

CASE SIZE TABLE

<p>SW-Type</p>	<p>$\phi D = \phi 20 \sim \phi 40$</p>	<p>PC Board Mounting Holes</p> <p>Unit : mm</p>												
<p>SZ-Type</p>	<p>$\phi D = \phi 20 \sim \phi 40$</p>	<p>PC Board Mounting Holes</p> <p>Unit : mm</p>												
<p>SG-Type</p>	<p>$\phi D = \phi 20 \sim \phi 40$</p>	<table border="1" data-bbox="837 918 1029 985"> <tbody> <tr> <td>ϕD</td> <td>35</td> <td>40</td> <td>50</td> <td>63</td> <td>76</td> </tr> <tr> <td>P</td> <td>14</td> <td>14</td> <td>18</td> <td>25</td> <td>25</td> </tr> </tbody> </table> <p>PC Board Mounting Holes</p> <p>Unit : mm</p>	ϕD	35	40	50	63	76	P	14	14	18	25	25
ϕD	35	40	50	63	76									
P	14	14	18	25	25									
<p>SX-Type</p>	<p>$\phi D = \phi 35 \sim \phi 50$</p>	<p>PC Board Mounting Holes</p> <p>Unit : mm</p>												
<p>LD-Type</p>	<p>$\phi D = \phi 30 \sim \phi 40$</p>	<p>PC Board Mounting Holes</p> <p>Unit : mm</p>												
<p>ST-Type</p>	<p>$\phi D = \phi 25 \sim \phi 35$</p>	<p>PC Board Mounting Holes</p> <p>Unit : mm</p>												

CASE SIZE TABLE

FE-Type

Unit : mm

VO-Type

D	h	a
20	10	10
30	10	10
35	10	10
40	10	20
50	10	20

Unit : mm

VO-Type
成品带螺柱

D	h	a	B
20	10	10	M8 x 12
30	10	10	M8 x 12
35	10	10	M8 x 12
40	10	20	M8 x 12
50	10	20	M12 x 16

Unit : mm

	thread	max. tightening torque
mounting	M8	4 Nm
mounting	M12	10 Nm



FEATURES

- Directly mountable on printed circuit board without holders.
- Smaller in sizes than ordinary capacitors.
- Terminal spacing fixed at 10mm for PC board plug in.
- Aluminum case designed with explosion-proof vent.



SPECIFICATIONS

Item	Performance Characteristics	
Operating Temperature Range	-40 to +85°C	-25 to +85°C
Rated Working Voltage Range	10 to 250V	315 to 700V
Nominal Capacitance Range	56 to 82000µF	
Capacitance Tolerance	±20% at 120Hz, +20°C	
Leakage Current	I ≤ 3√CV (µA) after 5 minutes application of rated working voltage at +20°C	
tan δ (120Hz, +20°C)	Working Voltage (V)	10 16 25 35 50 63 80 100
	tan δ (max.)	0.55 0.50 0.45 0.40 0.35 0.30 0.25 0.20
	Working Voltage (V)	160~250 315~420 450~700
	tan δ (max.)	0.15 0.15 0.20
	For capacitance value >33000µF, add following calculated value: $\frac{(\text{rated capacitance}) - 33000\mu\text{F}}{10000\mu\text{F}} \times 0.1$	
Low Temperature Characteristics	Impedance ratio max. at 120Hz	
	Working Voltage (V)	10~100 160~250 315~385 400~450 500~700
	Z-25°C / Z+20°C	4 3 5 8 8
	Z-40°C / Z+20°C	15 15 - - -
High Temperature Loading	Test time : 2,000 hours	Post test requirements at +20°C
	Test temperature : +85°C	Leakage current : ≤ Initial specified value
	Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±20% of the initial measured value
		tan δ : ≤ 200% of the initial specified value
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits	
	Leakage current : ≤ Initial specified value	
	Cap. change : within ±15% of the initial measured value	
	tan δ : ≤ 150% of the initial specified value	
Industrial Standard	JISC - 5101-4 (IEC 60384-4)	

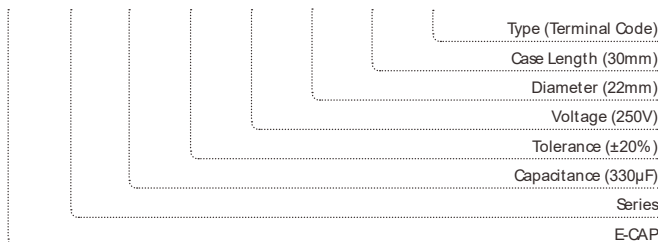
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	60	120	1k	10k~50k
Rated Voltage				
10~100V	0.90	1.00	1.15	1.25
160~250V	0.80	1.00	1.15	1.47
315~500V	0.80	1.00	1.15	1.47
550~700V	0.80	1.00	1.30	1.41

PART NUMBER SYSTEM (EXAMPLE : 250V 330µF)

