	600	10×16	0.22	660	10×23	4.65	770	12.5×25	4.31	1150
82	8×20	0.22	660	12.5×14	0.20	710	12.5×20	4.65	1040	16×20	4.31	1200

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■ List of Standard Products

Voltage (V)	100			120			160			200		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
82	10×16	0.20	710									
100	6.3×25	0.18	659	10×20	0.20	710	10×27	4.80	1040	10×27	4.50	1050
100	10×16	0.20	710	12.5×16	0.18	833	12.5×20	4.65	1040	12.5×25	4.31	1150
100	12.5×14	0.18	833							14.5×16	4.31	1150
100										16×20	4.31	1200
120	10×20	0.14	950	10×23	0.18	850	12.5×25	4.09	1260	12.5×30	3.05	1440
120	12.5×14	0.18	833	12.5×16	0.18	833	14.5×16	4.50	1050	16×25	3.05	1670
120							16×20	4.09	1260			
150	10×20	0.15	950	12.5×20	0.15	950	12.5×27	4.50	1600	12.5×27	3.90	1520
150	12.5×16	0.15	880				12.5×30	4.09	1600	14.5×20	3.05	1510
150							16×25	3.92	1670	14.5×23	2.90	1650
150										16×25	3.05	1670
180	12.5×20	0.0959	1290	12.5×25	0.11	1290	12.5×35	3.01	1720	13×27	3.20	1620
180							13×27	4.20	1700	14.5×25	2.85	1720
180							14.5×20	4.00	1520	16×35.5	2.10	2025
180							14.5×23	3.80	1700	18×25	2.71	2025
180							16×25	3.92	1670			
220	12.5×20	0.0959	1290	16×20	0.11	1290	14.5×25	3.50	1880	14.5×27	2.70	1880
220							16×31.5	2.71	2160	18×31.5	2.10	2200
220							18×25	2.71	2090			
270	10×27	0.0720	1440	12.5×30	0.0859	1460	14.5×27	3.10	2020			
270	12.5×25	0.0673	1460	16×20	0.0859	1460						
330	12.5×30	0.0571	1760	16×25	0.0671	1760	18×31.5	1.25	2400			
330	14.5×16	0.0570	1500	18×20	0.0671	1560						
330	16×20	0.0653	1560									
390	12.5×27	0.0560	1760	16×31.5	0.0520	1930	18×35.5	1.15	2850			
390	12.5×35	0.0520	1930	18×25	0.0520	1990						
390	16×25	0.0480	1990									
470	13×27	0.05	1950	16×31.5	0.0480	1990						
470	14.5×20	0.0520	1890	18×25	0.0480	1990						
470	16×25	0.0480	1990									
470	18×20	0.0465	1990									
560	14.5×23	0.0480	1950	16×35.5	0.0368	2160						
560	14.5×25	0.0420	2010	18×31.5	0.0368	2050						
560	16×31.5	0.0368	2160									
560	18×25	0.0427	2050									
680	14.5×27	0.0360	2150	18×35.5	0.0326	2340						
680	16×35.5	0.0326	2340									
680	18×31.5	0.0346	2230									
820	16×40	0.0305	2580									
820	18×35.5	0.0305	3160									
1000	18×40	0.0305	3160									

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■ List of Standard Products

Voltage (V)	250			350			400			450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3x9	30.00	95	6.3x9	38.00	68	6.3×9	58.00	68	6.3x9	58.00	77
1.2	6.3x9	30.00	95	6.3x9	38.00	95	6.3×9	38.00	77	6.3x9	55.00	77
1.5	6.3x9	30.00	95	6.3x9	38.00	95	6.3×9	38.00	77	6.3x9	55.00	85
1.8	6.3x9	30.00	95	6.3x9	38.00	104	6.3×9	33.00	90	6.3x11	55.00	90
1.8										8x9	45.00	90
2.2	6.3x9	30.00	104	6.3x9	33.00	120	6.3×9	33.00	90	8x9	45.00	90
2.7	6.3x9	30.00	113	6.3x11	33.00	120	6.3×11	33.00	110	8x9	45.00	90
2.7				8x9	27.00	130	8×9	27.00	117			
3.3	6.3x9	30.00	113	6.3x11	33.00	120	6.3×12	33.00	110	8x11.5	25.50	130
3.3				8x9	27.00	130	8×9	27.00	117	10x9	25.50	130
3.9	6.3x9	15.00	113	6.3x12	33.00	120	6.3×12	33.00	110	8x11.5	25.50	130
3.9				8x9	27.00	130	8×9	27.00	117	10x9	25.50	130
4.7	6.3x11	15.00	125	6.3x12	33.00	120	6.3×12	33.00	120	8x11.5	25.50	130
4.7	8x9	15.00	135	8x9	27.00	130	8×11.5	27.00	135	10x9	18.00	130
5.6	8x9	15.00	135	8x11.5	21.00	135	6.3×15	14.00	168	8x16	13.50	135
6				10x9	21.00	150	8×14	18.00	180	10x12.5	13.50	180
6							10×9	18.00	180			
6.8	8x9	15.00	135	8x11.5	21.00	135	6.3×18	13.50	210	8x20	9.50	200
7				10x9	21.00	150	8×16	13.50	180	10x12.5	13.50	180
7							10×12.5	13.50	180			
8.2	8x11.5	15.00	150	8x16	13.50	180	8×16	13.50	180	8x20	9.50	200
8.2	10x9	15.00	150	10x12.5	13.50	190	10×12.5	13.50	180	10x14	12.00	205
10	8x11.5	15.00	150	8x16	13.50	180	6.3×20	12.00	262	10x16	9.50	205
10	10x9	15.00	150	10x12.5	13.50	220	6.3×23	10.50	328	12.5x14	9.20	315
10							8×20	9.50	250			
10							10×14	9.50	250			
12	6.3x15	13.00	150	10x14	11.00	240	6.3×25	9.50	416	10x20	8.15	300
12	8x14	12.00	220				10×16	9.00	280			
15	6.3x18	12.00	188	10x16	9.50	280	10×20	8.15	310	10x20	8.15	300
15	8x16	8.92	250	12.5x14	8.15	530	12.5×14	8.15	310	12.5x16	8.15	410
15	10x12.5	8.92	250									
18	6.3x20	9.80	234	10x20	8.15	550	10×20	8.15	310	12.5x20	8.15	410
18	6.3x23	9.80	292	12.5x14	8.15	530	12.5×16	8.15	330			
18	8x20	6.80	315									
18	10x14	6.80	290									
22	6.3x25	8.70	366	12.5x16	8.15	600	12.5×20	8.15	500	10x27	8.15	410
22	8x20	6.80	315							12.5x20	8.15	410
22	10x14	6.80	290									
33	10x20	6.60	575	12.5x20	8.15	865	10×27	5.88	670	12.5x25	6.50	650
33	12.5x14	6.00	650				12.5×25	5.14	670	14.5x16	4.14	550
33							16×20	4.54	670	16x20	4.14	650
47	12.5x20	4.65	870	12.5x25	4.14	960	12.5×30	4.14	1035	12.5x27	4.20	850
47				16x20	4.14	1000	14.5×16	4.14	1035	12.5x35	3.50	950

LK

■ List of Standard Products

Voltage (V)	250			350			400			450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
47							16×25	4.14	1035	14.5×20	4.06	610
47										16×25	3.50	950
56	10×27	4.65	870	12.5×25	4.14	960	12.5×27	4.28	985	13×27	3.50	860
56	12.5×20	4.65	870	16×20	4.14	1000	14.5×20	3.80	1150	14.5×23	4.03	650
56							16×25	4.14	1035	14.5×25	4.00	650
56							18×20	4.14	1280	16×31.5	3.50	1100
56										18×25	3.50	1060
68	12.5×25	4.31	1150	16×25	4.05	1150	13×27	4.14	1035	14.5×25	4.00	650
68	16×20	4.31	1200	18×20	3.50	1330	14.5×23	3.65	1180	16×35.5	3.05	1240
68							16×31.5	3.50	1315	18×31.5	3.05	1290
68							18×25	3.50	1330			
82	12.5×25	4.31	1150	16×31.5	3.50	1400	14.5×25	3.50	1230	14.5×27	3.80	860
82	14.5×16	4.31	1150	18×25	3.50	1600	16×35.5	3.05	1720	16×40	2.95	1510
82	16×20	4.31	1200				18×31.5	3.05	1720	18×31.5	3.05	1290
100	12.5×27	3.60	1150	16×31.5	3.50	2010	14.5×27	3.35	1350	18×35.5	2.75	1490
100	12.5×30	3.35	1260	18×25	3.50	2010	18×31.5	3.05	2010			
100	14.5×20	3.35	1200									
100	16×25	3.05	1350									
120	13×27	3.35	1260	16×35.5	3.05	2080	18×35.5	2.05	2250	18×40	2.05	1740
120	14.5×25	3.05	1280	18×31.5	3.05	2010						
120	16×25	3.05	1350									
150	16×31.5	2.71	1780	18×35.5	2.05	2450	18×40	2.00	2500	18×45	2.00	1950
150	18×25	2.71	1780									
180	14.5×27	2.60	1325									
180	16×35.5	2.10	2025									
180	18×31.5	2.10	2025									
180	18×35.5	1.04	2365									

LK

■ List of Standard Products

Voltage (V)	500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×11	52.00	40
1.2	6.3×11	52.00	40
1.5	6.3×11	52.00	40
1.8	8×9	48.00	72
2.2	8×11.5	45.00	72
2.7	8×11.5	45.00	76
3.3	8×11.5	45.00	76
3.9	8×14	35.00	92
4.7	8×16	29.00	102
4.7	10×12.5	22.50	102
5.6	10×14	18.00	117
6.8	10×14	18.00	117
8.2	10×16	15.00	152
10	10×20	11.00	216
10	12.5×14	10.00	234
12	12.5×16	9.50	240
15	12.5×16	9.00	240
18	12.5×20	8.00	288
22	10×27	8.00	305
22	12.5×25	7.00	423
27	14.5×16	7.00	423
33	12.5×30	6.50	508
39	14.5×20	5.50	600
47	12.5×27	6.50	580
47	12.5×35	5.50	630
47	14.5×23	3.80	630
47	14.5×25	2.50	750
47	16×25	3.50	630
56	13×27	5.50	630
56	14.5×25	2.50	750
56	16×31.5	2.50	648
68	14.5×27	2.00	770
68	16×35.5	2.30	756
68	18×31.5	2.30	756
82	18×35.5	1.80	990
82	18×40	1.50	1020

KCX

◆Ultra-compact size, high voltage, dedicated product for direct charging and fast charging power supplies

◆2000~3000 hours of operation at 105℃

◆Lightning resistant, low leakage current (low standby power consumption), high ripple current, high frequency and low impedance

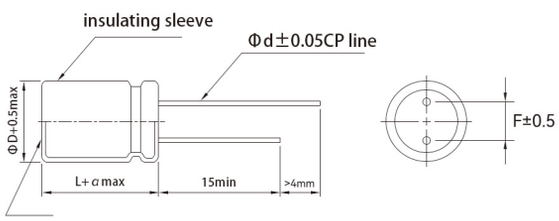
◆RoHS compliant



■ Main technical parameters

project	characteristic
Operating Temperature Range	－40~+105℃
Nominal Voltage Range	400~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	400~500WV I≦0.015CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 160 / 200 / 250 / 400 / 420 / 450 / 500 / 600 / 630 tg δ: 0.15 / 0.15 / 0.16 / 0.15 / 0.15 / 0.18 / 0.20 / 0.30 / 0.30 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 400 / 420 / 450 / 500 Impedance ratio Z(－40℃)/Z(20℃): 7 / 7 / 9 / 9
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: ≦Φ6.3: 2000h; ≧Φ8: 3000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

D	5	6.3	7	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5
α	L<20 α=±1.0 L≧20 α=±2.0									

■ Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
coefficient	0.40	0.50	0.80	0.90	1.00

KCX

■ List of Standard Products

Voltage (V)	400			420			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
4.7	6.3×12	9.60	116				8×9	15.7	111	6.3×16	17.5	80
							8×10	15.7	111	8×10	17.5	80
							8×12	27	128			
							6.3×13	18.6	90			
							6.3×16	15.7	111			
6.8	6.3×13	8.40	128				8×11.5	12.80	111	10×10	15.30	88
							10×10	12.80	128			
8.2	6.3×15	7.50	171				8×13	9.27	163	10×10	11.13	110
10	7×13	5.40	190				8×12	5.40	163	10×13	9.85	145
	8×10	5.40	190				8×13	9.27	163			
							8×15	8.21	190			
							8×16	8.21	190			
							10×11	8.21	190			
							10×16	9.50	205			
12	8×11	4.20	200				8×15	8.21	190			
	8×13	4.20	230				10×11	8.21	190	10×13.5	7.66	206
							10×13	6.38	228			
15	7×19	4.00	250				8×17	5.78	230			
	8×13	4.20	230				8×18	5.78	230			
	8×15	4.00	260	8×15	6.08	250	10×12	3.20	228	10×15	7.30	220
							10×13	6.38	228			
							10×13.5	6.08	251			
							10×15	5.78	260			
18	8×15	4.00	260				8×17	3.10	230			
	8×17	3.20	295	8×17	3.20	285	8×18	5.78	230	10×17	6.78	240
							8×20	5.78	251			
							10×14	6.08	251			
							10×15	5.78	295			
							12.5×12.5	5.48	295			
22	8×18	3.10	314	10×15	5.78	314	8×18	3.10	319	12.5×17	5.65	312
	10×13.5	3.10	314				8×20	5.48	290			
							8×21	5.48	290			
							8×25	4.58	314			
							10×17	5.48	314			
							12.5×13	5.48	314			
							12.5×14	5.48	314			
							13×14	3.00	314			

KCX

■ List of Standard Products

Voltage (V)	400			420			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
27	8×20	3.00	330				8×25	4.58	314			
	10×15	3.00	370	10×18	2.50	330	10×18	5.48	350	10×23	5.47	348
							10×19	4.56	350			
							10×20	4.56	370			
							10×25	4.56	370			
							12.5×17	4.56	440			
33	8×25	3.00	420				10×20	2.50	370			
	10×18	2.50	440	10×20	3.50	370	10×25	4.56	400	12.5×20	4.28	400
	12.5×16	2.50	440				10×35	3.26	440			
							13×17	2.18	440			
							13×18	4.26	314			
39	10×21	2.50	520				12.5×19	4.56	314			
	13×17	2.18	480	13×18	2.98	515	13×17	2.50	680			
							13×19	1.98	500			
							13×20	2.0	314			
47	10×25	2.18	560	13×17	1.98	668	10×45	2.71	616	16×20	3.25	560
	13×18	1.98	515				12.5×25	3.84	738			
							13×20	2.25	920			
							13×21.5	2.00	570			
							14.5×16	2.40	900			
56	12.5×24	1.40	738				12.5×30	2.26	620			
	13×17	1.98	560	13×20	2.05	1000	13×23	2.00	1020			
	13×20	1.90	738	14.5×16	2.00	1000	14.5×20	2.20	950			
	18×16	1.40	1000									
68	12.5×30	1.40	1000				10×50	1.64	1000			
	13×20	1.90	1050	13×23	1.80	1100	13×25	1.80	1050			
	14.5×16	1.60	1150	14.5×20	1.80	1050	14.5×23	2.00	1000			
	16×19	1.40	1000							18×20	2.30	800
82	12.5×35	1.20	1050	13×25	1.70	1150	13×27	1.70	1100			
	13×23	1.50	1150	14.5×23	1.70	1100	14.5×25	1.80	1050			
	14.5×20	1.50	1200				16×25	1.37	1178			
	18×19	1.08	1180							18×25	1.97	968
100	10×50	1.40	1220	13×27	1.50	1200	12.5×45	1.64	1180			
	13×25	1.40	1280	14.5×25	1.50	1160	14.5×27	1.60	1120			
	14.5×23	1.40	1280				18×25	1.08	1226			
	18×20	1.08	1180									
120	13×27	1.30	1330				12.5×50	1.50	1298			
	14.5×25	1.30	1330	14.5×27	1.30	1220						
	18×24	0.90	1318									
150	14.5×27	1.20	1450									
	16×35.5	0.80	1180				18×35.5	1.40	1618			
180							16×45	1.37	2200			
220	18×40	0.80	1880				18×45	0.85	2300			
270	16×50	0.70	2320									

KCG NEW

◆Ultra-compact size, high voltage, large capacity, dedicated product for direct charging and fast charging power supplies

◆105℃ 4000H/115℃ 2000H

◆Lightning resistant, low leakage current (low standby power consumption), high ripple current, high frequency and low impedance

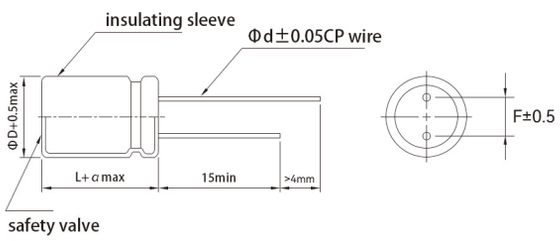
◆RoHS compliant product



■ Main technical parameters

project	characteristic
Operating Temperature Range	－40~+105℃
Nominal Voltage Range	400V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	400WV I≦0.015CV+10(μA) C: Nominal Capacity (μF) V: Rated Voltage (V) Reading after 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 400 / 420 / 450; tg δ: 0.15 / 0.15 / 0.18 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 400; Impedance ratio Z(－40℃)/Z(20℃): 7
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: ≧Φ8: 115℃ 2000h; 105℃ 4000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

D	5	6.3	7	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5
α	+1									

■ Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
coefficient	0.40	0.50	0.80	0.90	1.00

KCG

■ List of Standard Products

Voltage (V)	400		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10	8×11	5.40	205
12	8×13	4.20	248
15	8×14	3.20	281
18	8×17	3.20	319
22	8×20	3.10	340
	10×14	3.10	340
27	8×25	3.00	372
	10×17	3.00	396
33	10×19	2.50	475
	12.5×16	2.50	475
39	10×23	2.18	562
	12.5×18	2.18	562
47	12.5×20	1.98	665
56	12.5×25	1.40	797
	16×20	1.68	797
68	12.5×30	1.40	1000
82	16×25	1.08	1242
	12.5×35	1.20	1050
100	18×25	0.90	1423
120	18×30	0.90	1648

KCM NEW

◆Ultra-small size, high temperature and high pressure resistance, long lifespan

◆3000 hours at 105℃

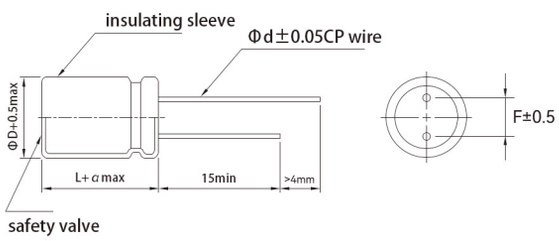
◆Lightning protection, low leakage current, high frequency and low impedance, high ripple resistance



■ Main technical parameters

project	characteristic
Operating Temperature Range	－40~+105℃
Nominal Voltage Range	400~450V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	400~500WV I≤0.015CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 400 / 420 / 450 / 500 tg δ: 0.15 / 0.15 / 0.18 / 0.20
Temperature Characteristics (120Hz)	Rated voltage (V): 400 / 450 Impedance ratio Z(－40℃)/Z(20℃): 7 / 9
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: ≦Φ6.3: 2000h; ≧Φ8: 3000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

D	5	6.3	7	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5
α	L<20 α=±1.0 L≧20 α=±2.0									

■ Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
coefficient	0.40	0.50	0.80	0.90	1.00

KCM

■ List of Standard Products

Voltage (V)	400			450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
8.2	7*10	6.60	135			
12	6.3*18	7.80	218			
	8*10	5.40	260			
	8*11	5.40	260			
15	6.3*20	4.20	255			
	7*15	4.40	240			
	8*11	5.50	281			
	8*12	3.7	288			
18	7*18	4.00	255			
	8*13	4.00	278			
	8*14	3.70	314			
	10*11	4.00	335			
22	7*20	4.00	260	8*18	3.10	319
	8*15	4.00	305	10*14	6.08	305
	8*16	3.80	406			
	10*12.5	3.20	365			
27	8*18	4.05	355	10*18	5.48	375
	10*14	3.10	380			
	12.5*13	5.48	380			
33	8*20	2.80	390	10*18	5.48	390
	8*25	3.10	389			
	10*15	2.50	478			
	10*16	2.80	475			
	12.5*14	2.50	502			
39	8*30	2.50	440			
	10*17	2.50	523			
	10*18	2.50	523			
	10*19	2.60	550			
	12.5*16	2.50	562			
47	8*30	2.50	440			
	10*20	2.30	602			
	12.5*18	2.18	668			
	13*17	2.10	668			
56	8*35	1.85	575			
	13*18	2.20	658			
	13*19	1.70	825			
68	10*30	1.55	785	10*40	1.60	890
	13*20	1.50	825	18*16	1.60	870
	16*16	1.58	885			

KCM

■ List of Standard Products

Voltage (V)	400			450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
82	10*35	1.40	860	16*20	1.45	1000
	16*18	1.40	960			
	18*16	1.40	960			
100	10*40	1.35	1000	18*20	1.38	1178
	12.5*30	1.35	1000			
	16*20	1.35	1050			
	18*19	1.35	1080			
120	10*50	1.25	1220			
	12.5*35	1.25	1180			
	13*30	1.25	1220			
	16*25	1.20	1250			
	18*20	1.20	1250			
150	16*30	1.15	1450	13*50	1.05	1450
	18*25	1.15	1420			
180	18*25	0.90	1560			

LKF



◆Standard product, withstands high frequency and high ripple current, high frequency and low impedance, power supply specific product

◆7000~10000 hours at 105℃

◆Complies with AEC-Q200 RoHS directive

■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	

Rated voltage (V)	10	16	25	35	50	63	80	100
tg δ	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.09
Rated voltage (V)	120	160	200	250	350	400	450	500
tg δ	0.09	0.09	0.08	0.08	0.10	0.10	0.12	0.20

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3
Rated voltage (V)	120	160	200	250	350	400	450	500
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	5	7	7	7	8

Durability

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

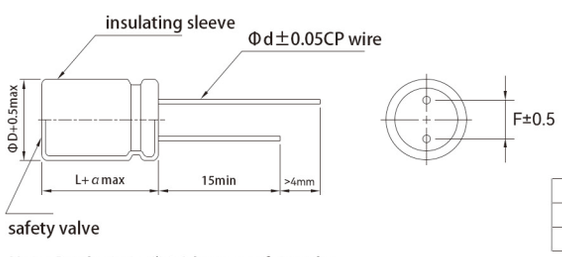
Capacity change rate	Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value	
Leakage current	Below the specified value	
Load life	Φ5	7000h
	Φ6.3	9000h
	≧Φ8	10000h

High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

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■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10	5×9	1.10	56	5×9	1.10	71	5×9	1.10	91	5×9	1.40	101
15	5×9	1.10	76	5×9	1.10	91	5×9	1.10	111	5×9	1.10	121
22	5×9	0.40	91	5×9	0.40	111	5×9	1.10	121	5×9	1.10	160
33	5×9	0.40	106	5×9	0.40	121	5×9	0.40	151	5×9	0.40	215
39	5×9	0.26	136	5×9	0.40	151	5×9	0.40	181	5×11	0.40	345
47	5×9	0.26	143	5×9	0.26	161	5×9	0.26	211	5×11	0.37	345
56	5×9	0.26	151	5×9	0.26	171	5×9	0.26	310	6.3×9	0.34	486
68	5×9	0.26	161	5×9	0.26	181	5×11	0.24	345	6.3×11	0.260	540
68										8×9	0.260	550
82	5×9	0.26	171	5×9	0.26	211	6.3×9	0.34	486	6.3×11	0.250	540
82										8×9	0.250	550
100	5×9	0.26	181	5×11	0.24	345	6.3×9	0.34	486	6.3×11	0.250	540
100										8×9	0.250	550
120	5×9	0.26	211	5×11	0.24	345	6.3×11	0.10	540	8×9	0.250	550
120							8×9	0.10	550			
150	5×11	0.24	345	6.3×9	0.34	486	6.3×11	0.10	540	8×11.5	0.1980	945
150							8×9	0.10	550	10×9	0.1980	950
180	5×11	0.24	345	6.3×9	0.34	486	8×9	0.10	550	8×11.5	0.1980	945
180										10×9	0.1980	950
220	6.3×9	0.34	486	6.3×11	0.21	540	8×11.5	0.0980	945	8×11.5	0.1980	945
220				8×9	0.21	550	10×9	0.0980	950			
270	6.3×9	0.34	486	8×9	0.21	550	8×11.5	0.0980	945	8×16	0.0950	1250
270							10×9	0.0980	950	10×12.5	0.0900	1330
330	6.3×11	0.21	540	8×9	0.2100	550	8×11.5	0.0980	945	10×12.5	0.0900	1330
330	8×9	0.15	550									
390	8×9	0.15	550	8×11.5	0.0980	945	8×16	0.0900	1250	8×20	0.0719	1500
390				10×9	0.0980	950	10×12.5	0.0900	1330	10×16	0.0719	1850
470	8×9	0.15	550	8×11.5	0.0680	945	10×12.5	0.0900	1330	10×16	0.0540	1850
470				10×9	0.0980	950				12.5×14	0.0540	1900
560	8×11.5	0.0980	945	8×16	0.0900	1250	8×20	0.0400	1500	10×20	0.0420	1960
560	10×9	0.0980	950	10×9	0.0980	950	10×14	0.0400	1760	12.5×16	0.0420	2120
680	8×11.5	0.0980	945	8×16	0.0900	1250	10×16	0.0400	1850	10×23	0.0280	2250
680	10×9	0.0980	950	10×12.5	0.0900	1330				12.5×20	0.0280	2480
820	8×16	0.0900	1250	8×20	0.0619	1500	10×20	0.0320	1960	12.5×20	0.0280	2480
820	10×12.5	0.0900	1330	10×14	0.0600	1760	12.5×16	0.0320	2120			
1000	8×16	0.0900	1250	8×20	0.0619	1500	10×20	0.0320	1960	12.5×20	0.0280	2480
1000	10×12.5	0.0900	1330	10×16	0.0400	1850	12.5×16	0.0320	2120			
1200	8×20	0.0619	1500	10×16	0.0400	1850	12.5×20	0.0280	2480	12.5×25	0.0280	2900
1200	10×14	0.0600	1760									

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■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1500	8×20	0.0619	1500	10×20	0.0320	1960	12.5×20	0.0280	2480	12.5×30	0.0243	3450
1500	10×16	0.0400	1850	12.5×16	0.0420	2120				16×20	0.0243	3250
1800	10×20	0.0320	1960	10×20	0.0320	1960	12.5×25	0.0280	2900	12.5×35	0.0230	3570
1800	12.5×16	0.0420	2120	12.5×16	0.0420	2120				16×25	0.0230	3630
2200	10×20	0.0320	1960	12.5×20	0.0280	2480	12.5×25	0.0230	2900	16×25	0.0230	3630
2200	12.5×16	0.0420	2120				16×20	0.0230	3250			
2700	10×23	0.0280	2250	12.5×20	0.0280	2480	12.5×35	0.0132	3570	16×35.5	0.0132	4010
2700	12.5×20	0.0280	2480				16×25	0.0143	3630	18×31.5	0.0132	4010
3300	12.5×20	0.0280	2480	12.5×25	0.0280	2900	12.5×40	0.0121	3890	16×40	0.0120	4080
3300							16×25	0.0143	3630	18×35.5	0.0120	4080
3900	12.5×25	0.0280	2900	12.5×30	0.0143	3450	16×31.5	0.0121	3890	18×35.5	0.0100	4080
3900				16×20	0.0230	3250	18×25	0.0132	3650			
4700	12.5×30	0.0143	3450	12.5×30	0.0143	3450	16×31.5	0.0121	3890			
4700	16×20	0.0230	3250	16×25	0.0143	3630	18×25	0.0110	4010			

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	5.50	21	5×9	5.00	23	5×9	6.05	24	5×9	6.05	24
1.0	5×9	5.50	31	5×9	5.00	35	5×9	6.05	37	5×9	6.05	37
1.2				5×9	5.00	35	5×9	6.05	37	5×9	6.05	37
1.5				5×9	5.00	41	5×9	6.05	43	5×9	6.05	43
1.8	5×9	5.50	32	5×9	5.00	41	5×9	6.05	43	5×9	6.05	43
2.2	5×9	1.50	39	5×9	1.50	45	5×9	1.50	47	5×9	1.60	47
2.7				5×9	1.50	52	5×9	1.50	55	5×9	1.60	55
3.3	5×9	1.50	54	5×9	1.50	59	5×9	1.50	62	5×9	1.60	62
3.9	5×9	1.50	54	5×9	1.50	78	5×9	1.50	81	5×9	1.60	81
4.7	5×9	1.50	89	5×9	1.50	98	5×9	1.50	101	5×9	1.60	101
5.6	5×9	1.50	91	5×9	1.50	100	5×9	1.50	106	5×11	1.40	106
6.8	5×9	1.50	94	5×9	1.50	103	5×9	1.50	111	5×11	1.40	111
8.2	5×9	1.50	98	5×9	1.50	109	5×9	1.50	121	5×11	1.40	121
10	5×9	1.50	101	5×9	1.50	111	5×11	1.40	163	6.3×9	0.80	240
12				5×9	1.50	121	5×11	1.40	163	6.3×11	0.63	267
12										8×9	0.63	290
15	5×9	1.50	121	5×9	1.50	150	6.3×9	0.80	240	6.3×11	0.63	267
15										8×9	0.63	290

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■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
18				5×11	1.10	173	6.3×9	0.80	267	6.3×11	0.63	267
18										8×9	0.63	290
22	5×11	0.97	238	6.3×9	0.58	250	6.3×11	0.63	267	8×11.5	0.40	450
22							8×9	0.63	290	10×9	0.63	470
27				6.3×9	0.58	278	6.3×11	0.63	267	8×11.5	0.40	450
27							8×9	0.63	290	10×9	0.63	470
33	6.3×9	0.36	344	6.3×11	0.39	344	6.3×11	0.63	267	8×11.5	0.40	450
33				8×9	0.39	390	8×9	0.63	290	10×9	0.63	470
39	6.3×9	0.36	344	6.3×11	0.39	344	8×11.5	0.40	450	8×16	0.28	565
39				8×9	0.39	390	10×9	0.63	470	10×12.5	0.28	624
47	6.3×11	0.34	385	6.3×11	0.39	385	8×11.5	0.40	450	8×16	0.28	585
47	8×9	0.23	390	8×9	0.39	525	10×9	0.63	470	10×12.5	0.25	624
56	6.3×11	0.34	385	8×9	0.39	525	8×11.5	0.40	450	10×12.5	0.25	624
56	8×9	0.23	390				10×9	0.63	470			
68	8×9	0.23	390	8×11.5	0.24	724	8×16	0.28	565	8×20	0.21	735
68				10×9	0.26	750	10×12.5	0.25	624	10×14	0.21	750
82	8×11.5	0.15	724	8×11.5	0.24	724	8×20	0.21	735	10×16	0.19	780
82	10×9	0.18	750	10×9	0.26	756	10×12.5	0.25	624	12.5×14	0.18	900
100	8×11.5	0.15	724	8×16	0.18	950	8×20	0.21	735	10×20	0.13	1040
100	10×9	0.18	750	10×12.5	0.19	979	10×16	0.19	780	12.5×16	0.14	1040
120	8×14	0.11	880	8×16	0.18	950	10×16	0.19	780	10×23	0.12	1170
120	10×12.5	0.11	880	10×12.5	0.19	979	12.5×14	0.18	900	12.5×20	0.0930	1430
150	8×16	0.11	950	8×20	0.13	950	10×20	0.13	1040	12.5×20	0.0930	1430
150	10×12.5	0.11	975	10×16	0.19	1190	12.5×16	0.14	1040			
180	8×20	0.0810	1190	10×16	0.19	1190	10×20	0.13	1040	12.5×25	0.0660	1620
180	10×14	0.11	1230				12.5×16	0.14	1040			
220	8×20	0.0510	1190	10×20	0.0860	1300	12.5×20	0.13	1248	12.5×25	0.0660	1620
220	10×16	0.0510	1370	12.5×16	0.0902	1500						
270	10×20	0.0450	1580	10×20	0.0860	1300	12.5×20	0.0940	1430	12.5×30	0.0560	1950
270	12.5×14	0.0550	1450	12.5×16	0.0902	1500				16×20	0.0640	1750
330	10×20	0.0450	1580	10×23	0.0760	1700	12.5×20	0.0940	1430	12.5×35	0.0470	2140
330	12.5×16	0.0550	1650	12.5×20	0.0660	1870				16×25	0.0480	2210
390	10×20	0.0450	1580	12.5×20	0.0660	1870	12.5×30	0.0560	1950	12.5×40	0.0400	2340
390							16×20	0.0640	1750	16×25	0.0480	2210
470	12.5×20	0.0500	2050	12.5×25	0.0470	2100	12.5×35	0.0470	2140	16×31.5	0.0360	2400
470							16×25	0.0480	2210	18×25	0.0420	2270
560	12.5×20	0.0500	2050	12.5×30	0.0385	2410	12.5×40	0.0400	2340	16×35.5	0.0320	2600
560				16×20	0.0473	2500	16×25	0.0480	2210	18×31.5	0.0340	2860
680	12.5×25	0.0450	2410	12.5×30	0.0385	2410	16×31.5	0.0360	2400	16×40	0.0300	2860

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■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
680				16×25	0.0350	2730	18×25	0.0420	2270	18×35.5	0.0300	2860
820	12.5×25	0.0450	2410	12.5×35	0.0360	2620	16×35.5	0.0320	2600	18×40	0.0290	3510
820	16×20	0.0420	2730	16×25	0.0350	2730	18×25	0.0420	2270			
1000	12.5×30	0.0350	2860	16×31.5	0.0260	2990	16×40	0.0300	2860			
1000	16×25	0.0350	3010	18×25	0.0340	2800	18×31.5	0.0340	2470			
1200	16×31.5	0.0340	3280	16×31.5	0.0260	2990	18×35.5	0.0300	2860			
1200	18×25	0.0340	3300	18×25	0.0340	3300						
1500	16×31.5	0.0260	3280	16×35.5	0.0230	3280	18×40	0.0290	3510			
1500	18×25	0.0340	3300	18×31.5	0.0280	3300						
1800	16×35.5	0.0230	3300	16×40	0.0210	3570						
1800	18×31.5	0.0280	3300	18×35.5	0.0220	3570						
2200	18×35.5	0.0220	3570	18×40	0.0200	3670						
2700	18×40	0.0200	3670									

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	6.05	24									
1.0	5×9	6.05	37	5×11	28.00	68	5×11	28.00	50	6.3×9	28.00	59
1.2	5×9	6.05	37	5×11	28.00	68	5×11	28.00	55	6.3×9	28.00	59
1.5	5×9	6.05	43	5×11	28.00	95	5×11	28.00	60	6.3×9	28.00	59
1.8	5×9	6.05	43	5×11	28.00	95	5×11	28.00	65	6.3×9	28.00	68
2.2	5×9	1.60	47	5×11	28.00	95	5×11	28.00	75	6.3×9	28.00	104
2.7	5×9	1.60	55	5×11	28.00	95	5×11	28.00	80	6.3×9	28.00	113
3.3	5×9	1.60	62	5×11	28.00	95	6.3×9	28.00	104	6.3×9	28.00	113
3.9	5×9	1.60	81	5×11	28.00	95	6.3×9	28.00	104	6.3×11	14.90	135
3.9										8×9	14.90	140
4.7	5×9	1.60	101	6.3×9	23.00	104	6.3×11	14.90	125	6.3×11	14.90	135
4.7							8×9	14.90	140	8×9	14.90	140
5.6	5×11	1.40	106	6.3×9	23.00	110	6.3×11	14.90	125	8×9	14.90	140
5.6							8×9	14.90	140			
6.8	5×11	1.40	111	6.3×11	15.00	125	8×9	14.90	140	8×9	14.90	140
6.8				8×9	15.00	140						
8.2	6.3×9	1.40	127	8×9	15.00	140	8×9	14.90	140	8×11.5	12.50	150
8.2										10×9	12.50	170
10	6.3×9	1.10	220	8×9	15.00	140	8×11.5	12.50	160	8×11.5	10.00	150

LKF

■ List of Standard Products

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10							10×9	12.50	170	10×9	12.50	170
12	6.3×11	0.80	220	8×11.5	12.50	150	8×14	6.00	240	8×14	6.00	240
12				10×9	12.50	160						
15	6.3×11	0.80	267	8×11.5	12.50	150	8×16	3.85	270	8×16	3.85	270
15	8×9	0.80	267	10×9	12.50	160	10×12.5	4.9	280	10×12.5	4.90	280
18	8×11.5	0.63	290	8×14	7.90	160	8×20	3.58	350	8×20	3.58	280
18				10×9	12.50	160	10×14	3.58	320	10×14	3.58	320
22	8×11.5	0.63	290	8×14	7.90	160	8×20	3.58	350	8×20	3.58	350
22				10×12.5	7.90	250	10×14	3.58	320	10×14	3.58	320
27	8×14	0.49	420	8×16	7.90	270						
27	10×9	0.49	420	10×12.5	7.90	250						
33	8×14	0.49	450	8×20	5.90	350	10×20	1.78	635	10×20	1.78	635
33	10×9	0.49	450	10×14	5.90	360	12.5×14	1.78	745	12.5×14	1.78	745
39	8×16	0.38	565	10×16	5.55	580						
39	10×12.5	0.38	565	12.5×14	5.55	745						
47	8×20	0.28	585	10×20	5.55	635	12.5×20	1.46	960	12.5×20	1.46	960
47	10×14	0.28	624	12.5×14	5.55	745						
56	8×23	0.25	624	10×20	5.55	850	12.5×20	1.46	960	12.5×20	1.46	960
56	10×16	0.25	624	12.5×16	5.55	850						
68	10×16	0.21	735	12.5×16	5.55	850	12.5×25	1.35	1270	12.5×25	1.35	1270
68	12.5×14	0.21	750				16×20	1.35	1270	16×20	1.35	1270
82	10×20	0.19	780	12.5×20	4.36	1155	12.5×25	1.35	1270	12.5×30	1.25	1470
82	12.5×16	0.19	900				16×20	1.35	1270	16×20	1.35	1270
100	10×23	0.14	1040	12.5×20	4.36	1155	12.5×30	1.25	1360	16×25	1.32	1500
100	12.5×16	0.14	1040				16×20	1.35	1270	18×20	1.32	1410
120	12.5×20	0.12	1240	12.5×25	3.01	1390	12.5×30	1.25	1360	16×25	1.32	1500
120				16×20	3.01	1420	16×25	1.32	1850			
150	12.5×25	0.0930	1368	12.5×30	3.01	1520	16×25	1.32	1850	16×31.5	1.25	1990
150	16×20	0.0930	1368	16×25	2.31	1850				18×25	1.25	1920
180	12.5×30	0.0660	1530	16×25	2.31	1850	16×35.5	0.95	2250	16×35.5	0.95	2250
180							18×31.5	0.95	2250	18×31.5	0.95	2250
220	16×25	0.0660	1620	16×31.5	1.88	2400	18×31.5	0.91	2625	18×35.5	0.91	2625
220	18×20	0.0660	1620	18×25	1.88	2320						
270	16×25	0.0560	1750	16×35.5	1.80	2715						
270	18×20	0.0640	1750	18×31.5	0.98	2660						
330	16×31.5	0.0470	2140	18×31.5	0.98	2660						
330	18×25	0.0480	2140									
390	16×35.5	0.0400	2210	18×35.5	0.91	2715						
390	18×31.5	0.0400	2210									
470	18×31.5	0.0400	2270									
560	18×35.5	0.0320	2600									
560	18×40	0.0300	2860									

LKF

■ List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×9	55.00	77	6.3×9	55.00	77	6.3×9	55.00	77	6.3×12	52.00	45
1.2	6.3×9	36.00	95	6.3×9	36.00	81	6.3×9	52.00	81	6.3×12	52.00	45
1.5	6.3×9	36.00	95	6.3×9	36.00	81	6.3×9	52.00	90	6.3×12	52.00	45
1.8	6.3×9	36.00	104	6.3×9	36.00	95	6.3×11	52.00	95	8×11.5	45.00	80
1.8							8×9	42.00	100			
2.2	6.3×9	36.00	125	6.3×9	29.00	105	8×9	42.00	100	8×11.5	45.00	80
2.7	6.3×11	18.00	125	8×9	25.00	131	8×9	42.00	100	8×14	18.50	85
2.7	8×9	18.00	131									
3.3	8×9	18.00	131	8×9	25.00	131	8×11.5	25.00	130	8×14	18.50	85
3.3							10×9	23.50	135			
3.9	8×9	17.00	131	8×11.5	25.00	140	8×11.5	25.00	130	8×16	13.00	102
3.9				10×9	23.50	150	10×9	23.50	135			
4.7	8×11.5	17.00	140	8×11.5	23.5	140	8×14	18.50	135	8×20	13.00	130
4.7	10×9	17.00	150	10×9	23.50	150	10×9	18.50	135			
5.6	8×11.5	17.00	140	8×14	15.00	200	8×16	15.00	140	10×16	13.00	130
5.6	10×9	17.00	150	10×12.5	15.00	250	10×12.5	13.50	140			
6.8	8×14	15.00	200	8×16	11.25	220	8×20	8.05	220	10×16	13.00	130
6.8	10×9	17.00	150	10×12.5	15.00	250	10×14	12.00	200			
8.2	8×16	11.25	220	8×20	8.05	275	8×20	8.05	220	10×20	11.00	240
8.2	10×12.5	15.00	250	10×14	11.00	270	10×14	12.00	200			
10	8×20	8.05	275	8×20	8.05	275	10×16	8.05	260	10×20	11.00	240
10	10×14	11.00	270	10×14	11.00	270	12.5×14	7.70	350	12.5×14	10.00	260
12	10×16	8.00	360	10×20	7.50	340	10×20	7.70	370	12.5×16	9.00	265
15	10×16	6.50	360	10×20	6.50	340	10×20	7.70	370	12.5×20	8.00	270
15	12.5×14	6.50	585	12.5×16	6.50	360	12.5×16	7.70	370			
18	10×20	6.50	480	12.5×16	6.50	360	12.5×20	6.70	450	12.5×25	7.00	470
18	12.5×14	6.50	585									
22	10×20	6.50	585	12.5×20	6.50	570	12.5×20	6.70	450	12.5×25	7.00	470
22	12.5×16	6.50	585									

LKF

■ List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
33	12.5×20	6.50	960	12.5×25	3.25	850	12.5×30	3.05	755	12.5×35	5.50	650
33				16×20	3.25	900	16×20	3.05	740	16×25	3.50	650
47	12.5×25	2.25	1115	12.5×30	2.25	1100	12.5×35	1.60	1215	16×31.5	2.50	720
47	16×20	2.25	1060	16×25	2.25	1155	16×25	1.60	1215			
56	12.5×30	2.25	1115	16×25	2.25	1155	16×31.5	1.60	1215	16×35.5	2.30	840
56	16×25	2.25	1155	18×20	2.25	1400	18×25	1.60	1300	18×31.5	2.30	840
68	16×25	2.25	1115	16×31.5	1.60	1460	16×31.5	1.60	1215	18×31.5	2.30	840
68	18×20	2.25	1400	18×25	1.60	1530						
82	16×31.5	1.60	1550	16×35.5	1.60	1740	16×40	1.35	1675	18×35.5	1.80	1100
82	18×25	1.60	1530	18×31.5	1.60	1740	18×31.5	1.45	1700			
100	16×35.5	1.60	2230	18×31.5	1.60	1740	18×35.5	1.35	1800	18×40	1.50	1150
100	18×31.5	1.60	2230									
120	18×31.5	1.60	2305	18×35.5	1.50	2305	18×40	1.25	1930	18×45	1.40	1600
150	18×35.5	1.50	2720	18×40	1.50	3330	18×45	1.15	2350			

LKM

◆ Compact size, high frequency and high ripple current withstand, high frequency and low impedance, dedicated power supply product

◆ 7000~10000 hours at 105℃

◆ Compliant with AEC-Q200 RoHS directive



■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	

Rated voltage (V)	10	16	25	35	50	63	80	100
tg δ	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.09
Rated voltage (V)	120	160	200	250	350	400	450	500
tg δ	0.09	0.09	0.08	0.08	0.10	0.10	0.12	0.20

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3
Rated voltage (V)	120	160	200	250	350	400	450	500
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	5	7	7	7	8

Durability

In a 105℃ oven, apply the rated voltage containing the rated ripple current for a specified time, then place at room temperature for 16 hours before testing. The test temperature is 25±2℃. The capacitor's performance should meet the following requirements.

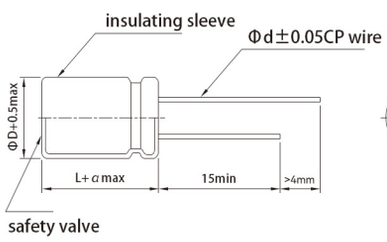
Capacity change rate	Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value	
Leakage current	Below the specified value	
Load life	Φ5	7000h
	Φ6.3	9000h
	≧Φ8	10000h

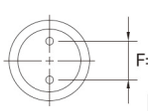
High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)





L=9	α=1.0
L≦16	α=1.5
L > 16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

Note: Products ≥ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

LKM

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10	5×9	1.10	56	5×9	1.10	71	5×9	1.10	91	5×9	1.40	101
15	5×9	1.10	76	5×9	1.10	91	5×9	1.10	111	5×9	1.10	121
22	5×9	0.40	91	5×9	0.40	111	5×9	1.10	121	5×9	1.10	160
33	5×9	0.40	106	5×9	0.40	121	5×9	0.40	151	5×9	0.40	215
39	5×9	0.26	136	5×9	0.40	151	5×9	0.40	181	5×9	0.40	345
47	5×9	0.26	143	5×9	0.26	161	5×9	0.26	211	5×9	0.37	345
56	5×9	0.26	151	5×9	0.26	171	5×9	0.26	310	5×9	0.37	414
68	5×9	0.26	161	5×9	0.26	181	5×9	0.24	345	5×11	0.34	443
68										6.3×9	0.34	486
82	5×9	0.26	171	5×9	0.26	211	5×9	0.34	414	5×11	0.28	486
82										6.3×9	0.28	540
100	5×9	0.26	181	5×9	0.24	345	5×9	0.34	443	6.3×9	0.28	550
120	5×9	0.26	211	5×9	0.24	345	5×11	0.34	486	6.3×9	0.28	550
120							6.3×9	0.28	486			
150	5×9	0.26	345	5×9	0.34	414	6.3×9	0.28	540	6.3×11	0.21	660
150										8×9	0.21	660
180	5×9	0.26	345	5×11	0.34	443	6.3×9	0.28	550	8×9	0.21	900
180				6.3×9	0.34	486						
220	5×9	0.34	414	6.3×9	0.28	540	6.3×11	0.21	660	8×9	0.15	945
220							8×9	0.21	660			
270	5×11	0.34	443	6.3×9	0.28	540	8×9	0.15	900	8×11.5	0.1200	1250
270	6.3×9	0.34	486							10×9	0.1200	1250
330	6.3×9	0.15	540	6.3×11	0.21	550	8×9	0.1500	945	8×14	0.0900	1330
330				8×9	0.21	550				10×12.5	0.0900	1330
390	6.3×9	0.15	540	8×9	0.15	660	8×11.5	0.0980	1250	8×16	0.076	1420
390							10×9	0.0980	1250	10×12.5	0.076	1760
470	6.3×11	0.15	545	8×9	0.15	900	8×11.5	0.0980	1330	10×14	0.0590	1850
470	8×9	0.15	550				10×9	0.0980	1330			
560	6.3×11	0.12	880	8×9	0.15	900	8×14	0.0760	1420	10×14	0.0590	1960
560	8×9	0.12	900				10×12.5	0.0760	1760			
680	8×9	0.12	900	8×11.5	0.0980	1250	8×16	0.0590	1500	10×16	0.0520	2120
680				10×9	0.0980	1330	10×12.5	0.0590	1760	12.5×14	0.0520	2120
820	8×9	0.12	1180	8×14	0.0760	1420	10×14	0.0460	1850	12.5×14	0.0520	2360
820				10×12.5	0.0760	1760						
1000	8×11.5	0.0980	1250	8×16	0.0590	1500	10×16	0.0420	1960	12.5×16	0.0420	2480
1000	10×9	0.0980	1330	10×12.5	0.0590	1850	12.5×14	0.0420	2120			
1200	8×14	0.0760	1420	10×14	0.0460	1850	10×20	0.0320	2120	12.5×20	0.0380	2900
1200	10×12.5	0.0760	1760				12.5×14	0.0320	2120			
1500	8×16	0.0590	1500	10×16	0.0420	1960	10×20	0.0280	2480	12.5×20	0.0380	2900

LKM

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1800				12.5×14	0.0420	2120				14.5×16	0.0210	3180
1800										16×20	0.0350	3630
2200	10×16	0.0420	1960	10×20	0.0380	2480	12.5×20	0.0270	2900	12.5×30	0.0320	3630
2200	12.5×14	0.0420	2120	12.5×16	0.0380	2480	14.5×16	0.0270	2620	14.5×20	0.0160	3215
2200							16×16	0.0270	3250	16×20	0.0320	3630
2700	10×20	0.0320	2250	12.5×16	0.0380	2480	12.5×25	0.0265	3450	14.5×23	0.0160	3320
2700	12.5×14	0.0320	2250				16×20	0.0265	3630	16×25	0.0230	3890
2700										18×20	0.0230	4010
3300	10×23	0.0280	2480				12.5×30	0.0260	3630			
3300	12.5×16	0.0280	2480	12.5×20	0.0280	2900	14.5×20	0.0250	3180	14.5×25	0.0150	3400
3300				14.5×16	0.0268	2620	14.5×23	0.0240	3270	16×31.5	0.0230	4080
3300							16×20	0.0260	3630	18×25	0.0230	4080
3900	12.5×16	0.0280	2900	12.5×25	0.0230	3250	14.5×25	0.0230	3350	14.5×27	0.0140	3520
3900				16×16	0.0230	3450	16×25	0.0230	3890			
3900							18×20	0.0230	3650	18×25	0.022	4080
4700	12.5×20	0.0230	3250	12.5×25	0.0210	3450	14.5×27	0.0220	3460	16×40	0.021	4100
4700	14.5×16	0.0280	2450	14.5×20	0.0255	3110	16×25	0.0220	3890	18×30	0.021	4100
4700	16×16	0.0230	3450	16×20	0.0210	3630	18×20	0.0220	4010			
5600				14.5×23	0.0250	3200	18×25	0.0210	4100	18×35.5	0.020	4200
6800	14.5×20	0.0180	2780	14.5×25	0.0246	3270	18×30	0.0200	4200	18×40	0.019	4200
8200	14.5×23	0.0170	2920				16×40	0.0180	4120	18×45	0.017	4310
8200	14.5×25	0.0160	3160				18×35.5	0.0180	4260			
10000	14.5×27	0.0150	3280	14.5×27	0.0238	3450	18×40	0.0180	4380	18*50	0.017	4700
22000				18×50	0.0150	4100						
33000	18×50	0.0150	4100									

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	5.50	21	5×9	5.00	23	5×9	6.05	24	5×9	6.05	24
1.0	5×9	5.50	31	5×9	5.00	35	5×9	6.05	37	5×9	6.05	37
1.2				5×9	5.00	35	5×9	6.05	37	5×9	6.05	37
1.5				5×9	5.00	41	5×9	6.05	43	5×9	6.05	43
1.8	5×9	5.50	32	5×9	5.00	41	5×9	6.05	43	5×9	6.05	43
2.2	5×9	1.50	39	5×9	1.50	45	5×9	1.50	47	5×9	1.60	47
2.7				5×9	1.50	52	5×9	1.50	55	5×9	1.60	55
3.3	5×9	1.50	54	5×9	1.50	59	5×9	1.50	62	5×9	1.60	62
3.9	5×9	1.50	54	5×9	1.50	78	5×9	1.50	81	5×9	1.60	81
4.7	5×9	1.50	89	5×9	1.50	98	5×9	1.50	101	5×9	1.60	101
5.6	5×9	1.50	91	5×9	1.50	100	5×9	1.50	106	5×9	1.40	106
6.8	5×9	1.50	94	5×9	1.50	103	5×9	1.50	111	5×9	1.40	111
8.2	5×9	1.50	98	5×9	1.50	109	5×9	1.50	121	5×9	1.40	121
10	5×9	1.50	101	5×9	1.50	111	5×9	1.40	150	5×9	0.80	220
12				5×9	1.50	121	5×9	1.40	163	5×11	0.80	267
12										6.3×9	0.80	267
15	5×9	1.50	121	5×9	1.50	150	5×9	1.10	200	5×11	0.80	267
15										6.3×9	0.80	267
18				5×9	1.1	173	5×9	0.86	240	6.3×9	0.63	267

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■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
22	5×9	1.10	238	5×9	0.86	228	5×11	0.73	250	6.3×9	0.63	290
22							6.3×9	0.63	267			
27	5×9	0.86	286	5×9	0.58	250	6.3×9	0.63	267	6.3×11	0.63	420
27										8×9	0.63	450
33	5×9	0.58	314	5×11	0.39	300	6.3×9	0.63	267	8×9	0.40	450
33				6.3×9	0.39	344						
39	5×11	0.36	344	6.3×9	0.39	344	6.3×11	0.63	400	8×9	0.28	565
39	6.3×9	0.36	344				8×9	0.63	420			
47	5×11	0.36	344	6.3×9	0.39	385	6.3×11	0.63	420	8×11.5	0.28	585
47	6.3×9	0.34	385				8×9	0.63	470	10×9	0.28	624
56	6.3×9	0.34	385	6.3×11	0.24	492	8×9	0.63	470	8×14	0.25	624
56				8×9	0.24	525				10×9	0.25	624
68	6.3×9	0.34	390	6.3×11	0.24	724	8×9	0.49	520	8×16	0.21	735
68				8×9	0.24	724				10×12.5	0.21	750
82	6.3×11	0.24	487	8×9	0.24	724	8×11.5	0.38	624	8×16	0.19	780
82	8×9	0.24	724				10×9	0.25	668	10×14	0.19	900
100	6.3×11	0.18	687	8×9	0.24	902	8×14	0.21	735	10×14	0.14	1040
100	8×9	0.18	724				10×9	0.19	744			
120	8×9	0.18	800	8×11.5	0.19	902	8×16	0.19	744	10×16	0.12	1170
120				10×9	0.19	979	10×12.5	0.19	892	12.5×14	0.12	1240
150	8×11.5	0.14	950	8×14	0.19	950	10×14	0.15	980	12.5×14	0.0930	1368
150	10×9	0.14	975	10×12.5	0.19	1130						
180	8×14	0.11	1190	8×16	0.19	1190	10×14	0.15	980	12.5×16	0.0660	1530
180	10×12.5	0.11	1230	10×14	0.19	1190						
220	8×14	0.0950	1190	10×14	0.14	1200	10×16	0.13	1040	12.5×20	0.0660	1620
220	10×12.5	0.0950	1230				12.5×14	0.13	1040			
270	8×16	0.0740	1420	10×16	0.0860	1300	10×20	0.0940	1240	12.5×20	0.0560	1750
270	10×14	0.0740	1420	12.5×14	0.0902	1500	12.5×16	0.0940	1240	16×16	0.0640	1750
330	10×14	0.0740	1450	10×16	0.0860	1580	12.5×16	0.0940	1368	12.5×25	0.0470	2140
330				12.5×14	0.0902	1650				16×20	0.0480	2210
390	10×16	0.0580	1580	10×20	0.0660	1870	12.5×20	0.0640	1640	12.5×30	0.0400	2210
390	12.5×14	0.0580	1650	12.5×16	0.0660	1870	16×16	0.0640	1750	16×20	0.0480	2210
470	12.5×14	0.0580	2050	12.5×16	0.0500	2100	12.5×20	0.0640	1750			
470							14.5×16	0.076	1460	16×25	0.0480	2400
470							16×16	0.0480	1750	18×20	0.0420	2270
560	12.5×16	0.0500	2050	12.5×20	0.0473	2410	12.5×25	0.0480	2110	16×25	0.0320	2600
560				16×16	0.0473	2500	16×20	0.0480	2110			
680	12.5×16	0.0500	2250	12.5×25	0.0473	2410	12.5×30	0.0420	2270			
680				14.5×16	0.0560	1620	14.5×20	0.0630	1720			
680							14.5×23	0.0570	1860	16×31.5	0.0300	2860
680				16×16	0.0385	2730	16×20	0.0420	2270	18×25	0.0300	2860
820	12.5×20	0.0390	2410	12.5×30	0.0360	2620				14.5×25	0.0520	1990
820	14.5×16	0.0580	2480				16×25	0.0320	2600	18×31.5	0.0290	3510

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■ List of Standard Products

Voltage (V)	50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
820	16×16	0.0390	2730	16×20	0.0350	2730	18×20	0.0420	2270
1000	12.5×25	0.0390	2860	14.5×20	0.0480	2180	14.5×27	0.0480	2080
1000				14.5×23	0.0440	2300	16×31.5	0.0300	2860
1000	16×16	0.0390	3010	16×20	0.0350	2860	18×25	0.0340	2470
1200	12.5×25	0.0340	3280	14.5×25	0.0420	2420			
1200	14.5×20	0.0480	2580	16×25	0.0340	2990			
1200	16×20	0.0340	3300	18×20	0.0340	3300	18×25	0.0300	2860
1500	12.5×30	0.0260	3280						
1500	14.5×23	0.0390	2620						
1500	14.5×25	0.0300	2680	14.5×27	0..0390	2540			
1500	16×25	0.0340	3300	16×25	0.0280	3280	18×31.5	0.0290	3510
1800	16×25	0.0280	3300	16×31.5	0.0280	3570	18×35.5	0.0280	3600
1800	18×20	0.0280	3300	18×25	0.0280	3570			
2200	14.5×27	0.0280	2780				18×40	0.0265	3680
2200	18×25	0.0280	3570	18×31.5	0.0260	3670			
2700	18×31.5	0.0260	3670	18×35.5	0.0250	3700	18×45	0.0250	3700
3300	18×35.5	0.0260	3750	18×40	0.024	3790			
3900	18×40	0.0250	3800	18*45	0.022	4100			
4700	18×45	0.0230	3860	18*50	0.021	4200			
5600	18×50	0.0200	3860						

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	6.05	24									
1.0	5×9	6.05	37	5×9	28.00	68	5×9	28.00	50	5×9	28.00	56
1.2	5×9	6.05	37	5×9	28.00	68	5×9	28.00	55	5×9	28.00	56
1.5	5×9	6.05	43	5×9	28.00	95	5×9	28.00	60	5×9	28.00	56
1.8	5×9	6.05	43	5×9	28.00	95	5×9	28.00	65	5×9	28.00	65
2.2	5×9	1.60	47	5×9	28.00	95	5×9	28.00	75	5×9	28.00	98
2.7	5×9	1.60	55	5×9	28.00	95	5×9	28.00	80	5×9	28.00	98
3.3	5×9	1.60	62	5×9	28.00	95	5×9	28.00	95	5×9	28.00	98
3.9	5×9	1.60	81	5×9	28.00	95	5×9	28.00	95	5×11	23.00	114
3.9										6.3×9	15.60	135
4.7	5×9	1.60	101	5×9	23.00	95	5×11	23.00	104	6.3×9	15.60	135
4.7							6.3×9	15.60	125			
5.6	5×9	1.60	106	5×11	23.00	104	6.3×9	15.60	125	6.3×9	15.60	140
5.6				6.3×9	23.00	110						
6.8	5×11	1.40	111	6.3×9	18.00	125	6.3×9	15.60	140	6.3×11	14.90	140
6.8										8×9	14.90	140
8.2	5×11	1.40	127	6.3×9	18.00	125	6.3×11	14.90	140	6.3×12	12.50	150
8.2							8×9	14.90	140	8×9	12.50	170
10	6.3×9	1.10	220	6.3×11	15.00	132	6.3×12	12.50	160	8×9	10.00	210
10				8×9	15.00	140	8×9	12.50	170			
12	6.3×9	1.10	220	6.3×12	12.50	140	8×11.5	7.00	210	8×11.5	7.00	270

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■ List of Standard Products

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
12				8×9	12.50	150						
15	6.3×11	0.80	267	6.3×12	12.50	140	8×11.5	4.90	256	8×11.5	4.90	270
15	8×9	0.80	267	8×9	12.50	150	10×9	4.90	280	10×9	4.90	280
18	8×9	0.80	267	8×11.5	9.70	160	8×14	3.58	280	8×14	3.58	280
18				10×9	12.50	160	10×12.5	3.58	320	10×12.5	3.58	320
22	8×9	0.80	290	8×11.5	7.90	160	8×16	3.58	320	8×16	3.58	320
22				10×9	7.90	250	10×12.5	3.58	320	10×12.5	3.58	320
27	8×11.5	0.63	420	8×14	7.90	250						
27				10×12.5	7.90	250						
33	8×11.5	0.49	450	8×16	5.90	350	8×23	1.78	603	8×23	1.78	603
33	10×9	0.49	450	10×12.5	5.90	360	10×16	1.78	708	10×16	1.78	708
39	8×14	0.38	565	8×20	5.55	580						
39	10×12.5	0.38	565	10×14	5.55	635						
47	8×16	0.28	585	8×23	5.55	635	10×20	1.46	745	10×20	1.46	850
47	10×12.5	0.28	624	10×16	5.55	680	12.5×16	1.46	960	12.5×16	1.46	960
56	8×20	0.25	624	10×16	5.55	850	10×23	1.46	960	10×23	1.46	960
56	10×14	0.25	624	12.5×14	5.55	850	12.5×16	1.46	960	12.5×16	1.46	960
68	8×23	0.21	735	10×20	5.55	850	12.5×20	1.35	1270	12.5×20	1.35	1270
68	10×16	0.21	750	12.5×14	5.55	850	16×16	1.35	1270	16×16	1.35	1270
82	10×16	0.19	780	10×20	4.36	1020	12.5×20	1.35	1270	12.5×20	1.35	1270
82	12.5×14	0.19	900	12.5×16	4.36	1155	16×16	1.35	1270	16×16	1.35	1270
100	10×20	0.14	1040	12.5×16	4.36	1155	12.5×20	1.35	1360	12.5×25	1.32	1360
100	12.5×16	0.14	1040				16×16	1.35	1270	16×20	1.32	1410
120	10×23	0.12	1170	12.5×20	3.41	1390	12.5×25	1.25	1360	16×20	1.25	1500
120	12.5×16	0.12	1240	16×16	3.01	1420	16×20	1.32	1660			
150	12.5×20	0.0930	1368	12.5×25	3.01	1520	16×20	1.20	1850	16×25	1.25	1800
150				16×20	2.31	1850				18×20	1.25	1920
180	12.5×25	0.0660	1530	12.5×30	2.31	1850	16×25	0.95	2020	16×31.5	0.95	2250
180				16×20	2.31	1850	18×20	0.95	2020	18×25	0.95	2250
220	16×20	0.0660	1620	16×25	1.88	2400	18×25	0.91	2380	18×31.5	0.91	2625
220				18×20	1.88	2320						
270	12.5×30	0.0560	1750	16×31.5	1.80	2715	16×35	0.89	2100	18×35.5	0.91	2650
270	16×20	0.0640	1750	18×25	0.98	2660						
330	16×25	0.0470	2140	18×25	0.98	2660	18×31.5	0.78	2140	18×40	0.82	2700
330	18×20	0.0480	2140									
390	16×31.5	0.0400	2210	18×31.5	0.91	2715	18×35.5	0.62	2200	18×45	0.71	2760
390	18×25	0.0400	2210									
470	16×31.5	0.0400	2270	18×35.5	0.80	2800	18*40	0.62	2310	18×50	0.68	2760
470	18×25	0.0400	2270									
560	16×35.5	0.0320	2600	18×40	0.75	2800	18*45	0.49	2600			
560	18×31.5	0.0320	2600									
680	18×35.5	0.0300	2860	18×45	0.61	2890	18*50	0.38	2950			
1000				18*50	0.25	3100						

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■List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	5×9	55.00	73	5×9	55.00	73	5×9	55.00	73	6.3×9	52.00	45
1.2	5×9	36.00	90	5×9	36.00	76	5×9	52.00	78	6.3×9	52.00	45
1.5	5×9	36.00	90	5×9	36.00	76	5×11	52.00	81	6.3×9	52.00	45
1.5							6.3×9	52.00	90			
1.8	5×9	36.00	95	5×9	36.00	87	6.3×9	52.00	95	8×9	45.00	80
2.2	5×11	36.00	104	6.3×9	29.00	105	6.3×9	42.00	100	8×9	45.00	80
2.2	6.3×9	36.00	125									
2.7	6.3×9	26.00	125	6.3×9	26.00	125	6.3×9	42.00	100	8×11.5	18.50	85
3.3	6.3×9	23.00	131	6.3×9	25.00	131	6.3×12	25.00	120	8×11.5	18.50	85
3.3							8×9	25.00	120			
3.9	6.3×11	17.00	131	6.3×11	25.00	140	8×9	25.00	135	8×14	13.00	85
3.9	8×9	17.00	131	8×9	23.50	140						
4.7	6.3×11	17.00	140	6.3×12	23.50	140	8×11.5	18.50	135	8×16	13.00	130
4.7	8×9	17.00	140	8×9	23.50	140	10×9	18.50	135			
5.6	8×9	17.00	140	8×11.5	15.00	200	8×14	15.00	140	10×14	13.00	130
5.6				10×9	15.00	220	10×9	13.50	140			
6.8	8×11.5	15.00	200	8×11.5	15.00	210	8×16	8.05	220	10×14	13.00	130
6.8	10×9	17.00	210	10×9	15.00	250	10×12.5	12.00	200			
8.2	8×14	11.25	220	8×14	11.00	250	8×16	8.05	220	10×14	11.00	240
8.2	10×9	15.00	250	10×9	11.00	270	10×12.5	12.00	200			
10	8×14	8.05	250	8×16	8.05	270	8×20	8.05	260	8×23	11.00	240
10	10×12.5	11.00	270	10×12.5	11.00	270	10×14	8.05	350	10×16	10.00	260
12	8×20	9.00	360	10×14	9.00	340	10×16	7.90	370	12.5×14	9.50	265
15	8×20	6.50	360	10×14	8.50	340	10×16	7.70	370	12.5×16	8.00	270
15	10×14	6.50	460				12.5×14	7.70	370			
18	10×16	6.50	480	10×16	6.50	360	12.5×16	6.70	410	12.5×16	7.00	470
18	12.5×14	6.50	585	12.5×14	6.50	360						
22	10×20	6.50	585	10×20	6.50	570	12.5×16	6.70	450	12.5×20	7.00	470
22	12.5×14	6.50	585	12.5×16	6.50	570						
33	12.5×16	6.50	960	12.5×20	3.25	850	12.5×20	3.05	710	12.5×25	5.50	700
33				16×16	3.25	900	16×16	3.05	740	16×20	3.50	700
47	12.5×20	2.25	1115	12.5×25	2.25	1100	12.5×30	1.60	1215	16×25	2.50	720
47	16×16	2.25	1060	16×20	2.25	1155	16×20	1.60	1215			
56	12.5×25	2.25	1115	12.5×25	2.25	1155	16×25	1.60	1215	16×31.5	2.30	840
56	16×20	2.25	1155	16×20	2.25	1400	18×20	1.60	1215	18×25	2.30	840
68	12.5×30	2.25	1115	16×25	1.60	1460	16×31.5	1.60	1215	18×25	2.30	840
68	16×20	2.25	1400	18×20	1.60	1530	18×25	1.60	1300			
82	16×25	1.60	1550	16×31.5	1.60	1740	16×35.5	1.35	1675	18×31.5	1.80	1100
82	18×20	1.60	1530	18×25	1.60	1740	18×25	1.45	1700			

LKM

■ List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100	16×25	1.60	2230	18×25	1.60	1740	18×31.5	1.35	1800	18×35.5	1.50	1150
120	18×25	1.60	2305	18×31.5	1.50	2305	18×35.5	1.25	1930	18×40	1.40	1200
150	18×31.5	1.50	2720	18×35.5	1.50	3330	18×40	1.15	2350	18×45	1.00	1300
180	18×35.5	1.20	2800	18×40	1.50	3400	18×45	1.00	2400	18×50	0.90	1400
220	16×50	1.20	2840	18×45	1.00	3500	18×50	0.90	2500	16×60	0.70	1600

Voltage (V)	550		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
22	16×20	4.80	470
33	16×25	3.70	510
47	16×35.5	1.60	550
47	18×25	1.60	510
56	18×31.5	1.60	550
68	18×35.5	1.50	580
82	18×40	1.00	620
100	18×45	0.88	700
120	18×50	0.80	700

LKG

◆Long lifespan, high frequency and high ripple current resistant, high frequency and low impedance, dedicated power supply product

◆8000~12000 hours at 105℃

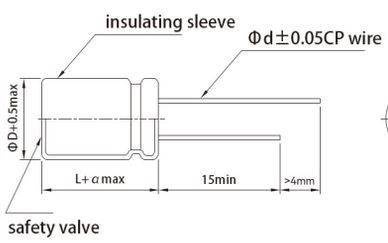
◆Compliant with AEC-Q200 RoHS directive

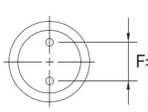


■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+105℃ ; 160~500V －40~+105℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 tg δ: 0.19 / 0.16 / 0.14 / 0.12 / 0.10 / 0.09 / 0.09 / 0.09 Rated voltage (V): 120 / 160 / 200 / 250 / 350 / 400 / 450 / 500 tg δ: 0.09 / 0.09 / 0.08 / 0.08 / 0.10 / 0.10 / 0.12 / 0.20 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 Impedance ratio Z(－40℃)/Z(20℃): 6 / 4 / 3 / 3 / 3 / 3 / 3 / 3 Rated voltage (V): 120 / 160 / 200 / 250 / 350 / 400 / 450 / 500 Impedance ratio Z(－40℃)/Z(20℃): 5 / 5 / 5 / 5 / 7 / 7 / 7 / 8
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: 10~120WV: Φ5 8000h; Φ6.3 10000h; ≧Φ8 12000h; 160~500WV: Φ5~Φ6.3 10000h ≧Φ8 12000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)





L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≧30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

Note: Products ≧ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

LKG

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10	5×9	1.05	57	5×9	1.05	72	5×9	1.05	92	5×9	1.50	102
15	5×9	1.05	77	5×9	1.05	92	5×9	1.05	112	5×9	1.50	122
22	5×9	0.40	92	5×9	0.4	112	5×9	0.40	122	5×9	1.50	170
33	5×9	0.40	107	5×9	0.4	122	5×9	0.40	152	5×9	0.40	220
39	5×9	0.40	137	5×9	0.4	152	5×9	0.40	182	5×11	0.36	240
47	5×9	0.25	144	5×9	0.25	162	5×9	0.25	212	5×11	0.32	350
56	5×9	0.25	152	5×9	0.25	172	5×9	0.25	320	6.3×9	0.32	495
68	5×9	0.25	162	5×9	0.25	182	5×11	0.23	350	6.3×11	0.260	550
68										8×9	0.260	580
82	5×9	0.25	172	5×9	0.25	212	6.3×9	0.20	550	6.3×11	0.250	550
82										8×9	0.250	580
100	5×9	0.25	182	5×11	0.23	350	6.3×9	0.20	550	6.3×11	0.250	550
100										8×9	0.250	580
120	5×9	0.25	320	5×11	0.23	550	6.3×11	0.0980	550	8×9	0.250	864
120							8×9	0.0980	580			
150	5×11	0.23	350	6.3×9	0.20	550	6.3×11	0.0980	550	8×11.5	0.0980	960
150							8×9	0.0980	580	10×9	0.0980	980
180	5×11	0.23	350	6.3×9	0.1600	550	8×9	0.0980	864	8×11.5	0.0980	960
180										10×9	0.0980	980
220	6.3×9	0.20	550	6.3×11	0.0980	550	8×11.5	0.0608	960	8×11.5	0.0980	1270
220				8×9	0.0980	580	10×9	0.0608	980			
270	6.3×9	0.1600	550	8×9	0.0980	580	8×11.5	0.0608	960	8×16	0.0700	1270
270							10×9	0.0608	980	10×12.5	0.0629	1330
330	6.3×11	0.0980	550	8×9	0.0980	864	8×14	0.0532	960	10×12.5	0.0629	1330
330	8×9	0.0980	580									
390	8×9	0.0980	580	8×11.5	0.0608	960	8×16	0.0485	1270	8×20	0.0550	1720
390				10×9	0.0608	980	10×12.5	0.0485	1270	10×16	0.0550	1850
470	8×9	0.0980	864	8×11.5	0.0608	960	10×12.5	0.0429	1330	10×16	0.0550	1850
470				10×9	0.0608	980				12.5×14	0.0550	1890
560	8×11.5	0.0608	960	8×16	0.0485	1270	8×20	0.0313	1530	10×20	0.0480	2250
560	10×9	0.0608	980	10×9	0.0485	1330	10×14	0.0313	1850	12.5×16	0.0480	2330
680	8×11.5	0.0608	960	8×16	0.0485	1270	10×16	0.0308	1850	10×23	0.0398	2330
680	10×9	0.0608	980	10×12.5	0.0429	1330				12.5×20	0.0350	2330
820	8×14	0.0585	1170	8×20	0.0313	1530	10×20	0.0280	2250	12.5×20	0.0280	2480
820	10×12.5	0.0608	1270	10×14	0.0313	1850	12.5×16	0.0350	2330			
1000	8×16	0.0485	1270	8×20	0.0313	1530	10×20	0.0280	2330	12.5×20	0.0280	2480
1000	10×12.5	0.0429	1330	10×16	0.0308	1850	12.5×16	0.0350	2330			
1200	8×20	0.0313	1530	10×16	0.0308	1960	12.5×20	0.0280	2480	12.5×25	0.0265	2900
1200	10×14	0.0308	1760							14.5×16	0.0580	1467

LKG

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1500	8×20	0.0313	1530	10×20	0.0280	1960	12.5×20	0.0280	2480	12.5×30	0.0243	3450
1500	10×16	0.0308	1850	12.5×16	0.0350	2330				14.5×20	0.0450	1620
1500										16×20	0.0265	3250
1800	10×20	0.0280	1960	10×20	0.0280	2250	12.5×25	0.0230	2900	12.5×35	0.0220	3570
1800	12.5×16	0.0201	2330	12.5×16	0.0280	2480	14.5×16	0.1350	1944	14.5×23	0.0320	1845
1800										16×25	0.0243	3630
2200	10×20	0.0280	1960	12.5×20	0.0280	2480	12.5×25	0.0143	3450	14.5×25	0.0180	2088
2200	12.5×16	0.0201	2330				14.5×20	0.1120	2124	16×25	0.0243	3630
2200							16×20	0.0165	3250			
2700	10×23	0.0198	2250	12.5×20	0.0218	2900	12.5×35	0.0132	3570	14.5×27	0.0120	2385
2700	12.5×20	0.0280	2480	14.5×16	0.0810	1935	14.5×23	0.0950	2358	16×35.5	0.0210	4010
2700							16×25	0.0143	3630	18×31.5	0.0210	4180
3300	12.5×20	0.0280	2480	12.5×25	0.0165	3450	12.5×40	0.0121	3890	16×40	0.0210	4220
3300				14.5×20	0.0680	2232	14.5×25	0.0800	2520	18×35.5	0.0160	4220
3300							16×25	0.0143	3630			
3900	12.5×25	0.0165	2900	12.5×30	0.0143	3450	14.5×27	0.0660	2718	18×35.5	0.0160	4500
3900	14.5×16	0.0720	1890	16×20	0.0165	3250	16×31.5	0.0121	3890			
3900							18×25	0.0132	3650			
4700	12.5×30	0.0143	3450	12.5×30	0.0143	3570	16×31.5	0.0110	4010			
4700	14.5×20	0.0600	2160	14.5×23	0.0580	2475	18×25	0.0110	4180			
4700	16×20	0.0165	3450	16×25	0.0143	3630						
5600	12.5×30	0.0143	3570	14.5×25	0.0480	2745	18×35.5	0.0100	4220			
5600	14.5×23	0.0480	2385	16×31.5	0.0121	3890						
5600	16×20	0.0165	3250	18×25	0.0132	3650						
6800	12.5×35	0.0132	3570	14.5×27	0.0350	2880	18×40	0.0100	4500			
6800	14.5×25	0.0400	2592	16×31.5	0.0121	3890						
6800	16×25	0.0143	3630	18×25	0.0132	3650						
8200	14.5×27	0.0320	2745									
8200	16×31.5	0.0121	3890	16×35.5	0.0110	4010						
8200	18×25	0.0132	3650	18×31.5	0.0110	4010						
10000	16×31.5	0.0121	3890	18×35.5	0.0100	4080						
10000	18×25	0.0132	3650									

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	4.00	22	5×9	3.00	24	5×9	3.00	25	5×9	3.00	25
1.0	5×9	4.00	32	5×9	3.00	35	5×9	3.00	36	5×9	3.00	36
1.2	5×9	4.00	32	5×9	3.00	35	5×9	3.00	36	5×9	3.00	36
1.5	5×9	4.00	38	5×9	3.00	42	5×9	3.00	44	5×9	3.00	44
1.8	5×9	4.00	38	5×9	3.00	42	5×9	3.00	44	5×9	3.00	44