1	23	456	7	89	10	11 12	13 14
E	LP	337	M	2E	N	30	SW



LP Large Can Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		10V (1A)		16V (1C)		25V (1E)		35V (1V)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2700	278							20 x 25	1.76
3300	338							20 x 30	2.14
3900	398							20 x 30	2.28
								22 x 25	2.22
								20 x 35	2.46
4700	478					20 x 25	2.18	22 x 30	2.46
								25 x 25	2.43
5600	568					20 x 30	2.33	22 x 35	2.79
						22 x 25	2.31	25 x 30	2.75
6800	688			20 x 25	2.33	20 x 35	2.56	22 x 40	2.97
						22 x 30	2.56	25 x 30	2.89
								30 x 25	3.09
8200	828			20 x 30	2.56	20 x 40	2.91	22 x 45	3.47
						22 x 30	2.86	25 x 35	3.33
				22 x 25	2.56	25 x 25	2.78	30 x 30	3.29
10000	109	20 x 25	2.22	20 x 35	2.85	22 x 35	3.31	22 x 50	3.75
				22 x 30	2.89	25 x 30	3.16	25 x 40	3.65
								30 x 30	3.61
12000	129	20 x 30	2.44	20 x 40	3.20	22 x 40	3.77	25 x 45	4.15
		22 x 25	2.41	22 x 30	3.13	25 x 35	3.63	30 x 35	4.14
				25 x 25	3.01	30 x 25	3.80	35 x 30	4.27
15000	159	20 x 35	2.90	22 x 35	3.69	22 x 50	4.21	30 x 40	4.80
		22 x 30	2.88	25 x 30	3.64	25 x 40	4.10	35 x 35	4.95
		25 x 25	2.88	30 x 25	3.73	30 x 30	4.00		
18000	189	20 x 40	3.31	22 x 40	3.98	25 x 45	4.68	30 x 45	5.30
		22 x 35	3.22	25 x 35	3.98	30 x 35	4.66		
		25 x 30	3.08	30 x 30	3.88	35 x 30	4.68	35 x 40	5.71
22000	229	22 x 40	3.79	22 x 50	4.52	30 x 40	5.33		
		25 x 30	3.66	25 x 40	4.44			35 x 45	6.38
		30 x 25	3.53	30 x 30	4.38	35 x 35	5.26		
27000	279	22 x 45	4.04	25 x 45	4.98	30 x 45	6.02		
		25 x 35	4.04	30 x 35	4.95			35 x 50	6.90
		30 x 30	3.99	35 x 30	4.82	35 x 40	6.02		
33000	339	22 x 50	4.58	25 x 50	5.49				
		25 x 40	4.56	30 x 40	5.60	35 x 45	6.75		
		30 x 30	4.58	35 x 30	5.46				
39000	399	25 x 45	5.29	30 x 45	6.21				
		30 x 35	5.21			35 x 50	7.56		
		35 x 30	5.50	35 x 35	6.12				
47000	479	25 x 50	5.78	30 x 50	6.93				
		30 x 40	5.78						
		35 x 35	5.55	35 x 40	6.89				
56000	569	30 x 45	6.59						
		35 x 35	6.40	35 x 45	7.69				
68000	689	30 x 50	7.50						
		35 x 40	7.48						
82000	829	35 x 50	8.50						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		50V (1H)		63V (1J)		80V (1K)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
680	687							20 x 25	1.66
820	827							20 x 30	1.85
								22 x 25	1.86
1000	108					20 x 25	1.56	20 x 35	2.02
								22 x 30	2.02
1200	128					20 x 30	1.80	20 x 40	2.12
								22 x 30	2.12
1500	158					22 x 25	1.77	25 x 25	2.11
						20 x 35	2.10	22 x 35	2.45
1800	188			20 x 25	1.69	22 x 30	2.01	25 x 30	2.47
				20 x 30	2.04	20 x 40	2.30	22 x 40	2.77
2200	228	20 x 25	1.70	22 x 25	1.90	22 x 30	2.11	25 x 35	2.81
						25 x 25	2.26	30 x 25	2.65
2700	278	20 x 30	2.07	20 x 35	2.40	22 x 40	2.53	22 x 45	3.15
				22 x 30	2.35	25 x 30	2.53	25 x 40	3.21
3300	338	22 x 25	1.93	25 x 25	2.30	30 x 25	2.56	30 x 30	3.17
				20 x 35	2.21	20 x 40	2.52	22 x 45	2.93
3900	398			22 x 35	2.50	25 x 35	2.93	25 x 45	3.66
				22 x 30	2.21	25 x 30	2.52	30 x 35	3.65
4700	478			25 x 30	2.52	30 x 30	2.91	35 x 30	3.77
				20 x 40	2.41	22 x 40	2.72	22 x 50	3.23
5600	568	22 x 30	2.41	25 x 30	2.74	25 x 40	3.29	25 x 50	4.15
				25 x 25	2.38	30 x 25	2.78	30 x 30	3.25
6800	688			30 x 25	2.78	30 x 30	3.25	35 x 35	4.07
				22 x 35	2.72	22 x 45	3.09	25 x 45	3.62
8200	828			25 x 35	3.13	30 x 35	3.70	30 x 45	4.67
				25 x 30	2.68	30 x 30	3.09	35 x 35	4.61
10000	109	22 x 40	3.02	22 x 50	3.69	25 x 50	4.28	30 x 50	5.26
				25 x 30	3.07	25 x 40	3.59	30 x 40	4.23
12000	129	30 x 25	3.01	30 x 30	3.54	35 x 30	4.12	35 x 40	5.23
				22 x 45	3.43	25 x 45	4.01	30 x 45	4.70
15000	159	25 x 35	3.47	30 x 35	4.00	35 x 35	4.64	35 x 45	5.88
				30 x 30	3.43	35 x 30	3.75		
18000	189	22 x 50	3.94	25 x 50	4.52	30 x 50	5.27	35 x 50	6.01
				25 x 40	3.87	30 x 40	4.55		
20000	209	30 x 35	3.93	35 x 30	4.44	35 x 40	5.24		
				25 x 45	4.44	30 x 45	5.12		
25000	259	30 x 35	4.47	35 x 35	5.05	35 x 45	5.89		
				35 x 30	4.41				
30000	309	30 x 40	5.08	30 x 50	5.78	35 x 50	6.63		
				35 x 35	4.92	35 x 40	5.75		
35000	359	30 x 50	5.72	35 x 45	6.47				
				35 x 40	5.69				
40000	409	35 x 45	6.56						
50000	509	35 x 50	7.14						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size ΦD x L (mm)

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STANDARD RATINGS

Voltage (Code)		160V (2C)		180V (2P)		200V (2D)		220V (2N)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
180	187							20 x 25	1.11
220	227					20 x 25	1.19	20 x 25 22 x 25	1.23 1.30
270	277	20 x 25	1.28	20 x 25	1.29	20 x 30 22 x 25	1.39 1.37	20 x 30 22 x 25	1.46 1.42
330	337	20 x 25	1.55	20 x 30 22 x 25	1.77 1.49	20 x 30 22 x 25	1.56 1.51	20 x 35 22 x 30 25 x 25	1.64 1.59 1.59
390	397	20 x 30 22 x 25	1.63 1.63	20 x 30 22 x 25	1.84 1.84	20 x 35 22 x 30 25 x 25	1.74 1.73 1.71	20 x 40 22 x 35 25 x 25	1.79 1.80 1.75
470	477	20 x 35 22 x 30 25 x 25	1.90 1.86 1.86	20 x 35 22 x 30 25 x 25	1.91 1.91 2.08	20 x 40 22 x 30 25 x 30	2.03 1.97 1.95	22 x 35 25 x 30 30 x 25	2.06 2.08 2.16
560	567	20 x 40 22 x 30 25 x 30	2.14 2.15 2.15	20 x 40 22 x 35 25 x 25	2.15 2.25 2.25	22 x 40 25 x 30 30 x 25	2.18 2.15 2.15	22 x 40 25 x 35 30 x 25	2.22 2.38 2.18
680	687	22 x 40 25 x 30 30 x 25	2.35 2.33 2.33	22 x 35 25 x 30 30 x 25	2.48 2.50 2.46	22 x 45 25 x 35 30 x 30	2.48 2.48 2.48	22 x 45 25 x 40 30 x 30	2.62 2.56 2.52
820	827	22 x 45 25 x 35 30 x 30	2.68 2.65 2.64	22 x 40 25 x 35 30 x 25	2.86 2.75 2.69	22 x 50 25 x 40 30 x 30	2.81 2.79 2.75	25 x 45 30 x 35 35 x 30	2.91 2.84 2.79
1000	108	22 x 50 25 x 40 30 x 30	3.02 3.00 2.96	25 x 40 30 x 30	3.06 3.10	25 x 45 30 x 35 35 x 30	3.28 3.15 3.25	25 x 50 30 x 40 35 x 30	3.53 3.36 3.29
1200	128	25 x 45 30 x 35 35 x 30	3.43 3.41 3.40	25 x 45 30 x 35 35 x 30	3.63 3.55 3.49	25 x 50 30 x 40 35 x 35	3.61 3.61 3.57	30 x 45 35 x 35	3.72 3.68
1500	158	30 x 40 35 x 35	3.96 3.94	30 x 40 35 x 35	4.10 4.02	30 x 45 35 x 40	4.13 4.06	35 x 40	4.10
1800	188	30 x 45 35 x 35	4.31 4.28	30 x 45 35 x 35	4.55 4.54	35 x 45	4.59	35 x 45	4.52
2200	228	35 x 40	4.96	35 x 40	4.83	35 x 50	5.25		
2700	278	35 x 50	5.57	35 x 50	5.30				