LKG

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
2.2	5×9	1.50	40	5×9	3.00	46	5×9	3.00	48	5×9	3.00	48
2.7	5×9	1.50	40	5×9	3.00	56	5×9	3.00	56	5×9	3.00	56
3.3	5×9	1.50	55	5×9	3.00	60	5×9	3.00	63	5×9	3.00	63
3.9	5×9	1.50	55	5×9	3.00	79	5×9	3.00	82	5×9	1.35	82
4.7	5×9	1.50	90	5×9	3.00	99	5×9	3.00	102	5×9	1.35	102
5.6	5×9	1.50	92	5×9	3.00	101	5×9	3.00	107	5×11	1.12	107
6.8	5×9	1.50	95	5×9	3.00	105	5×9	3.00	112	5×11	1.12	112
8.2	5×9	1.50	97	5×9	3.00	110	5×9	1.35	127	5×11	0.88	127
10	5×9	1.50	102	5×9	3.00	112	5×11	1.35	170	6.3×9	0.88	275
12	5×9	1.50	122	5×9	3.00	122	5×11	0.78	248	6.3×11	0.78	300
12										8×9	0.78	300
15	5×9	1.50	122	5×9	1.35	170	6.3×9	0.61	275	6.3×11	0.78	400
15										8×9	0.78	416
18	5×9	1.05	170	5×11	0.78	278	6.3×9	0.61	275	6.3×11	0.61	400
18										8×9	0.61	416
22	5×11	0.95	180	6.3×9	0.74	356	6.3×11	0.78	400	8×11.5	0.39	462
22							8×9	0.78	416	10×9	0.39	500
27	5×11	0.95	180	6.3×9	0.61	356	6.3×11	0.78	400	8×11.5	0.27	585
27							8×9	0.78	416	10×9	0.27	624
33	6.3×9	0.74	356	6.3×11	0.38	400	6.3×11	0.61	400	8×11.5	0.27	585
33				8×9	0.38	482	8×9	0.61	416	10×9	0.27	624
39	6.3×9	0.62	356	6.3×11	0.38	400	8×11.5	0.39	462	8×16	0.27	585
39				8×9	0.38	482	10×9	0.61	500	10×12.5	0.27	624
47	6.3×11	0.32	356	6.3×11	0.32	520	8×11.5	0.39	462	8×16	0.27	585
47	8×9	0.26	395	8×9	0.24	520	10×9	0.61	500	10×12.5	0.27	624
56	6.3×11	0.21	666	8×9	0.24	520	8×11.5	0.27	585	10×12.5	0.25	750
56	8×9	0.21	666				10×9	0.28	585			
68	8×9	0.21	666	8×11.5	0.23	520	8×16	0.27	585	8×20	0.20	770
68				10×9	0.24	535	10×12.5	0.25	624	10×14	0.19	780
82	8×11.5	0.15	740	8×11.5	0.17	722	8×20	0.25	624	10×16	0.19	780
82	10×9	0.15	666	10×9	0.17	650	10×12.5	0.25	624	12.5×14	0.18	858
100	8×11.5	0.15	740	8×16	0.17	722	8×20	0.20	800	10×20	0.13	1040
100	10×9	0.15	666	10×12.5	0.17	722	10×16	0.19	780	12.5×16	0.14	975
120	8×14	0.13	970	8×16	0.17	722	10×16	0.19	780	10×23	0.12	1170
120	10×12.5	0.13	985	10×12.5	0.17	722	12.5×14	0.18	858	12.5×20	0.0930	1430
150	8×16	0.11	970	8×20	0.12	890	10×20	0.13	1040	12.5×20	0.0930	1430
150	10×12.5	0.11	985	10×16	0.12	998	12.5×16	0.14	975			
180	8×20	0.10	1220	10×16	0.12	998	10×20	0.13	1040	12.5×25	0.0660	1620
180	10×14	0.10	1370				12.5×16	0.14	975			
220	8×20	0.0500	1220	10×20	0.0860	1200				12.5×25	0.0660	1620
220	10×16	0.0460	1370	12.5×16	0.0804	1250	12.5×20	0.0940	1430	14.5×16	0.35	1040
270	10×20	0.0420	1580	10×20	0.0860	1200	12.5×20	0.0940	1430	12.5×30	0.0560	1950
270	12.5×14	0.0500	1752	12.5×16	0.0804	1250				14.5×20	0.31	1098
270										16×20	0.0640	1750
330	10×20	0.0420	1580	10×23	0.0760	1410	12.5×20	0.0660	1620	12.5×35	0.0470	2140
330							14.5×16	0.0760	945	14.5×23	0.23	1206

LKG

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
330	12.5×16	0.0500	1752	12.5×20	0.0660	1570				16×25	0.0480	2210
390	10×20	0.0420	1870	12.5×20	0.0660	1570	12.5×30	0.0560	1950	12.5×40	0.0400	2340
390							14.5×20	0.0630	1044	14.5×25	0.1900	1314
390							16×20	0.0640	1750	16×25	0.0480	2210
470	12.5×20	0.0560	2050	12.5×25	0.0470	1990	12.5×35	0.0470	2140	14.5×27	0.1500	1422
470				14.5×16	1.12	1350	14.5×23	0.0570	1125	16×31.5	0.0360	2400
470							16×25	0.0480	2210	18×25	0.0420	2270
560	12.5×20	0.0560	2410	12.5×30	0.0390	2410	12.5×40	0.0400	2340	16×35.5	0.0320	2600
560				14.5×20	0.9500	1422	14.5×25	0.0520	1188	18×31.5	0.0340	2470
560				16×20	0.0390	2410	16×25	0.0480	2210			
680	12.5×25	0.0560	2410	12.5×30	0.0360	2620	14.5×27	0.0480	1260	16×40	0.0300	2860
680	14.5×16	0.1350	1485	14.5×23	0.7800	1449	16×31.5	0.0360	2400	18×35.5	0.0300	2860
680				16×25	0.0350	2730	18×25	0.0420	2270			
820	12.5×25	0.0450	2960	12.5×35	0.0300	2940	16×35.5	0.0320	2600	18×40	0.0285	3510
820	14.5×20	0.1120	1737	14.5×25	0.6000	1530	18×25	0.0420	2270			
820	16×20	0.0420	2730	16×25	0.0350	2730						
1000	12.5×30	0.0350	2960	14.5×27	0.4500	1665	16×40	0.0300	2860			
1000	14.5×23	0.0950	1908	16×31.5	0.0260	2990	18×31.5	0.0340	2470			
1000	16×25	0.0350	3010	18×25	0.0340	2800						
1200	14.5×25	0.0700	2034	16×31.5	0.0260	2990	18×35.5	0.0300	2860			
1200	16×31.5	0.0247	3280	18×25	0.0340	2800						
1200	18×25	0.0323	3060									
1500	14.5×27	0.0500	2088	16×35.5	0.0230	3040	18×40	0.0285	3510			
1500	16×31.5	0.0247	3280	18×31.5	0.0280	3300						
1500	18×25	0.0323	3300									
1800	16×35.5	0.0218	3040	16×40	0.0210	3570						
1800	18×31.5	0.0266	3300	18×35.5	0.0220	3570						
2200	18×35.5	0.0210	3570	18×40	0.0285	3900						
2700	18×40	0.0200	3900									

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47	5×9	3.00	25									
1.0	5×9	3.00	38	5×11	27.00	52	5×11	27.00	52	6.3×9	26.00	72
1.2	5×9	3.00	38	5×11	27.00	57	5×11	27.00	57	6.3×9	26.00	72
1.5	5×9	3.00	44	5×11	27.00	64	5×11	27.00	64	6.3×9	26.00	72
1.8	5×9	3.00	44	5×11	27.00	70	5×11	27.00	70	6.3×9	26.00	108
2.2	5×9	3.00	48	5×11	27.00	77	5×11	27.00	77	6.3×9	26.00	117
2.7	5×9	3.00	56	5×11	27.00	85	5×11	27.00	85	6.3×9	26.00	117
3.3	5×9	3.00	63	5×11	27.00	95	6.3×9	26.00	108	6.3×9	10.15	140
3.9	5×11	1.35	82	5×11	21.00	108	6.3×9	16.00	108	6.3×11	10.15	140
3.9										8×9	10.15	144
4.7	5×11	1.35	102	6.3×9	21.00	108	6.3×11	10.15	130	6.3×11	10.15	144

LKG

■ List of Standard Products

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
4.7							8×9	10.15	153	8×9	10.15	144
5.6	6.3×9	1.12	107	6.3×9	12.78	130	6.3×11	10.15	130	8×9	10.15	144
5.6							8×9	10.15	153			
6.8	6.3×9	1.12	112	6.3×11	12.78	130	8×9	10.15	153	8×9	10.15	160
6.8				8×9	12.78	117						
8.2	6.3×9	1.12	127	8×9	12.78	140	8×9	10.15	160	8×11.5	10.15	160
8.2										10×9	10.15	144
10	6.3×11	0.88	275	8×9	12.78	140	8×11.5	10.15	170	8×11.5	9.50	290
10							10×9	10.15	180	10×9	9.50	365
12	8×9	0.80	300	8×11.5	10.15	168	8×14	8.5	270	8×14	8.5	270
12				10×9	10.15	168						
15	8×11.5	0.78	358	8×11.5	10.00	261	8×16	3.65	290	8×16	3.65	290
15	10×9	0.78	358	10×9	10.00	261	10×12.5	4.50	365	10×12.5	3.24	380
18	8×11.5	0.61	358	8×14	7.50	290	8×20	3.24	370	8×20	3.24	370
18	10×9	0.61	358	10×9	7.50	261	10× 14	3.24	380	10×14	3.24	400
22	8×14	0.48	450	8×14	7.50	350	8×20	3.24	370	8×20	3.24	370
22	10×9	0.48	450	10×12.5	7.50	380	10×14	3.24	400	10×14	3.24	400
27	8×16	0.37	550	8×16	2.65	350						
27	10×12.5	0.37	550	10×12.5	2.65	380						
33	8×16	0.37	585	8×20	2.65	650	10×20	1.65	650	10×20	1.65	650
33	10×12.5	0.37	585	10×14	2.65	760	12.5×14	1.65	760	12.5×14	1.65	760
39	8×20	0.28	624	10×16	2.65	650						
39	10×14	0.28	624	12.5×14	2.65	760						
47	10×14	0.28	624	10×20	2.65	750	12.5×20	1.38	980	12.5×20	1.38	980
47				12.5×14	2.65	760						
56	10×16	0.25	750	10×20	2.65	920	12.5×20	1.38	980	12.5×20	1.38	980
56	12.5×14	0.25	750	12.5×16	2.27	1180						
68	10×20	0.21	770	12.5×16	2.27	1280	12.5×25	1.25	1300	12.5×25	1.25	1300
68	12.5×14	0.21	780				16×20	1.25	1420	14.5×16	1.98	558
68										16×20	1.25	1420
82	12.5×16	0.19	900	12.5×20	2.27	1280	12.5×25	1.25	1390	12.5×30	1.15	1390
82							14.5×16	1.98	612	14.5×20	1.85	612
82							16×20	1.18	1420	16×20	1.18	1420
100	12.5×20	0.13	1040	12.5×20	2.27	1280	12.5×30	1.15	1390	14.5×23	1.70	675
100				14.5×16	4.20	770	14.5×20	1.60	675	16×25	1.18	1950
100							16×20	1.18	1420	18×20	1.02	1950
120	12.5×20	0.12	1240	12.5×25	1.43	1550	12.5×30	1.15	1420	14.5×25	1.30	747
120				14.5×20	3.85	882	14.5×23	1.52	738	16×31.5	0.98	1990
120				16×20	1.25	1420	16×25	1.18	1950	18×20	1.02	1950
150	12.5×25	0.0930	1430	12.5×30	1.43	1960	14.5×25	1.35	855	14.5×27	1.20	819
150	16×20	0.0930	1430	14.5×23	3.61	972	16×25	1.18	1950	16×31.5	0.98	2030
150				16×25	1.43	1890				18×25	0.98	2030
180	16×20	0.0930	1530	16×25	1.43	1890	14.5×27	1.22	918	16×35.5	0.80	2300
180							16×35.5	0.80	2300	18×31.5	0.80	2300
180							18×31.5	0.80	2300			

LKG

■ List of Standard Products

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
220	16×25	0.0660	1750	16×31.5	1.14	2450	18×31.5	0.80	2300	18×35.5	0.74	2680
220	18×20	0.0660	1750	14.5×25	3.42	1044						
220				18×25	1.14	2370						
270	16×31.5	0.0560	1950	14.5×27	3.15	1107						
270	18×25	0.0640	1950	16×31.5	1.14	2450						
330	16×31.5	0.0470	2210	18×31.5	1.10	3200						
330	18×25	0.0480	2210									
390	16×35.5	0.0400	2430	18×35.5	0.95	3450						
390	18×31.5	0.0400	2430									
470	18×35.5	0.0320	2600									
560	18×40	0.0320	2860									

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×9	55.00	81	6.3×9	55.00	77	6.3×9	55.00	81	6.3×12	55.00	48
1.2	6.3×9	34.00	99	6.3×9	34.00	81	6.3×9	50.00	81	6.3×12	50.00	48
1.5	6.3×9	34.00	99	6.3×9	34.00	81	6.3×9	50.00	81	6.3×12	50.00	48
1.8	6.3×9	34.00	99	6.3×9	34.00	81	6.3×11	45.00	86	8×11.5	45.00	84
1.8							8×9	38.00	86			
2.2	6.3×9	34.00	130	6.3×9	28.00	100	8×9	38.00	95	8×11.5	16.50	90
2.7	6.3×11	23.00	144	8×9	23.00	144	8×9	38.00	126	8×14	12.00	110
2.7	8×9	23.00	144									
3.3	8×9	16.00	144	8×9	16.00	160	8×11.5	28.00	140	8×14	12.00	110
3.3							10×9	28.00	150			
3.9	8×9	16.00	155	8×11.5	16.00	160	8×11.5	28.00	140	8×16	12.00	130
3.9				10×9	16.00	220	10×9	28.00	150			
4.7	8×11.5	16.00	155	8×11.5	16.00	160	8×14	21.80	175	8×20	12.00	130
4.7	10×9	16.00	180	10×9	16.00	220	10×9	18.50	180			
5.6	8×11.5	12.50	200	8×14	12.50	240	8×16	12.50	190	10×16	12.00	140
5.6	10×9	16.00	170	10×12.5	12.50	250	10×12.5	12.50	200			
6.8	8×14	10.50	220	8×16	10.50	270	8×20	9.80	230	10×16	11.00	250
6.8	10×9	12.50	240	10×12.5	10.50	280	10×14	9.80	210			
8.2	8×16	7.50	290	8×20	7.50	290	8×20	6.20	230	10×20	11.00	250
8.2	10×12.5	12.50	315	10×14	7.50	315	10×14	6.20	280			
10	8×20	12.50	290	8×20	7.50	315	10×16	6.20	280	10×20	10.00	280
10	10×14	7.50	350	10×14	7.50	350	12.5×14	6.20	360	12.5×14	7.00	320

LKG

■ List of Standard Products

Voltage (V)	350			400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
12	10×16	6.20	370	10×20	6.20	490	10×20	6.20	410	12.5×16	6.50	420
15	10×16	6.20	370	10×20	6.20	490	10×20	6.20	410	12.5×20	6.00	480
15	12.5×14	6.20	490	12.5×16	6.20	550	12.5×16	6.20	460			
18	10×20	6.20	490				12.5×20	4.50	500	12.5×25	6.00	480
18	12.5×14	6.20	510	12.5×16	6.20	550						
22	10×20	6.20	550	12.5×20	6.20	1000	12.5×20	4.25	500	12.5×25	4.50	520
22	12.5×16	6.20	1060									
27										14.5×16	3.10	558
33	12.5×20	2.25	1060	12.5×25	4.00	1060	12.5×30	2.82	770	12.5×35	2.20	740
33				16×20	3.00	1150	14.5×16	3.10	630	14.5×20	2.90	572
33							16×20	3.00	730	16×25	2.20	740
39				14.5×16	3.10	657	14.5×20	2.80	684	14.5×23	2.50	585
47	12.5×25	2.25	1150	12.5×30	2.00	1180	14.5×23	2.50	729	14.5×25	2.30	594
47	16×20	2.25	1150	14.5×20	2.82	720	16×25	2.82	1240	16×31.5	2.00	850
47				16×25	2.00	1180	18×20	2.82	1200			
56	12.5×30	2.02	1220	14.5×23	2.35	774	14.5×25	2.20	855	14.5×27	2.15	612
56	16×25	2.02	1320	16×25	1.82	1580	16×31.5	1.50	1240	16×35.5	2.00	850
56				18×20	1.82	1530	18×25	1.50	1200	18×31.5	2.00	850
68	16×25	1.38	1580	14.5×25	1.65	828	14.5×27	2.00	900	18×31.5	1.80	1200
68	18×20	1.38	1530	16×31.5	1.38	1580	16×35.5	1.25	1400			
68				18×25	1.38	1530	18×31.5	1.25	1460			
82	16×31.5	1.38	1580	14.5×27	1.35	882	16×40	1.25	1460	18×35.5	1.50	1200
82	18×25	1.38	1530	16×35.5	1.25	2280	18×31.5	1.25	1460			
82				18×31.5	1.25	2280						
100	16×35.5	1.25	1945	18×31.5	1.07	2580	18×35.5	0.90	1970	18×40	1.25	1200
100	18×31.5	1.25	2280									
120	18×31.5	1.25	2780	18×35.5	0.95	2850	18×40	0.90	1970	18×45	0.98	1268
150	18×35.5	0.97	2850	18×40	0.95	2980	18×45	0.85	2080			

LKZ

◆Long lifespan, high frequency, low impedance, low temperature start-up; ideal for streetlights, outdoor lights, and high-end power supplies.

◆12,000~15,000 hours of operation at 105℃.

◆Compliant with AEC-Q200 RoHS directive.



■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+105℃；160~500V －40~+105℃，550~600V －25~+105℃
Nominal Voltage Range	10~600V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120V, I≦0.01CV or 3μA (whichever is greater), C: Nominal capacitance (μF), V: Rated voltage (V), Reading after 2 minutes.
	160~500V I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
	550~600V I≦0.05CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100	120
tg δ	0.19	0.16	0.14	0.12	0.12	0.12	0.10	0.10	0.10
Rated voltage (V)	160	200	250	350	400	450	500	550	600
tg δ	0.12	0.15	0.15	0.18	0.20	0.20	0.24	0.25	0.30

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100	120
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3	5
Rated voltage (V)	160	200	250	350	400	450	500	550	600
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	7	7	7	8	16	18

Durability

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

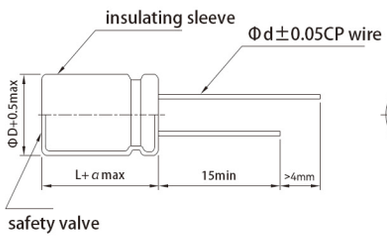
Capacity change rate	Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value	
Leakage current	Below the specified value	
Load life	Φ8~Φ10	12000h
	≧Φ12.5	15000h

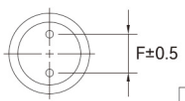
High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)





L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	8	10	12.5~13	12.5~13(h≧30)	14.5	16	18	20	22	25
d	0.6	0.6	0.7	0.6	0.8	0.8	0.8	0.8	1.0	1.0
F	3.5	5.0	5.0	5.0	7.5	7.5	7.5	10	10	10

Note: Products ≧ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

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■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
180										5×11	0.73	500
220							5×9	1.050	540	8×11.5	3.600	1008
220										10×9	3.500	1029
270	5×9	1.180	600	5×9	1.5700	600	5×11	0.800	540	6.3×9	0.650	680
270										8×11.5	3.500	1008
270										10×9	3.500	1029
330				5×11	1.2000	680				6.3×11	0.440	750
330										8×14	2.200	1008
390							8×11.5	3.600	1008	8×16	0.2800	1334
390							10×9	3.500	1029	10×12.5	0.2800	1334
470	5×11	0.735	735				6.3×11	0.550	670	8×9	0.3200	750
470	6.3×9	0.650	790				8×11.5	2.820	1008	10×12.5	0.2800	1397
470							10×9	2.820	1029			
560				6.3×11	1.1000	850				8×11.5	0.300	820
560				8×11.5	0.2180	1008	8×16	0.280	1334	8×20	0.2500	1607
560				10×9	0.2180	1029	10×12.5	0.280	1397	10×16	0.2500	1943
680							8×9	0.290	670			
680				8×11.5	0.2180	1008	8×16	0.280	1334	10×16	0.2500	1943
680				10×9	0.2180	1029	10×12.5	0.280	1397			
820				8×9	0.8000	1010	8×11.5	0.250	890	8×16	0.2820	860
820				8×14	0.1702	1229	8×20	0.2188	1607	10×20	0.1953	2363
820	6.3×11	0.430	885	10×12.5	0.1702	1334	10×16	0.2188	1943	12.5×16	0.1953	2447
1000	8×9	0.330	1140	8×16	0.1330	1334	8×20	0.1708	1607	8×20	0.2540	925
1000				10×12.5	0.1330	1397	10×16	0.1708	1943	10×23	0.1526	2447
1000										12.5×16	0.1526	2447
1200	8×11.5	0.200	1430	8×11.5	0.5100	1405	10×20	0.0730	2058	12.5×20	0.0800	2604
1200				8×20	0.1039	1607	12.5×16	0.0730	2447			
1200				10×14	0.1039	1848						
1500				8×16	0.4500	1530	10×12.5	0.200	1250	8×25	0.2440	1020
1500				8×20	0.0934	1607	10×20	0.0730	2058	12.5×20	0.0650	2604
1500				10×16	0.0934	1943	12.5×16	0.0730	2447			
1800	8×16	0.150	1610	10×20	0.0730	2058	8×20	0.1800	1310	10×16	0.2630	1020
1800				12.5×16	0.0730	2447	10×23	0.0570	2363	12.5×25	0.0500	3045
1800							12.5×20	0.0570	2604			
2200	10×12.5	0.100	1610	8×20	0.2200	1670	8×25	0.1500	1460	10×20	0.2400	1285
2200				10×20	0.0730	2058	12.5×12.5	0.1000	1620	12.5×16	0.2050	1554
2200				12.5×16	0.0570	2447	12.5×20	0.0570	2604	12.5×30	0.0456	3623
2200										16×20	0.0456	3413
2700	8×20	0.090	1850	10×23	0.0446	2363	12.5×25	0.0400	3045	10×25	0.1800	1802
2700				12.5×20	0.0446	2604				12.5×35	0.0412	3749
2700										16×25	0.0412	3812
3300	8×25	0.085	2240	8×25	0.1000	2205	10×20	0.092	1880	12.5×20	0.1500	1889
3300	10×16	0.070	2470	12.5×20	0.0446	2604	12.5×16	0.084	2050	12.5×40	0.0380	4085
3300	12.5×12.5	0.061	2470	12.5×12.5	0.0850	2440	12.5×30	0.0380	3623	13×20	0.1500	1930
3300							16×20	0.0380	3413	16×25	0.0380	3812
3900				12.5×25	0.0400	3045	12.5×30	0.0380	3623	16×31.5	0.0340	4085
3900							16×20	0.0380	3413	18×25	0.0340	4085

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■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
4700	10×20	0.055	2515	12.5×16	0.0610	2600	12.5×20	0.0750	2240	13×25	0.1200	2038
4700				12.5×30	0.0390	3623	12.5×35	0.0360	3749	16×35.5	0.0310	4211
4700				16×20	0.0390	3623	16×25	0.0360	3812	18×31.5	0.0310	4389
5600	10×25	0.040	2675	12.5×20	0.0520	3050	12.5×25	0.0680	2470	18×35.5	0.0280	4431
5600	12.5×16	0.037	2705	16×25	0.0380	3749	13×20	0.060	2470			
5600				18×20	0.0380	3749	16×31.5	0.0340	4085			
5600							18×25	0.0340	4085			
6800	12.5×20	0.030	2850	13×20	0.0460	3215	13×25	0.0550	2650	14.5×25	0.1000	2422
6800				16×31.5	0.0340	3812	16×35.5	0.0310	4211	18×40	0.0280	4700
6800				18×25	0.0340	3812	18×31.5	0.0310	4389			
8200	12.5×25	0.025	3030	12.5×25	0.0350	3460				16×50	0.0280	4700
8200	13×20	0.02	3280									
10000	13×25	0.018	3545	13×25	0.0250	3680	14.5×25	0.040	2889	18×50	0.0280	4850
10000	14.5×20	0.015	3830	14.5×20	0.0200	3680						
12000				14.5×25	0.0150	3850						
15000	14.5×25	0.1	3880	14.5×25	0.0150	3850	18×50	0.030	4500			
22000				18×50	0.0280	4200						

Voltage (V)	35			50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
33										8×11.5	2.60	485
33										10×9	2.60	525
39										8×11.5	2.09	485
39										10×9	2.09	525
47							8×11.5	2.6	546	8×11.5	1.50	485
47							10×9	2.6	562			
56							8×11.5	2.6	546	8×16	1.20	614
56							10×9	2.6	562	10×12.5	1.20	614
68	5×9	1.22	680	6.3×9	2.020	520	8×11.5	2.09	546	8×16	1.20	614
68							10×9	2.09	562	10×12.5	1.20	655
82				8×11.5	2.60	777	8×16	1.50	758	10×12.5	1.20	655
82				10×9	2.60	699	10×12.5	1.50	683			
100				8×11.5	2.090	777	8×16	1.50	758	8×20	1.00	840
100				10×9	2.090	699	10×12.5	1.50	758	10×16	1.00	819
120	5×11	1.020	710	6.3×11	1.820	600	10×12.5	1.50	758	10×16	1.00	819
120				8×16	1.5000	1019				8×20	1.00	819
120				10×12.5	1.5000	1034						
150	8×11.5	3.600	1008	8×16	1.5000	1019	8×20	1.20	935	10×20	0.80	1092

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■ List of Standard Products

Voltage (V)	35			50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
150	10×9	3.500	1029	10×12.5	1.5000	1034	10×16	1.20	1048	12.5×16	0.80	1024
180	8×14	2.820	1008	8×20	1.3400	1281	10×16	1.20	1048	10×20	0.80	1092
180	10×9	2.820	1029	10×16	1.3400	1439				12.5×16	0.80	1024
220	6.3×11	0.900	905	8×11.5	1.515	850	10×20	0.9300	1260	10×23	0.60	1229
220	8×16	2.500	1334	8×20	1.3400	1281	12.5×16	0.9300	1313	12.5×20	0.60	1502
220	10×12.5	2.500	1334	10×16	1.3400	1439						
270	8×9	0.750	1105	10×20	0.9300	1659	10×20	0.9300	1260	12.5×20	0.60	1502
270	8×16	1.9530	1334	12.5×16	0.9300	1840	12.5×16	0.8040	1313			
270	10×12.5	1.9530	1397									
330	8×11.5	0.610	1230	8×16	1.30	910	10×23	0.7600	1481	12.5×25	0.5400	1701
330	10×12.5	1.9530	1397	10×20	0.9300	1659	12.5×20	0.5000	1649			
330				12.5×16	0.8000	1840						
390	10×16	1.5258	1943	10×23	0.7600	1964	12.5×20	0.5000	1649	12.5×30	0.4900	2048
390				12.5×20	0.5000	2153				16×20	0.4900	1838
470	8×16	0.450	1400	8×20	1.150	980	12.5×25	0.4500	2090	12.5×35	0.4500	2247
470	10×16	1.1920	1943	12.5×20	0.5000	2153				16×25	0.4500	2321
560	10×20	0.1150	2363	8×25	1.10	1075	12.5×30	0.4400	2531	12.5×40	0.4400	2457
560	12.5×16	0.1150	2447	12.5×25	0.3900	2531	16×20	0.4400	2531	16×25	0.4400	2321
680	8×20	0.40	1598	12.5×25	0.3050	2531	12.5×35	0.4300	2751	16×31.5	0.4300	2520
680	10×23	0.1100	2447				16×25	0.4300	2867	18×25	0.4300	2384
680	12.5×16	0.1150	2447									
820	12.5×20	0.0950	2604	10×20	0.980	1339	12.5×40	0.4200	3087	16×35.5	0.4200	2730
820				12.5×30	0.2380	3108	16×25	0.4200	2867	18×25	0.4200	2384
820				16×20	0.2380	2867						
1000	8×25	0.350	1770	10×25	0.850	1550	16×31.5	0.4100	3140	16×40	0.4100	3003
1000	12.5×20	0.0950	2604	12.5×35	0.0500	3108	18×25	0.4100	2940	18×31.5	0.4100	2594
1000				16×25	0.0500	3161						
1200	12.5×25	0.0810	3045	12.5×20	0.70	1780	16×31.5	0.4100	3140	18×35.5	0.4000	3003
1200				16×31.5	0.0390	3444	18×25	0.4100	2940			
1200				18×25	0.0390	3213						
1500	10×20	0.270	1920	12.5×25	0.650	1920	16×35.5	0.4000	3192	18×40	0.3900	3686
1500	12.5×30	0.0752	3623	16×35.5	0.0350	3192	18×31.5	0.4000	3465			
1500	16×20	0.0452	3413	18×31.5	0.0350	3465						
1800	10×25	0.210	2085	13×25	0.60	2055	16×40	0.3900	3749	18×45	0.3800	3700
1800	12.5×35	0.0430	3749	16×35.5	0.0350	3192	18×35.5	0.3900	3749			
1800	16×25	0.0430	3812	18×31.5	0.0350	3465						
2200	13×20	0.180	2210	14.5×25	0.50	2410	18×40	0.3800	4095			
2200	16×25	0.0410	3812	18×35.5	0.0318	3749						
2700	12.5×25	0.10	2430	18×40	0.0290	4095	18×45	0.3500	4100			
2700	16×35.5	0.0400	4211									
2700	18×31.5	0.0400	4389									
3300	14.5×25	0.090	2660	18×50	0.0290	4100						
3300	16×40	0.0280	4431									
3300	18×35.5	0.0280	4431									
3900	18×40	0.0218	4725									

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■ List of Standard Products

Voltage (V)	100			120			160			200		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
8.2										8×11.5	10.15	168
8.2										10×9	10.15	189
10										8×11.5	10.15	179
10										10×9	10.15	189
12							8×11.5	10.15	176	8×14	8.75	240
15	8×11.5	2.70	485	8×11.5	4.00	429	8×11.5	10.00	274	8×16	3.24	305
15	10×9	2.70	525	10×9	4.00	455	10×9	10.00	274	10×12.5	4.50	383
18	8×11.5	2.70	485	8×11.5	4.00	429	8×14	7.50	305	8×20	3.24	389
18	10×9	2.70	525	10×9	4.00	455	10×12.5	7.50	274	10×14	3.24	399
22	8×11.5	2.70	485	8×14	3.60	478	8×20	4.27	368	8×20	3.24	389
22	10×9	2.70	525	10×9	4.00	519	10×12.5	7.50	399	10×16	3.24	420
27	8×16	2.00	614	8×16	3.00	543	8×20	2.65	368	10×20	2.53	466
27	10×12.5	2.00	655	10×12.5	3.00	579	10×12.5	2.65	399	12.5×14	2.53	665
33	8×16	2.00	614	8×16	3.00	543	10×16	2.65	683	10×20	1.65	683
33	10×12.5	2.00	655	10×12.5	3.00	579	12.5×14	2.65	798	12.5×14	1.65	798
39	8×16	1.56	614	8×20	2.65	597	10×16	2.65	683	12.5×20	1.50	958
39	10×12.5	1.56	655	10×14	2.65	636	12.5×14	2.65	798			
47	10×12.5	1.56	655	10×14	2.65	636	10×20	2.65	788	12.5×20	1.50	1029
47							12.5×14	2.65	798			
56	10×12.5	1.20	788	10×16	2.21	720	10×20	2.65	966	12.5×20	1.38	1029
56				12.5×14	2.20	756	12.5×16	2.27	1239	12.5×25	1.25	1365
68	8×20	1.00	809	10×20	2.00	792	12.5×20	2.27	1344			
68	10×16	1.00	819	12.5×14	2.20	792						
82	10×16	1.00	819	12.5×16	2.00	880	12.5×20	2.27	1344	16×16	1.18	1490
82										12.5×25	1.15	1460
100	10×20	0.78	1092	12.5×20	1.80	1161	12.5×20	2.27	1344			
100	12.5×16	0.78	1024							16×20	1.18	2048
120	10×23	0.500	1229	12.5×20	1.80	1340	12.5×25	1.43	1628			
120	12.5×20	0.500	1502				16×20	1.25	1491	16×25	1.18	2252
150	12.5×20	0.500	1502	12.5×25	1.60	1463	12.5×25	1.43	2058	18×20	1.18	2252
150				16×20	1.60	1524				16×35.5	0.92	2415
180	12.5×25	0.4600	1701	16×20	1.43	1731	16×20	1.43	1985	18×25	0.92	2415
180										16×35.5	0.80	2415
220	12.5×25	0.4600	1701	16×25	1.19	2078	16×25	1.14	2573	18×31.5	0.80	2415
220				18×20	1.19	2078	18×20	1.14	2489	16×40	0.74	2656
270	12.5×30	0.4400	2048	16×31.5	1.10	2490	16×31.5	1.14	2573	18×31.5	0.74	2656
270	16×20	0.4400	1838	18×25	1.10	2490				16×40	0.74	2898
330	12.5×35	0.4000	2247	16×31.5	1.10	2520	16×31.5	1.10	3360	18×31.5	0.74	2898
330	16×25	0.4000	2321	18×25	1.10	2520	18×25	1.10	3360	16×45	0.62	3188
390	12.5×40	0.3200	2457	16×35.5	1.00	2730	16×35.5	0.95	3623	18×35.5	0.62	3188
390	16×25	0.3200	2321	18×31.5	1.00	2730	18×31.5	0.95	3623	18×40	0.56	3623
470	16×31.5	0.1000	2520	18×35.5	0.90	3003	18×35.5	0.90	3819	18×45	0.44	3969
560	18×25	0.1000	2384	18×40	0.84	3686	18×40	0.85	3919	18×50	0.40	4000
560	16×35.5	0.0920	2730									
560	18×31.5	0.0920	2594									
680	16×40	0.0840	3003	18×45	0.80	3700	18×45	0.80	4000			
680	18×35.5	0.0840	3003									
820	18×40	0.0660	3686	18×50	0.76	3800	18×50	0.72	4000			
1000	18×45	0.0620	3700									
1200	18×50	0.0580	3780									

LKZ

■ List of Standard Products

Voltage (V)	250			350			400			450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
3.3							8×11.5	16.00	168	8×11.5	28.00	147
3.3							10×9	16.00	189	10×9	28.00	158
3.9				8×11.5	16.00	163	8×11.5	16.00	168	8×11.5	28.00	147
3.9				10×9	16.00	179	10×9	16.00	231	10×9	28.00	158
4.7				8×11.5	16.00	163	8×11.5	16.00	168	8×14	21.80	184
4.7				10×9	16.00	189	10×9	16.00	231	10×12.5	21.80	189
5.6				8×14	12.50	210	8×14	12.50	252	8×16	12.50	200
5.6				10×9	16.00	179	10×12.5	12.50	263	10×12.5	12.50	210
6.8				8×16	10.50	231	8×16	10.50	284	8×20	9.80	242
6.8				10×12.5	12.50	252	10×12.5	10.50	294	10×14	9.80	221
8.2	8×11.5	10.15	168	8×20	7.50	305	8×20	7.50	305	10×16	6.20	242
8.2	10×9	10.15	151	10×12.5	12.50	331	10×14	7.50	331			
10	8×11.5	10.15	168	8×20	12.50	305	10×16	7.50	368	10×16	6.20	242
10	10×9	10.15	151	10×14	7.50	368				12.5×14	6.20	378
12	8×14	9.50	305	10×20	7.00	375	10×20	6.20	420	12.5×16	6.20	483
15	10×12.5	4.50	383	10×20	6.20	389	10×20	6.20	515	10×23	6.20	431
15	8×16	4.05	305	12.5×14	6.20	515	12.5×16	6.20	578	12.5×16	6.20	483
18	8×16	3.65	305	10×20	6.20	515	10×20	6.20	515	12.5×20	4.50	525
18	10×14	3.24	399	12.5×16	6.20	536	12.5×16	6.20	578			
22	8×20	3.24	389	10×23	6.20	578	12.5×20	6.20	693	12.5×20	4.25	525
22	10×16	3.24	420	12.5×20	6.20	693						
27	10×16	3.24	420	12.5×20	4.84	833	12.5×25	4.84	833			
27							16×20	5.84	1113			
33	10×20	2.53	466	12.5×20	2.25	1113	12.5×25	4.00	1113	12.5×30	2.82	809
33	12.5×16	2.53	665				16×20	3.00	1208	16×20	3.00	767
39	10×20	1.65	683	12.5×25	2.25	1208	16×25	2.00	1239			
39	12.5×16	1.65	798	16×20	2.25	1208	18×20	2.00	1239			
47				12.5×25	2.25	1208	16×25	2.00	1239	16×25	2.82	1302
47				16×20	2.25	1208	18×20	2.00	1239	18×20	2.82	1260
56	12.5×20	1.50	958	12.5×30	2.02	1281	16×31.5	1.82	1659	16×31.5	1.50	1302
56				16×25	2.02	1386	18×25	1.82	1607	18×25	1.50	1260
68	12.5×20	1.38	1029	16×31.5	1.38	1659	16×31.5	1.38	1659	16×35.5	1.25	1470
68	16×16	1.30	1100	18×20	1.38	1607	18×25	1.38	1607	18×31.5	1.25	1533
82	12.5×20	1.38	1029	16×31.5	1.38	1659	16×35.5	1.25	2394	18×31.5	1.25	1533
82				18×25	1.38	1607	18×31.5	1.25	2394			
100	12.5×25	1.25	1365	16×40	1.25	2042	18×35.5	1.07	2919	18×40	0.90	2069
100	16×20	1.20	1400	18×31.5	1.25	2394						
120	16×25	1.20	1490	18×35.5	1.25	2919	18×40	0.95	2993	18×45	0.85	2184
120	12.5×30	1.15	1460									
150	18×20	1.02	1650	18×40	0.97	2919	18×45	0.90	3100	18×50	0.70	2200
150	16×31.5	1.18	1720									
180	18×25	1.02	2040	18×45	0.85	3211	18×45	0.90	3200			
180	16×35.5	0.98	2040									
220				18×50	0.80	3300	18×50	0.70	3300			
220	18×31.5	0.98	2130									
270	18×35.5	0.98	2200									
330	18×40	0.74	2800									
470	18×50	0.74	2910									

LKZ

■ List of Standard Products

Voltage (V)	500			550			600		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
2.2				8×14	27.7	66	8×14	29.4	61
2.7				8×16	20.2	81	8×16	21.4	75
3.3	8×14	16.5	95	8×16	20.2	81	8×16	21.4	75
3.3	8×16	12.0	116						
3.9	8×16	12.0	116	8×20	20.2	96	8×20	21.4	89
3.9				10×16	20.2	96	10×16	21.4	89
4.7	8×20	12.0	137	8×20	20.2	96	8×20	21.4	89
4.7	10×16	12.0	137	10×16	20.2	96	10×16	21.4	89
5.6	8×20	12.0	137	10×16	20.2	103	10×16	21.4	96
5.6	10×16	12.0	137						
6.8	10×16	12.0	147	10×20	18.5	184	10×20	19.6	171
6.8				12.5×14	18.5	184	12.5×14	19.6	171
8.2	10×20	11.0	263	10×20	18.5	184	10×20	19.6	171
8.2	12.5×14	11.0	263	12.5×16	16.8	206	12.5×16	17.8	191
10	10×20	11.0	263	10×23	16.8	206	10×23	17.8	191
10	12.5×16	10.0	294	12.5×20	11.8	235	12.5×20	12.5	218
12	10×23	10.0	294	12.5×25	10.1	353	12.5×25	10.7	328
15	12.5×20	7.0	336	12.5×25	10.1	353	12.5×25	10.7	328
15	12.5×25	6.0	504	16×20	10.1	323	16×20	10.7	300
18	12.5×25	6.0	504	12.5×25	10.1	353	12.5×25	10.7	328
18	16×20	6.0	462	16×20	10.1	323	16×20	10.7	300
22	12.5×25	6.0	504	12.5×30	7.6	382	12.5×30	8.0	355
22	16×20	6.0	462	16×25	4.7	515	16×25	8.0	478
27	12.5×30	4.5	546						
27	16×25	2.8	735						
33				16×31.5	3.7	544	16×31.5	3.9	505
33				18×25	3.7	544	18×25	3.9	505
39	16×31.5	2.2	777						
39	18×25	2.2	777						
47				16×35.5	3.4	625	16×35.5	3.6	580
47				18×31.5	3.4	625	18×31.5	3.6	580
56	16×35.5	2.0	893	18×31.5	3.4	625	18×35.5	3.6	640
56	18×31.5	2.0	893						
68	18×31.5	2.0	1070	18×35.5	2.5	882	18×40	2.7	819
82	18×35.5	1.5	1260	18×40	2.5	970	20×40	2.7	900
100	18×40	1.3	1300	20×40	2.2	1060	22×40	2.3	990
100				18×45	2.0	1000	18×45	2.0	850
120				18×50	1.8	1100	18×50	2.0	900
120	18×45	1.3	1329	22×40	1.8	1170	25×40	1.8	1090
150	18×50	0.9	1400						
150	20×40	1.1	1466						