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

LP

Large Can Aluminium Electrolytic Capacitors

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		250V (2E)		315V (2F)		350V (2V)		385V (2Y)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
68	686							20 x 25	0.68
82	826							20 x 30	0.74
								22 x 25	0.76
100	107							20 x 30	0.86
								22 x 30	0.89
120	127					20 x 30	0.96	20 x 35	0.96
						22 x 25	1.04	25 x 25	1.02
150	157			20 x 30	1.00	20 x 30	1.10	20 x 40	1.10
						22 x 30	1.20	22 x 35	1.12
						25 x 25	1.22	25 x 30	1.14
180	187	20 x 25	1.20	20 x 35	1.13	20 x 35	1.24	22 x 40	1.27
				22 x 30	1.29	22 x 30	1.34	25 x 35	1.30
				25 x 25	1.38	25 x 25	1.37	30 x 25	1.37
220	227	20 x 30	1.26	20 x 40	1.29	22 x 35	1.47	22 x 45	1.42
				22 x 35	1.41	25 x 30	1.53	25 x 35	1.48
		22 x 25	1.24	25 x 30	1.47	30 x 25	1.54	30 x 30	1.49
270	277	20 x 30	1.42	22 x 40	1.70	22 x 40	1.70	25 x 40	1.61
				25 x 35	1.73	25 x 35	1.73	30 x 35	1.61
		22 x 30	1.50	25 x 30	1.70	30 x 25	1.80	30 x 35	16.4
330	337	20 x 35	1.68	22 x 45	1.91	22 x 45	1.87	25 x 50	1.80
		22 x 30	1.66	25 x 35	1.94	25 x 40	1.97	30 x 40	1.85
		25 x 25	1.61	30 x 30	1.98	30 x 30	2.03	35 x 30	1.87
390	397	20 x 40	1.92	22 x 50	2.07	25 x 40	2.14	30 x 40	2.05
		22 x 35	1.88	25 x 40	2.11	30 x 35	2.23	35 x 35	2.07
		25 x 30	1.88	30 x 30	2.15	35 x 30	2.30	35 x 35	2.07
470	477	22 x 40	2.15	25 x 45	2.39	30 x 35	2.53	30 x 50	2.26
		25 x 35	2.15	30 x 35	2.38	35 x 30	2.55	35 x 40	2.26
		30 x 25	2.04	35 x 30	2.36	35 x 30	2.55	35 x 40	2.26
560	567	22 x 45	2.48	30 x 40	2.63	30 x 40	2.73	35 x 45	2.59
		25 x 35	2.35	35 x 35	2.69	35 x 35	2.75	35 x 45	2.59
		30 x 30	2.35	35 x 35	2.69	35 x 35	2.75	35 x 45	2.59
680	687	25 x 40	2.67	30 x 45	2.80	35 x 40	3.15	35 x 50	2.80
		30 x 35	2.71	35 x 40	3.05	35 x 40	3.15	35 x 50	2.80
820	827	25 x 50	3.01	30 x 50	3.28	35 x 45	3.47	35 x 50	2.80
		30 x 35	2.98	35 x 45	3.45	35 x 45	3.47	35 x 50	2.80
		35 x 30	2.96	35 x 45	3.45	35 x 45	3.47	35 x 50	2.80
1000	108	30 x 45	3.56	35 x 50	3.57	35 x 50	3.60	35 x 50	2.80
		35 x 35	3.48	35 x 50	3.57	35 x 50	3.60	35 x 50	2.80
1200	128	30 x 50	3.99	35 x 50	3.57	35 x 50	3.60	35 x 50	2.80
		35 x 40	3.84	35 x 50	3.57	35 x 50	3.60	35 x 50	2.80
1500	158	35 x 45	4.33	35 x 50	3.57	35 x 50	3.60	35 x 50	2.80
1800	188	35 x 50	4.54	35 x 50	3.57	35 x 50	3.60	35 x 50	2.80

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size ΦD x L (mm)

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STANDARD RATINGS

Voltage (Code)		400V (2G)		420V (2M)		450V (2W)		500V (2H)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
56	566					20 x 25	0.61		
68	686	20 x 25	0.75	20 x 25	0.70	20 x 30	0.70		
						22 x 25	0.71		
82	826	20 x 30	0.82	20 x 30	0.80	20 x 35	0.80		
		22 x 25	0.84	22 x 25	0.85	22 x 25	0.86		
100	107	20 x 30	0.95	20 x 35	0.90	20 x 35	0.88	25 x 25	0.80
		22 x 30	0.99	22 x 30	0.97	22 x 30	0.95		
		25 x 25	0.99	25 x 25	0.98	25 x 25	0.97	30 x 25	0.90
120	127	20 x 35	1.07	20 x 35	1.04	20 x 40	0.99	25 x 30	0.89
		22 x 30	1.09	22 x 30	1.07	22 x 35	1.07		
		25 x 25	1.13	25 x 25	1.08	25 x 30	1.09	30 x 25	0.90
						30 x 25	1.12		
150	157	20 x 40	1.22	20 x 45	1.17	22 x 40	1.18		
		22 x 35	1.24	22 x 35	1.21	25 x 30	1.25	25 x 35	1.07
		25 x 30	1.27	25 x 30	1.26	30 x 25	1.29		
180	187	22 x 40	1.41	22 x 40	1.33	22 x 45	1.32		
		25 x 30	1.44	25 x 35	1.42	25 x 35	1.40	30 x 35	1.30
		30 x 25	1.52	30 x 25	1.48	30 x 30	1.45		
220	227	22 x 45	1.58	22 x 45	1.55	25 x 40	1.59		
		25 x 35	1.64	25 x 35	1.58	30 x 30	1.64	25 x 45	1.40
		30 x 30	1.66	30 x 30	1.65	35 x 30	1.66		
270	277	25 x 40	1.79	25 x 40	1.74	25 x 45	1.73	25 x 50	1.60
		30 x 30	1.82	30 x 35	1.90	30 x 35	1.89	30 x 40	1.55
				35 x 30	1.94	35 x 30	1.90		
330	337	25 x 45	2.00	25 x 50	2.20	30 x 40	2.12		
		30 x 35	2.05	30 x 35	1.98			30 x 45	1.80
		35 x 30	2.05	35 x 35	2.17	35 x 35	2.15		
390	397	30 x 40	2.26	30 x 40	2.22	30 x 45	2.35	30 x 50	2.10
		35 x 35	2.28	35 x 35	2.27	35 x 40	2.38		
470	477	30 x 45	2.51	30 x 45	2.50	35 x 45	2.68		
		35 x 40	2.54	35 x 40	2.61				
560	567	35 x 40	2.85	35 x 45	2.95				
680	687	35 x 50	3.10						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		550V (25)		600V (26)		650V (F5)		700V (2S)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
150	157	30 x 35	1.04	30 x 40	1.00	30 x 45	1.00	30 x 45	1.00
180	187	30 x 40	1.20	30 x 45	1.20	30 x 50	1.20	35 x 45	1.20
220	227	30 x 45	1.30	30 x 50	1.40	30 x 55	1.40	35 x 50	1.40
270	277	30 x 50	1.60	30 x 60	1.60	30 x 60	1.60	35 x 60	1.54
		35 x 40	1.60	35 x 50	1.60	35 x 50	1.50		
330	337	30 x 60	1.90	35 x 50	1.80	35 x 60	1.90	35 x 70	1.92
		35 x 50	1.80	40 x 50	1.80	40 x 50	1.80		
390	397	30 x 70	2.20	35 x 60	2.20	35 x 70	2.10	35 x 70	2.00
		35 x 60	2.10	40 x 50	2.20	40 x 60	2.10		
470	477	35 x 60	2.50	35 x 70	2.50	40 x 60	2.40	35 x 80	2.28
		40 x 50	2.50	40 x 60	2.50	45 x 50	2.40		
560	567	35 x 65	2.90	35 x 80	2.90	40 x 70	2.80	40 x 100	3.20
		40 x 60	2.90	40 x 70	2.90	45 x 60	2.80		
680	687	35 x 80	3.40	40 x 80	3.40	40 x 85	3.40		
		40 x 70	3.40	45 x 70	3.30	45 x 70	3.20		
820	827	40 x 75	4.10	45 x 75	3.90	45 x 80	3.80		
		35 x 90	3.90	50 x 60	4.10	50 x 70	3.80		
1000	108	40 x 90	4.60	45 x 90	4.60	45 x 100	4.50		
		50 x 60	4.60	50 x 70	4.50	50 x 80	4.40		
1200	128	45 x 90	5.30	50 x 85	5.30	50 x 100	5.20		
		50 x 70	5.20						
1500	158	50 x 90	6.00						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

FEATURES

- Designed for high grade audio equipment, giving priority to high fidelity sound quality.
- Suitable for use in mini-compos, CD, DAT players, cassette decks and etc.



SPECIFICATIONS

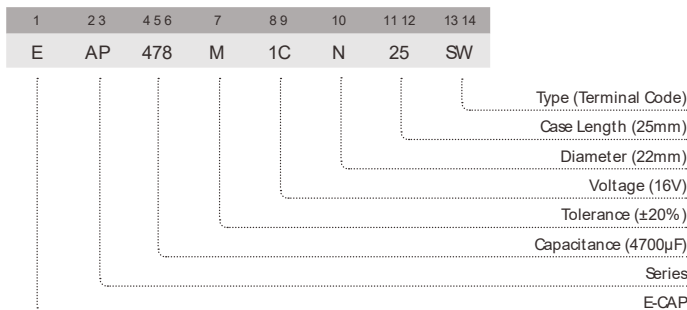
Item	Performance Characteristics			
Operating Temperature Range	-40 to +85°C			
Rated Working Voltage Range	16 to 100V			
Nominal Capacitance Range	680 to 10000µF			
Capacitance Tolerance	±20% at 120Hz, +20°C			
Leakage Current	$I \leq 3\sqrt{CV}$ (µA) after 5 minutes application of rated working voltage at +20°C			
tan δ (120Hz, +20°C)	Working Voltage (V)	16	25~63	80~100
	tan δ (max.)	0.30	0.25	0.22
Low Temperature Characteristics	Impedance ratio max. at 120Hz			
	Working Voltage (V)	16~100		
	Z-25°C / Z+20°C	4		
	Z-40°C / Z+20°C	15		
High Temperature Loading	Test time	: 1,000 hours	Post test requirements at +20°C	
	Test temperature	: +85°C	Leakage current : ≤Initial specified value	
	Test condition	: Rated DC working voltage with rated ripple current	Cap. change : within ±20% of the initial measured value	
			tan δ : ≤200% of the initial specified value	
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits			
	Leakage current	: ≤Initial specified value		
	Cap. change	: within ±20% of the initial measured value		
	tan δ	: ≤200% of the initial specified value		
Industrial Standard	JISC - 5101-4 (IEC 60384-4)			

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)			
	60	120	1k	10k~50k
Rated Voltage				
16~100V	0.90	1.00	1.15	1.25

PART NUMBER SYSTEM (EXAMPLE : 16V 4700µF)



STANDARD RATINGS

Voltage (Code)		16V (1C)		25V (1E)		35V (1V)		63V (1J)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
680	687							22 x 25	0.75
1000	108							22 x 30	1.00
								25 x 25	1.00
								22 x 35	1.30
1500	158					22 x 25	1.15	25 x 30	1.30
								30 x 25	1.35
								22 x 45	1.75
2200	228			22 x 25	1.35	22 x 30	1.50	25 x 40	1.80
						25 x 25	1.50	30 x 30	1.75
								35 x 25	1.80
3300	338	22 x 20	1.35	22 x 30	1.80	22 x 35	1.95	25 x 50	2.45
				25 x 25	1.80	25 x 30	1.95	30 x 40	2.45
						30 x 25	2.00	35 x 30	2.40
4700	478	22 x 25	1.80	22 x 35	2.30	22 x 45	2.55	30 x 50	3.20
				25 x 30	2.30	25 x 40	2.65		
				30 x 25	2.40	30 x 30	2.60	35 x 40	3.20
						35 x 25	2.65		
6800	688	22 x 35	2.25	22 x 45	2.75	25 x 50	3.10	35 x 50	3.75
				25 x 40	2.80	30 x 40	3.10		
				25 x 30	2.75				
				30 x 25	2.35	35 x 25	2.85		
10000	109	22 x 45	2.50	25 x 50	3.10	30 x 50	3.40		
				25 x 35	2.50				
				30 x 30	2.50	35 x 40	3.40		
				35 x 25	2.60				