LLK

◆Extra-long lifespan, dedicated to power supplies

◆12,000~20,000 hours at 105℃

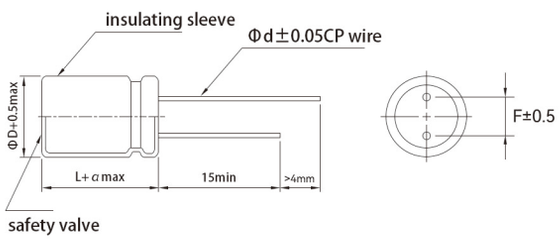
◆Compliant with AEC-Q200 RoHS directive



■ Main technical parameters

project	characteristic
Operating Temperature Range	－40~+105℃ ； －25~+105℃
Nominal Voltage Range	160~400V ； 450V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	CV≦1000 I=0.1CV+40μA(1min) I=0.03CV+15μA(5min) CV＞1000 I=0.04CV+100μA(1min) I=0.02CV+25μA(5min) I = Leakage current (μA) C = Rated capacitance (μF) V = Rated voltage (V)
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 160 / 200 / 250 / 350 / 400 / 450 tg δ: 0.24 / 0.24 / 0.24 / 0.24 / 0.24 / 0.24
Durability	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: External dimensions / load life 5×11 6.3×9 6.3×11 8×9 10×9 / 12000h 8×11.5 10×12.5 / 15000h 10×16 10×20 10×23 D≧12.5 / 20000h
Low temperature characteristics (120Hz)	Rated voltage (V): 160 / 200 / 250 / 400 / 450 Z(－25℃)/Z(20℃): 3 / 3 / 3 / 6 / 6 Z(－40℃)/Z(20℃): 8 / 8 / 8 / 10 / 10
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≧30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

Note: Products ≧ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction coefficient

160~400V

Frequency (Hz)		120	1K	10K	100K≦
coefficient	1~5.6μF	1.0	1.6	1.8	2.0
	6.8~18μF	1.0	1.5	1.7	1.9
	22~68μF	1.0	1.4	1.6	1.8

450V

Frequency (Hz)		120	1K	10K	100K≦
coefficient	1~15μF	1.0	2.0	3.0	3.3
	18~68μF	1.0	1.75	2.25	2.5

② Temperature correction factor

Ambient temperature (° C)	50℃	70℃	85℃	105℃
Correction factor	2.1	1.8	1.4	1.0

LLK

■ List of Standard Products

Voltage (V)	160			200			250			400		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	5×11	18.0	27	5×11	16.0	27	6.3×9	15.0	27	6.3×9	29.0	26
1.2	5×11	18.0	27	5×11	16.0	27	6.3×9	15.0	27	6.3×9	25.0	30
1.5	5×11	18.0	32	5×11	16.0	32	6.3×9	15.0	32	6.3×9	22.0	32
1.8	5×11	17.0	32	5×11	15.0	32	6.3×9	13.0	35	6.3×9	18.0	35
2.2	5×11	17.0	38	5×11	14.0	39	6.3×9	13.0	40	6.3×9	14.5	39
2.7	5×11	17.0	38	5×11	13.0	45	6.3×9	12.0	45	8×9	9.5	45
3.3	5×11	14.0	45	6.3×9	12.0	45	6.3×9	11.5	45	8×11.5	9.8	50
3.3										10×9	9.2	51
3.9	6.3×9	14.0	55	6.3×9	11.0	45	6.3×9	10.5	50	10×9	8.5	60
4.7	6.3×9	13.5	55	6.3×11	10.0	52	8×9	9.5	59	10×9	7.0	64
5.6	6.3×11	13.2	55	8×9	8.0	59	8×9	8.5	70	10×12.5	6.5	69
6.8	6.3×11	13.0	63	8×9	7.0	65	8×11.5	6.0	85	10×12.5	5.5	90
8.2	8×9	12.0	63	8×9	6.0	70	8×11.5	6.0	85	10×14	5.0	90
10	8×9	9.5	75	8×11.5	5.2	85	10×12.5	4.4	120	10×16	4.6	100
12	8×11.5	7.0	98	10×9	4.8	93	10×12.5	4.4	120	10×20	4.2	120
15	8×11.5	7.0	98	10×12.5	4.0	118	10×12.5	2.8	132	10×20	3.5	148
15	10×9	7.0	100									
18	10×12.5	6.3	120	10×12.5	3.8	118	10×16	2.5	161	12.5×16	2.5	195
22	10×12.5	5.5	128	10×16	3.5	138	10×16	2.0	179	12.5×20	2.5	195
27	10×12.5	5.0	128	10×16	2.7	160	10×20	1.8	200	12.5×20	2.5	250
33	10×16	4.8	170	10×20	2.2	175	10×20	1.6	228	12.5×25	2.0	300
39	10×20	3.7	200	10×23	1.8	200	12.5×20	1.5	250	12.5×25	2.0	380
47	10×20	3.7	200	12.5×20	1.5	250	12.5×20	1.5	300	16×25	1.8	450
68	12.5×20	2.2	240	12.5×25	1.3	300	16×20	1.3	350	16×31.5	1.5	520

Voltage (V)	450			Voltage (V)	450			Voltage (V)	450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	6.3×9	35.0	30	3.9	10×9	9.5	55	18	12.5×20	5.5	200
1.2	6.3×9	30.0	30	4.7	10×12.5	8.5	60	22	12.5×20	5.5	250
1.5	6.3×9	25.0	32	5.6	10×12.5	8.5	60	27	12.5×25	5.5	280
1.8	8×9	20.0	35	6.8	10×14	6.5	90	33	16×20	5.0	420
2.2	8×9	18.0	40	8.2	10×14	6.5	90	39	16×25	4.5	490
2.7	8×9	18.0	40	10	12.5×14	6.0	145	47	18×20	4.0	505
3.3	8×11.5	14.0	44	12	12.5×14	6.0	145	68	18×31.5	3.5	550
3.3	10×9	9.5	55	15	12.5×16	5.5	190				

LKX

◆ Pen-shaped, horizontal mounting; Φ6.3 – Φ18; high-frequency, high-ripple current capability; designed for power supply applications
◆ 7,000 – 12,000 hours at 105° C
◆ AEC-Q200 compliant; RoHS compliant



■ Main technical parameters

project	characteristic
Operating Temperature Range	35~100V –55~+105℃ ; 160~450V –40~+105℃
Nominal Voltage Range	35~450V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	35~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~450WV I≦0.02CV+10(μA) C: Nominal Capacity (μF) V: Rated Voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	35	50	63	80	100	160
tg δ	0.12	0.10	0.09	0.09	0.08	0.16
Rated voltage (V)	200	250	350	400	450	
tg δ	0.20	0.20	0.20	0.20	0.25	

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	35	50	63	80	100	160	200	250	350	400	450
Impedance ratio Z(–40℃)/Z(20℃)	3	3	3	3	3	3	3	3	5	5	6

Durability

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

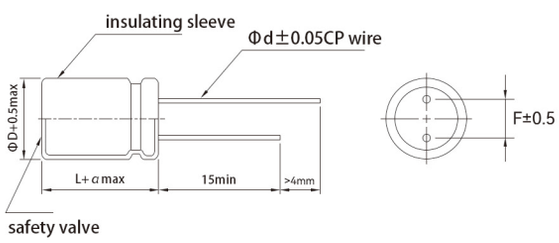
	35~100V		160~450V	
Capacity change rate	Within ±25% of the initial value		Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value			
Leakage current	Below the specified value			
Load life			35~100V	160~450V
	Φ6.3		7000h	
	≧Φ8	L≦20	10000h	10000h
		L≧25	10000h	12000h

High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



D	6.3	8	10	12.5~13	12.5~13(h≧30)	14.5	16	18
d	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5
α 35~100V	2.0							
α 160~450V	2.5							

Note: Products ≧ Φ6.3 have a safety valve.

■ Frequency correction factor

①35~100WV

Frequency (Hz)		120	1K	10K	100K≦
Correction factor	≦33μF	0.42	0.70	0.90	1.00
	39~270μF	0.50	0.73	0.92	1.00
	330~680μF	0.55	0.77	0.94	1.00
	820μF及以上	0.60	0.80	0.96	1.00

②160~450WV

Frequency (Hz)		50(60)	120	500	1K	10K≦
Correction factor	160~250WV	0.80	1.00	1.20	1.30	1.40
	350~450WV	0.80	1.00	1.25	1.40	1.50

LKX

■ List of Standard Products

Voltage (V)	35			50			63			80		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)
47										6.3×20	0.455	0.91
56										6.3×20	0.515	1.03
82							6.3×20	0.455	0.91	8×20	0.635	1.27
100							8×20	0.515	1.03	8×25	0.655	1.33
120				6.3×20	0.58	1.16				8×30	0.785	1.57
150							8×20	0.63	1.27			
180	6.3×20	0.605	1.21				8×25	0.665	1.33	8×40	1.01	2.02
220				8×20	0.74	1.48	8×25	0.785	1.57	8×50	1.2	2.41
220										10×30	1.05	2.1
270				8×30	0.87	1.74				10×30	1.05	2.1
330	8×20	0.924	1.68				8×40	1.11	2.02	10×35	1.3	2.6
330							10×30	1.04	1.88			
390	8×25	0.951	1.73	8×40	1.22	2.23	8×50	1.32	2.41	10×50	1.71	3.12
390				10×25	1.09	2	10×30	1.16	2.1			
470	8×30	1.11	2.03	8×50	1.45	2.65	10×35	1.18	2.14	12.5×35	1.97	3.59
470				10×30	1.22	2.22						
560				10×35	1.68	3.07	10×40	1.43	2.6			
560							12.5×25	1.24	1.24			
680	8×40	1.41	2.57	10×40	1.55	2.82	10×50	1.71	3.12			
680	10×25	1.21	2.2				12.5×30	1.44	2.63			
820	8×50	1.82	3.04	10×50	2.02	3.37	12.5×35	2.15	3.59			
820	10×30	1.48	2.47	12.5×25	1.74	2.9						
1000	10×35	2.08	3.48	12.5×30	2.31	3.86						
1200	10×40	1.87	3.12									
1200	12.5×25	1.62	2.7									
1500	10×50	2.21	3.69									
1800	12.5×30	2.50	4.17									

Voltage (V)	100			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)
27										8×25	0.3	0.42
33	6.3×20	0.382	0.91									
39	8×20	0.699	1.399				8×25	0.3	0.42	8×30	0.37	0.518
47										8×35	0.45	0.63
47										10×25	0.37	0.518

LKX

■ List of Standard Products

Voltage (V)	100			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)
56	8×20	0.736	1.473	8×25	0.32	0.448	8×30	0.37	0.518	8×40	0.51	0.714
56										10×30	0.42	0.588
68	8×20	0.775	1.55	8×30	0.37	0.518	8×40	0.45	0.63	8×50	0.59	0.826
68							10×25	0.43	0.602	10×35	0.49	0.686
82	8×25	0.665	1.33	8×35	0.43	0.602	8×45	0.51	0.714	10×40	0.61	0.854
82				10×25	0.43	0.602	10×30	0.5	0.7	12.5×25	0.54	0.756
100	8×30	0.785	1.57	8×40	0.49	0.686	8×50	0.6	0.84	10×45	0.68	0.952
100							10×40	0.63	0.882	12.5×30	0.69	0.966
120	8×40	1.01	2.02	8×50	0.57	0.798	10×45	0.75	1.05	10×50	0.73	1.02
120	10×30	0.94	1.88	10×30	0.54	0.756	12.5×25	0.65	0.91	12.5×35	0.79	1.1
150	8×50	1.2	2.41	10×40	0.67	0.938	10×50	0.83	1.16	12.5×40	0.74	1.03
150	10×30	1.05	2.1	12.5×25	0.66	0.924	12.5×30	0.8	1.12	16×31.5	0.89	1.24
180				10×50	0.8	1.12	12.5×45	0.91	1.27	12.5×50	0.97	1.35
180				12.5×30	0.77	1.07	16×25	0.85	1.19	16×31.5	0.95	1.33
180										18×25	0.88	1.23
220	10×40	1.3	2.6	12.5×35	0.89	1.24	12.5×45	1.09	1.52	12.5×50	1.13	1.58
220				16×25	0.93	1.3	16×31.5	1.01	1.41	16×35.5	1.11	1.55
220							18×25	1	1.4	18×31.5	1.1	1.54
270	10×50	1.56	3.12	12.5×40	1.01	1.41	12.5×50	1.26	1.76	16×40	1.27	1.77
270							16×35.5	1.18	1.65	18×35.5	1.23	1.72
270							18×31.5	1.16	1.62			
330	12.5×35	1.97	3.59	12.5×50	1.2	1.68	16×40	1.36	1.9	16×50	1.48	2.07
330				16×31.5	1.2	1.68	18×31.5	1.3	1.82	18×40	1.42	1.98
330				18×25	1.18	1.65						
390				12.5×50	1.35	1.89	16×45	1.43	2	18×45	1.59	2.22
390				16×35.5	1.34	1.87	18×35.5	1.43	2			
390				18×31.5	1.4	1.96						
470				16×40	1.52	2.12	16×50	1.58	2.21	18×50	1.83	2.56
470				18×35.5	1.58	2.21	18×40	1.58	2.21			
560				16×50	1.79	2.5	18×45	1.77	2.47			
560				18×40	1.78	2.49						
680				18×45	2	2.8						
820				18×50	2.23	3.12						

LKX

■ List of Standard Products

Voltage (V)	350			400			450		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Ripple current (mA r.m.s / 105℃ 120Hz)	Ripple current (mA r.m.s / 105℃ 120Hz)
12				8×25	0.17	0.255	8×30	0.15	0.225
15				8×30	0.2	0.3	8×40	0.19	0.285
15							10×25	0.16	0.245
18				8×35	0.23	0.345	8×45	0.21	0.315
18				10×25	0.21	0.316	10×30	0.19	0.278
22	8×30	0.25	0.375	8×40	0.26	0.39			
22				10×25	0.24	0.36			
27	8×35	0.29	0.435						
33	8×40	0.33	0.495	8×50	0.3	0.45	10×40	0.36	0.54
33	10×25	0.31	0.465	10×35	0.29	0.435	12.5×30	0.37	0.555
39	8×45	0.37	0.555	10×40	0.4	0.6	10×50	0.41	0.615
39	10×30	0.36	0.54	12.5×25	0.36	0.54	12.5×35	0.42	0.63
47	10×35	0.41	0.615	10×45	0.45	0.675	12.5×40	0.48	0.72
47	12.5×25	0.38	0.566	12.5×30	0.44	0.66	16×25	0.44	0.66
56	10×40	0.47	0.705	10×50	0.52	0.78	12.5×45	0.53	0.795
56	12.5×30	0.44	0.661	12.5×35	0.5	0.75	16×31.5	0.51	0.765
68	10×50	0.55	0.825	12.5×40	0.58	0.87	12.5×50	0.62	0.93
68	12.5×30	0.46	0.696	16×25	0.51	0.765	16×35.5	0.59	0.885
68							18×25	0.57	0.855
82				12.5×45	0.65	0.975	16×40	0.68	1.02
82				16×31.5	0.61	0.915	18×31.5	0.65	0.975
82				18×25	0.61	0.915			
100				12.5×50	0.75	1.12	16×45	0.73	1.1
100				16×35.5	0.74	1.11	18×35.5	0.74	1.11
100				18×31.5	0.74	1.11			
120				16×40	0.8	1.2	16×50	0.82	1.22
120				18×35.5	0.79	1.18	18×40	0.83	1.24
150				16×50	0.95	1.42	18×45	0.95	1.42
150				18×40	0.91	1.36			
180				18×45	1.04	1.56			

LKL

◆High temperature resistant, long lifespan, power supply specific product

◆2000~5000 hours at 130℃

◆Compliant with AEC-Q200 RoHS directive



■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+130℃；160~500V －40~+130℃
Nominal Voltage Range	10~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100
tg δ	0.20	0.16	0.14	0.12	0.10	0.09	0.09	0.08
Rated voltage (V)	120	160	200	250	400	450	500	
tg δ	0.09	0.08	0.15	0.15	0.20	0.20	0.20	

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100
Impedance ratio Z(－40℃)/Z(20℃)	3	2	2	2	2	2	2	2
Rated voltage (V)	120	160	200	250	400	450	500	
Impedance ratio Z(－40℃)/Z(20℃)	5	3	3	3	6	7	7	

Durability

After being stored at 130℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	10~120WV	Within ±30% of the initial value
	160~500WV	Within ±20% of the initial value
Loss tangent	10~120WV	Below 300% of the specified value
	160~500WV	Below 200% of the specified value
Leakage current	Below the specified value	

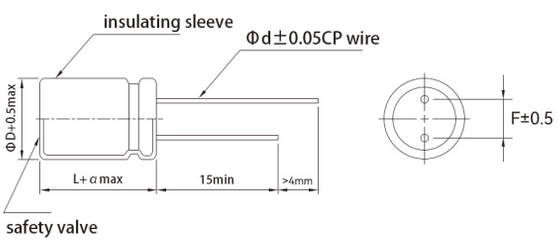
Load life	10~120WV		160~500WV	
	External dimensions:	Load life	External dimensions:	Load life
	ΦD=5、6.3	2000h	ΦD=5、6.3	2000h
	ΦD=8、10	3000h	ΦD=8	3000h
	ΦD=≧12.5	5000h	ΦD=≧10	5000h

High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≧30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

Note: Products ≧ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

① Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

② Temperature correction factor

Frequency (Hz)	50℃	70℃	85℃	105℃	130℃
Correction Factor	2.4	2.1	1.8	1.4	1.0

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■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10	5×9	15.00	72	5×9	15.00	72	5×9	15.00	72	5×9	15.00	81
22	5×9	15.00	72	5×9	15.00	72	5×9	15.00	72	5×9	15.00	31
47	5×9	15.00	114	5×9	15.00	114	5×9	15.00	114	5×11	15.00	240
100	5×9	15.00	114	5×11	15.00	200	6.3×9	4.50	240	8×9	4.50	324
150	5×11	4.50	162	6.3×9	4.50	240	8×9	4.50	324	8×11.5	3.60	380
150	6.3×9	4.50	200							10×9	3.50	324
220	6.3×9	4.50	324	8×9	4.50	324	8×11.5	3.60	380	8×11.5	2.50	650
330	6.3×11	3.60	380	8×9	3.60	380	8×14	0.28	650	10×12.5	0.25	850
330	8×9	3.50	324				10×12.5	0.28	650			
470	8×9	0.15	620	8×11.5	0.28	650	10×12.5	0.25	850	10×16	0.115	1000
1000	10×12.5	0.098	1000	10×16	0.170	1000	10×20	0.140	1155	12.5×20	0.040	1500
1200										14.5×16	0.058	1630
1500										14.5×20	0.045	1820
1800							14.5×16	0.135	2160	14.5×23	0.032	2050
2200	12.5×16	0.076	1500	12.5×20	0.104	1500	16×20	0.072	2400	14.5×25	0.018	2320
2200							14.5×20	0.112	2360	16×25	0.040	2650
2700				14.5×16	0.081	2150	14.5×23	0.095	2620	14.5×27	0.012	2650
2700							18×20	0.07	2650	18×20	0.040	2650
3300	12.5×20	0.072	1780	12.5×25	0.081	2400	14.5×25	0.080	2800	16×35.5	0.040	2700
3300				14.5×20	0.068	2480	16×25	0.041	2650			
3900	14.5×16	0.072	2100				14.5×27	0.066	3020	18×31.5	0.035	2750
4700	14.5×20	0.060	2400	14.5×23	0.058	2750	18×25	0.041	2700	18×35.5	0.032	2750
4700	16×20	0.034	2400	16×25	0.031	2650						
5600	14.5×23	0.048	2650	14.5×25	0.048	3050	18×31.5	0.038	2750	18×40	0.032	2750
6800	14.5×25	0.040	2880	14.5×27	0.035	3210	18×35.5	0.036	2800	18×45	0.030	2800
8200	14.5×27	0.032	3050	16×35.5	0.031	3210	18×40	0.036	2800	18×50	0.030	2960
12000							18×50	0.035	2920			
18000				18×50	0.03	4200						

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
1.0	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32
1.5	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32
1.8	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32	5×9	3.70	32
2.2	5×9	3.70	45	5×9	3.70	45	5×9	3.70	45	5×9	3.70	45
2.7	5×9	3.70	45	5×9	3.70	45	5×9	3.70	45	5×9	3.70	45
3.3	5×9	3.70	63	5×9	3.70	63	5×9	3.70	63	5×9	3.70	63
3.9	5×9	3.70	63	5×9	3.70	63	5×9	3.70	63	5×9	3.70	63
4.7	5×9	3.70	90	5×9	3.70	90	5×9	3.70	90	5×9	3.70	90

LKL

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
5.6	5×9	3.70	90	5×9	3.70	90	5×9	3.70	90	5×11	3.70	90
6.8	5×9	3.70	94	5×9	3.70	94	5×9	3.70	90	5×11	3.70	90
8.2	5×9	3.70	98	5×9	3.70	98	5×9	3.70	90	5×11	3.70	90
10	5×9	3.70	98	5×9	3.70	108	5×11	3.70	108	6.3×9	3.70	180
15	5×9	3.70	108	5×9	3.70	118	6.3×9	3.70	180	6.3×11	2.70	210
15										8×9	3.70	180
22	5×11	2.60	170	6.3×9	2.60	180	6.3×11	2.70	210	8×11.5	2.70	230
22							8×9	3.70	180	10×9	3.70	198
33	6.3×9	2.60	245	6.3×11	2.60	265	6.3×11	2.70	230	8×11.5	2.00	280
33				8×9	2.00	280	8×9	3.70	198	10×9	2.00	280
47	6.3×11	2.60	320	8×9	2.00	420	8×11.5	2.00	280	10×12.5	1.00	350
47	8×9	2.60	330				10×9	2.00	280			
56	8×9	2.60	330	8×9	2.00	420	10×9	2.00	280	10×12.5	1.00	350
100	8×11.5	1.50	500	8×16	1.20	590	10×16	1.00	550	12.5×16	0.50	700
100	10×9	1.50	550	10×12.5	1.20	590						
220	10×16	1.00	940	10×20	0.50	860	12.5×20	0.45	890	12.5×25	0.40	1155
220										14.5×16	0.35	1155
270										14.5×20	0.31	1220
330	12.5×16	0.80	980	12.5×20	0.45	1050	12.5×25	0.45	1050	14.5×23	0.23	1340
330							14.5×16	0.076	1050	16×25	0.10	1400
390							14.5×20	0.063	1160	14.5×25	0.19	1460
470	12.5×20	0.50	1050	12.5×25	0.45	1570	14.5×23	0.057	1250	14.5×27	0.15	1580
470				14.5×16	1.12	1500	16×25	0.31	1400	16×31.5	0.092	1680
560				14.5×20	0.95	1580	14.5×25	0.052	1320	18×31.5	0.086	1680
680	14.5×16	0.135	1650	14.5×23	0.78	1610	14.5×27	0.048	1400	18×35.5	0.072	1700
820	14.5×20	0.112	1930	14.5×25	0.6	1700	18×25	0.07	1600	18×40	0.072	1700
1000	14.5×23	0.095	2120	14.5×27	0.45	1850						
1000	16×25	0.05	2290	16×31.5	0.45	1950	18×31.5	0.07	1650	18×45	0.066	1780
1200	14.5×25	0.070	2260	18×25	0.15	1950	18×35.5	0.06	1700	18×50	0.058	1800
1500	14.5×27	0.050	2320									
1500	16×31.5	0.045	2580	18×31.5	0.10	2450	18×40	0.058	1850			
2200	18×35.5	0.040	2950	16×45	0.07	2450	18×45	0.056	1910			
2700	18×40	0.040	3000	18×40	0.05	2800	18×50	0.055	2000			
3900	18×50	0.035	3600	18×50	0.04	2950						

LKL

■List of Standard Products

Voltage (V)	120			160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
0.47				5×11	28.00	48	6.3×9	27.00	68	6.3×9	38.00	68
1.0	5×9	3.70	32	5×11	28.00	48	6.3×9	27.00	68	6.3×9	38.00	68
1.2	5×9	3.70	32									
1.5	5×9	3.70	32	5×11	28.00	48	6.3×9	27.00	68	6.3×9	38.00	68
1.8	5×9	3.70	32	5×11	28.00	68	6.3×9	27.00	72	6.3×9	38.00	81
2.2	5×9	3.70	45	5×11	28.00	68	6.3×9	27.00	81	6.3×9	38.00	81
2.7	5×9	3.70	45	5×11	28.00	68	6.3×9	27.00	81	6.3×9	38.00	81
3.3	5×9	3.70	63	5×11	28.00	72	6.3×9	27.00	85	6.3×9	38.00	90
3.9	5×11	3.70	63	5×11	28.00	72	6.3×9	27.00	90	6.3×11	10.15	110
4.7	5×11	3.70	90	6.3×9	23.00	81	6.3×11	20.15	110	6.3×11	10.15	110
4.7										8×9	15.50	90
5.6	6.3×9	3.70	90	6.3×9	23.00	85	8×9	15.50	117	8×9	15.50	117
6.8	6.3×9	3.70	90	6.3×11	15.00	90	8×9	15.50	117	8×9	15.50	162
8.2	6.3×9	3.70	90	8×9	15.00	107	8×11.5	6.50	165	8×11.5	6.50	165
8.2							10×9	3.65	160	10×9	6.50	160
10	6.3×11	2.90	180	8×9	15.00	107	8×14	3.65	210	8×14	3.65	210
10							10×9	3.24	160			
12	8×9	2.90	210									
15	8×11.5	2.70	240	8×11.5	12.50	117	8×16	3.24	210	8×16	3.65	210
15	10×9	2.70	240									
18	8×11.5	2.70	240									
18	10×9	2.70	240									
22	8×14	2.10	310	8×14	7.90	160	8×20	3.24	250	8×20	3.24	250
22	10×9	2.10	310	10×12.5	7.90	178	10×14	3.24	250	10×14	3.24	250
27	8×16	1.60	370									
27	10×12.5	1.60	370									
33	8×16	1.60	398	10×14	5.90	255	10×20	1.65	340	10×20	1.65	340
33	10×12.5	1.60	398									
39	8×20	1.25	420									
39	10×14	1.25	420									
47	10×14	1.25	420	10×20	5.55	400	12.5×20	1.50	400	12.5×20	1.50	400
56	10×16	1.00	500	12.5×16	5.55	608	12.5×20	1.40	500	12.5×20	1.40	500
56	12.5×14	1.00	500									
68	10×20	0.80	600							14.5×16	1.98	620
68	12.5×14	0.80	600									
82	12.5×16	0.65	700				14.5×16	1.98	680	14.5×20	1.85	680
100	12.5×20	0.50	827	12.5×20	4.36	825	14.5×20	1.60	750	14.5×23	1.70	750
100				14.5×16	4.20	855	16×20	1.30	800	16×25	1.30	800
120				14.5×20	3.85	980	14.5×23	1.52	820	14.5×25	1.30	830
150				14.5×23	3.61	1080	14.5×25	1.35	950	14.5×27	1.20	910
180							14.5×27	1.22	1020			
220	16×25	0.40	1155	14.5×25	3.42	1160	18×31.5	1.0	1100			
220	18×20	0.40	1155							18×35.5	0.75	950
270				14.5×27	3.15	1230	18×35.5	0.9	1150			
330	16×31.5	0.24	1400									
330	18×25	0.24	1400	18×35.5	0.085	1820	18×40	0.82	1210	18×50	0.61	1100
470	18×35.5	0.092	1680	18×40	0.071	1900	18×45	0.66	1380			
560	18×40	0.071	1900	18×45	0.065	1900	18×50	0.52	1490			
680	18×45	0.066	2050	18×50	0.065	2080						
820	18×50	0.058	2150									

LKL

■ List of Standard Products

Voltage (V)	400			450			500			550		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 130℃ 100Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 130℃ 100Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 130℃ 100Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 130℃ 100Hz)
0.47	6.3×9	35.00	54	6.3×9	55.00	60						
1.0	6.3×9	35.00	54	6.3×9	55.00	60						
1.5	6.3×9	34.00	68	6.3×9	50.00	60						
1.8	6.3×9	34.00	68	8×9	45.00	84						
2.2	6.3×9	28.00	80	8×9	16.50	90						
2.7	8×9	15.50	100	8×9	16.50	120						
3.3	8×9	15.50	110	8×11.5	12.80	120						
3.9	8×11.5	12.80	125	8×11.5	12.80	130						
4.7	8×11.5	10.50	125	8×14	12.0	130						
4.7	10×9	10.50	125									
5.6	8×14	9.69	130	10×12.5	12.0	140						
6.8	10×12.5	9.69	208	10×14	11.0	260						
8.2	8×20	7.56	250	8×20	11.0	260						
8.2	10×14	7.56	260	10×14	11.0	260						
10	10×16	5.80	330	10×16	7.00	320						
10	12.5×14	4.50	360	12.5×14	7.00	360						
15	12.5×16	4.50	410	12.5×16	6.00	410						
22	12.5×20	4.25	500	12.5×20	4.50	500	12.5×30	2.00	450	16×20	2.80	450
27							14.5×16	3.10	620			
27							16×20	3.50	500	16×25	2.50	500
33				14.5×16	3.10	700	14.5×20	2.90	635			
33	16×20	3.00	730	16×20	3.00	820	16×25	1.20	830	16×31.5	2.20	530
39	14.5×16	3.10	730	14.5×20	2.80	760	14.5×23	2.50	650			
39							18×20	1.20	1000	18×25	1.80	620
47	14.5×20	2.82	800	14.5×23	2.50	810	14.5×25	2.30	660			
47	16×25	2.82	850	16×25	2.82	980	16×31.5	1.00	950	18×31.5	1.50	750
56	14.5×23	2.35	860	14.5×25	2.20	950	14.5×27	2.15	680			
56	16×31.5	1.50	920	16×31.5	2.00	1100	18×25	0.90	1100	18×31.5	1.50	750
68	14.5×25	1.65	920	14.5×27	2.00	1000	18×31.5	0.88	1200	18×35.5	1.20	800
68	18×20	1.30	950	18×25	1.50	1000						
82	14.5×27	1.35	980	18×31.5	1.20	1100	18×35.5	0.88	1200	18×40	0.88	980
82	18×25	1.00	1000									
100	18×31.5	0.90	1170	18×35.5	1.00	1200	18×40	0.75	1300	18×45	0.75	1100
120	18×35.5	0.90	1200	18×40	0.90	1400	18×45	0.70	1400	18×50	0.70	1400
150	18×40	0.80	1350	18×45	0.80	1580	18×50	0.68	1600			
180	18×45	0.60	1500	18×50	0.72	1650						
220	18×50	0.50	1660									

LKL(R)

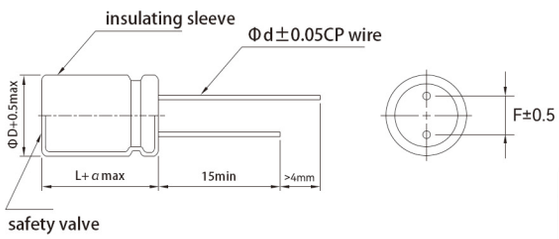
- ◆ High-temperature, low-impedance, high-reliability product
- ◆ 3,000 hours at 135° C
- ◆ AEC-Q200 compliant; RoHS compliant



■ Main technical parameters

project	characteristic
Operating Temperature Range	－55~+135℃
Nominal Voltage Range	10~100V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~100WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 tg δ: 0.20 / 0.16 / 0.14 / 0.12 / 0.10 / 0.09 / 0.09 / 0.08 For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 Impedance ratio Z(－40℃)/Z(20℃): 12 / 8 / 6 / 4 / 4 / 4 / 4 / 4
Durability	After being stored at 135℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below the specified value Load life: 3000h
High temperature storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±30% of the initial value Loss tangent: Below 300% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

D	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5(0.45)	0.6(0.5)	0.6	0.7	0.6	0.8	0.8	0.8
F	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

■ Frequency correction factor

Frequency (Hz)	50	120	1K	≧10K
coefficient	0.35	0.50	0.83	1.00

LKL(R)

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100				6.3*9	4.95	240	6.3×9	4.95	240	8×9	4.95	324
150							8×9	4.95	324	8×11.5	3.96	380
150										10×9	3.85	324
220				8×9	4.95	324	8*11.5	3.96	380	8×11.5	2.75	650
330	8×9	3.85	324	8×9	3.96	380	8×14	0.31	650	10×12.5	0.28	850
330							10×12.5	0.31	650			
470	8×9	0.165	620	8×11.5	0.308	650	10×12.5	0.28	850	10×16	0.1265	1000
560												
680												
750												
820										16×16	0.060	1200
910												
910												
1000	10×12.5	0.1078	1000	10×16	0.187	1000	10×20	0.154	1150	12.5×20	0.044	1500
1000										16×16	0.057	1200
1100												
1200							16×16	0.045	1200	18×16	0.053	1400
1300												
1300												
1300												
1500							16×16	0.043	1200	16×20	0.045	1500
1500										18×16	0.040	1400
1600												
1600												
1800							16×16	0.040	1200	18×20	0.038	1580
2000										16×20	0.038	1500
2200	12.5×16	0.084	1500	12.5×20	0.114	1500	18×16	0.041	1400	12.5×30	0.036	2760
2200										18×20	0.038	1600
2300												
2400												
2700							16×20	0.040	1700	18×20	0.038	1700
2700										12.5×35	0.031	2890
3000										16×25	0.032	2740
3300	12.5×20	0.079	1780	12.5×25	0.0891	2400	16×20	0.038	1800	12.5×40	0.029	3160
3600							12.5×30	0.034	2760	16×30	0.028	3020
3900										18×25	0.031	2760
4300							18×20	0.041	1750	16×35	0.025	3150
4700							12.5×35	0.032	2850	18×30	0.028	3200
4700							16×25	0.034	2650			
5100							12.5×40	0.030	3200			
5600							16×30	0.031	2900	16×40	0.024	3540
6200							18×25	0.033	2720	18×35	0.024	3400
7500							16×35	0.030	3450	18×40	0.023	3750
7500							18×30	0.034	3280			
9100							16×40	0.023	3630			
10000							18×35	0.023	3600			
12000							18*40	0.022	3890			

LKL(R)

■List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
10										6.3×9	4.07	180
15										6.3×11	2.97	210
15							6.3×9	4.07	180	8×9	4.07	180
22							6.3×11	2.86	210	8×11.5	2.97	230
22				6.3×9	2.86	180	8×9	4.07	180	10×9	4.07	198
33	6.3×9	2.86	245	6.3×11	2.86	265	6.3×11	2.86	230	8×11.5	2.20	280
33				8×9	2.20	280	8×9	2.20	198	10×9	2.20	280
47	6.3×11	2.86	320	8×9	2.20	420	8×11.5	2.20	280	10×12.5	1.10	350
47	8×9	2.86	330				10×9	2.20	280			
56							10×9	2.20	280			
100	8×11.5	1.65	500	8×16	1.32	590	10×16	1.10	550	12.5×16	0.55	700
100	10×9	1.65	550	10×12.5	1.32	590						
220	10×16	1.10	940	10×20	0.55	860	12.5×20	0.50	890	12.5×25	0.44	1155
330	12.5×16	0.88	980	12.5×20	0.495	1050	12.5×25	0.495	1050	12.5×35	0.12	2100
470	12.5×20	0.55	1050	12.5×25	0.495	1570						
470	16×16	0.080	1000				16×20	0.065	1700			
560	16×16	0.078	1000							16×30	0.062	2450
680	18×16	0.078	1200	16×20	0.058	1700	16×25	0.050	2400	18×30	0.055	3220
750				12.5×30	0.050	2480	12.5×40	0.040	2900	16×40	0.05	3300
820	18×16	0.070	1200							18×35	0.042	3300
910				12.5×35	0.039	2710						
910				18×20	0.048	1900						
1000	16×20	0.060	1600	16×25	0.042	2390				18×40	0.035	3500
1100	12.5×30	0.054	2230	12.5×40	0.035	2960	16×40	0.040	3220			
1200	18×20	0.058	1830	16×30	0.041	2820	18×30	0.038	3050			
1300	12.5×35	0.045	2570	18×25	0.038	2570	18×35	0.035	3400			
1300	16×25	0.047	1900									
1300	18×20	0.047	1900									
1500												
1500												
1600	12.5×40	0.038	2700	16×35	0.032	3060						
1600	16×30	0.037	2660	18×30	0.034	2980						
1800	18×25	0.035	2350	16×40	0.031	3170						
2000												
2200	16×35	0.034	2830									
2200												
2300				18×35	0.029	3200						
2400	18×30	0.032	2690									
2700	16×40	0.030	3200	18×40	0.027	3560						
2700												
3000	18×35	0.030	3100									
3300												
3600	18×40	0.028	3290									

LKJ

◆Long lifespan, low impedance, miniaturized design, specifically for smart meters

◆5000~10000 hours at 105℃

◆Compliant with AEC-Q200 RoHS directive



■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+105℃, 160V~500V －40~+105℃;
Nominal Voltage Range	6.3~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~500WV I≦0.01CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	6.3	10	16	25	35	50	63	100	400	450	500
tg δ	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.10	0.12	0.20

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	6.3	10	16	25	35	50	63	100	400	450	500
Impedance ratio Z(－40℃)/Z(20℃)	7	5	5	4	4	4	4	4	6	6	7

Durability

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

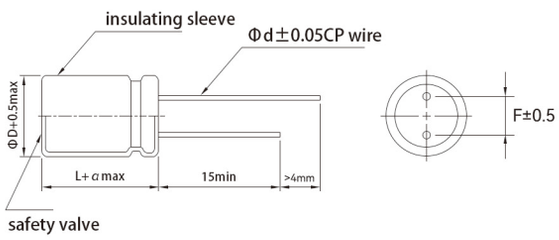
Capacity change rate	Within ±20% of the initial value		
Loss tangent	Below 200% of the specified value		
Leakage current	Below the specified value		
Load life	Below the specified value	6.3~10V	16~100V
		Load life	Load life
	ΦD=5	5000h	5000h
	ΦD=6.3、8	6000h	7000h
	ΦD=≧10	8000h	10000h

High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

L≦16	α=1.5
L＞16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18
d	0.5	0.5	0.6	0.6	0.7	0.6	0.8	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5

■ Ripple current compensation coefficient

① Frequency correction coefficient

6.3~50WV

Frequency (Hz)		120	1K	10K	100K≦
Correction Factor	0.47~10μF	0.42	0.60	0.80	1.00
	22~33μF	0.55	0.75	0.90	1.00
	47~330μF	0.70	0.85	0.95	1.00
	470~1000μF	0.75	0.90	0.98	1.00
	2200~15000μF	0.80	0.95	1.00	1.00

63~100WV

Frequency (Hz)	120	1K	10K	100K≦
Correction Factor	0.42	0.60	0.80	1.00

② Temperature correction factor

Frequency (Hz)	50℃	70℃	85℃	105℃
Correction Factor	2.1	1.8	1.4	1.0

LKJ

■ List of Standard Products

Voltage (V)	6.3			10			16			25		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 20±2℃)	Ripple current (mA r.m.s / 105℃ 100Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 20±2℃)	Ripple current (mA r.m.s / 105℃ 100Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 20±2℃)	Ripple current (mA r.m.s / 105℃ 100Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 20±2℃)	Ripple current (mA r.m.s / 105℃ 100Hz)
33										5×11	0.40	250
47							5×11	0.40	250	5×11	0.40	250
100	5×11	0.90	150	5×11	0.90	150	5×11	0.40	250	5×11	0.40	250
220	5×11	0.40	250	5×11	0.40	250	6.3×11	0.22	400	6.3×11	0.22	400
330	6.3×11	0.22	340	6.3×11	0.22	400	6.3×11	0.22	400	8×11.5	0.13	640
470	6.3×11	0.22	400	6.3×11	0.22	400	8×11.5	0.13	640	10×12.5	0.080	865
1000	8×11.5	0.13	640	10×12.5	0.080	865	10×16	0.062	1210	10×20	0.046	1400
2200	10×16	0.038	1300	10×20	0.046	1400	12.5×20	0.041	1900	12.5×25	0.032	2230
3300	10×20	0.046	1400	12.5×20	0.041	1900	12.5×25	0.032	2230	16×25	0.021	2930
4700	12.5×25	0.032	2230	12.5×25	0.032	2230	16×25	0.021	2930	16×31.5	0.019	3450
6800	12.5×25	0.032	2230	16×25	0.021	2930	16×31.5	0.019	3450			
6800				14.5×25	0.023	2880	14.5×25	0.0246	3205			
10000	14.5×25	0.016	2750	16×31.5	0.019	3450						
10000	16×25	0.021	2930									
15000	16×35.5	0.015	3610									

Voltage (V)	35			50			63			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 20±2℃)	Ripple current (mA r.m.s / 105℃ 100Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 20±2℃)	Ripple current (mA r.m.s / 105℃ 100Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 20±2℃)	Ripple current (mA r.m.s / 105℃ 100Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 20±2℃)	Ripple current (mA r.m.s / 105℃ 100Hz)
0.47				5×11	5.50	17				5×11	6.00	15
1.0				5×11	4.00	30				5×11	4.50	20
2.2				5×11	2.50	43				5×11	3.00	30
3.3				5×11	2.20	53				5×11	2.70	40
4.7				5×11	1.90	88				5×11	2.50	65
10				5×11	1.50	100	5×11	0.88	173	5×11	1.40	163
22				5×11	0.90	150	5×11	0.88	173	6.3×11	0.57	267
33	5×11	0.40	250	5×11	0.70	250	6.3×11	0.35	278	8×11.5	0.36	462
47	5×11	0.40	250	6.3×11	0.40	250	6.3×11	0.35	278	8×16	0.25	585
100	6.3×11	0.22	400	8×11.5	0.25	400	10×12.5	0.15	725	10×20	0.12	1040
220	8×11.5	0.13	640	10×16	0.12	770	10×20	0.078	1200	12.5×25	0.060	1620
330	10×12.5	0.080	865	10×20	0.078	1050	12.5×20	0.060	1570	16×25	0.044	2210
470	10×16	0.062	1210	12.5×20	0.062	1300	12.5×25	0.043	1990			
1000	12.5×20	0.041	1900	16×25	0.034	1850	16×25	0.032	2730			
2200	16×25	0.038	2930	16×35.5	0.019	3150						
3300	16×31.5	0.019	3450									

LKJ

■ List of Standard Products

Voltage (V)	400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 20±2℃)	Ripple current (mA r.m.s / 105℃ 100Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 20±2℃)	Ripple current (mA r.m.s / 105℃ 100Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 20±2℃)	Ripple current (mA r.m.s / 105℃ 100Hz)
6.8	10×12.5	8.15	280	10×12.5	8.62	240	10×14	9.02	115
10	10×16	6.2	300	10×20	8.12	285	10×16	8.05	152
15	12.5×16	5.4	450	12.5×16	5.58	390	10×20	6.5	300
22	10×20	4.65	580	12.5×20	4.25	500	13×20	1.8	520
33	12.5×20	4.35	882	14.5×20	4.0	690	14.5×25	1.05	720
47	12.5×25	3.7	920	13×25	3.5	930			
56	14.5×20	2.89	1060	14.5×25	2.02	1120			
68	14.5×25	2.45	1235						

LKD NEW

◆Small size, large capacity, long lifespan

◆8000 hours at 105℃

◆Low temperature rise, low internal resistance, high ripple resistance

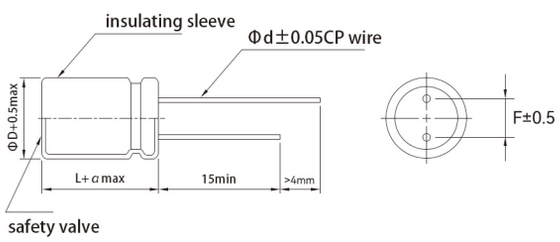
◆Lead spacing = 10.0mm



■ Main technical parameters

project	characteristic
Operating Temperature Range	－40~+105℃
Nominal Voltage Range	400~600V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	400~600WV I≤0.01CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 400 / 450 / 500 / 550 / 600 tg δ: 10 / 15
Temperature Characteristics (120Hz)	Rated voltage (V): 400 / 450 / 500 / 550 / 600 Impedance ratio Z(－40℃)/Z(20℃): 7 / 10
Durability	In a 105℃ oven, apply the rated voltage containing the rated ripple current for a specified time, then place at room temperature for 16 hours before testing. The test temperature is 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: 8000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ⩾ Φ6.3 have a safety valve.

D	20	22	25
d	1.0	1.0	1.0
F	10.0	10.0	10.0
α	±2.0		

■ Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

■ Temperature correction factor

Frequency (Hz)	50	70	85	105
Correction Factor	2.1	1.8	1.4	1.0

LKD

■ List of Standard Products

Voltage (V)	400			450			500			550		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100	20×20	0.625	1330				22×25	0.478	1018	20×30	0.755	1150
										25×25	0.755	1150
120	20×25	0.565	2088	22×25	0.425	1490	22×31	0.425	1275	22×36	0.688	1375
							25×25	0.425	1275	25×30	0.688	1375
150	20×25	0.547	2088	25×25	0.360	1653	22×36	0.393	1490	22×41	0.625	1505
				22×31	0.360	1740	25×30	0.393	1555	25×30	0.625	1505
180	22×25	0.513	2250	20×36	0.325	1653	22×41	0.352	1583	22×46	0.553	1685
				25×30	0.325	1740	25×32	0.352	1720	25×36	0.553	1685
220	22×31	0.502	2320	20×40	0.297	1853	25×32	0.285	1975	22×50	0.515	1785
	25×25	0.502	2450	25×32	0.297	2010				25×41	0.515	1785
270	22×41	0.471	2675	22×46	0.285	2355	25×41	0.262	2135	25×51	0.425	1965
	25×30	0.471	2675	25×36	0.285	2355						
330	22×46	0.455	2820	22×50	0.225	2560	25×51	0.248	2378			
	25×36	0.455	2753	25×36	0.245	2510						
				25×41	0.225	2765						
390	22×50	0.432	2950									
	25×41	0.432	2950									
470	25×46	0.345	3175	25×51	0.185	2930						
560	25×51	0.315	3268									

Voltage (V)	600		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100	20×36	0.832	990
	25×25	0.832	990
120	22×36	0.815	1135
	25×30	0.815	1240
150	22×41	0.785	1375
	25×36	0.785	1375
180	25×41	0.732	1565
220	25×46	0.710	1670
270	25×51	0.685	1710

LKE NEW

◆High current withstand, impact resistant, high frequency, low impedance, specifically designed for motor frequency converters

◆10,000 hours of operation at 105℃

◆Compliant with AEC-Q200 RoHS directive



■ Main technical parameters

project	characteristic
Operating Temperature Range	≦120V －55~+105℃；160~250V －40~+105℃
Nominal Voltage Range	10~250V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	10~120WV I≦0.01CV or 3μA (whichever is greater) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken after 2 minutes
	160~250WV I≦0.02CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes

Loss Tangent (25 ± 2° C 120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100
tg δ	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.09
Rated voltage (V)	120	160	200	250				
tg δ	0.09	0.09	0.08	0.08				

For nominal capacities exceeding 1000μF, the loss tangent increases by 0.02 for every additional 1000μF.

Temperature Characteristics (120Hz)

Rated voltage (V)	10	16	25	35	50	63	80	100
Impedance ratio Z(－40℃)/Z(20℃)	6	4	3	3	3	3	3	3
Rated voltage (V)	120	160	200	250				
Impedance ratio Z(－40℃)/Z(20℃)	5	5	5	5				

Durability

In a 105℃ oven, apply the rated voltage containing the rated ripple current for a specified time, then place at room temperature for 16 hours before testing. The test temperature is 25±2℃. The capacitor's performance should meet the following requirements.

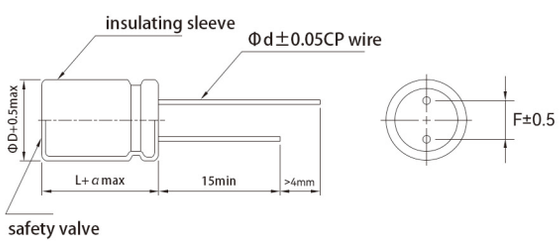
Capacity change rate	Within ±20% of the initial value	
Loss tangent	Below 200% of the specified value	
Leakage current	Below the specified value	
Load life	≧Φ8	10000h

High Temperature Storage

After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements.

Capacity change rate	Within ±20% of the initial value
Loss tangent	Below 200% of the specified value
Leakage current	Below 200% of the specified value

■ Product dimension drawing (unit: mm)



L=9	α=1.0
L≦16	α=1.5
L＞16	α=2.0

10	12.5~13	12.5~13(h≥30)	14.5
0.6	0.7	0.6	0.8
5.0	5.0	5.0	7.5

Note: Products ≥ Φ6.3 have a safety valve.

■ Ripple current compensation coefficient

Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

Temperature correction factor

Frequency (Hz)	50℃	70℃	85℃	105℃
Correction Factor	2.1	1.8	1.4	1.0

LKE

■ List of Standard Products

Voltage (V)	10			16			25			35		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
470										10×16	0.115	1000
560										10×20	0.0280	2250
560										13×16	0.0350	2330
680							10×16	0.0308	1850	10×25	0.0198	2330
1000				10×16	0.170	1000	10×20	0.140	1155	13×20	0.040	1500
1000							13×16	0.0350	2330			
1200				10×20	0.0280	1960				10×27	0.03	2220
1500	10×16	0.0308	1850	10×25	0.0280	2250	10×25	0.0280	2480	13×25	0.0165	2900
1500				13×16	0.0350	2330	13×16	0.0280	2480			
1500							13×20	0.0280	2480			
1800	10×20	0.0280	1960				10×27	0.03	2580	12.5×27	0.035	2800
1800							13×25	0.0165	2900	14.5×16	0.0143	3630
2200	10×25	0.0198	2250	13×20	0.104	1500	13×25	0.0143	3450	14.5×20	0.016	3150
2200	13×16	0.076	1500				14.5×16	0.27	2620			
2700							12.5×27	0.026	3050	13×27	0.025	3020
3300				10×27	0.0312	2800	13×27	0.025	3150			
3300	13×20	0.200	1780	13×25	0.081	2400	14.5×20	0.25	3180	14.5×25	0.015	3400
3900				14.5×16	0.0165	3250				14.5×27	0.014	3520
4700	10×27	0.035	2500	12.5×27	0.0285	3050	14.5×27	0.022	3460			
4700	13×25	0.0143	3450	14.5×20	0.255	3110	14.5×25	0.23	3350			
4700	14.5×16	0.0165	3450									
5600	12.5×27	0.027	2680									
6800	13×27	0.016	3110	13×27	0.0255	3280						
6800	14.5×20	0.018	2780	14.5×25	0.246	3270						
8200	14.5×25	0.016	3160									
10000	14.5×27	0.015	3280	14.5×27	0.0238	3450						

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
100							10×16	1.00	550	10×16	1.00	560
120										10×20	0.8	650
150				10×16	0.2	998	13×16	0.14	975	13×16	0.50	700
150										10×25	0.2	1170
220	10×16	0.0460	1370	10×20	0.50	860	10×20	1.00	580	13×25	0.0660	1620

LKE

■ List of Standard Products

Voltage (V)	50			63			80			100		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
270				13×16	0.0804	1250				10×27	0.072	1440
330	10×20	0.03	1580	10×25	0.0760	1410	13×20	0.45	890	13×25	0.0660	1620
330	13×16	0.8	980	13×20	0.45	1050				14.5×16	0.057	1500
390							10×27	0.0675	1420	12.5×27	0.056	1760
390										14.5×20	0.0640	1750
470	10×25	0.031	1870	13×25	0.45	1570	13×25	0.45	1050	13×27	0.05	1950
470	13×20	0.50	1050				14.5×16	0.076	1460	14.5×25	0.0480	2210
560				10×27	0.06	1800	12.5×27	0.056	1850	14.5×25	0.0420	2270
680	13×25	0.0560	2410	14.5×16	0.056	1620	13×27	0.055	1920	14.5×27	0.036	2150
680							14.5×20	0.063	1720			
820	10×27	0.062	1950	12.5×27	0.048	2220	14.5×25	0.2	1990			
820	14.5×16	0.058	2480									
1000	12.5×27	0.058	2520	13×27	0.043	2480	14.5×27	0.048	2080			
1000				14.5×20	0.018	2180						
1200	13×27	0.052	2560									
1200	14.5×20	0.048	2580	14.5×25	0.2	2420						
1500	14.5×25	0.03	2680	14.5×27	0.039	2540						
2200	14.5×27	0.028	2780									

Voltage (V)	160			200			250		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
22				10×16	3.24	400	10×16	3.24	400
33				10×20	1.65	340	10×20	1.65	340
47	10×16	2.65	650	13×20	1.50	400	13×16	1.50	400
56	10×20	2.65	920				10×27	4.65	870
56							13×20	1.40	500
68	13×16	2.27	1280	13×25	1.25	1300	13×20	1.25	1300
82	10×25	2.65	920	14.5×16	1.18	1420			
82	13×20	2.27	1280						
100	10×27	4.80	1040	10×27	4.5	1050	12.5×27	3.6	1150
100				14.5×20	1.18	1420	14.5×20	3.35	1200
120	13×25	1.43	1550				13×27	3.35	1260
120	14.5×16	4.50	1050				14.5×25	3.05	1280
150	12.5×27	4.50	1600	12.5×27	3.9	1520			
150				14.5×25	2.85	1720			
180	13×27	4.20	1700	13×27	3.2	1620	14.5×27	2.6	1325
180	14.5×20	4.00	1520						
220	14.5×25	3.50	1880	14.5×27	2.7	1880			
270	14.5×27	3.10	2020						

LKC

◆ Designed for ultra-low temperatures, extreme cold, and high-altitude regions; withstands high-frequency, high-ripple currents; specialized for power supplies, electricity meters, and charging piles.

◆ 6,000 – 10,000 hours at 105° C.

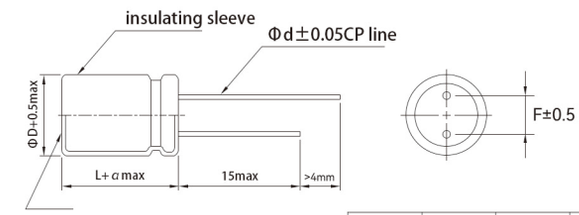
◆ AEC-Q200 compliant; RoHS compliant.



■ Main technical parameters

project	characteristic
Operating Temperature Range	400~500V, ≤ Φ14.5 –55~+105℃; ≥Φ16 –65~+105℃;
Nominal Voltage Range	400~500V
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	400~500WV I≦0.015CV+10(μA) C: Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 400 / 450 / 500 tg δ: 0.10 / 0.12 / 0.20 For nominal capacities exceeding 1000 μF, the loss tangent increases by 0.02 for every additional 1000 μF.
Temperature Characteristics (120Hz)	Rated voltage (V): 400 / 450 / 500 Impedance ratio Z(–40℃)/Z(20℃): 7 / 7 / 8
Durability	In a 105℃ oven, apply the rated voltage containing the rated ripple current for a specified time, then place at room temperature for 16 hours before testing. The test temperature is 25±2℃. The capacitor's performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below the specified value Load life: ≦Φ5~Φ6.3: 6000h; ≧Φ8~Φ10: 8000h; ≧Φ12.5: 10000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value Loss tangent: Below 200% of the specified value Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



Note: Products ≥ Φ6.3 have a safety valve.

L=9	α=1.0
L≦16	α=1.5
L > 16	α=2.0

D	5	6.3	8	10	12.5~13	12.5~13(h≥30)	14.5	16	18	20	22	25
d	0.5	0.5	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	1.0	1.0
F	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	7.5	10	10	10

■ Ripple current compensation coefficient

Frequency correction factor

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

Temperature correction factor

Frequency (Hz)	50℃	70℃	85℃	105℃
Correction Factor	2.1	1.8	1.4	1.0

LKC

■ List of Standard Products

Voltage (V)	400			450			500		
project / Capacity (μF)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)	Dimensions: ΦD×L (mm)	Impedance (Ωmax/100kHz 25±2℃)	Ripple current (mA r.m.s / 105℃ 120Hz)
4.7	8×11.5	10.50	160	8×11.5	14.20	150			
5.6				10×9	11.50	150			
8				8×16	12.80	265			
10	8×16	8.50	280	8×20	10.70	302			
10				10×12.5	7.65	240			
12	10×12.5	10.10	315						
15	8×20	7.02	360	10×16	6.20	440			
18	10×16	7.50	490	8×25	8.02	380			
18				10×20	5.68	580			
18				12.5×16	2.56	580			
22	8×25	6.00	425	10×25	5.32	620	16×16	1.50	420
22	10×20	6.40	650						
22	12.5×16	2.56	608						
27				12.5×20	1.68	641			
27				14.5×16	2.02	680			
33	10×25	5.50	710	12.5×25	1.08	710			
33	12.5×20	1.60	760	14.5×20	1.55	730			
33	16×16	0.95	550	16×20	2.00	650	16×20	1.20	500
39	14.5×16	1.52	720						
47	12.5×25	0.85	980	14.5×25	0.95	780			
47	14.5×20	0.96	840	16×25	1.20	950	16×30	0.90	580
47	16×20	0.84	680	18×20	1.20	950	18×20	0.90	580
56	14.5×25	0.75	1020						
56	16×25	0.72	1000	16×30	1.00	1100	16×30	0.82	640
56	18×20	0.72	1150	18×20	0.92	1000	18×25	0.82	640
68	16×25	0.65	1000	14.5×27	0.75	890			
68				16×35	0.84	1240	16×35	0.70	750
68				18×30	0.84	1290	18×30	0.70	780
82	16×30	0.60	1200	16×40	0.78	1500	16×40	0.62	890
82				18×30	0.78	1290	18×35	0.58	910
100	16×35	0.60	1560	18×35	0.65	1490	18×40	0.42	990
120	16×40	0.55	1800	18×40	0.52	1720			
120	18×35	0.52	2010						
150	18×40	0.46	2300	18×45	0.48	1950			
180	18×45	0.40	2500	18×50	0.45	2010			
220	18×50	0.35	2720						

LKV

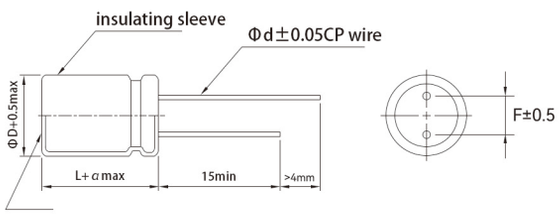
◆ Ultra-high-voltage liquid-electrolyte snap-in aluminum electrolytic capacitors for power supplies and inverters
◆ Ultra-high voltage, high capacitance; suitable as a replacement for film capacitors
◆ 85° C, 8,000 hours



■ Main technical parameters

project	characteristic
Operating Temperature Range	-25° C~+85° C
Nominal Voltage Range	800V.DC
Capacity Tolerance	±20% (25±2℃ 120Hz)
Leakage Current (μA)	800WVI≤0.05CV+10(μA) C:Nominal capacitance (μF) V: Rated voltage (V) Readings taken over 2 minutes
Loss Tangent (25 ± 2° C 120Hz)	Rated voltage (V): 800; tg δ: 25
Temperature Characteristics (120Hz)	Rated voltage (V): 800; Impedance ratio Z(－40℃)/Z(20℃): 14
Durability	After the capacitor is subjected to rated voltage with rated ripple current in an 85° C oven for the specified duration, and subsequently allowed to stand at room temperature for 16 hours, its performance—tested at 25 ± 2° C—shall meet the following requirements: Capacity change rate: Within ±20% of the initial value; Loss tangent: Below 200% of the specified value; Leakage current: Below the specified value; Load life: 8000h
High Temperature Storage	After being stored at 105℃ for 1000 hours and then placed at room temperature for 16 hours for testing at a test temperature of 25±2℃, the capacitor performance should meet the following requirements. Capacity change rate: Within ±20% of the initial value; Loss tangent: Below 200% of the specified value; Leakage current: Below 200% of the specified value

■ Product dimension drawing (unit: mm)



safety valve

Note: Products ⩾ Φ6.3 have a safety valve.

L≦16	α=1.5
L > 16	α=2.0

D	16	18	20	22	25
d	0.8	0.8	1.0	1.0	1.0
F	7.5	7.5	10	10	10

■ Ripple current compensation coefficient

Frequency (Hz)	50	120	1K	10K~50K	100K
Correction Factor	0.40	0.50	0.80	0.90	1.00

■ Temperature correction factor

Frequency (Hz)	50℃	70℃	85℃
Correction Factor	2.0	1.4	1.0

LKV

■ List of Standard Reference Materials

Operating voltage (Surge voltage) (V)	800	
project / Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple Current (mA r.m.s. / 85° C 100 kHz)
15	16×20	350
18	16×25	400
18	18×20	450
22	16×25	450
27	16×30	550
27	18×25	500
33	16×35.5	650
39	18×30	600
47	18×35.5	700
47	20×30	650
56	18×40	800
56	22×30	700
68	18×50	850
68	20×40	950
82	20×45	1050
82	22×41	1000
82	25×36	1000
100	22×50	1150
100	25×41	1100
120	25×51	1200
150	25×51	1350

IDC3



◆Ultra-high capacity and high energy density

◆105℃, 3000 hours

◆Suitable for main power supply of AI servers

◆RoHS compliant

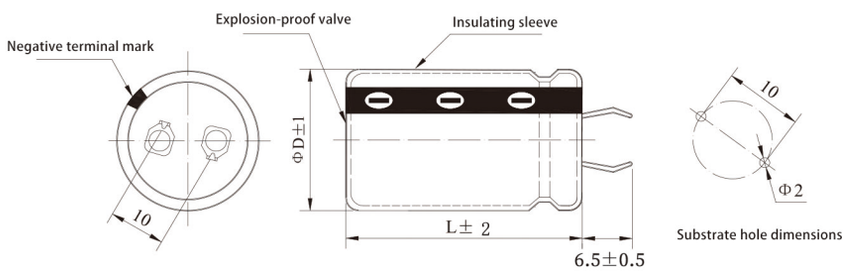
■ Main technical parameters

project	characteristic
Operating Temperature Range	－40 ~ +105℃
Rated Voltage Range	6.3 ~ 600V
Rated Capacitance Range	100 ~ 450000μF（20℃ 120Hz）
Rated Capacitance Tolerance	±20%
Leakage Current（μA）	≦3 $\sqrt{CV}$ The lesser of (C: nominal capacity; V: rated voltage) or 1.5 mA; 5-minute test at 20° C.
Maximum Loss (20° C)	0.20 (20℃ 120Hz)
Temperature Characteristics (120Hz)	C(-25℃)/C(+20℃)≧0.8；C(-40℃)/C(+20℃)≧0.65
Impedance Characteristics (120Hz)	Z(-25℃)/Z(+20℃)≦5；Z(-40℃)/Z(+20℃)≦8
Insulation Resistance	The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ⩾100MΩ.
Insulation Voltage	An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed.
Durability	Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met. Capacity change rate (ΔC): ≦ ±20% of the initial value Loss value (tg δ): ≦ 200% of the initial specification value Leakage current (LC): ≦ Initial specification value
High Temperature No-Load Characteristics	After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test. Capacity change rate (ΔC): ≦ ±15% of the initial value Loss value (tg δ): ≦ 150% of the initial specification value Leakage current (LC): ≦ Initial specification value Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test.

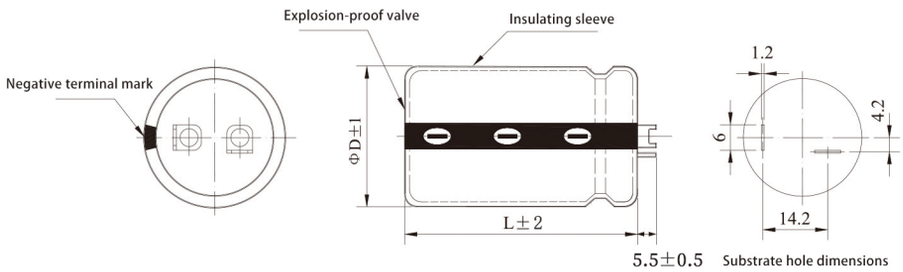
■ Product dimension drawing (unit: mm)

Type M (two solder pins, 6.5 mm lead-out) (D=22 ~ 50)

Type N (two solder pins, 4.0 mm lead-out) (D=22 ~ 50)

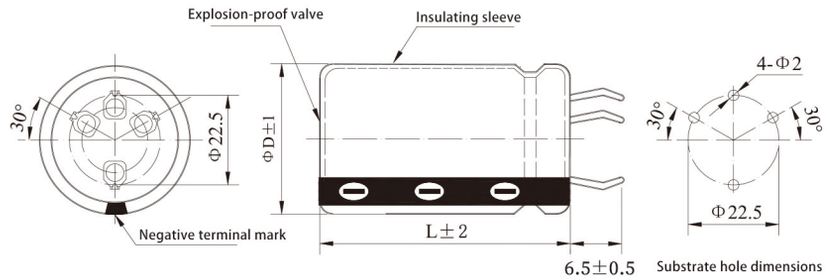


T-type (please specify when ordering) (D=30 ~ 50)

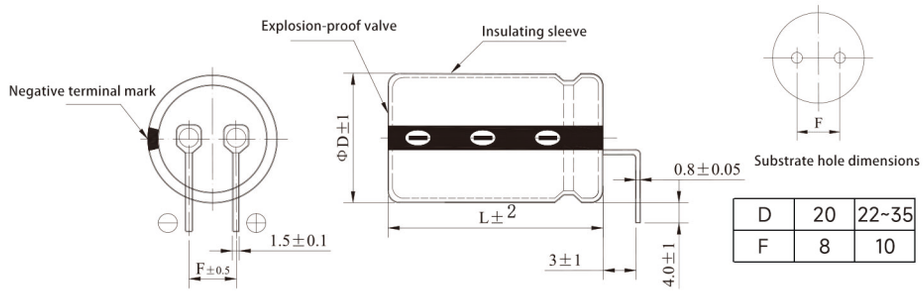


S-type (please specify when ordering) (D=30 – 50)

The mounting feet serve to secure the unit and must be insulated from other circuits.

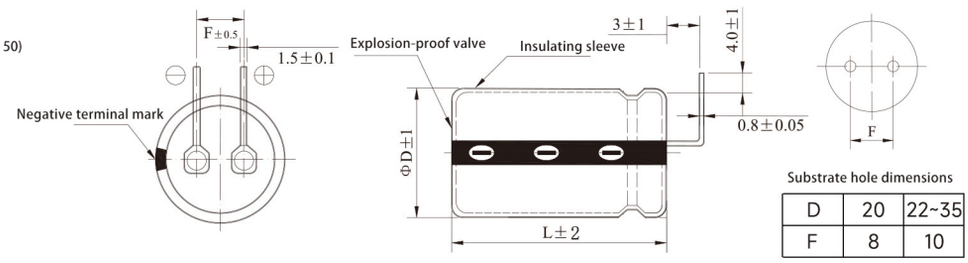


Type R (please specify when ordering) (D=22 – 50)



D	20	22~35
F	8	10

L-type (please specify when ordering) (D=22 – 50)



D	20	22~35
F	8	10

■ Ripple current correction factor

Frequency compensation coefficient

Frequency	50Hz	120Hz	500Hz	1kHz	≧10kHz
Correction Factor	0.80	1.00	1.20	1.25	1.40

Temperature compensation coefficient

Temperature (° C)	40℃	60℃	85℃	105℃
Coefficient	2.7	2.2	1.7	1.0

IDC3

■ List of Reference Standards

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
6.3(7.9)	27000	22×25	2.38
6.3(7.9)	37000	22×30	2.61
6.3(7.9)	37000	25×25	2.61
6.3(7.9)	47000	22×35	2.88
6.3(7.9)	47000	25×30	2.88
6.3(7.9)	55000	22×40	3.18
6.3(7.9)	61000	25×35	3.48
6.3(7.9)	65000	22×45	3.83
6.3(7.9)	70000	30×30	4.14
6.3(7.9)	74000	22×50	4.55
6.3(7.9)	74000	25×40	4.55
6.3(7.9)	82000	22×55	5.01
6.3(7.9)	86000	25×45	5.41
6.3(7.9)	90000	30×35	5.84
6.3(7.9)	90000	22×60	5.84
6.3(7.9)	100000	25×50	6.31
6.3(7.9)	100000	30×40	6.31
6.3(7.9)	100000	22×65	6.31
6.3(7.9)	110000	22×70	6.81
6.3(7.9)	110000	25×55	6.81
6.3(7.9)	120000	25×60	7.51
6.3(7.9)	120000	30×45	7.51
6.3(7.9)	120000	35×35	7.51
6.3(7.9)	130000	25×65	8.25
6.3(7.9)	140000	30×50	9.07
6.3(7.9)	150000	25×70	9.98
6.3(7.9)	150000	35×40	9.98
6.3(7.9)	160000	30×55	10.97
6.3(7.9)	180000	30×60	12.08
6.3(7.9)	180000	35×45	12.08
6.3(7.9)	200000	30×65	13.27
6.3(7.9)	200000	35×50	13.27
6.3(7.9)	220000	30×70	14.52
6.3(7.9)	220000	35×55	14.52
6.3(7.9)	230000	30×75	15.48
6.3(7.9)	250000	30×80	15.94
6.3(7.9)	250000	35×60	16.31
6.3(7.9)	270000	30×85	17.22
6.3(7.9)	270000	35×65	17.22
6.3(7.9)	300000	30×90	18.58
6.3(7.9)	300000	35×70	18.58
6.3(7.9)	310000	30×95	19.23
6.3(7.9)	330000	30×100	19.23
6.3(7.9)	330000	35×75	20.18
6.3(7.9)	360000	35×80	20.92
6.3(7.9)	390000	35×85	21.56
6.3(7.9)	400000	35×90	22.03
6.3(7.9)	430000	35×95	22.86
6.3(7.9)	450000	35×100	23.85
10(13)	22000	22×25	2.62
10(13)	25000	30×95	2.95
10(13)	30000	22×30	3.22
10(13)	30000	25×25	3.22
10(13)	36000	22×35	3.58
10(13)	40000	25×30	3.85
10(13)	44000	22×40	4.13
10(13)	50000	25×35	4.56
10(13)	52000	22×45	5.12
10(13)	56000	30×30	5.62
10(13)	60000	22×50	6.05
10(13)	60000	25×40	6.05
10(13)	66000	22×55	6.78
10(13)	70000	25×45	7.23
10(13)	70000	30×35	7.23
10(13)	74000	22×60	7.89
10(13)	80000	22×65	8.56
10(13)	80000	25×50	8.56
10(13)	85000	30×40	9.23
10(13)	90000	22×70	9.98
10(13)	90000	25×55	9.98
10(13)	100000	25×60	10.78
10(13)	100000	30×45	10.78
10(13)	100000	35×35	10.78
10(13)	110000	25×65	11.85
10(13)	110000	30×50	11.85
10(13)	120000	25×70	12.95
10(13)	120000	35×40	12.95
10(13)	130000	30×55	13.52
10(13)	140000	30×60	14.46
10(13)	140000	35×45	14.46
10(13)	160000	30×65	15.61
10(13)	160000	35×50	15.61
10(13)	170000	30×70	16.85
10(13)	180000	35×55	17.92
10(13)	190000	30×75	18.05
10(13)	200000	30×80	19.21
10(13)	200000	35×60	19.21
10(13)	220000	30×85	20.23
10(13)	220000	35×65	20.23
10(13)	230000	30×90	20.78
10(13)	240000	35×70	21.62
10(13)	260000	30×100	22.54
10(13)	260000	35×75	22.54
10(13)	280000	35×80	23.21
10(13)	300000	35×85	23.95
10(13)	320000	35×90	24.25
10(13)	330000	35×95	24.95
10(13)	350000	35×100	25.62
16(20)	18000	22×25	3.02
16(20)	22000	25×25	3.32
16(20)	25000	22×30	3.65
16(20)	30000	22×35	3.85
16(20)	30000	25×30	3.81
16(20)	37000	22×40	4.23
16(20)	39000	25×35	4.65
16(20)	43000	22×45	5.11
16(20)	47000	25×40	5.32
16(20)	47000	30×30	5.29
16(20)	50000	22×50	5.68
16(20)	56000	25×45	6.13
16(20)	56000	22×55	6.02
16(20)	60000	30×35	6.35
16(20)	60000	22×60	6.52
16(20)	60000	25×50	6.52
16(20)	68000	22×65	7.08
16(20)	71000	25×55	7.62
16(20)	71000	30×40	7.58
16(20)	75000	22×70	7.88
16(20)	79000	25×60	7.85
16(20)	82000	35×35	8.35
16(20)	85000	30×45	8.62
16(20)	87000	25×65	8.75
16(20)	95000	25×70	8.89
16(20)	96000	30×50	9.01
16(20)	100000	35×40	9.22
16(20)	110000	30×55	9.38
16(20)	120000	30×60	10.05
16(20)	120000	35×45	10.12
16(20)	130000	30×65	11.02
16(20)	130000	35×50	10.98
16(20)	140000	30×70	12.12
16(20)	150000	35×55	12.21
16(20)	160000	30×75	13.32
16(20)	170000	30×80	14.42
16(20)	170000	35×60	14.46

IDC3

■ List of Reference Standards

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
16(20)	180000	30×85	15.86
16(20)	190000	35×65	15.95
16(20)	200000	30×90	16.58
16(20)	200000	35×70	16.58
16(20)	210000	30×95	17.25
16(20)	220000	30×100	18.24
16(20)	220000	35×75	18.24
16(20)	240000	35×80	19.77
16(20)	250000	35×85	20.69
16(20)	270000	35×90	21.98
16(20)	290000	35×95	23.55
16(20)	310000	35×100	24.98
25(31)	13000	22×25	3.35
25(31)	16000	25×25	3.62
25(31)	17000	22×30	3.81
25(31)	21000	22×35	4.12
25(31)	21000	25×30	4.05
25(31)	26000	22×40	4.68
25(31)	27000	25×35	4.78
25(31)	30000	22×45	4.97
25(31)	32000	25×40	5.25
25(31)	33000	30×30	5.65
25(31)	34000	22×50	5.95
25(31)	38000	25×45	6.41
25(31)	39000	22×55	6.72
25(31)	41000	30×35	7.16
25(31)	43000	22×60	7.69
25(31)	43000	25×50	7.64
25(31)	47000	22×65	8.32
25(31)	49000	25×55	8.25
25(31)	50000	30×40	7.73
25(31)	52000	22×70	9.13
25(31)	54000	25×60	8.91
25(31)	58000	30×45	8.76
25(31)	58000	35×35	8.29
25(31)	60000	25×65	9.62
25(31)	65000	25×70	10.39
25(31)	67000	30×50	9.81
25(31)	70000	35×40	9.62
25(31)	76000	30×55	10.49
25(31)	82000	35×45	10.39
25(31)	85000	30×60	11.32
25(31)	93000	30×65	12.23
25(31)	94000	35×50	11.22
25(31)	100000	30×70	13.21
25(31)	100000	35×55	12.72
25(31)	110000	30×75	14.13
25(31)	120000	30×80	15.12
25(31)	120000	35×60	14.68
25(31)	130000	30×85	16.48
25(31)	130000	35×65	15.81
25(31)	135000	30×90	17.79
25(31)	140000	30×95	19.21
25(31)	140000	35×70	18.85
25(31)	150000	30×100	20.72
25(31)	150000	35×75	19.86
25(31)	160000	35×80	21.41
25(31)	170000	35×85	22.95
25(31)	190000	35×90	23.65
25(31)	200000	35×95	24.58
25(31)	210000	35×100	25.65
35(44)	8000	22×25	1.85
35(44)	10000	22×30	2.92
35(44)	10000	25×25	2.92
35(44)	13000	22×35	3.21
35(44)	14000	25×30	3.39
35(44)	15000	22×40	3.62
35(44)	17000	25×35	3.79
35(44)	18000	22×45	3.98
35(44)	20000	25×40	4.48
35(44)	20000	30×30	4.48
35(44)	20000	22×50	4.48
35(44)	22000	22×55	4.95
35(44)	24000	25×45	5.34
35(44)	25000	30×35	5.72
35(44)	26000	22×60	6.12
35(44)	28000	25×50	6.67
35(44)	29000	22×65	7.14
35(44)	30000	30×40	7.64
35(44)	31000	22×70	8.17
35(44)	32000	25×55	8.74
35(44)	35000	25×60	9.62
35(44)	35000	35×35	9.59
35(44)	36000	30×45	10.29
35(44)	38000	25×65	11.15
35(44)	41000	30×50	12.27
35(44)	42000	25×70	13.01
35(44)	42000	35×40	12.98
35(44)	46000	30×55	14.31
35(44)	50000	35×45	15.73
35(44)	51000	30×60	16.67
35(44)	56000	35×50	18.34
35(44)	57000	30×65	19.25
35(44)	62000	30×70	18.33
35(44)	65000	35×55	19.72
35(44)	67000	30×75	19.79
35(44)	72000	35×60	20.52
35(44)	73000	30×80	20.65
35(44)	78000	30×85	21.22
35(44)	79000	35×65	21.65
35(44)	83000	30×90	22.04
35(44)	87000	35×70	22.64
35(44)	89000	30×95	22.88
35(44)	94000	30×100	23.85
35(44)	94000	35×75	23.85
35(44)	100000	35×80	24.65
35(44)	110000	35×85	25.86
35(44)	115000	35×90	26.02
35(44)	125000	35×95	26.42
35(44)	130000	35×100	26.95
50(63)	4000	22×25	2.41
50(63)	5000	22×30	2.81
50(63)	5000	25×25	2.85
50(63)	7000	22×35	3.52
50(63)	7000	25×30	3.56
50(63)	8000	22×40	3.65
50(63)	9000	25×35	3.98
50(63)	10000	22×45	4.23
50(63)	10000	30×30	4.23
50(63)	11000	22×50	4.35
50(63)	11000	25×40	4.35
50(63)	12000	22×55	4.88
50(63)	13000	25×45	4.61
50(63)	13000	30×35	4.62
50(63)	14000	22×60	4.88
50(63)	15000	22×65	5.18
50(63)	15000	25×50	5.16
50(63)	16000	22×70	5.49
50(63)	16000	25×55	5.47
50(63)	16000	30×40	5.42
50(63)	18000	25×60	5.79
50(63)	18000	30×45	5.75
50(63)	18000	35×35	5.68
50(63)	20000	25×65	6.14
50(63)	22000	25×70	6.51