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		80V (1K)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current
680	687	22 x 30	0.90	22 x 35	0.95
		25 x 25	0.90	25 x 30	1.00
				30 x 25	1.00
1000	108	22 x 35	1.20	22 x 50	1.35
		25 x 30	1.20	25 x 40	1.35
				30 x 30	1.35
				35 x 25	1.35
1500	158	22 x 50	1.70	25 x 50	1.80
		25 x 40	1.65	30 x 40	1.85
				30 x 30	1.65
				35 x 25	1.65
2200	228	25 x 50	2.20	30 x 50	2.45
		30 x 40	2.20	35 x 40	2.45
3300	338	30 x 50	3.00	35 x 40	2.45
		35 x 40	2.95		
4700	478	35 x 50	3.90		

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

FEATURES

- Designed for withstanding vibration.
- Suitable for washing machines and etc.



SPECIFICATIONS

Item	Performance Characteristics						
Operating Temperature Range	-40 to +85°C	-25 to +85°C					
Rated Working Voltage Range	10 to 250V	315 to 500V					
Nominal Capacitance Range	56 to 82000µF						
Capacitance Tolerance	±20% at 120Hz, +20°C						
Leakage Current	$I \leq 3\sqrt{CV}$ (µA) after 5 minutes application of rated working voltage at +20°C						
tan δ (120Hz, +20°C)	Working Voltage (V)	10 16 25 35 50 63 80					
	tan δ (max.)	0.55 0.50 0.45 0.40 0.35 0.30 0.25					
	Working Voltage (V)	100 160~250 315~450 500					
	tan δ (max.)	0.20 0.15 0.15 0.20					
	For capacitance value >33000µF, add following calculated value: $\frac{(\text{rated capacitance}) - 33000\mu\text{F}}{10000\mu\text{F}} \times 0.1$						
Low Temperature Characteristics	Impedance ratio max. at 120Hz						
	Working Voltage (V)	10~100	160~250	315~385	400~450	500	
	Z-25°C / Z+20°C	4	3	5	8	8	
	Z-40°C / Z+20°C	15	15	-	-	-	
High Temperature Loading	Test time	: 2,000 hours				Post test requirements at +20°C	
	Test temperature	: +85°C				Leakage current : ≤Initial specified value	
	Test condition	: Rated DC working voltage with rated ripple current				Cap. change : within ±20% of the initial measured value	
					tan δ : ≤200% of the initial specified value		
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits						
	Leakage current	: ≤Initial specified value					
	Cap. change	: within ±15% of the initial measured value					
	tan δ	: ≤150% of the initial specified value					
Industrial Standard	JISC - 5101-4 (IEC 60384-4)						

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient Rated Voltage	Freq. (Hz)			
	60	120	1k	10k-50k
10~100V	0.90	1.00	1.15	1.25
160~250V	0.80	1.00	1.15	1.47
315~500V	0.80	1.00	1.15	1.47

PART NUMBER SYSTEM (EXAMPLE : 160V 1000µF)

1	23	456	7	89	10	1112	1314
E	QP	108	M	2C	O	40	SW

Type (Terminal Code)
 Case Length (40mm)
 Diameter (25mm)
 Voltage (160V)
 Tolerance (±20%)
 Capacitance (1000µF)
 Series
 E-CAP