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■ List of Reference Standards

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
50(63)	22000	30×50	6.09
50(63)	22000	35×40	6.02
50(63)	25000	30×55	6.45
50(63)	27000	30×60	6.84
50(63)	27000	35×45	6.75
50(63)	30000	30×65	7.25
50(63)	30000	35×50	7.16
50(63)	33000	30×70	7.69
50(63)	33000	35×55	7.58
50(63)	36000	30×75	8.15
50(63)	39000	30×80	8.54
50(63)	39000	35×60	8.52
50(63)	41000	30×85	9.15
50(63)	42000	35×65	9.65
50(63)	44000	30×90	10.28
50(63)	46000	35×70	10.89
50(63)	47000	30×95	11.22
50(63)	50000	30×100	11.82
50(63)	50000	35×75	11.35
50(63)	54000	35×80	12.03
50(63)	58000	35×85	12.75
50(63)	62000	35×90	13.77
50(63)	65000	35×95	14.45
50(63)	69000	35×100	15.62
400(450)	220	25×25	1.12
400(450)	270	25×30	1.21
400(450)	330	25×35	1.33
400(450)	400	25×40	1.44
400(450)	470	25×45	1.56
400(450)	560	25×50	1.68
400(450)	680	25×55	1.81
400(450)	700	25×60	1.95
400(450)	800	25×65	2.06
400(450)	900	25×70	2.18
400(450)	400	30×30	2.31
400(450)	500	30×35	2.44
400(450)	700	30×40	2.59
400(450)	800	30×45	2.74
400(450)	900	30×50	2.90
400(450)	1000	30×55	3.07
400(450)	1100	30×60	3.25
400(450)	1200	30×65	3.45
400(450)	1300	30×70	3.65
400(450)	1400	30×75	3.87
400(450)	1600	30×80	4.10

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
400(450)	1700	30×85	4.35
400(450)	1800	30×90	4.61
400(450)	1900	30×95	4.89
400(450)	2000	30×100	5.18
400(450)	2400	30×120	5.49
400(450)	3000	30×150	5.81
400(450)	700	35×35	2.51
400(450)	900	35×40	2.66
400(450)	1000	35×45	2.79
400(450)	1200	35×50	2.93
400(450)	1400	35×55	3.10
400(450)	1500	35×60	3.25
400(450)	1700	35×65	3.41
400(450)	1800	35×70	3.58
400(450)	2000	35×75	3.76
400(450)	2200	35×80	3.95
400(450)	2300	35×85	4.15
400(450)	2400	35×90	4.36
400(450)	2500	35×95	4.58
400(450)	2700	35×100	4.81
400(450)	3000	35×120	5.05
400(450)	4000	35×150	5.30
450(500)	500	25×45	2.02
450(500)	570	25×50	2.26
450(500)	640	25×55	2.50
450(500)	710	25×60	2.56
450(500)	780	25×65	2.78
450(500)	780	30×45	2.30
450(500)	840	25×70	2.97
450(500)	880	30×50	2.55
450(500)	890	25×75	2.62
450(500)	950	25×80	2.78
450(500)	980	30×55	2.80
450(500)	1000	35×45	2.03
450(500)	1090	30×60	3.07
450(500)	1130	35×50	2.26
450(500)	1190	30×65	3.32
450(500)	1270	35×55	2.49
450(500)	1300	30×70	3.58
450(500)	1350	30×75	3.86
450(500)	1410	35×60	2.72
450(500)	1450	30×80	4.16
450(500)	1550	30×85	4.49
450(500)	1550	35×65	2.95
450(500)	1650	30×90	4.84

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
450(500)	1680	35×70	3.17
450(500)	1750	30×95	5.22
450(500)	1870	30×100	4.29
450(500)	1950	30×105	4.63
450(500)	2060	30×110	5.09
450(500)	2160	30×115	5.50
450(500)	2260	30×120	5.94
450(500)	2400	35×100	6.41
450(500)	2660	35×105	6.92
450(500)	2800	35×110	7.47
450(500)	2940	35×115	8.06
450(500)	3080	35×120	8.70
475(525)	440	25×45	1.80
475(525)	500	25×50	2.01
475(525)	560	25×55	2.22
475(525)	620	25×60	2.27
475(525)	680	25×65	2.46
475(525)	680	30×45	2.10
475(525)	740	25×70	2.66
475(525)	780	30×50	2.36
475(525)	800	25×75	2.40
475(525)	860	25×80	2.56
475(525)	870	30×55	2.60
475(525)	900	35×45	1.93
475(525)	960	30×60	2.82
475(525)	1020	35×50	2.14
475(525)	1040	30×65	3.04
475(525)	1140	30×70	3.29
475(525)	1140	35×55	2.35
475(525)	1210	30×75	2.93
475(525)	1270	35×60	2.57
475(525)	1300	30×80	3.12
475(525)	1390	30×85	3.31
475(525)	1390	35×65	2.78
475(525)	1480	30×90	3.50
475(525)	1510	35×70	2.99
475(525)	1580	30×95	3.72
475(525)	1670	30×100	3.91
475(525)	1760	30×105	4.10
475(525)	1850	30×110	4.29
475(525)	1940	30×115	4.47
475(525)	2030	30×120	4.67
475(525)	2390	35×105	4.49
475(525)	2520	35×110	4.71
475(525)	2640	35×115	4.91

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Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
475(525)	2770	35×120	5.12
475(525)	2270	35×100	4.29
500(550)	150	25×25	2.21
500(550)	220	25×30	2.29
500(550)	270	25×35	2.38
500(550)	330	25×40	2.49
500(550)	400	25×45	2.58
500(550)	470	25×50	2.68
500(550)	500	25×55	2.79
500(550)	560	25×60	2.90
500(550)	600	25×65	3.02
500(550)	700	25×70	3.14
500(550)	300	30×30	3.27
500(550)	400	30×35	3.40
500(550)	500	30×40	3.53
500(550)	600	30×45	3.71
500(550)	700	30×50	3.90
500(550)	800	30×55	4.10
500(550)	900	30×60	4.30
500(550)	950	30×65	4.51
500(550)	1050	30×70	4.73
500(550)	1150	30×75	4.97
500(550)	1250	30×80	5.22
500(550)	1350	30×85	5.48
500(550)	1450	30×90	5.64
500(550)	1500	30×95	5.92
500(550)	1600	30×100	6.22
500(550)	1900	30×120	6.53
500(550)	2300	30×150	6.73
500(550)	600	35×35	2.60
500(550)	700	35×40	2.73
500(550)	800	35×45	2.86
500(550)	900	35×50	3.02
500(550)	1000	35×55	3.16
500(550)	1200	35×60	3.32
500(550)	1300	35×65	3.48
500(550)	1400	35×70	3.65
500(550)	1550	35×75	3.84
500(550)	1700	35×80	4.03
500(550)	1800	35×85	4.24
500(550)	1900	35×90	4.45
500(550)	2000	35×95	4.67
500(550)	2100	35×100	4.91
500(550)	2500	35×120	5.15
500(550)	3200	35×150	5.41

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
550(600)	120	25×25	1.35
550(600)	150	25×30	1.45
550(600)	200	25×35	1.57
550(600)	220	25×40	1.70
550(600)	270	25×45	1.84
550(600)	330	25×50	1.98
550(600)	360	25×55	2.12
550(600)	400	25×60	2.29
550(600)	470	25×65	2.47
550(600)	470	25×70	2.67
550(600)	250	30×30	2.88
550(600)	300	30×35	3.10
550(600)	400	30×40	3.35
550(600)	450	30×45	3.62
550(600)	500	30×50	3.90
550(600)	600	30×55	4.10
550(600)	650	30×60	4.30
550(600)	700	30×65	4.52
550(600)	800	30×70	4.75
550(600)	850	30×75	4.98
550(600)	900	30×80	5.23
550(600)	950	30×85	5.50
550(600)	1050	30×90	5.76
550(600)	1100	30×95	6.05
550(600)	1150	30×100	6.36
550(600)	1300	30×120	6.67
550(600)	1700	30×150	7.00
550(600)	400	35×35	2.98
550(600)	500	35×40	3.21
550(600)	600	35×45	3.47
550(600)	700	35×50	3.75
550(600)	800	35×55	4.05
550(600)	900	35×60	4.38
550(600)	950	35×65	4.73
550(600)	1000	35×70	5.10
550(600)	1100	35×75	5.52
550(600)	1200	35×80	5.95
550(600)	1300	35×85	6.43
550(600)	1400	35×90	6.94
550(600)	1450	35×95	7.50
550(600)	1500	35×100	8.10
550(600)	1800	35×120	8.50
550(600)	2300	35×150	8.92
600(650)	100	25×25	1.12
600(650)	150	25×30	1.21

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
600(650)	180	25×35	1.30
600(650)	220	25×40	1.41
600(650)	270	25×45	1.52
600(650)	300	25×50	1.65
600(650)	330	25×55	1.78
600(650)	390	25×60	1.92
600(650)	400	25×65	2.07
600(650)	470	25×70	2.24
600(650)	220	30×30	1.55
600(650)	270	30×35	1.67
600(650)	330	30×40	1.80
600(650)	400	30×45	1.95
600(650)	470	30×50	2.10
600(650)	500	30×55	2.28
600(650)	600	30×60	2.46
600(650)	650	30×65	2.66
600(650)	700	30×70	2.87
600(650)	760	30×75	3.01
600(650)	820	30×80	3.16
600(650)	900	30×85	3.32
600(650)	950	30×90	3.48
600(650)	1000	30×95	3.66
600(650)	1000	30×100	3.84
600(650)	1200	30×120	4.03
600(650)	1500	30×150	4.23
600(650)	400	35×35	1.88
600(650)	470	35×40	1.97
600(650)	560	35×45	2.07
600(650)	650	35×50	2.18
600(650)	700	35×55	2.29
600(650)	820	35×60	2.40
600(650)	900	35×65	2.52
600(650)	1000	35×70	2.64
600(650)	1050	35×75	2.77
600(650)	1150	35×80	2.91
600(650)	1200	35×85	3.06
600(650)	1300	35×90	3.20
600(650)	1300	35×95	3.36
600(650)	1400	35×100	3.54
600(650)	1700	35×120	3.71
600(650)	2200	35×150	3.90

CW3



- ◆ Compact size, ultra-low temperature
- ◆ 105° C, 3,000 hours
- ◆ Suitable for home appliance inverters and servo systems
- ◆ RoHS compliant

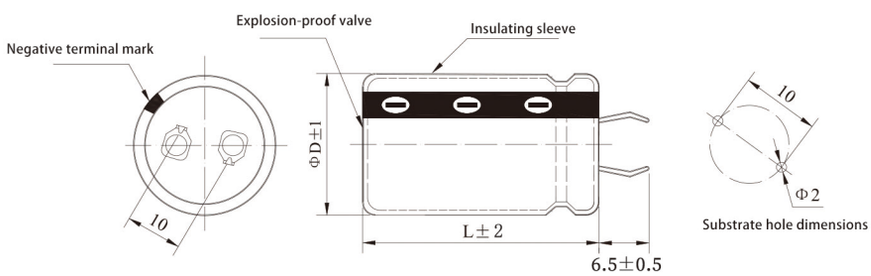
■ Main technical parameters

project	characteristic
Operating Temperature Range	－40 ~ +105℃
Rated Voltage Range	350 ~ 500V
Rated Capacitance Range	47 ~ 1000μF (20℃ 120Hz)
Rated Capacitance Tolerance	±20%
Leakage Current (μA)	≦3 $\sqrt{CV}$ The lesser of (C: nominal capacity; V: rated voltage) or 1.5 mA; 5-minute test at 20° C.
Maximum Loss (20° C)	0.20 (20℃ 120Hz)
Temperature Characteristics (120Hz)	C(-25℃)/C(+20℃)≧0.8 ; C(-40℃)/C(+20℃)≧0.65
Impedance Characteristics (120Hz)	Z(-25℃)/Z(+20℃)≦5 ; Z(-40℃)/Z(+20℃)≦8
Insulation Resistance	The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ⩾100MΩ.
Insulation Voltage	An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed.
Durability	Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met. Capacity change rate (ΔC) ≦ ±20% of the initial value Loss value (tg δ) ≦ 200% of the initial specification value Leakage current (LC) ≦ Initial specification value
High Temperature No-Load Characteristics	After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test. Capacity change rate (ΔC) ≦ ±15% of the initial value Loss value (tg δ) ≦ 150% of the initial specification value Leakage current (LC) ≦ Initial specification value Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test.

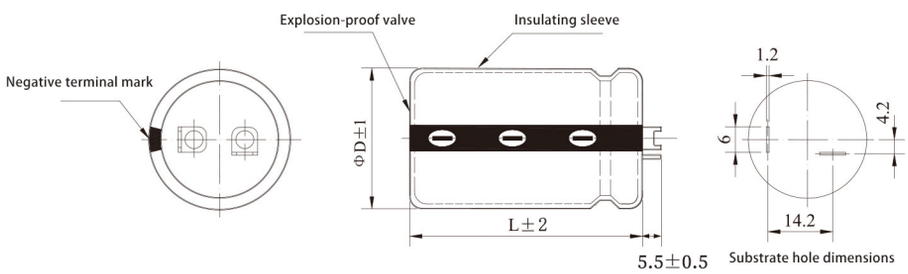
■ Product dimension drawing (unit: mm)

Type M (two solder pins, 6.5 mm lead-out) (D=22 ~ 50)

Type N (two solder pins, 4.0 mm lead-out) (D=22 ~ 50)

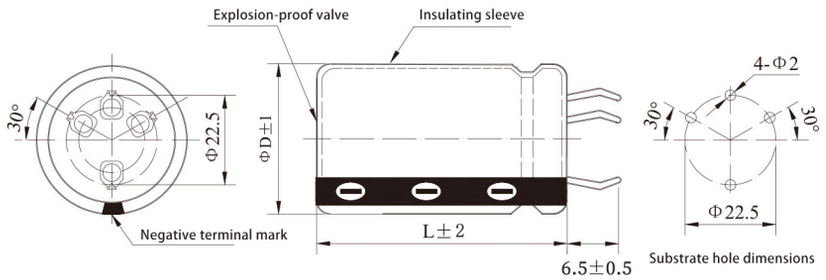


T-type (please specify when ordering) (D=30 ~ 50)

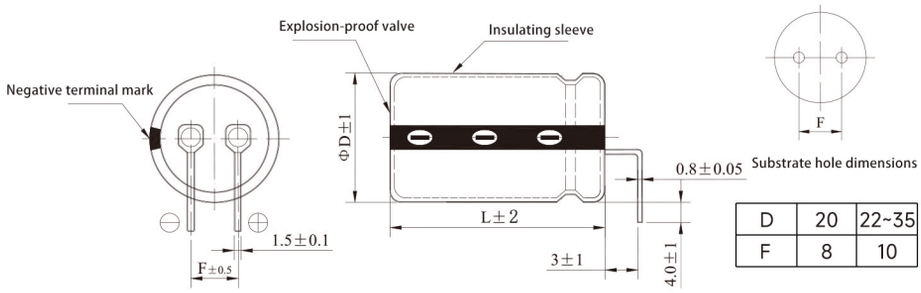


S-type (please specify when ordering) (D=30 – 50)

The mounting feet serve to secure the unit and must be insulated from other circuits.

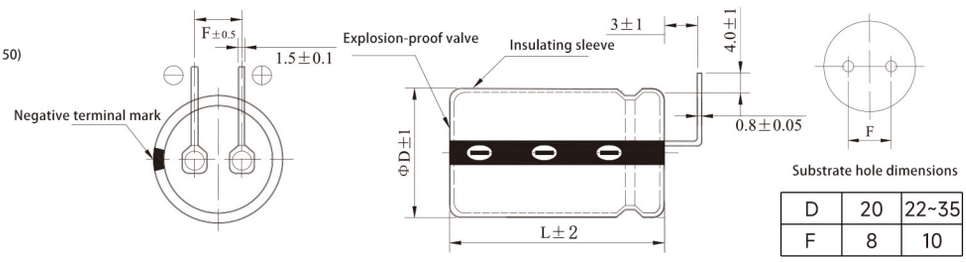


Type R (please specify when ordering) (D=22 – 50)



D	20	22~35
F	8	10

L-type (please specify when ordering) (D=22 – 50)



D	20	22~35
F	8	10

■ Ripple current correction factor

Frequency compensation coefficient

Frequency	50Hz	120Hz	500Hz	1kHz	≧10kHz
Correction Factor	0.80	1.00	1.20	1.25	1.40

Temperature compensation coefficient

Temperature (° C)	40℃	60℃	85℃	105℃
Coefficient	2.7	2.2	1.7	1.0

CW3

■ Main technical parameters

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
350(400)	56	22×20	0.40
350(400)	68	25×20	0.48
350(400)	82	22×25	0.52
350(400)	82	25×20	0.52
350(400)	100	22×25	0.57
350(400)	100	30×20	0.63
350(400)	120	22×30	0.67
350(400)	120	25×25	0.67
350(400)	120	30×20	0.68
350(400)	150	22×35	0.79
350(400)	150	25×30	0.73
350(400)	150	30×25	0.82
350(400)	150	35×20	0.82
350(400)	180	22×40	0.90
350(400)	180	25×30	0.85
350(400)	180	30×25	0.88
350(400)	220	22×45	1.03
350(400)	220	25×35	0.99
350(400)	220	30×25	0.96
350(400)	220	35×25	1.05
350(400)	270	22×50	1.18
350(400)	270	25×40	1.14
350(400)	270	30×30	1.12
350(400)	270	35×25	1.15
350(400)	330	25×45	1.31
350(400)	330	30×35	1.31
350(400)	330	35×30	1.34
350(400)	390	25×50	1.48
350(400)	390	30×35	1.41
350(400)	390	35×30	1.44
350(400)	470	25×60	1.75
350(400)	470	30×45	1.70
350(400)	470	35×35	1.67
350(400)	560	30×50	1.92
350(400)	560	35×40	1.91
350(400)	680	30×60	2.26
350(400)	680	35×45	2.18
350(400)	820	35×50	2.44
350(400)	1000	35×55	2.68
400(450)	47	22×20	0.34
400(450)	56	22×20	0.37
400(450)	68	22×25	0.44
400(450)	68	25×20	0.43

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
400(450)	82	22×25	0.48
400(450)	82	25×20	0.47
400(450)	100	22×30	0.57
400(450)	100	25×25	0.57
400(450)	100	30×20	0.58
400(450)	120	22×30	0.62
400(450)	120	25×25	0.61
400(450)	120	30×20	0.63
400(450)	120	35×20	0.69
400(450)	150	22×35	0.73
400(450)	150	25×30	0.73
400(450)	150	30×25	0.75
400(450)	150	35×20	0.76
400(450)	180	22×40	0.83
400(450)	180	25×30	0.79
400(450)	180	30×25	0.82
400(450)	180	35×25	0.89
400(450)	220	22×45	0.96
400(450)	220	25×40	0.97
400(450)	220	30×30	0.96
400(450)	220	35×25	0.98
400(450)	270	25×45	1.12
400(450)	270	30×30	1.05
400(450)	270	35×25	1.07
400(450)	330	25×50	1.28
400(450)	330	30×35	1.22
400(450)	330	35×30	1.25
400(450)	390	25×55	1.44
400(450)	390	30×40	1.39
400(450)	390	35×35	1.43
400(450)	470	30×45	1.59
400(450)	470	35×40	1.65
400(450)	560	30×50	1.79
400(450)	560	35×45	1.87
400(450)	680	35×50	2.13
400(450)	820	35×55	2.38
400(450)	1000	35×70	2.80
450(500)	56	22×25	0.38
450(500)	68	22×30	0.45
450(500)	68	25×25	0.41
450(500)	82	22×25	0.45
450(500)	82	25×20	0.44
450(500)	100	22×35	0.57

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
450(500)	100	25×30	0.53
450(500)	100	30×25	0.59
450(500)	120	22×40	0.66
450(500)	120	25×25	0.58
450(500)	120	30×25	0.64
450(500)	120	35×20	0.65
450(500)	150	22×45	0.76
450(500)	150	25×30	0.69
450(500)	150	30×25	0.71
450(500)	150	35×25	0.72
450(500)	180	22×40	0.78
450(500)	180	25×35	0.79
450(500)	180	30×30	0.82
450(500)	220	25×40	0.92
450(500)	220	30×30	0.91
450(500)	220	35×25	0.93
450(500)	270	25×45	1.07
450(500)	270	30×35	1.06
450(500)	270	35×30	1.09
450(500)	330	30×40	1.23
450(500)	330	35×35	1.27
450(500)	390	30×45	1.40
450(500)	390	35×35	1.38
450(500)	470	30×50	1.6
450(500)	470	35×40	1.59
450(500)	560	30×60	1.88
450(500)	560	35×45	1.81
450(500)	680	35×55	2.15
450(500)	820	35×60	2.40
450(500)	1000	35×70	2.72
500(550)	47	22×25	0.30
500(550)	56	22×30	0.35
500(550)	68	22×30	0.39
500(550)	68	25×25	0.38
500(550)	82	22×35	0.45
500(550)	82	25×30	0.45
500(550)	100	22×45	0.55
500(550)	100	25×35	0.53
500(550)	100	30×25	0.51
500(550)	120	22×50	0.63
500(550)	120	25×40	0.61
500(550)	120	30×30	0.60
500(550)	120	35×25	0.61

CW3

■ Main technical parameters

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
500(550)	150	22×50	0.70
500(550)	150	25×40	0.68
500(550)	150	30×30	0.67
500(550)	150	35×25	0.68
500(550)	180	22×60	0.82
500(550)	180	25×50	0.81
500(550)	180	30×35	0.77
500(550)	180	35×30	0.79
500(550)	220	22×65	0.93
500(550)	220	25×55	0.93
500(550)	220	30×40	0.89
500(550)	220	35×25	0.81
500(550)	270	25×60	1.06
500(550)	270	30×45	1.03
500(550)	270	35×35	1.01
500(550)	330	25×70	1.25
500(550)	330	30×50	1.18
500(550)	330	35×40	1.17
500(550)	390	30×60	1.39
500(550)	390	35×45	1.33
500(550)	470	30×65	1.57
500(550)	470	35×50	1.52
500(550)	560	30×65	1.81
500(550)	560	35×50	1.79
500(550)	680	35×65	2.15
500(550)	820	35×70	2.55
500(550)	1000	35×85	2.91

CW6

- ◆ Compact size, high reliability, ultra-low temperature performance
- ◆ 105° C, 6,000-hour lifespan
- ◆ Suitable for photovoltaic and industrial drive applications
- ◆ RoHS compliant



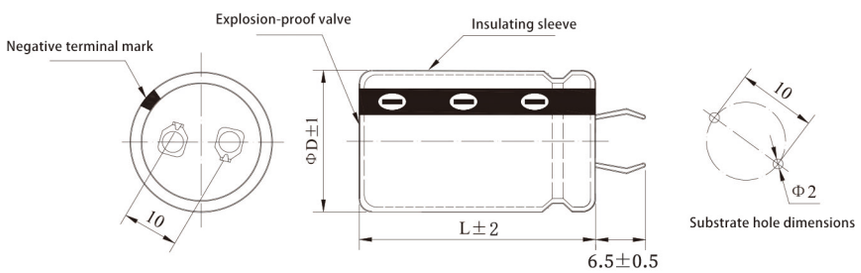
■ Main technical parameters

project	characteristic
Operating Temperature Range	－40 ~ +105℃
Rated Voltage Range	350 ~ 600V
Rated Capacitance Range	82 ~ 1000μF (20℃ 120Hz)
Rated Capacitance Tolerance	±20%
Leakage Current (μA)	≦3 $\sqrt{CV}$ The lesser of (C: nominal capacity; V: rated voltage) or 1.5 mA; 5-minute test at 20° C.
Maximum Loss (20° C)	0.20 (20℃ 120Hz)
Temperature Characteristics (120Hz)	C(-25℃)/C(+20℃)≧0.8 ; C(-40℃)/C(+20℃)≧0.65
Impedance Characteristics (120Hz)	Z(-25℃)/Z(+20℃)≦5 ; Z(-40℃)/Z(+20℃)≦8
Insulation Resistance	The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥ 100MΩ.
Insulation Voltage	An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed.
Durability	Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met. Capacity change rate (ΔC) ≦ ±20% of the initial value Loss value (tg δ) ≦ 200% of the initial specification value Leakage current (LC) ≦ Initial specification value
High Temperature No-Load Characteristics	After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test. Capacity change rate (ΔC) ≦ ±15% of the initial value Loss value (tg δ) ≦ 150% of the initial specification value Leakage current (LC) ≦ Initial specification value Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test.

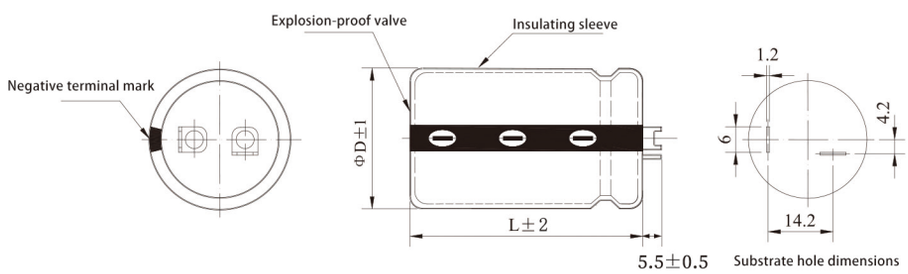
■ Product dimension drawing (unit: mm)

Type M (two solder pins, 6.5 mm lead-out) (D=22 – 50)

Type N (two solder pins, 4.0 mm lead-out) (D=22 – 50)

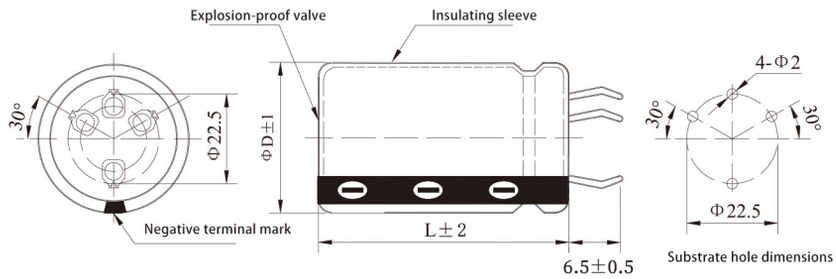


T-type (please specify when ordering) (D=30 – 50)

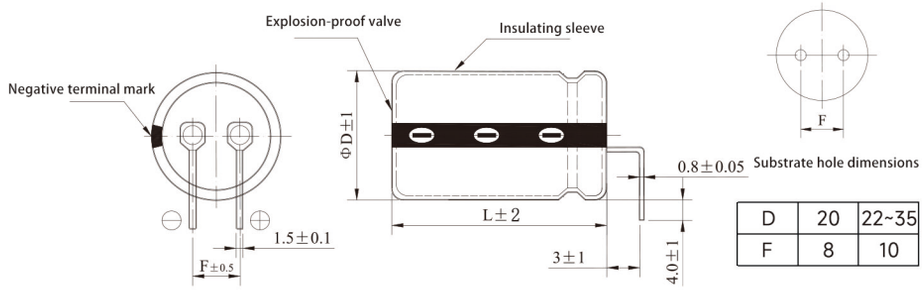


S-type (please specify when ordering) (D=30 ~ 50)

The mounting feet serve to secure the unit and must be insulated from other circuits.

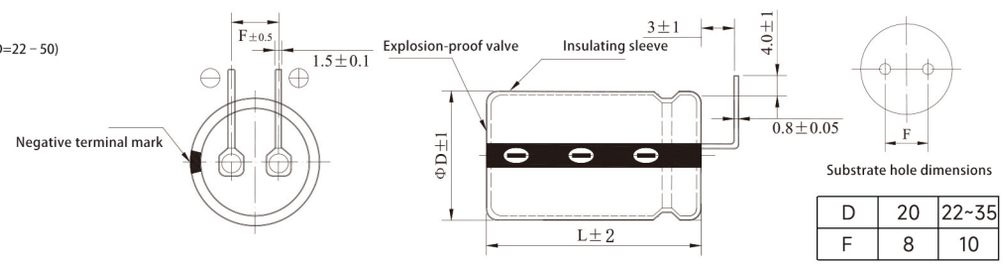


Type R (please specify when ordering) (D=22 ~ 50)



D	20	22~35
F	8	10

Type R (please specify when ordering) (D=22 ~ 50)



D	20	22~35
F	8	10

■ Ripple current correction factor

Frequency compensation coefficient

Frequency	50Hz	120Hz	500Hz	1kHz	≧10kHz
Correction Factor	0.80	1.00	1.20	1.25	1.40

Temperature compensation coefficient

Temperature (° C)	40℃	60℃	85℃	105℃
Coefficient	2.7	2.2	1.7	1.0

CW6

■ List of Reference Standards

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
350(400)	120	22×25	0.64
350(400)	150	22×30	0.77
350(400)	180	25×30	0.9
350(400)	220	22×40	1.03
350(400)	220	25×30	0.98
350(400)	220	30×25	1.01
350(400)	270	22×45	1.19
350(400)	270	25×35	1.14
350(400)	270	30×30	1.18
350(400)	270	35×25	1.21
350(400)	330	22×50	1.35
350(400)	330	25×40	1.31
350(400)	330	30×35	1.37
350(400)	390	25×45	1.49
350(400)	390	30×40	1.56
350(400)	390	35×30	1.52
350(400)	470	25×55	1.77
350(400)	470	30×45	1.78
350(400)	470	35×35	1.75
350(400)	560	30×50	2.02
350(400)	560	35×40	2.00
350(400)	680	35×45	2.29
350(400)	820	35×50	2.55
350(400)	1000	35×55	2.79
400(450)	100	22×25	0.54
400(450)	120	22×30	0.63
400(450)	150	22×35	0.76
400(450)	150	25×30	0.76
400(450)	180	22×40	0.87
400(450)	180	25×30	0.83
400(450)	180	30×25	0.85
400(450)	220	22×45	1.00
400(450)	220	25×35	0.96
400(450)	220	35×25	1.03
400(450)	270	22×50	1.15
400(450)	270	25×45	1.18
400(450)	270	30×30	1.10
400(450)	330	25×50	1.35
400(450)	330	30×35	1.28
400(450)	330	35×30	1.31
400(450)	390	30×40	1.46
400(450)	390	35×35	1.51
400(450)	470	30×45	1.67

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
400(450)	470	35×40	1.73
400(450)	560	35×45	1.96
400(450)	680	35×50	2.23
400(450)	820	35×55	2.49
400(450)	1000	35×65	2.83
450(500)	82	22×25	0.45
450(500)	100	22×30	0.54
450(500)	100	25×25	0.54
450(500)	120	22×35	0.63
450(500)	150	22×40	0.74
450(500)	150	25×30	0.70
450(500)	150	30×25	0.73
450(500)	180	22×45	0.85
450(500)	180	25×35	0.81
450(500)	180	30×30	0.85
450(500)	180	35×25	0.87
450(500)	220	25×40	0.94
450(500)	220	30×35	0.99
450(500)	220	35×30	1.02
450(500)	270	25×45	1.09
450(500)	270	30×40	1.15
450(500)	270	35×35	1.19
450(500)	330	30×45	1.33
450(500)	390	30×50	1.50
450(500)	390	35×40	1.49
450(500)	470	35×40	1.63
450(500)	560	35×50	1.93
450(500)	680	35×55	2.19
450(500)	820	35×60	2.45
450(500)	1000	35×70	2.78
500(550)	82	22×35	0.45
500(550)	100	22×40	0.53
500(550)	100	25×35	0.54
500(550)	120	25×40	0.62
500(550)	150	25×50	0.76
500(550)	150	30×35	0.73
500(550)	150	35×30	0.75
500(550)	180	30×35	0.79
500(550)	180	35×30	0.81
500(550)	220	30×40	0.92
500(550)	220	35×35	0.95
500(550)	270	30×50	1.11
500(550)	270	35×40	1.1

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
500(550)	330	30×55	1.27
500(550)	390	30×65	1.48
500(550)	390	35×50	1.44
500(550)	470	35×55	1.64
500(550)	560	35×65	1.91
500(550)	680	35×65	2.22
500(550)	820	35×90	2.61
550(600)	120	30×30	0.91
550(600)	150	30×35	1.04
550(600)	180	30×40	1.17
550(600)	180	35×30	1.10
550(600)	220	30×50	1.35
550(600)	220	35×40	1.28
550(600)	270	35×45	1.45
550(600)	330	35×50	1.64
550(600)	390	35×60	1.85
550(600)	470	35×60	2.22
550(600)	680	35×75	3.87
600(650)	120	30×40	0.96
600(650)	120	35×30	0.95
600(650)	150	30×45	1.10
600(650)	150	35×35	1.07
600(650)	180	30×50	1.22
600(650)	180	35×40	1.22
600(650)	220	30×60	1.40
600(650)	220	35×45	1.38
600(650)	270	35×50	1.56
600(650)	330	35×60	1.79
600(650)	470	35×65	2.15
600(650)	680	40×70	3.74

SW3



- ◆ High-temperature resistance
- ◆ 105° C, 3,000 hours
- ◆ Suitable for variable frequency drives, industrial drives, and power supplies
- ◆ RoHS compliant

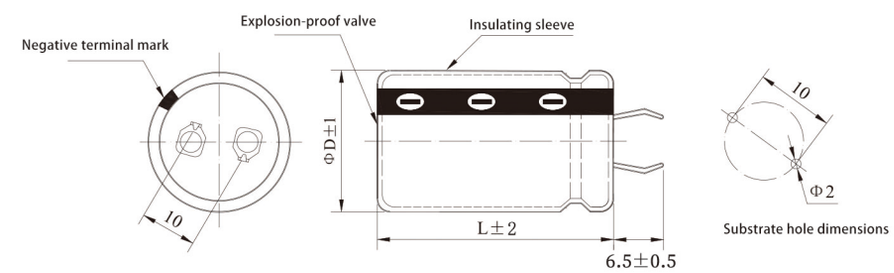
■ Main technical parameters

project	characteristic
Operating Temperature Range	(16 ~ 100V)−40 ~ +105℃ ; (160 ~ 500V)−25 ~ +105℃
Rated Voltage Range	50 ~ 800V
Rated Capacitance Range	56 ~ 60000μF (20℃ 120Hz)
Rated Capacitance Tolerance	±20%
Leakage Current (μA)	≤3 $\sqrt{CV}$ The lesser of (C: nominal capacity; V: rated voltage) or 1.5 mA; 5-minute test at 20° C.
Maximum Loss (20° C) Temperature Characteristics (120Hz)	Rated voltage(V): 16 / 25 / 35 / 50 / 63~100 / 160~500 tg δ: 0.6 / 0.5 / 0.4 / 0.3 / 0.2 / 0.15
Impedance Characteristics (120Hz)	C(-25℃)/C(+20℃)≧0.6
Insulation Resistance	The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ⩾100MΩ.
Insulation Voltage	An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed.
Durability	Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met. Capacity change rate (ΔC): ≦ ±20% of the initial value Loss value (tg δ): ≦ 200% of the initial specification value Leakage current (LC): ≦ Initial specification value
High Temperature No-Load Characteristics	After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test. Capacity change rate (ΔC): ≦ ±15% of the initial value Loss value (tg δ): ≦ 150% of the initial specification value Leakage current (LC): ≦ Initial specification value Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test.

■ Product dimension drawing (unit: mm)

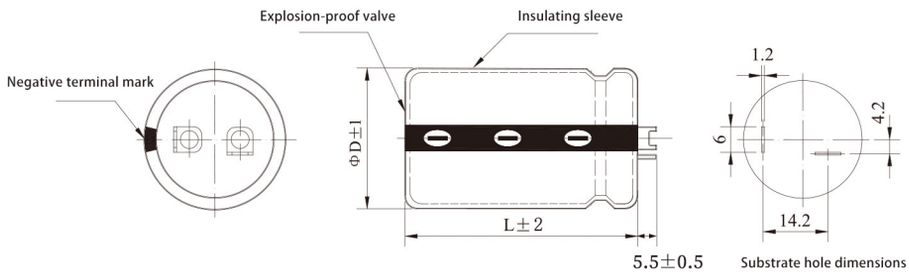
Type M (two solder pins, 6.5 mm lead-out) (D=22 – 50)

Type N (two solder pins, 4.0 mm lead-out) (D=22 – 50)



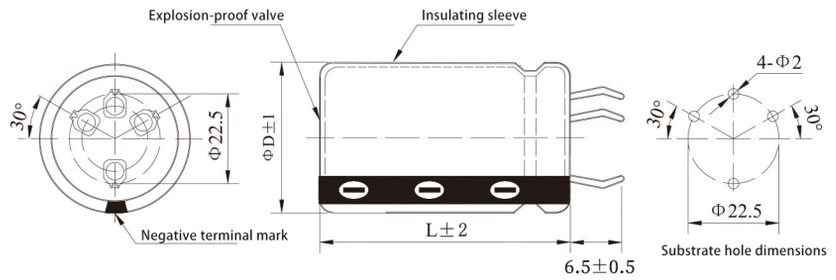
Type M (two solder pins, 6.5 mm lead-out) (D=22 – 50)

Type N (two solder pins, 4.0 mm lead-out) (D=22 – 50)

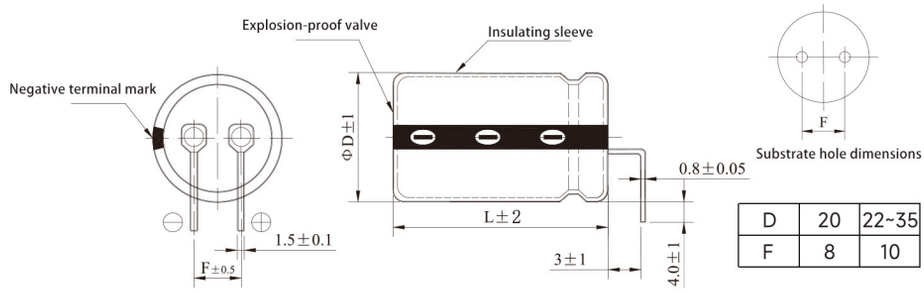


S-type (please specify when ordering) (D=30 – 50)

The mounting feet serve to secure the unit and must be insulated from other circuits.

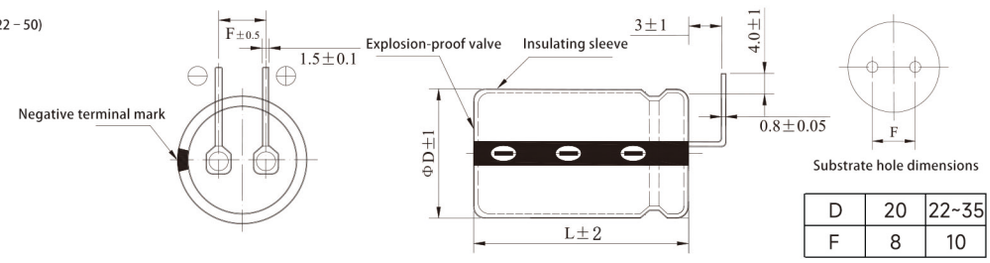


Type R (please specify when ordering) (D=22 – 50)



D	20	22~35
F	8	10

L-type (please specify when ordering) (D=22 – 50)



D	20	22~35
F	8	10

■ Ripple current correction factor

Frequency compensation coefficient

Frequency	50Hz	120Hz	500Hz	1kHz	≧10kHz
Correction Factor	0.80	1.00	1.20	1.25	1.40

Temperature compensation coefficient

Temperature (° C)	40℃	60℃	85℃	105℃
Coefficient	2.7	2.2	1.7	1.0

SW3

■ List of Reference Standards

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
50(63)	3300	22×25	2.41
50(63)	4700	22×30	2.60
50(63)	5600	22×35	2.81
50(63)	6800	22×40	3.04
50(63)	8200	22×45	3.28
50(63)	9000	22×50	3.54
50(63)	10000	22×55	3.82
50(63)	12000	22×60	4.13
50(63)	13000	22×65	4.46
50(63)	14000	22×70	4.81
50(63)	4700	25×25	2.67
50(63)	6800	25×30	2.88
50(63)	8200	25×35	3.10
50(63)	10000	25×40	3.35
50(63)	11000	25×45	3.62
50(63)	13000	25×50	3.90
50(63)	14000	25×55	4.22
50(63)	16000	25×60	4.55
50(63)	18000	25×65	4.92
50(63)	19000	25×70	5.30
50(63)	9000	30×30	3.85
50(63)	11000	30×35	4.16
50(63)	14000	30×40	4.50
50(63)	16000	30×45	4.85
50(63)	19000	30×50	5.24
50(63)	22000	30×55	5.65
50(63)	24000	30×60	6.10
50(63)	26000	30×65	6.41
50(63)	29000	30×70	6.73
50(63)	30000	30×75	7.07
50(63)	33000	30×80	7.63
50(63)	36000	30×85	8.02
50(63)	39000	30×90	8.42
50(63)	40000	30×95	9.10
50(63)	44000	30×100	9.55
50(63)	16000	35×35	4.95
50(63)	20000	35×40	5.35
50(63)	23000	35×45	5.77
50(63)	26000	35×50	6.22
50(63)	30000	35×55	6.53
50(63)	33000	35×60	6.85
50(63)	37000	35×65	7.20
50(63)	40000	35×70	7.56
50(63)	44000	35×75	7.94
50(63)	47000	35×80	8.33
50(63)	50000	35×85	8.75
50(63)	53000	35×90	9.20
50(63)	56000	35×95	9.65
50(63)	60000	35×100	10.12
63(79)	2700	22×25	2.35
63(79)	3300	22×30	2.47
63(79)	3300	25×25	2.52
63(79)	4700	22×35	2.59
63(79)	4700	25×30	2.72
63(79)	5600	22×40	2.72
63(79)	6000	25×35	2.93
63(79)	6500	22×45	2.86
63(79)	6800	30×30	4.00
63(79)	7000	25×40	3.17
63(79)	7500	22×50	3.08
63(79)	8000	22×55	3.34
63(79)	8000	25×45	3.43
63(79)	9000	22×60	3.60
63(79)	9000	25×50	3.70
63(79)	9000	30×35	4.32
63(79)	10000	22×65	3.89
63(79)	10000	30×40	4.27
63(79)	11000	22×70	4.20
63(79)	11000	25×55	4.00
63(79)	12000	25×60	4.32
63(79)	12000	30×45	5.03
63(79)	12000	35×35	5.35
63(79)	13000	25×65	4.66
63(79)	14000	30×50	5.44
63(79)	15000	25×70	5.03
63(79)	15000	35×40	5.78
63(79)	16000	30×55	5.88
63(79)	17000	35×45	6.24
63(79)	18000	30×60	6.35
63(79)	20000	30×65	6.86
63(79)	20000	35×50	6.74
63(79)	22000	30×70	7.40
63(79)	22000	35×55	7.28
63(79)	24000	30×75	8.00
63(79)	25000	30×80	8.63
63(79)	25000	35×60	7.86
63(79)	27000	30×85	9.32
63(79)	28000	35×65	8.49
63(79)	29000	30×90	10.07
63(79)	30000	35×70	9.16
63(79)	31000	30×95	10.88
63(79)	33000	30×100	11.75
63(79)	33000	35×75	9.90
63(79)	36000	35×80	10.69
63(79)	38000	35×85	11.55
63(79)	40000	35×90	12.47
63(79)	43000	35×95	13.45
63(79)	46000	35×100	14.55
80(100)	1800	22×25	1.80
80(100)	2200	25×25	2.40
80(100)	2400	22×30	1.95
80(100)	3000	22×35	2.10
80(100)	3000	25×30	2.59
80(100)	3600	22×40	2.27
80(100)	4000	25×35	2.80
80(100)	4200	22×45	2.45
80(100)	4500	30×30	3.52
80(100)	4700	25×40	3.02
80(100)	4800	22×50	2.64
80(100)	5400	22×55	2.86
80(100)	5600	25×45	3.27
80(100)	5600	30×35	3.80
80(100)	6000	22×60	3.08
80(100)	6000	25×50	3.53
80(100)	6500	30×40	4.10
80(100)	6600	22×65	3.30
80(100)	7000	22×70	3.60
80(100)	7000	25×55	3.81
80(100)	8000	25×60	4.11
80(100)	8000	30×45	4.43
80(100)	8000	35×35	4.64
80(100)	8500	25×65	4.45
80(100)	9000	30×50	4.80
80(100)	9000	35×40	5.01
80(100)	9500	25×70	4.81
80(100)	10000	30×55	5.17
80(100)	10000	30×60	5.59
80(100)	10000	35×45	5.41
80(100)	12000	30×65	6.03

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Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
80(100)	13000	35×50	5.84
80(100)	14000	30×70	6.51
80(100)	14000	35×55	6.31
80(100)	15000	30×75	7.04
80(100)	15000	35×60	6.82
80(100)	16000	30×80	7.60
80(100)	17000	30×85	8.20
80(100)	17000	35×65	7.37
80(100)	18000	30×90	8.86
80(100)	18000	35×70	7.95
80(100)	19000	30×95	9.57
80(100)	20000	30×100	10.33
80(100)	20000	35×75	8.59
80(100)	22000	35×80	9.28
80(100)	23000	35×85	10.02
80(100)	25000	35×90	10.82
80(100)	27000	35×95	11.69
80(100)	28000	35×100	12.62
100(125)	1000	22×25	1.86
100(125)	1500	22×30	2.01
100(125)	1500	25×25	2.11
100(125)	1800	22×35	2.16
100(125)	2000	25×30	2.28
100(125)	2200	22×40	2.34
100(125)	2500	25×35	2.46
100(125)	2700	22×45	2.53
100(125)	3000	22×50	2.73
100(125)	3000	25×40	2.65
100(125)	3000	30×30	3.45
100(125)	3500	22×55	2.95
100(125)	3500	25×45	2.87
100(125)	3600	30×35	3.73
100(125)	3900	22×60	3.19
100(125)	4000	25×50	3.10
100(125)	4200	22×65	3.44
100(125)	4500	22×70	3.72
100(125)	4500	25×55	3.34
100(125)	4500	30×40	4.02
100(125)	5000	25×60	3.62
100(125)	5000	30×45	4.35
100(125)	5000	35×35	5.20
100(125)	5600	25×65	3.91
100(125)	5700	30×50	4.69

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
100(125)	6000	25×70	4.22
100(125)	6000	35×40	5.62
100(125)	6800	30×55	5.07
100(125)	7000	35×45	6.06
100(125)	7500	30×60	5.47
100(125)	8000	35×50	6.55
100(125)	8200	30×65	5.91
100(125)	9000	30×70	6.38
100(125)	9000	35×55	7.07
100(125)	10000	30×75	6.70
100(125)	10000	35×60	7.64
100(125)	10500	30×80	7.45
100(125)	11000	30×85	8.04
100(125)	11000	35×65	8.25
100(125)	12000	30×90	8.69
100(125)	12000	35×70	8.91
100(125)	13000	30×95	9.38
100(125)	13000	30×100	10.13
100(125)	13000	35×75	9.62
100(125)	14000	35×80	10.39
100(125)	16000	35×85	11.23
100(125)	17000	35×90	12.10
100(125)	18000	35×95	13.09
100(125)	19000	35×100	14.10
160(210)	200	22×70	3.26
160(210)	500	22×25	1.63
160(210)	560	25×25	1.86
160(210)	680	22×30	1.76
160(210)	820	22×35	1.90
160(210)	820	25×30	2.01
160(210)	1000	22×40	2.05
160(210)	1000	25×35	2.17
160(210)	1200	22×45	2.22
160(210)	1200	25×40	2.34
160(210)	1200	30×30	2.96
160(210)	1300	22×50	2.39
160(210)	1500	22×55	2.58
160(210)	1500	25×45	2.53
160(210)	1600	22×60	2.79
160(210)	1600	25×50	2.73
160(210)	1600	30×35	3.20
160(210)	1800	22×65	3.02
160(210)	1900	25×55	2.95

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
160(210)	1900	30×40	3.45
160(210)	2000	25×60	3.19
160(210)	2200	25×65	3.14
160(210)	2200	30×45	3.58
160(210)	2200	35×35	3.38
160(210)	2500	25×70	3.72
160(210)	2600	30×50	4.03
160(210)	2700	35×40	4.62
160(210)	2900	30×55	4.35
160(210)	3000	35×45	4.99
160(210)	3300	30×60	4.70
160(210)	3500	30×65	5.07
160(210)	3500	35×50	5.39
160(210)	3900	30×70	5.48
160(210)	4000	30×75	5.92
160(210)	4000	35×55	5.82
160(210)	4500	30×80	6.39
160(210)	4500	35×60	6.29
160(210)	4800	30×85	6.90
160(210)	5000	30×90	7.45
160(210)	5000	35×65	6.78
160(210)	5300	35×70	7.33
160(210)	5500	30×95	8.05
160(210)	5600	35×75	7.92
160(210)	5800	30×100	8.69
160(210)	6000	35×80	8.55
160(210)	6500	35×85	9.23
160(210)	7000	35×90	9.98
160(210)	7500	35×95	10.77
160(210)	8000	35×100	11.64
200(250)	330	22×25	1.51
200(250)	470	22×30	1.73
200(250)	470	25×25	1.95
200(250)	560	22×35	1.88
200(250)	560	25×30	2.15
200(250)	680	22×40	2.02
200(250)	680	25×35	2.36
200(250)	820	22×45	2.17
200(250)	820	30×30	2.75
200(250)	900	25×40	2.60
200(250)	1000	22×50	2.35
200(250)	1000	25×45	2.86
200(250)	1100	22×55	2.54

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Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
200(250)	1100	30×35	3.02
200(250)	1200	22×60	2.74
200(250)	1200	25×50	3.15
200(250)	1300	22×65	2.96
200(250)	1300	30×40	3.33
200(250)	1400	25×55	3.46
200(250)	1500	22×70	3.20
200(250)	1500	25×60	3.80
200(250)	1500	30×45	3.66
200(250)	1500	35×35	3.65
200(250)	1700	25×65	4.19
200(250)	1800	25×70	4.60
200(250)	1800	30×50	4.03
200(250)	1800	35×40	3.94
200(250)	2000	30×55	4.42
200(250)	2300	30×60	4.86
200(250)	2300	35×45	4.25
200(250)	2500	30×65	5.35
200(250)	2500	35×50	4.60
200(250)	2700	30×70	5.89
200(250)	3000	30×75	6.47
200(250)	3000	35×55	4.97
200(250)	3300	30×80	7.12
200(250)	3300	35×60	5.36
200(250)	3500	30×85	7.83
200(250)	3600	30×90	8.62
200(250)	3600	35×65	5.80
200(250)	3900	30×95	9.48
200(250)	3900	35×70	6.26
200(250)	4200	30×100	10.43
200(250)	4300	35×75	6.76
200(250)	4700	35×80	7.09
200(250)	5000	35×85	7.66
200(250)	5300	35×90	8.27
200(250)	5700	35×95	9.10
200(250)	6000	35×100	9.83
250(300)	270	22×25	1.35
250(300)	330	25×25	1.61
250(300)	390	22×30	1.51
250(300)	470	22×35	1.72
250(300)	470	25×30	1.77
250(300)	560	22×40	1.96
250(300)	600	25×35	2.15
250(300)	680	22×45	2.23
250(300)	680	25×40	2.40
250(300)	700	30×30	2.75
250(300)	820	22×50	2.55
250(300)	820	25×45	2.70
250(300)	820	30×35	3.03
250(300)	900	22×55	2.90
250(300)	900	25×50	3.02
250(300)	1000	22×60	3.31
250(300)	1000	25×55	3.38
250(300)	1000	30×40	3.33
250(300)	1100	22×65	3.78
250(300)	1100	25×60	3.79
250(300)	1100	35×35	3.48
250(300)	1200	22×70	4.30
250(300)	1200	30×45	3.59
250(300)	1300	25×65	4.24
250(300)	1400	25×70	4.75
250(300)	1400	30×50	4.02
250(300)	1400	35×40	3.84
250(300)	1600	30×55	4.50
250(300)	1600	35×45	4.28
250(300)	1800	30×60	4.95
250(300)	1800	35×50	4.54
250(300)	2000	30×65	5.45
250(300)	2100	30×70	5.99
250(300)	2100	35×55	4.90
250(300)	2200	30×75	6.59
250(300)	2200	35×60	5.49
250(300)	2500	30×80	7.25
250(300)	2700	30×85	7.97
250(300)	2700	35×65	5.92
250(300)	2700	35×70	6.40
250(300)	2800	30×90	8.77
250(300)	3000	30×95	9.64
250(300)	3000	35×75	6.92
250(300)	3200	30×100	10.42
250(300)	3300	35×80	7.47
250(300)	3600	35×85	7.91
250(300)	3900	35×90	8.39
250(300)	4000	35×95	8.90
250(300)	4300	35×100	9.34
400(450)	100	22×25	0.92
400(450)	120	22×25	0.98
400(450)	150	22×30	1.10
400(450)	150	25×25	1.18
400(450)	200	22×35	1.23
400(450)	220	22×40	1.37
400(450)	220	25×30	1.32
400(450)	300	22×45	1.54
400(450)	300	25×35	1.48
400(450)	330	22×50	1.72
400(450)	330	25×40	1.65
400(450)	330	30×30	1.88
400(450)	390	22×55	1.93
400(450)	400	22×60	2.17
400(450)	400	25×45	1.86
400(450)	400	30×35	2.10
400(450)	470	22×65	2.42
400(450)	470	25×50	2.08
400(450)	500	22×70	2.72
400(450)	500	30×40	2.36
400(450)	560	25×55	2.33
400(450)	560	35×35	2.50
400(450)	600	25×60	2.61
400(450)	600	30×45	2.64
400(450)	650	25×65	2.92
400(450)	700	25×70	3.27
400(450)	700	30×50	2.96
400(450)	700	35×40	2.70
400(450)	820	30×55	3.31
400(450)	820	35×45	2.92
400(450)	900	30×60	3.64
400(450)	950	35×50	3.15
400(450)	960	30×65	3.32
400(450)	1000	30×70	3.50
400(450)	1000	35×55	3.40
400(450)	1150	30×75	4.69
400(450)	1200	30×80	5.07
400(450)	1200	35×60	3.67
400(450)	1300	30×85	5.48
400(450)	1300	35×65	3.97
400(450)	1400	30×90	5.90
400(450)	1400	35×70	4.28
400(450)	1500	30×95	6.36
400(450)	1500	35×75	4.49

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Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
400(450)	1600	30×100	6.74
400(450)	1600	35×80	4.72
400(450)	1800	35×85	4.95
400(450)	1800	40×70	4.50
400(450)	1900	30×120	7.15
400(450)	1900	35×90	5.20
400(450)	2000	35×95	5.46
400(450)	2100	35×100	5.73
400(450)	2200	40×80	4.95
400(450)	2400	30×150	7.57
400(450)	2500	35×120	6.02
400(450)	2500	40×90	5.45
400(450)	2700	40×100	5.99
400(450)	3300	35×150	6.32
450(500)	100	22×25	0.86
450(500)	150	22×30	1.05
450(500)	150	25×25	1.10
450(500)	180	22×35	1.26
450(500)	200	25×30	1.25
450(500)	220	22×40	1.44
450(500)	270	22×45	1.62
450(500)	270	25×35	1.42
450(500)	300	22×50	1.86
450(500)	300	25×40	1.63
450(500)	300	30×30	2.05
450(500)	330	22×55	2.12
450(500)	390	22×60	2.42
450(500)	390	25×45	1.86
450(500)	390	30×35	2.26
450(500)	400	22×65	2.76
450(500)	400	25×50	2.12
450(500)	470	22×70	3.15
450(500)	470	25×55	2.41
450(500)	470	30×40	2.48
450(500)	470	35×35	2.40
450(500)	500	25×60	2.75
450(500)	560	25×65	3.13
450(500)	560	30×45	2.73
450(500)	600	25×70	3.57
450(500)	600	30×50	3.00
450(500)	600	35×40	2.59
450(500)	680	30×55	3.30
450(500)	700	35×45	2.80

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
450(500)	750	30×60	3.63
450(500)	820	30×65	3.99
450(500)	820	35×50	3.02
450(500)	900	30×70	4.39
450(500)	900	35×55	3.26
450(500)	1000	30×75	4.74
450(500)	1000	35×60	3.53
450(500)	1100	30×80	5.12
450(500)	1100	35×65	3.80
450(500)	1200	30×85	5.50
450(500)	1200	35×70	4.11
450(500)	1250	30×90	5.96
450(500)	1300	35×75	4.40
450(500)	1350	30×95	6.45
450(500)	1400	30×100	6.97
450(500)	1400	35×80	4.65
450(500)	1500	35×85	5.02
450(500)	1600	35×90	5.42
450(500)	1600	40×70	4.65
450(500)	1700	30×120	7.52
450(500)	1700	35×95	5.85
450(500)	1800	35×100	6.33
450(500)	1900	40×80	5.02
450(500)	2100	30×150	8.12
450(500)	2200	35×120	6.84
450(500)	2200	40×90	5.42
450(500)	2400	40×100	5.86
450(500)	2900	35×150	7.38
500(550)	82	22×25	0.75
500(550)	100	22×30	0.83
500(550)	120	22×35	0.91
500(550)	120	25×25	0.88
500(550)	150	25×30	0.97
500(550)	180	22×40	1.00
500(550)	200	22×45	1.10
500(550)	200	25×35	1.06
500(550)	220	22×50	1.22
500(550)	220	25×40	1.17
500(550)	220	30×30	1.20
500(550)	270	22×55	1.34
500(550)	270	25×45	1.29
500(550)	300	22×60	1.48
500(550)	300	30×35	1.32

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
500(550)	330	22×65	1.62
500(550)	330	22×70	1.79
500(550)	330	25×50	1.42
500(550)	330	25×55	1.56
500(550)	330	30×40	1.45
500(550)	390	35×35	1.60
500(550)	400	25×60	1.71
500(550)	470	25×65	1.88
500(550)	470	25×70	2.07
500(550)	470	30×45	1.60
500(550)	470	30×50	1.76
500(550)	470	35×40	1.76
500(550)	560	30×55	1.93
500(550)	560	35×45	1.94
500(550)	600	30×60	2.13
500(550)	600	35×50	2.13
500(550)	680	30×65	2.34
500(550)	680	35×55	2.34
500(550)	700	30×70	2.57
500(550)	800	30×75	2.82
500(550)	800	35×60	2.58
500(550)	820	30×80	3.11
500(550)	850	35×65	2.83
500(550)	900	30×85	3.42
500(550)	900	30×90	3.77
500(550)	900	35×70	3.12
500(550)	950	35×75	3.43
500(550)	1000	30×95	4.14
500(550)	1000	30×100	4.56
500(550)	1000	35×80	3.77
500(550)	1100	35×85	4.15
500(550)	1200	35×90	4.56
500(550)	1200	40×70	3.82
500(550)	1300	30×120	5.01
500(550)	1300	35×95	5.02
500(550)	1400	35×100	5.42
500(550)	1500	40×80	4.20
500(550)	1600	30×150	5.50
500(550)	1600	40×90	4.62
500(550)	1700	35×120	5.96
500(550)	1800	40×100	5.08
500(550)	2200	35×150	6.56
550(600)	56	22×25	1.34

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Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
550(600)	82	22×30	1.51
550(600)	82	25×25	1.55
550(600)	100	22×35	1.68
550(600)	100	25×30	1.70
550(600)	120	22×40	1.85
550(600)	120	25×35	1.88
550(600)	150	22×45	2.03
550(600)	150	25×40	2.06
550(600)	150	30×30	2.02
550(600)	180	22×50	2.24
550(600)	180	25×45	2.27
550(600)	180	30×35	2.22
550(600)	200	22×55	2.46
550(600)	220	22×60	2.70
550(600)	220	22×65	2.98
550(600)	220	25×50	2.50
550(600)	220	25×55	2.75
550(600)	220	30×40	2.44
550(600)	270	22×70	3.27
550(600)	270	25×60	3.02
550(600)	270	30×45	2.69
550(600)	270	35×35	1.82
550(600)	300	25×65	3.32
550(600)	300	30×50	2.95
550(600)	330	25×70	3.65
550(600)	330	30×55	3.25
550(600)	330	35×40	1.97
550(600)	400	30×60	3.58
550(600)	400	35×45	2.12
550(600)	430	30×65	3.94
550(600)	470	30×70	4.25
550(600)	470	35×50	2.30
550(600)	500	30×75	4.59
550(600)	500	35×55	2.48
550(600)	560	30×80	4.96
550(600)	560	35×60	2.68
550(600)	600	30×85	5.36
550(600)	600	30×90	5.78
550(600)	600	35×65	2.89
550(600)	680	30×95	6.06
550(600)	680	30×100	6.37
550(600)	680	35×70	3.13
550(600)	750	35×75	3.38

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
550(600)	820	30×120	6.69
550(600)	820	35×80	3.60
550(600)	820	35×85	3.88
550(600)	900	40×70	3.55
550(600)	950	35×90	4.07
550(600)	1000	30×150	7.02
550(600)	1000	35×95	4.28
550(600)	1000	35×100	4.49
550(600)	1000	40×80	3.72
550(600)	1200	35×120	4.72
550(600)	1200	40×90	3.91
550(600)	1300	40×100	4.10
550(600)	1500	35×150	4.95
600(650)	56	22×25	0.75
600(650)	68	22×30	0.83
600(650)	68	25×25	0.86
600(650)	82	22×35	0.91
600(650)	82	25×30	0.95
600(650)	100	22×40	1.00
600(650)	100	25×35	1.04
600(650)	120	22×45	1.10
600(650)	120	25×40	1.14
600(650)	120	30×30	1.05
600(650)	150	22×50	1.21
600(650)	150	25×45	1.26
600(650)	150	30×35	1.15
600(650)	160	22×55	1.32
600(650)	180	22×60	1.46
600(650)	180	25×50	1.38
600(650)	200	22×65	1.60
600(650)	200	25×55	1.52
600(650)	200	30×40	1.27
600(650)	220	22×70	1.76
600(650)	220	25×60	1.68
600(650)	220	30×45	1.40
600(650)	220	35×35	1.27
600(650)	250	25×65	1.84
600(650)	270	25×70	2.02
600(650)	270	30×50	1.54
600(650)	270	35×40	1.35
600(650)	300	30×55	1.69
600(650)	330	30×60	1.86
600(650)	330	35×45	1.46

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
600(650)	390	30×65	2.05
600(650)	390	30×70	2.25
600(650)	390	35×50	1.57
600(650)	420	30×75	2.40
600(650)	470	30×80	2.57
600(650)	470	35×55	1.70
600(650)	470	35×60	1.84
600(650)	500	30×85	2.70
600(650)	560	30×90	2.92
600(650)	560	30×95	3.10
600(650)	560	35×65	1.95
600(650)	600	30×100	3.32
600(650)	600	35×70	2.10
600(650)	600	35×75	2.20
600(650)	680	30×120	3.45
600(650)	680	35×80	2.38
600(650)	680	35×85	2.57
600(650)	800	40×70	2.52
600(650)	820	30×150	3.62
600(650)	820	35×90	2.70
600(650)	820	35×95	2.95
600(650)	900	35×100	3.20
600(650)	900	40×80	2.72
600(650)	1000	35×120	3.39
600(650)	1000	40×90	2.94
600(650)	1100	40×100	3.15
600(650)	1300	35×150	3.56
800(850)	56	25×30	0.61
800(850)	82	22×40	0.66
800(850)	100	25×40	0.80
800(850)	100	30×30	0.74
800(850)	120	25×50	0.88
800(850)	150	30×40	0.93
800(850)	180	30×50	0.96

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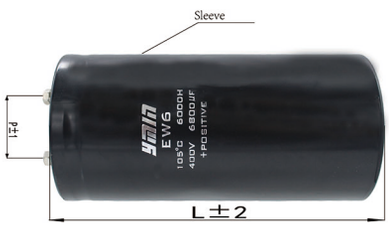


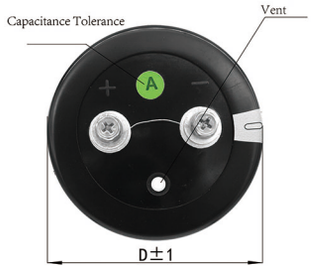
- ◆ 105° C, 3,000 hours
- ◆ Suitable for UPS power supplies and industrial control applications
- ◆ RoHS compliant

■ Main technical parameters

project	characteristic
Operating Temperature Range	−25 ~ +105℃
Rated Voltage Range	10 ~ 600V
Rated Capacitance Range	680 ~ 4720000μF (20℃ 120Hz)
Rated Capacitance Tolerance	±20%
Leakage Current (μA)	≦3$\sqrt{CV}$ The lesser of (C: nominal capacity; V: rated voltage) or 1.5 mA; 5-minute test at 20° C.
Maximum Loss (20° C)	0.15 (20℃ 120Hz)
Impedance Characteristics (120Hz)	200~450 C(-25℃)/C(+20℃)≧0.7 ; 500 C(-25℃)/C(+20℃)≧0.6
Insulation Resistance	The insulation resistance between all terminals and the insulating sleeves and mounting straps on the container sleeve was measured with a DC 500V insulation resistance meter and was ≥100MΩ.
Insulation Voltage	An AC 2000V voltage was applied to all terminals and the insulating sleeves and mounting straps on the container sleeve for 1 minute, and no abnormalities were observed.
Durability	Under conditions of 105℃ and above the rated voltage with superimposed rated ripple current, after continuous loading of the rated voltage for 3000 hours and then returning to 20℃, the following requirements should be met.
	Capacity change rate (ΔC) ≦ ±20% of the initial value
	Loss value (tg δ) ≦ 200% of the initial specification value
	Leakage current (LC) ≦ Initial specification value
High Temperature No-Load Characteristics	After being stored at 105℃ for 1000 hours and then restored to 20℃, the following requirements should be met during the test.
	Capacity change rate (ΔC) ≦ ±20% of the initial value
	Loss value (tg δ) ≦ 200% of the initial specification value
	Leakage current (LC) ≦ Initial specification value
	Voltage pretreatment is required before the test: Apply the rated voltage across the capacitor through a resistor of approximately 1000Ω and maintain it for 1 hour. After pretreatment, discharge the capacitor through a resistor of approximately 1Ω/V. After complete discharge, place the capacitor at room temperature for 24 hours before starting the test.

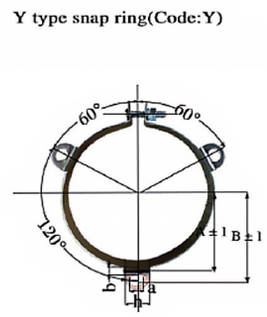
■ Product dimension drawing (unit: mm)



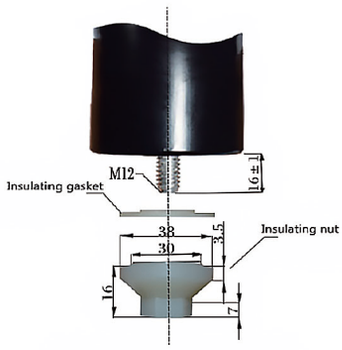


D(mm)	51	64	77	90	101
P(mm)	22	28.3	32	32	41
screw	M5	M5	M5	M6	M8
Terminal diameter(mm)	13	13	13	17	17
Torque(N.m)	2.2	2.2	2.2	3.5	7.5

■ Y-shaped clasp



■ Tail Post Assembly and Dimensions



Screw end pin is M12,max torque is 10N.m

diameter(mm)	A(mm)	B(mm)	a(mm)	b(mm)	h(mm)
51	31.8	36.5	7	4.5	14
64	38.1	42.5	7	4.5	14
77	44.5	49.2	7	4.5	14
90	50.8	55.6	7	4.5	14
101	56.5	63.4	7	4.5	14

■ Ripple current correction factor

Frequency compensation coefficient

Frequency	50Hz	120Hz	500Hz	1kHz	≧10kHz
Correction Factor	0.80	1.00	1.20	1.25	1.40

Temperature compensation coefficient

Temperature (° C)	40℃	60℃	85℃	105℃
Coefficient	2.70	2.20	1.70	1.00

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■ List of Reference Standards

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
10(13)	300000	51×75	19.6
10(13)	330000	51×80	19.7
10(13)	400000	51×90	21.4
10(13)	470000	51×100	21.5
10(13)	500000	51×105	22.2
10(13)	500000	64×75	22.2
10(13)	540000	51×110	22.8
10(13)	560000	64×80	23.6
10(13)	600000	51×120	23.7
10(13)	660000	77×75	23.9
10(13)	670000	51×130	25
10(13)	670000	64×90	25
10(13)	740000	77×80	26.5
10(13)	780000	64×100	26.8
10(13)	810000	51×150	27.2
10(13)	840000	64×105	27.5
10(13)	870000	51×160	28
10(13)	890000	77×90	28.5
10(13)	900000	64×110	29
10(13)	940000	51×170	29.5
10(13)	1000000	51×180	30
10(13)	1000000	64×120	30
10(13)	1030000	77×100	30.2
10(13)	1080000	51×190	30.8
10(13)	1100000	77×105	31.2
10(13)	1120000	64×130	31.3
10(13)	1180000	51×205	31.8
10(13)	1180000	77×110	31.8
10(13)	1280000	90×90	32.5
10(13)	1330000	77×120	32.7
10(13)	1350000	64×150	32.9
10(13)	1450000	64×160	33.2
10(13)	1480000	77×130	33.8
10(13)	1500000	90×100	34.2
10(13)	1570000	64×170	34.4
10(13)	1600000	90×105	34.5
10(13)	1680000	64×180	34.8
10(13)	1700000	90×110	35
10(13)	1780000	77×150	35.2
10(13)	1800000	64×190	35.6
10(13)	1890000	100×100	35.9
10(13)	1920000	90×120	36.2
10(13)	1930000	77×160	36.4
10(13)	1950000	64×205	36.6
10(13)	2020000	100×105	36.8
10(13)	2070000	77×170	37
10(13)	2130000	90×130	37.5
10(13)	2160000	100×110	37.8
10(13)	2220000	77×180	37.9
10(13)	2370000	77×190	38.2
10(13)	2430000	100×120	38.5
10(13)	2560000	90×150	38.8
10(13)	2600000	77×205	39.2
10(13)	2700000	100×130	39.5
10(13)	2770000	90×160	40.2
10(13)	3000000	90×170	40.8
10(13)	3200000	90×180	41.2
10(13)	3240000	100×150	41.5
10(13)	3420000	90×190	41.8
10(13)	3500000	100×160	42.3
10(13)	3740000	90×205	42.5
10(13)	3780000	100×170	43
10(13)	4050000	100×180	43.2
10(13)	4320000	100×190	43.8
10(13)	4720000	100×205	44.8
16(20)	170000	51×75	15.3
16(20)	180000	51×80	15.7
16(20)	220000	51×90	19.2
16(20)	260000	51×100	19.5
16(20)	280000	51×105	19.8
16(20)	280000	64×75	19.8
16(20)	300000	51×110	20.4
16(20)	310000	64×80	20.7
16(20)	340000	51×120	21.2
16(20)	370000	51×130	21.3
16(20)	370000	64×90	21.3
16(20)	370000	77×75	21.3
16(20)	400000	77×80	21.4
16(20)	440000	64×100	22.2
16(20)	450000	51×150	23.5
16(20)	470000	64×105	24.2
16(20)	490000	51×160	25
16(20)	500000	64×110	25.8
16(20)	500000	77×90	25.8
16(20)	530000	51×170	26.2
16(20)	560000	51×180	27.1
16(20)	560000	64×120	27.1
16(20)	580000	77×100	27.3
16(20)	600000	51×190	27.4
16(20)	620000	77×105	27.6
16(20)	630000	64×130	27.8
16(20)	660000	51×205	28
16(20)	660000	77×110	28
16(20)	720000	90×90	28.5
16(20)	750000	64×150	28.8
16(20)	750000	77×120	28.8
16(20)	820000	64×160	29.2
16(20)	830000	77×130	29.4
16(20)	840000	90×100	29.5
16(20)	880000	64×170	29.8
16(20)	890000	90×105	29.9
16(20)	940000	64×180	30.2
16(20)	950000	90×110	30.5
16(20)	1000000	64×190	30.8
16(20)	1000000	77×150	30.8
16(20)	1060000	100×100	31
16(20)	1080000	77×160	31.3
16(20)	1080000	90×120	31.3
16(20)	1100000	64×205	31.6
16(20)	1130000	100×105	31.8
16(20)	1160000	77×170	32
16(20)	1200000	100×110	32.3
16(20)	1200000	90×130	32.3
16(20)	1250000	77×180	32.5
16(20)	1330000	77×190	32.6
16(20)	1350000	100×120	32.7
16(20)	1440000	90×150	33
16(20)	1450000	77×205	33.2
16(20)	1500000	100×130	33.5
16(20)	1550000	90×160	34.2
16(20)	1670000	90×170	34.6
16(20)	1800000	100×150	35.3
16(20)	1800000	90×180	35.3
16(20)	1900000	90×190	36
16(20)	1950000	100×160	36.4
16(20)	2100000	100×170	38.8
16(20)	2100000	90×205	38.8
16(20)	2250000	100×180	39.5
16(20)	2400000	100×190	40.2

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■ List of Reference Standards

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
16(20)	2650000	100×205	40.9
25(31)	100000	51×75	14.8
25(31)	110000	51×80	14.9
25(31)	130000	51×90	15.1
25(31)	160000	51×100	15.8
25(31)	170000	51×105	16.5
25(31)	170000	64×75	16.5
25(31)	180000	51×110	17.9
25(31)	190000	64×80	18.6
25(31)	200000	51×120	19.8
25(31)	220000	77×75	21.3
25(31)	230000	51×130	21.5
25(31)	230000	64×90	21.5
25(31)	250000	77×80	21.6
25(31)	260000	64×100	21.7
25(31)	270000	51×150	21.8
25(31)	280000	64×105	21.9
25(31)	300000	51×160	22.4
25(31)	300000	64×110	22.4
25(31)	300000	77×90	22.4
25(31)	320000	51×170	22.8
25(31)	340000	51×180	23.2
25(31)	340000	64×120	23
25(31)	350000	77×100	23.5
25(31)	360000	51×190	23.7
25(31)	370000	77×105	23.9
25(31)	380000	64×130	24
25(31)	390000	51×205	24.2
25(31)	390000	77×110	24
25(31)	430000	90×90	24.5
25(31)	450000	77×120	24.8
25(31)	460000	64×150	25
25(31)	500000	64×160	25.6
25(31)	500000	77×130	25.6
25(31)	510000	90×100	25.8
25(31)	530000	64×170	25.8
25(31)	540000	90×105	26
25(31)	570000	64×180	26.2
25(31)	580000	90×110	26.4
25(31)	600000	77×150	26.8
25(31)	610000	64×190	27
25(31)	640000	100×100	27.3
25(31)	650000	77×160	27.8
25(31)	650000	90×120	27.8
25(31)	670000	64×205	28.2
25(31)	680000	100×105	28.3
25(31)	700000	77×170	29
25(31)	720000	90×130	29.2
25(31)	730000	100×110	29.5
25(31)	750000	77×180	29.8
25(31)	810000	77×190	30.2
25(31)	820000	100×120	30.7
25(31)	870000	90×150	31.2
25(31)	880000	77×205	31.5
25(31)	920000	100×130	32
25(31)	940000	90×160	32.3
25(31)	1020000	90×170	33.5
25(31)	1100000	100×150	34
25(31)	1100000	90×180	34
25(31)	1160000	90×190	34.5
25(31)	1200000	100×160	35
25(31)	1270000	90×205	35.6
25(31)	1280000	100×170	36.5
25(31)	1380000	100×180	37.8
25(31)	1470000	100×190	38.5
25(31)	1600000	100×205	39.4
35(44)	70000	51×75	13.9
35(44)	80000	51×80	14.7
35(44)	90000	51×90	15.6
35(44)	110000	51×100	16.2
35(44)	120000	51×105	17.6
35(44)	120000	64×75	17.6
35(44)	130000	51×110	18.7
35(44)	130000	64×80	18.7
35(44)	140000	51×120	19.5
35(44)	160000	51×130	20.2
35(44)	160000	64×90	20.2
35(44)	160000	77×75	20.2
35(44)	180000	77×80	20.5
35(44)	190000	51×150	20.5
35(44)	190000	64×100	20.9
35(44)	200000	64×105	21.9
35(44)	210000	51×160	22.8
35(44)	210000	64×110	22.8
35(44)	210000	77×90	22.8
35(44)	220000	51×170	23.4
35(44)	240000	51×180	24
35(44)	240000	64×120	24
35(44)	250000	77×100	24.6
35(44)	260000	51×190	24.9
35(44)	260000	77×105	24.9
35(44)	270000	64×130	25.5
35(44)	280000	51×205	26.1
35(44)	280000	77×110	26.1
35(44)	310000	90×90	27
35(44)	320000	64×150	27.5
35(44)	320000	77×120	27.5
35(44)	350000	64×160	28.2
35(44)	350000	77×130	28.2
35(44)	360000	90×100	29
35(44)	380000	64×170	29.8
35(44)	380000	90×105	29.8
35(44)	400000	64×180	30.2
35(44)	410000	90×110	30.8
35(44)	430000	64×190	31.2
35(44)	430000	77×150	31.2
35(44)	450000	100×100	31.9
35(44)	470000	64×205	32.5
35(44)	470000	77×160	32.5
35(44)	470000	90×120	32.5
35(44)	490000	100×105	33.1
35(44)	500000	77×170	33.5
35(44)	510000	90×130	33.9
35(44)	520000	100×110	34.5
35(44)	530000	77×180	35.3
35(44)	570000	77×190	35.8
35(44)	580000	100×120	36.2
35(44)	620000	77×205	36.4
35(44)	620000	90×150	36.4
35(44)	650000	100×130	36.8
35(44)	670000	90×160	37.2
35(44)	720000	90×170	37.4
35(44)	770000	90×180	37.8
35(44)	780000	100×150	38.2
35(44)	820000	90×190	38.6
35(44)	850000	100×160	38.8
35(44)	900000	100×170	39
35(44)	900000	90×205	39
35(44)	980000	100×180	39.5

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■List of Reference Standards