STANDARD RATINGS

Voltage (Code)		10V (1A)		16V (1C)		25V (1E)		35V (1V)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2700	278							20 x 25	1.76
3300	338							20 x 30	2.14
3900	398							20 x 30	2.28
								22 x 25	2.22
4700	478					20 x 25	2.18	20 x 35	2.46
								22 x 30	2.46
								25 x 25	2.43
5600	568					20 x 30	2.33	22 x 35	2.79
						22 x 25	2.31	25 x 30	2.75
6800	688			20 x 25	2.33	20 x 35	2.56	22 x 40	2.89
								25 x 30	2.89
						22 x 30	2.56	30 x 25	3.09
8200	828	22 x 40	22 x 40	20 x 30	2.56	20 x 40	2.91	22 x 45	3.47
		25 x 30	25 x 30			22 x 35	2.81	25 x 35	3.33
		30 x 25	30 x 25	22 x 25	2.56	25 x 25	2.78	30 x 30	3.29
10000	109	20 x 25	2.22	20 x 35	2.85	22 x 35	3.18	22 x 50	3.59
				22 x 30	2.81	25 x 30	3.16	25 x 40	3.59
12000	129	20 x 30	2.44	20 x 40	3.20	22 x 40	3.53	30 x 30	3.61
				22 x 30	3.13	25 x 35	3.48	25 x 45	4.01
		22 x 25	2.41	25 x 25	2.96	30 x 25	3.53	30 x 35	4.01
15000	159	20 x 35	2.90	22 x 35	3.69	22 x 50	4.08	35 x 30	4.02
		22 x 30	2.88	25 x 30	3.64	25 x 40	4.00	30 x 40	4.80
		25 x 25	2.88	30 x 25	3.73	30 x 30	4.00	35 x 35	4.08
18000	189	20 x 40	3.31	22 x 40	3.98	25 x 45	4.68	30 x 45	5.18
		22 x 35	3.22	25 x 35	3.98	30 x 35	4.66	35 x 40	5.71
		25 x 30	3.08	30 x 30	3.88	35 x 30	4.68		
22000	229	22 x 40	3.79	22 x 50	4.52	30 x 40	5.19		
		25 x 30	3.66	25 x 40	4.44			35 x 45	6.38
		30 x 25	3.53	30 x 30	4.38	35 x 35	5.20		
27000	279	22 x 45	4.04	25 x 45	4.98	30 x 45	6.02		
		25 x 35	4.04	30 x 35	4.82			35 x 50	6.90
		30 x 30	3.99	35 x 30	4.82	35 x 40	6.02		
33000	339	22 x 50	4.58	25 x 50	5.49				
		25 x 40	4.56	30 x 40	5.38	35 x 45	6.75		
		30 x 30	4.58	35 x 35	5.33				
39000	399	25 x 45	5.29	30 x 45	6.11				
		30 x 35	5.21			35 x 50	7.56		
		35 x 30	5.50	35 x 35	6.01				
47000	479	25 x 50	5.78	30 x 50	6.80				
		30 x 40	5.78						
		35 x 35	5.55	35 x 40	6.80				
56000	569	30 x 45	6.59						
		35 x 35	6.40	35 x 45	7.62				
68000	689	30 x 50	7.50						
		35 x 40	7.48						
82000	829	35 x 50	8.50						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		50V (1H)		63V (1J)		80V (1K)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
680	687							20 x 25	1.66
820	827							20 x 30	1.85
								22 x 25	1.86
1000	108					20 x 25	1.56	20 x 35	2.02
								22 x 30	2.02
1200	128					20 x 30	1.80	20 x 40	2.12
								22 x 30	2.12
						22 x 25	1.77	25 x 25	2.10
1500	158			20 x 25	1.69	20 x 35	2.10	22 x 35	2.45
						22 x 30	2.01	25 x 30	2.43
1800	188	20 x 25	1.70	20 x 30	2.04	20 x 40	2.30	22 x 40	2.77
				22 x 25	1.90	22 x 35	2.25	25 x 35	2.77
						25 x 25	2.26	30 x 25	2.65
2200	228	20 x 30	2.07	20 x 35	2.40	22 x 40	2.53	22 x 45	3.12
		22 x 25	1.93	22 x 30	2.35	25 x 30	2.53	25 x 40	3.20
				25 x 25	2.30	30 x 25	2.50	30 x 30	3.10
2700	278	20 x 35	2.21	20 x 40	2.52	22 x 45	2.93	25 x 45	3.61
		22 x 30	2.21	22 x 35	2.50	25 x 35	2.93	30 x 35	3.60
				25 x 30	2.49	30 x 30	2.91	35 x 30	3.71
3300	338	20 x 40	2.41	22 x 40	2.69	22 x 50	3.25	25 x 50	4.06
		22 x 30	2.41	25 x 30	2.69	25 x 40	3.25	30 x 40	4.05
		25 x 25	2.38	30 x 25	2.78	30 x 30	3.23	35 x 35	4.07
3900	398	22 x 35	2.72	22 x 45	3.10	25 x 45	3.62	30 x 45	4.60
		25 x 30	2.68	25 x 35	3.09	30 x 35	3.62	35 x 35	4.50
				30 x 30	3.09				
4700	478	22 x 40	3.01	22 x 50	3.49	25 x 50	4.28	30 x 50	5.13
		25 x 30	3.03	25 x 40	3.37	30 x 40	4.15	35 x 40	5.12
		30 x 25	3.01	30 x 30	3.37	35 x 30	4.10		
5600	568	22 x 45	3.43	25 x 45	3.80	30 x 45	4.55	35 x 45	5.75
		25 x 35	3.37	30 x 35	3.81	35 x 35	4.51		
		30 x 30	3.43	35 x 30	3.75				
6800	688	22 x 50	3.94	25 x 50	4.41	30 x 50	5.18	35 x 50	6.01
		25 x 40	3.87	30 x 40	4.41	35 x 40	5.14		
		30 x 35	3.87	35 x 35	4.33				
8200	828	25 x 45	4.37	30 x 45	4.90	35 x 45	5.83		
		30 x 35	4.42	35 x 35	4.80				
		35 x 30	4.41						
10000	109	30 x 40	5.02	30 x 50	5.49				
		35 x 35	4.92	35 x 40	5.47				
12000	129	30 x 50	5.60	35 x 50	6.30				
		35 x 40	5.60						
15000	159	35 x 45	6.44						
18000	189	35 x 50	6.71						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size ΦD x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		160V (2C)		180V (2P)		200V (2D)		220V (2N)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
180	187							20 x 25	1.09
220	227					20 x 25	1.13	20 x 30 22 x 25	1.15 1.09
270	277	20 x 25	1.22	20 x 25	1.23	20 x 30 22 x 25	1.32 1.30	20 x 30 22 x 25	1.38 1.31
330	337	20 x 30	1.48	20 x 30 22 x 25	1.48 1.42	20 x 30 22 x 25	1.49 1.44	20 x 35 22 x 30 25 x 25	1.51 1.58 1.49
390	397	20 x 30 22 x 25	1.55 1.55	20 x 30 22 x 30	1.58 1.61	20 x 35 22 x 30 25 x 25	1.66 1.65 1.63	20 x 40 22 x 35 25 x 30	1.73 1.69 1.71
470	477	20 x 35 22 x 30 25 x 25	1.81 1.77 1.77	20 x 35 22 x 30 25 x 25	1.82 1.80 1.80	20 x 40 22 x 35 25 x 30	1.93 1.88 1.86	22 x 40 25 x 30 30 x 25	1.99 1.95 1.89
560	567	20 x 40 22 x 35 25 x 30	2.04 2.05 2.05	20 x 40 22 x 35 25 x 30	2.04 2.09 2.05	22 x 40 25 x 30 30 x 25	2.08 2.05 2.05	22 x 45 25 x 35 30 x 30	2.28 2.22 2.19
680	687	22 x 40 25 x 30 30 x 25	2.24 2.22 2.22	22 x 40 25 x 35 30 x 25	2.36 2.34 2.27	22 x 45 25 x 35 30 x 30	2.36 2.36 2.36	22 x 50 25 x 40 30 x 30	2.46 2.40 2.39
820	827	22 x 45 25 x 35 30 x 30	2.55 2.52 2.51	22 x 45 25 x 35 30 x 30	2.72 2.58 2.56	22 x 50 25 x 40 30 x 30	2.68 2.66 2.62	25 x 45 30 x 35 35 x 30	2.81 2.70 2.62
1000	108	22 x 50 25 x 40 30 x 30	2.88 2.86 2.82	25 x 45 30 x 35	2.91 2.95	25 x 45 30 x 35 35 x 30	3.12 3.00 2.96	25 x 50 30 x 40 35 x 35	3.13 3.08 3.05
1200	128	25 x 45 30 x 35 35 x 30	3.27 3.25 3.24	25 x 50 30 x 40 35 x 30	3.46 3.38 3.32	25 x 50 30 x 40 35 x 35	3.44 3.44 3.40	30 x 45 35 x 40	3.60 3.51
1500	158	30 x 40 35 x 35	3.77 3.75	30 x 45 35 x 35	3.90 3.83	30 x 50 35 x 40	3.93 3.87	35 x 45	3.92
1800	188	30 x 45 35 x 35	4.10 4.08	30 x 50 35 x 40	4.33 4.32	35 x 45	4.37		
2200	228	35 x 45	4.72	35 x 45	4.60	35 x 50	5.00		
2700	278	35 x 50	5.30	35 x 50	5.05				