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
35(44)	1050000	100×190	40.2
35(44)	1150000	100×205	40.6
50(63)	47000	51×75	13.9
50(63)	50000	51×80	14
50(63)	60000	51×90	14.2
50(63)	70000	51×100	16.9
50(63)	70000	64×75	16.9
50(63)	75000	51×105	17.4
50(63)	80000	51×110	18.6
50(63)	80000	64×80	18.6
50(63)	90000	51×120	19
50(63)	100000	51×130	19.5
50(63)	100000	64×90	19.5
50(63)	100000	77×75	19.5
50(63)	110000	64×100	19.8
50(63)	110000	77×80	19.8
50(63)	120000	51×150	20.1
50(63)	120000	64×105	20.1
50(63)	130000	51×160	21.3
50(63)	130000	64×110	21.3
50(63)	130000	77×90	21.3
50(63)	140000	51×170	22.5
50(63)	150000	51×180	23.9
50(63)	150000	64×120	23.9
50(63)	150000	77×100	23.9
50(63)	160000	51×190	24.3
50(63)	160000	77×105	24.3
50(63)	170000	64×130	24.8
50(63)	180000	51×205	25.8
50(63)	180000	77×110	25.8
50(63)	180000	90×90	25.8
50(63)	200000	64×150	26.7
50(63)	200000	77×120	26.7
50(63)	220000	64×160	27.1
50(63)	220000	77×130	27.1
50(63)	220000	90×100	27.1
50(63)	230000	64×170	28
50(63)	240000	90×105	28.6
50(63)	250000	64×180	29.2
50(63)	250000	90×110	29.2
50(63)	270000	64×190	30.1
50(63)	270000	77×150	30.1
50(63)	280000	100×100	30.8
50(63)	290000	64×205	31.2
50(63)	290000	77×160	31.2
50(63)	290000	90×120	31.2
50(63)	300000	100×105	31.6
50(63)	310000	77×170	32.2
50(63)	320000	100×110	32.5
50(63)	320000	90×130	32.5
50(63)	330000	77×180	33.1
50(63)	350000	77×190	33.1
50(63)	360000	100×120	33.6
50(63)	390000	77×205	34
50(63)	390000	90×150	34
50(63)	400000	100×130	34.5
50(63)	410000	90×160	35
50(63)	450000	90×170	35.1
50(63)	480000	100×150	35.8
50(63)	480000	90×180	35.8
50(63)	510000	90×190	36.5
50(63)	520000	100×160	36.9
50(63)	560000	100×170	37.8
50(63)	560000	90×205	37.8
50(63)	610000	100×180	38.5
50(63)	650000	100×190	39
50(63)	710000	100×205	39.4
63(79)	27000	51×75	10.9
63(79)	30000	51×80	11.8
63(79)	35000	51×90	12.9
63(79)	45000	51×100	14.2
63(79)	47000	51×105	14.9
63(79)	47000	64×75	14.9
63(79)	50000	51×110	15.2
63(79)	50000	64×80	15.8
63(79)	56000	51×120	16.3
63(79)	60000	64×90	17.1
63(79)	60000	77×75	17.1
63(79)	62000	51×130	17.8
63(79)	70000	64×100	18.9
63(79)	70000	77×80	18.9
63(79)	75000	51×150	19.2
63(79)	80000	64×105	19.6
63(79)	80000	64×110	19.6
63(79)	80000	77×90	19.6
63(79)	82000	51×160	20
63(79)	85000	51×170	20.3
63(79)	90000	64×120	20.4
63(79)	95000	51×180	20.6
63(79)	100000	51×190	20.8
63(79)	100000	64×130	20.8
63(79)	100000	77×100	20.8
63(79)	105000	77×105	21.2
63(79)	110000	51×205	21.4
63(79)	110000	77×110	21.4
63(79)	120000	64×150	21.8
63(79)	120000	77×120	21.8
63(79)	120000	90×90	21.8
63(79)	130000	64×160	22.1
63(79)	140000	64×170	22.6
63(79)	140000	77×130	22.6
63(79)	140000	90×100	22.6
63(79)	150000	90×105	22.9
63(79)	160000	64×180	23.2
63(79)	160000	77×150	23.2
63(79)	160000	90×110	23.2
63(79)	170000	100×100	23.8
63(79)	170000	64×190	23.8
63(79)	180000	64×205	24.1
63(79)	180000	77×160	24.1
63(79)	180000	90×120	24.1
63(79)	190000	100×105	24.6
63(79)	200000	100×110	25.2
63(79)	200000	77×170	25.2
63(79)	200000	90×130	25.2
63(79)	210000	77×180	25.7
63(79)	220000	100×120	26.2
63(79)	220000	77×190	26.2
63(79)	240000	77×205	27.1
63(79)	240000	90×150	27.1
63(79)	250000	100×130	27.8
63(79)	260000	90×160	28.8
63(79)	280000	90×170	29.7
63(79)	300000	100×150	30.5
63(79)	300000	90×180	30.5
63(79)	320000	90×190	31.2
63(79)	330000	100×160	31.8
63(79)	350000	100×170	32.5
63(79)	350000	90×205	32.5

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Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
63(79)	380000	100×180	33.2
63(79)	400000	100×190	34.8
63(79)	440000	100×205	35.7
80(100)	18000	51×75	9.9
80(100)	22000	51×80	11
80(100)	25000	51×90	11.3
80(100)	28000	64×75	11.9
80(100)	29000	51×100	12.5
80(100)	30000	51×105	13.2
80(100)	30000	64×80	13.2
80(100)	33000	51×110	13.9
80(100)	36000	51×120	14.5
80(100)	36000	64×90	14.5
80(100)	42000	51×130	15.1
80(100)	42000	77×75	15.1
80(100)	44000	64×100	15.7
80(100)	47000	64×105	16.5
80(100)	47000	77×80	16.5
80(100)	50000	51×150	17.3
80(100)	51000	64×110	17.6
80(100)	54000	51×160	17.8
80(100)	56000	51×170	18.1
80(100)	56000	64×120	18.1
80(100)	56000	77×90	18.1
80(100)	62000	51×180	18.5
80(100)	62000	64×130	18.5
80(100)	66000	51×190	19
80(100)	66000	77×100	19.5
80(100)	70000	77×105	20
80(100)	72000	51×205	20.8
80(100)	76000	64×150	21.2
80(100)	76000	77×110	21.2
80(100)	82000	64×160	22.1
80(100)	82000	90×90	22.1
80(100)	85000	77×120	22.5
80(100)	90000	64×170	23
80(100)	95000	64×180	23.5
80(100)	95000	77×130	23.5
80(100)	95000	90×100	23.5
80(100)	100000	64×190	24.8
80(100)	100000	90×105	24.8
80(100)	110000	64×205	25.3
80(100)	110000	77×150	25.3

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
80(100)	110000	90×110	25.3
80(100)	115000	100×100	26
80(100)	120000	77×160	26.5
80(100)	120000	90×120	26.5
80(100)	125000	100×105	27
80(100)	130000	100×110	27.6
80(100)	130000	77×170	27.6
80(100)	130000	90×130	27.6
80(100)	140000	77×180	28.1
80(100)	150000	100×120	28.6
80(100)	150000	77×190	28.6
80(100)	160000	100×130	29
80(100)	160000	77×205	29
80(100)	160000	90×150	29
80(100)	170000	90×160	29.5
80(100)	190000	90×170	29.9
80(100)	200000	100×150	30.5
80(100)	200000	90×180	30.5
80(100)	210000	100×160	31.2
80(100)	210000	90×190	31.2
80(100)	230000	100×170	32.8
80(100)	240000	90×205	33.5
80(100)	250000	100×180	33.9
80(100)	260000	100×190	34.5
80(100)	290000	100×205	35.6
100(125)	12000	51×75	9.3
100(125)	13000	51×80	9.8
100(125)	15000	51×90	10.4
100(125)	18000	51×100	10.8
100(125)	18000	64×75	10.8
100(125)	20000	51×105	11.5
100(125)	21000	64×80	11.9
100(125)	22000	51×110	12.5
100(125)	24000	51×120	12.8
100(125)	25000	64×90	13.2
100(125)	27000	51×130	13.7
100(125)	28000	77×75	14
100(125)	29000	64×100	14.2
100(125)	30000	64×105	14.4
100(125)	31000	77×80	14.8
100(125)	33000	51×150	15.2
100(125)	33000	64×110	15.2
100(125)	35000	51×160	15.5

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
100(125)	36000	77×90	15.7
100(125)	37000	64×120	16.2
100(125)	39000	51×170	16.5
100(125)	41000	51×180	16.9
100(125)	42000	64×130	17.4
100(125)	43000	77×100	17.9
100(125)	44000	51×190	18.5
100(125)	47000	77×105	19.3
100(125)	48000	51×205	19.7
100(125)	50000	64×150	20
100(125)	50000	77×110	20
100(125)	54000	64×160	20.6
100(125)	54000	90×90	20.6
100(125)	56000	77×120	21.1
100(125)	58000	64×170	21.4
100(125)	62000	77×130	21.8
100(125)	63000	64×180	22
100(125)	63000	90×100	22
100(125)	67000	64×190	22.5
100(125)	67000	90×105	22.5
100(125)	72000	90×110	22.9
100(125)	73000	64×205	23.2
100(125)	75000	77×150	23.5
100(125)	77000	100×100	23.9
100(125)	80000	90×120	24.5
100(125)	82000	100×105	24.9
100(125)	82000	77×160	24.9
100(125)	87000	77×170	25.5
100(125)	88000	100×110	25.8
100(125)	90000	90×130	26.2
100(125)	92000	77×180	26.5
100(125)	100000	100×120	27
100(125)	100000	77×190	27
100(125)	100000	90×150	27
100(125)	110000	100×130	28.4
100(125)	110000	77×205	28.4
100(125)	110000	90×160	28.4
100(125)	120000	90×170	28.9
100(125)	130000	100×150	29.5
100(125)	130000	90×180	29.5
100(125)	140000	100×160	30.5
100(125)	140000	90×190	30.5
100(125)	150000	100×170	31.2

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Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
100(125)	150000	90×205	31.2
100(125)	160000	100×180	31.8
100(125)	170000	100×190	32.5
100(125)	190000	100×205	33.6
160(210)	5600	51×75	5.1
160(210)	6500	51×80	5.8
160(210)	7800	51×90	6.7
160(210)	9000	51×100	7.2
160(210)	9000	64×75	7.2
160(210)	9800	51×105	7.8
160(210)	10000	51×110	8.4
160(210)	10000	64×80	8.4
160(210)	11000	51×120	8.8
160(210)	12000	64×90	9.4
160(210)	13000	51×130	10.1
160(210)	13000	77×75	10.1
160(210)	14000	64×100	10.8
160(210)	15000	51×150	11.4
160(210)	15000	64×105	11.4
160(210)	15000	77×80	11.4
160(210)	16000	64×110	11.9
160(210)	17000	51×160	12.6
160(210)	18000	51×170	13.4
160(210)	18000	64×120	13.4
160(210)	18000	77×90	13.4
160(210)	19000	51×180	13.7
160(210)	20000	64×130	14
160(210)	20000	77×100	14
160(210)	21000	51×190	14.2
160(210)	22000	77×105	14.5
160(210)	23000	51×205	14.8
160(210)	23000	77×110	14.8
160(210)	24000	64×150	15
160(210)	25000	90×90	15.3
160(210)	26000	64×160	15.7
160(210)	27000	64×170	16
160(210)	27000	77×120	16
160(210)	29000	77×130	16.3
160(210)	30000	64×180	16.8
160(210)	30000	90×100	16.8
160(210)	32000	64×190	17.1
160(210)	32000	90×105	17.1
160(210)	34000	90×110	17.5
160(210)	35000	100×100	17.9
160(210)	35000	64×205	17.9
160(210)	35000	77×150	17.9
160(210)	38000	100×105	18.3
160(210)	38000	77×160	18.3
160(210)	38000	90×120	18.3
160(210)	41000	77×170	19
160(210)	42000	100×110	19.2
160(210)	43000	90×130	19.5
160(210)	44000	77×180	19.8
160(210)	47000	100×120	20.1
160(210)	47000	77×190	20.1
160(210)	51000	90×150	20.5
160(210)	52000	100×130	20.8
160(210)	52000	77×205	20.8
160(210)	55000	90×160	21.5
160(210)	60000	90×170	22.2
160(210)	63000	100×150	22.5
160(210)	64000	90×180	22.8
160(210)	68000	100×160	23.5
160(210)	68000	90×190	23.5
160(210)	72000	100×170	24.2
160(210)	75000	90×205	24.8
160(210)	78000	100×180	25.2
160(210)	84000	100×190	26
160(210)	92000	100×205	26.5
200(250)	4700	51×75	4.5
200(250)	5000	51×80	4.9
200(250)	6000	51×90	5.4
200(250)	6800	64×75	6
200(250)	7000	51×100	6.3
200(250)	7500	51×105	6.6
200(250)	7500	64×80	6.6
200(250)	8000	51×110	7.1
200(250)	9000	51×120	7.5
200(250)	9000	64×90	7.5
200(250)	10000	51×130	8.1
200(250)	10000	64×100	8.1
200(250)	10000	77×75	8.1
200(250)	11000	64×105	8.6
200(250)	11000	77×80	8.6
200(250)	12000	51×150	9.2
200(250)	12000	64×110	9.2
200(250)	13000	51×160	9.8
200(250)	13000	77×90	9.8
200(250)	14000	51×170	10.4
200(250)	14000	64×120	10.4
200(250)	15000	51×180	11
200(250)	15000	64×130	11
200(250)	16000	51×190	12.5
200(250)	16000	77×100	12.5
200(250)	17000	77×105	12.8
200(250)	18000	51×205	13.2
200(250)	18000	64×150	13.2
200(250)	18000	77×110	13.2
200(250)	20000	64×160	13.6
200(250)	20000	77×120	13.6
200(250)	20000	90×90	13.6
200(250)	22000	64×170	14
200(250)	22000	64×180	14
200(250)	22000	77×130	14
200(250)	22000	90×100	14
200(250)	24000	64×190	14.5
200(250)	25000	90×105	14.7
200(250)	27000	100×100	15
200(250)	27000	64×205	15
200(250)	27000	77×150	15
200(250)	27000	90×110	15
200(250)	30000	100×105	16.25
200(250)	30000	77×160	16.25
200(250)	30000	90×120	16.25
200(250)	33000	100×110	16.25
200(250)	33000	77×170	16.25
200(250)	33000	90×130	16.25
200(250)	34000	77×180	16.85
200(250)	35000	100×120	17.35
200(250)	36000	77×190	17.62
200(250)	40000	100×130	18.4
200(250)	40000	77×205	18.4
200(250)	40000	90×150	18.4
200(250)	42000	90×160	19
200(250)	46000	90×170	19.2
200(250)	48000	100×150	19.7
200(250)	50000	90×180	20.5
200(250)	52000	100×160	21.1
200(250)	52000	90×190	21.7

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Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
200(250)	56000	100×170	22.5
200(250)	58000	90×205	23
200(250)	60000	100×180	23.4
200(250)	65000	100×190	23.8
200(250)	70000	100×205	24.5
250(300)	3600	51×75	3.35
250(300)	4000	51×80	3.68
250(300)	4700	51×90	5
250(300)	5600	51×100	5.5
250(300)	5600	64×75	5.5
250(300)	6000	51×105	6.2
250(300)	6200	64×80	6.5
250(300)	6500	51×110	6.8
250(300)	7000	64×90	7.1
250(300)	7200	51×120	7.3
250(300)	8200	51×130	7.6
250(300)	8200	77×75	7.6
250(300)	8600	64×100	8.1
250(300)	9000	64×105	8.3
250(300)	9000	77×80	8.3
250(300)	9600	51×150	8.4
250(300)	10000	51×160	8.5
250(300)	10000	64×110	8.5
250(300)	11000	51×170	9.1
250(300)	11000	64×120	9.1
250(300)	11000	77×90	9.1
250(300)	12000	51×180	9.5
250(300)	12000	64×130	9.5
250(300)	12000	77×100	9.5
250(300)	13000	51×190	10.1
250(300)	13000	77×105	10.1
250(300)	14000	51×205	11.0
250(300)	14000	77×110	11.0
250(300)	15000	64×150	12
250(300)	15000	90×90	12
250(300)	16000	64×160	12.4
250(300)	16000	77×120	12.4
250(300)	17000	64×170	12.6
250(300)	18000	64×180	12.8
250(300)	18000	77×130	12.8
250(300)	18000	90×100	12.8
250(300)	19000	64×190	13.1
250(300)	20000	90×105	13.4

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
250(300)	21000	64×205	13.7
250(300)	21000	90×110	13.7
250(300)	22000	100×100	14
250(300)	22000	77×150	14
250(300)	23000	90×120	14.2
250(300)	24000	100×105	14.4
250(300)	24000	77×160	14.4
250(300)	26000	100×110	14.6
250(300)	26000	77×170	14.6
250(300)	26000	90×130	14.6
250(300)	27000	77×180	15
250(300)	29000	100×120	15.4
250(300)	30000	77×190	15.8
250(300)	31000	90×150	16.3
250(300)	32000	100×130	16.9
250(300)	32000	77×205	16.9
250(300)	33000	90×160	17.2
250(300)	37000	90×170	17.4
250(300)	39000	100×150	17.7
250(300)	39000	90×180	17.7
250(300)	42000	100×160	18.3
250(300)	42000	90×190	18.3
250(300)	45000	100×170	18.5
250(300)	46000	90×205	18.8
250(300)	48000	100×180	19.1
250(300)	52000	100×190	19.5
250(300)	56000	100×205	20
300(350)	2700	51×75	3.2
300(350)	3000	51×80	3.5
300(350)	3600	51×90	3.6
300(350)	4000	64×75	4
300(350)	4200	51×100	4.2
300(350)	4500	51×105	4.5
300(350)	4500	64×80	4.5
300(350)	4700	51×110	4.9
300(350)	4800	51×160	5
300(350)	5000	51×120	5.3
300(350)	5500	64×90	5.6
300(350)	6000	51×130	6.1
300(350)	6000	77×75	6.1
300(350)	6500	64×100	6.8
300(350)	6800	64×105	7.5
300(350)	6800	77×80	7.5

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
300(350)	7000	51×150	7.9
300(350)	7200	64×110	8.3
300(350)	8200	51×170	9.1
300(350)	8200	64×120	9.1
300(350)	8200	77×90	9.1
300(350)	9000	51×180	9.6
300(350)	9000	77×100	9.6
300(350)	9200	64×130	10
300(350)	9500	51×190	10.2
300(350)	10000	51×205	11.2
300(350)	10000	64×150	11.2
300(350)	10000	77×105	11.2
300(350)	11000	64×160	11.6
300(350)	11000	77×110	11.6
300(350)	11000	90×90	11.6
300(350)	12000	64×170	12.3
300(350)	12000	77×120	12.3
300(350)	13000	64×180	13
300(350)	13000	77×130	13
300(350)	13000	90×100	13
300(350)	14000	64×190	13.8
300(350)	14000	90×105	13.8
300(350)	15000	90×110	14.5
300(350)	16000	100×100	15.2
300(350)	16000	64×205	15.2
300(350)	16000	77×150	15.2
300(350)	17000	77×160	15.8
300(350)	17000	90×120	15.8
300(350)	18000	100×105	16.3
300(350)	19000	100×110	16.8
300(350)	19000	77×170	16.8
300(350)	20000	77×180	17.2
300(350)	20000	90×130	17.2
300(350)	22000	100×120	17.5
300(350)	22000	77×190	17.5
300(350)	22000	90×150	17.5
300(350)	24000	100×130	18
300(350)	24000	77×205	18
300(350)	25000	90×160	18.2
300(350)	27000	90×170	18.6
300(350)	29000	100×150	18.8
300(350)	30000	100×160	19
300(350)	30000	90×180	19

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■ List of Reference Standards

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
300(350)	31000	90×190	19.2
300(350)	33000	100×170	19.4
300(350)	33000	90×205	19.4
300(350)	36000	100×180	19.8
300(350)	38000	100×190	20.2
300(350)	42000	100×205	20.6
350(400)	2000	51×75	3.1
350(400)	2200	51×80	3.3
350(400)	2700	51×90	4
350(400)	3000	51×100	4.3
350(400)	3000	64×75	4.3
350(400)	3300	51×105	4.5
350(400)	3300	64×80	4.5
350(400)	3600	51×110	4.8
350(400)	4000	51×120	5.1
350(400)	4000	64×90	5.1
350(400)	4500	51×130	5.3
350(400)	4700	64×100	5.5
350(400)	4700	77×75	5.5
350(400)	5000	64×105	5.7
350(400)	5000	77×80	5.7
350(400)	5400	51×150	5.8
350(400)	5500	64×110	5.9
350(400)	5600	51×160	6.1
350(400)	6000	77×90	6.3
350(400)	6200	51×170	6.7
350(400)	6200	64×120	6.7
350(400)	6800	51×180	7.2
350(400)	6800	64×130	7.2
350(400)	7000	77×100	7.5
350(400)	7200	51×190	7.5
350(400)	7500	77×105	7.7
350(400)	7900	51×205	7.8
350(400)	8000	77×110	7.9
350(400)	8200	64×150	8
350(400)	8800	90×90	8.5
350(400)	9000	64×160	8.7
350(400)	9000	77×120	8.7
350(400)	9500	64×170	8.9
350(400)	10000	64×180	9
350(400)	10000	77×130	9
350(400)	10000	90×100	9
350(400)	11000	64×190	9.5
350(400)	11000	90×105	9.5
350(400)	12000	100×100	10
350(400)	12000	64×205	10
350(400)	12000	77×150	10
350(400)	12000	90×110	10
350(400)	13000	100×105	10.8
350(400)	13000	77×160	10.8
350(400)	13000	90×120	10.8
350(400)	14000	100×110	11.6
350(400)	14000	77×170	11.6
350(400)	15000	77×180	12.6
350(400)	15000	90×130	12.6
350(400)	16000	100×120	13.5
350(400)	16000	77×190	13.5
350(400)	18000	100×130	14.1
350(400)	18000	77×205	14.1
350(400)	18000	90×150	14.1
350(400)	19000	90×160	14.4
350(400)	20000	90×170	14.7
350(400)	21000	100×150	15
350(400)	22000	90×180	15.3
350(400)	23000	100×160	15.3
350(400)	23000	90×190	15.3
350(400)	25000	100×170	16.4
350(400)	25000	90×205	16.4
350(400)	27000	100×180	16.7
350(400)	28000	100×190	17
350(400)	30000	100×205	17.2
400(450)	1600	51×75	3.6
400(450)	1800	51×80	4
400(450)	2200	51×90	4.5
400(450)	2500	51×100	5
400(450)	2700	51×105	5.3
400(450)	2700	64×75	5.3
400(450)	3000	51×110	5.8
400(450)	3300	51×120	6.2
400(450)	3300	64×80	6.5
400(450)	3600	51×130	6.8
400(450)	3900	64×90	7.4
400(450)	4000	77×75	7.7
400(450)	4500	51×150	7.9
400(450)	4500	77×80	7.9
400(450)	4700	51×160	8.4
400(450)	4700	64×100	8.4
400(450)	4700	64×105	8.4
400(450)	5000	51×170	9
400(450)	5000	64×110	9
400(450)	5000	77×90	9
400(450)	5600	51×180	9.6
400(450)	6000	51×190	10
400(450)	6000	64×120	10
400(450)	6200	77×100	10.8
400(450)	6500	51×205	10.4
400(450)	6500	64×130	10.6
400(450)	6800	77×105	10.8
400(450)	7000	77×110	11.3
400(450)	7000	90×90	11.3
400(450)	8000	64×150	11.8
400(450)	8000	77×120	11.8
400(450)	8000	90×100	11.8
400(450)	8500	64×160	12.3
400(450)	9000	64×170	12.9
400(450)	9000	77×130	12.9
400(450)	9000	90×105	12.9
400(450)	9500	64×180	13.5
400(450)	9500	90×110	13.5
400(450)	10000	100×100	14
400(450)	10000	64×190	14
400(450)	10000	77×150	14
400(450)	10000	90×120	14
400(450)	11000	100×105	14.5
400(450)	11000	77×160	14.5
400(450)	11500	64×205	15
400(450)	12000	100×110	15.5
400(450)	12000	77×170	15.5
400(450)	12000	90×130	15.5
400(450)	13000	100×120	15.9
400(450)	13000	77×180	15.9
400(450)	14000	77×190	16.7
400(450)	14000	90×150	16.7
400(450)	15000	100×130	17.5
400(450)	15000	77×205	17.5
400(450)	15000	90×160	17.5
400(450)	16000	90×170	17.8
400(450)	18000	100×150	18.2
400(450)	18000	90×180	18.2

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■ List of Reference Standards

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
400(450)	19000	100×160	18.5
400(450)	19000	90×190	18.5
400(450)	21000	100×170	19
400(450)	21000	90×205	19
400(450)	22000	100×180	19.2
400(450)	24000	100×190	19.5
400(450)	26000	100×205	19.7
450(500)	1200	51×75	3
450(500)	1500	51×80	3.6
450(500)	1800	51×90	4.1
450(500)	2200	51×100	4.5
450(500)	2200	64×75	4.5
450(500)	2200	51×105	4.7
450(500)	2500	51×110	4.8
450(500)	2700	64×80	5
450(500)	2800	51×120	5.3
450(500)	3000	51×130	5.7
450(500)	3300	64×90	6
450(500)	3300	77×75	6
450(500)	3500	77×80	6.3
450(500)	3600	51×150	6.6
450(500)	3600	64×100	6.6
450(500)	3900	64×105	7
450(500)	4000	51×160	7.4
450(500)	4000	77×90	7.4
450(500)	4200	51×170	7.9
450(500)	4200	64×110	7.9
450(500)	4700	51×180	8.4
450(500)	4700	64×120	8.4
450(500)	5000	51×190	8.8
450(500)	5000	77×100	8.8
450(500)	5400	51×205	9
450(500)	5500	64×130	9.2
450(500)	5500	77×105	9.2
450(500)	5600	90×90	9.5
450(500)	5800	77×110	9.7
450(500)	6500	64×150	9.9
450(500)	6500	77×120	9.9
450(500)	6800	90×100	10.2
450(500)	7000	64×160	10.5
450(500)	7000	77×130	10.5
450(500)	7000	90×105	10.5
450(500)	7500	64×170	10.8

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
450(500)	7500	90×110	10.8
450(500)	8000	64×180	11.1
450(500)	8500	64×190	11.4
450(500)	8500	77×150	11.4
450(500)	8500	90×120	11.4
450(500)	8600	100×100	11.7
450(500)	9000	100×105	12.1
450(500)	9000	64×205	12.1
450(500)	9500	77×160	12.5
450(500)	9500	90×130	12.4
450(500)	9800	100×110	12.7
450(500)	10000	77×170	13.2
450(500)	11000	100×120	13.5
450(500)	11000	77×180	13.5
450(500)	11000	90×150	13.5
450(500)	12000	100×130	13.7
450(500)	12000	77×190	13.7
450(500)	12000	90×160	13.7
450(500)	13000	77×205	14
450(500)	13000	90×170	14
450(500)	14000	100×150	14.2
450(500)	14000	90×180	14.2
450(500)	15000	90×190	14.6
450(500)	16000	100×160	15.1
450(500)	17000	100×170	15.5
450(500)	17000	90×205	15.5
450(500)	18000	100×180	15.9
450(500)	19000	100×190	16.2
450(500)	20000	100×205	16.8
500(550)	1000	51×75	4
500(550)	1200	51×80	4.9
500(550)	1500	51×90	5.5
500(550)	1700	51×100	5.7
500(550)	1800	51×105	5.9
500(550)	1800	64×75	5.9
500(550)	2000	51×110	6.1
500(550)	2200	51×120	6.5
500(550)	2200	64×80	6.5
500(550)	2500	51×130	6.7
500(550)	2500	64×90	6.7
500(550)	2700	77×75	7.1
500(550)	3000	51×150	7.6
500(550)	3000	64×100	7.6

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
500(550)	3000	64×105	7.6
500(550)	3000	77×80	7.6
500(550)	3200	51×160	8.5
500(550)	3300	64×110	8.8
500(550)	3600	51×170	9.2
500(550)	3600	77×90	9.2
500(550)	3800	51×180	9.7
500(550)	3900	64×120	10.5
500(550)	4000	51×190	10.7
500(550)	4000	77×100	10.7
500(550)	4200	64×130	10.9
500(550)	4400	51×205	11.6
500(550)	4400	77×105	11.4
500(550)	4700	77×110	12
500(550)	4700	90×90	12
500(550)	5200	64×150	12.6
500(550)	5200	77×120	12.6
500(550)	5200	90×100	12.6
500(550)	5600	64×160	13.1
500(550)	5600	90×105	13.1
500(550)	5800	77×130	13.4
500(550)	6000	64×170	13.7
500(550)	6200	90×110	13.9
500(550)	6500	64×180	14
500(550)	6800	100×100	14.2
500(550)	6800	64×190	14.2
500(550)	7000	77×150	14.4
500(550)	7000	90×120	14.4
500(550)	7200	100×105	14.8
500(550)	7500	64×205	15
500(550)	7600	77×160	15.2
500(550)	7800	100×110	15.7
500(550)	7800	90×130	15.7
500(550)	8200	77×170	16
500(550)	8800	100×120	16.2
500(550)	9000	77×180	16.4
500(550)	9500	77×190	16.6
500(550)	9500	90×150	16.6
500(550)	10000	100×130	16.8
500(550)	10000	77×205	16.8
500(550)	10000	90×160	16.8
500(550)	11000	100×150	17
500(550)	11000	90×170	17

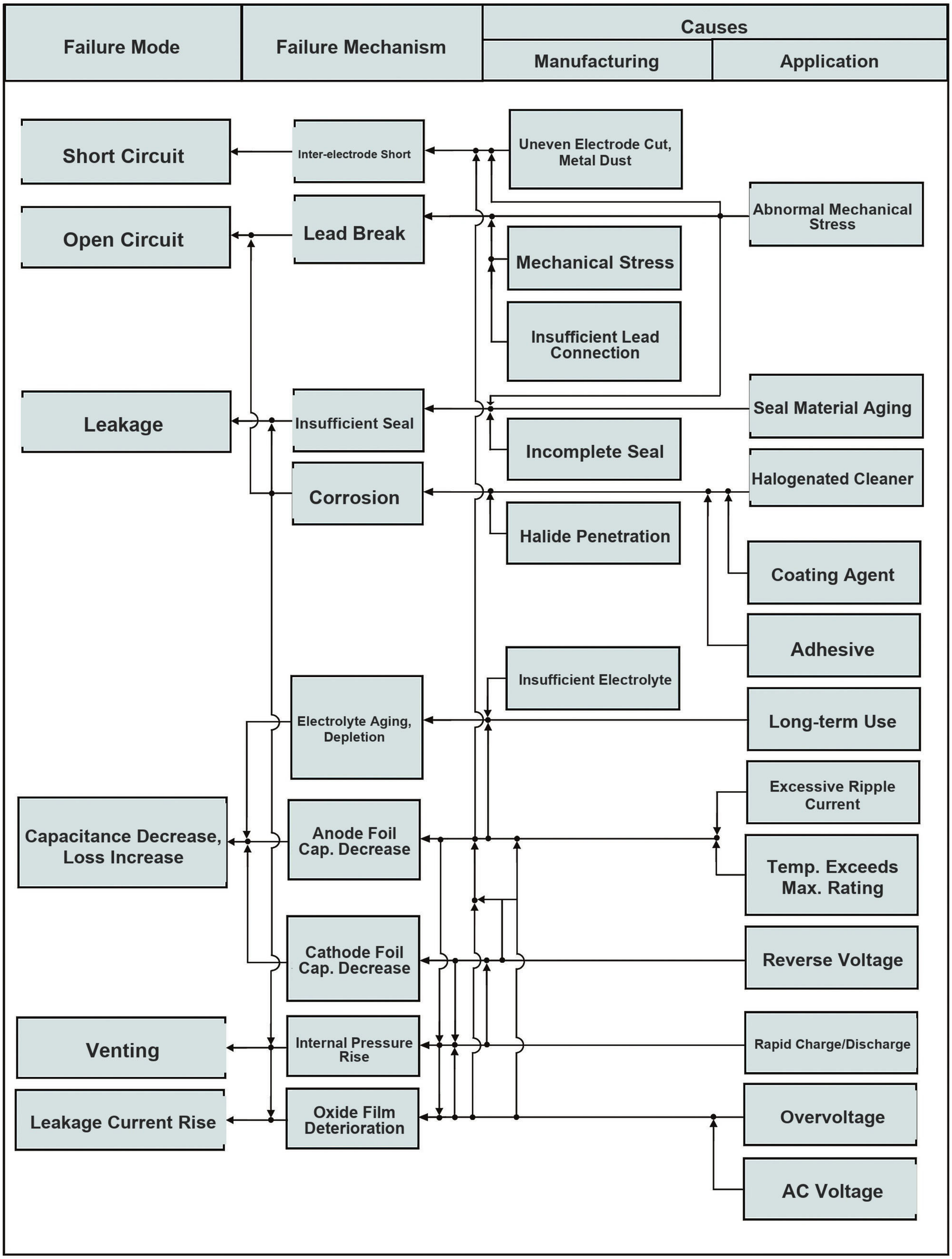
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■ List of Reference Standards

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
500(550)	12000	100×160	17.2
500(550)	12000	90×180	17.2
500(550)	12500	90×190	17.3
500(550)	13000	100×170	17.6
500(550)	13000	90×205	17.6
500(550)	14000	100×180	17.8
500(550)	15000	100×190	17.9
500(550)	17000	100×205	18.1
550(600)	820	51×75	3.3
550(600)	900	51×80	3.4
550(600)	1000	51×90	3.5
550(600)	1200	64×75	3.7
550(600)	1300	51×100	3.8
550(600)	1400	51×105	3.9
550(600)	1500	51×110	4
550(600)	1500	64×80	4
550(600)	1700	51×120	4.2
550(600)	1800	51×130	4.5
550(600)	1800	64×90	4.5
550(600)	1800	77×75	4.5
550(600)	2100	77×80	4.8
550(600)	2200	51×150	5.2
550(600)	2200	64×100	5.2
550(600)	2300	51×160	5.4
550(600)	2400	64×105	5.6
550(600)	2500	64×110	5.8
550(600)	2500	77×90	5.8
550(600)	2600	51×170	6
550(600)	2700	51×180	6.2
550(600)	2800	64×120	6.5
550(600)	3000	51×190	7
550(600)	3000	77×100	7
550(600)	3200	64×130	7.3
550(600)	3200	77×105	7.3
550(600)	3300	51×205	7.5
550(600)	3500	77×110	7.8
550(600)	3500	90×90	7.8
550(600)	3800	64×150	8.2
550(600)	3900	77×120	8.5
550(600)	4000	64×160	8.8
550(600)	4000	90×100	8.8
550(600)	4200	77×130	9.1
550(600)	4400	90×105	9.4
550(600)	4500	64×170	9.6
550(600)	4700	64×180	9.9
550(600)	4700	90×110	9.9

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
550(600)	5000	100×100	10.2
550(600)	5000	64×190	10.2
550(600)	5000	77×150	10.2
550(600)	5200	90×120	10.5
550(600)	5500	64×205	10.8
550(600)	5600	100×105	11
550(600)	5600	77×160	11
550(600)	5800	90×130	11.3
550(600)	6000	100×110	11.6
550(600)	6000	77×170	11.6
550(600)	6500	77×180	12
550(600)	6800	100×120	12.4
550(600)	7000	77×190	12.9
550(600)	7000	90×150	12.9
550(600)	7500	100×130	13.5
550(600)	7600	77×205	13.8
550(600)	7600	90×160	13.8
550(600)	8200	90×170	13.8
550(600)	9000	100×150	14.2
550(600)	9000	90×180	14.2
550(600)	9500	90×190	14.6
550(600)	9800	100×160	14.9
550(600)	10000	100×170	15.4
550(600)	10000	90×205	15.4
550(600)	11000	100×180	15.6
550(600)	12000	100×190	15.8
550(600)	13000	100×205	16
600(650)	680	51×75	3
600(650)	820	51×80	3.1
600(650)	950	51×90	3.3
600(650)	1100	51×100	3.5
600(650)	1200	51×105	3.8
600(650)	1200	64×75	3.8
600(650)	1300	51×110	4.1
600(650)	1300	64×80	4.1
600(650)	1400	51×120	4.4
600(650)	1500	51×130	4.7
600(650)	1500	77×75	4.7
600(650)	1600	64×90	5
600(650)	1800	51×150	5.3
600(650)	1800	64×100	5.3
600(650)	1800	77×80	5.3
600(650)	2000	51×160	5.6
600(650)	2000	64×105	5.6
600(650)	2200	51×170	6
600(650)	2200	64×110	6

Operating voltage (V)	Capacitance (μF)	Dimensions ΦD×L (mm)	Ripple current (105° C, 120 Hz) Arms
600(650)	2200	77×90	6
600(650)	2400	51×180	6.3
600(650)	2400	64×120	6.3
600(650)	2500	51×190	6.6
600(650)	2500	77×100	6.6
600(650)	2700	64×130	7
600(650)	2700	77×105	7
600(650)	2800	51×205	7.2
600(650)	3000	77×110	7.5
600(650)	3000	90×90	7.5
600(650)	3200	64×150	7.9
600(650)	3300	77×120	8.2
600(650)	3300	90×100	8.2
600(650)	3500	64×160	8.5
600(650)	3600	77×130	8.8
600(650)	3600	90×105	8.8
600(650)	3700	64×170	9
600(650)	4000	100×100	9.4
600(650)	4000	90×110	9.4
600(650)	4100	64×180	9.7
600(650)	4200	64×190	9.9
600(650)	4400	77×150	10.1
600(650)	4500	90×120	10.3
600(650)	4700	100×105	10.6
600(650)	4700	64×205	10.6
600(650)	4700	77×160	10.6
600(650)	5000	100×110	10.9
600(650)	5000	77×170	10.9
600(650)	5000	90×130	10.9
600(650)	5500	77×180	11.2
600(650)	5600	100×120	11.5
600(650)	5800	77×190	11.8
600(650)	6000	90×150	12
600(650)	6200	100×130	12.2
600(650)	6500	77×205	12.5
600(650)	6500	90×160	12.5
600(650)	7000	90×170	12.8
600(650)	7500	100×150	13.1
600(650)	7500	90×180	13.1
600(650)	8000	90×190	13.6
600(650)	8200	100×160	13.8
600(650)	8600	90×205	14
600(650)	9000	100×170	14.3
600(650)	9500	100×180	14.6
600(650)	10000	100×190	15.1
600(650)	11000	100×205	15.3


Failure Mode
Failure Mechanism
Causes
Manufacturing
Application
Short Circuit
Inter-electrode Short
Uneven Electrode Cut, Metal Dust
Open Circuit
Lead Break
Abnormal Mechanical Stress
Mechanical Stress
Insufficient Lead Connection
Leakage
Insufficient Seal
Seal Material Aging
Incomplete Seal
Corrosion
Halogenated Cleaner
Halide Penetration
Coating Agent
Adhesive
Insufficient Electrolyte
Electrolyte Aging, Depletion
Long-term Use
Capacitance Decrease, Loss Increase
Anode Foil Cap. Decrease
Excessive Ripple Current
Temp. Exceeds Max. Rating
Cathode Foil Cap. Decrease
Reverse Voltage
Venting
Internal Pressure Rise
Rapid Charge/Discharge
Leakage Current Rise
Oxide Film Deterioration
Overvoltage
AC Voltage

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