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

STANDARD RATINGS

Voltage (Code)		250V (2E)		315V (2F)		350V (2V)		385V (2Y)			
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current		
68	686							20 x 25	0.60		
82	826							20 x 30	0.67		
								22 x 25	0.70		
100	107							20 x 30	0.80		
								22 x 30	0.82		
120	127					20 x 30	0.91	20 x 35	0.89		
						22 x 25	0.99	25 x 25	0.95		
150	157			20 x 30	0.95	20 x 35	1.05	20 x 40	1.05		
						22 x 30	1.14	22 x 35	1.04		
						25 x 25	1.16	25 x 30	1.08		
180	187	20 x 25	1.14	20 x 35	1.08	20 x 40	1.18	20 x 40	1.18		
				22 x 30	1.23	22 x 35	1.28	25 x 35	1.20		
				25 x 25	1.31	25 x 30	1.30	30 x 25	1.28		
220	227	20 x 30	1.20	20 x 40	1.23	22 x 40	1.40	22 x 45	1.33		
				22 x 35	1.34	25 x 35	1.46	25 x 35	1.44		
				22 x 25	1.18	25 x 30	1.40	30 x 25	1.47	30 x 30	1.40
270	277	20 x 30	1.35	22 x 40	1.60	22 x 45	1.62	25 x 40	1.56		
				22 x 30	1.43	25 x 35	1.65	25 x 35	1.62		
						25 x 30	1.62	30 x 30	1.71	30 x 35	1.62
330	337	20 x 35	1.60	22 x 45	1.82	22 x 50	1.78	25 x 50	1.80		
				22 x 30	1.58	25 x 35	1.85	25 x 40	1.88	30 x 40	1.85
				25 x 25	1.53	30 x 30	1.89	30 x 35	1.93	35 x 30	1.85
390	397	20 x 40	1.83	22 x 50	1.97	25 x 45	2.04	30 x 40	2.04		
				22 x 35	1.79	25 x 40	2.01	30 x 35	2.12	35 x 35	2.06
				25 x 30	1.79	30 x 30	2.05	35 x 30	2.19		
470	477	22 x 40	2.05	25 x 45	2.20	30 x 40	2.41	30 x 50	2.27		
				25 x 35	2.05	30 x 35	2.27	35 x 35	2.43	35 x 40	2.30
				30 x 25	1.94	35 x 30	2.25				
560	567	22 x 45	2.36	30 x 40	2.50	30 x 45	2.60	35 x 45	2.57		
				25 x 35	2.24	35 x 35	2.56	35 x 35	2.62		
				30 x 30	2.24						
680	687	25 x 40	2.54	30 x 45	2.67	35 x 40	3.00	35 x 50	2.80		
				30 x 35	2.58	35 x 40	2.90				
820	827	25 x 50	2.87	30 x 50	3.12						
				30 x 35	2.84	35 x 50	3.30				
				35 x 30	2.82	35 x 45	3.29				
1000	108	30 x 45	3.39	35 x 50	3.40						
				35 x 35	3.31						
1200	128	30 x 50	3.80								
				35 x 40	3.66						
1500	158	35 x 45	4.12								
1800	188	35 x 50	4.31								

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size ΦD x L (mm)

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STANDARD RATINGS

Voltage (Code)		400V (2G)		420V (2M)		450V (2W)		500V (2H)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
56	566					20 x 25	0.58		
68	686	20 x 25	0.71	20 x 25	0.65	20 x 30	0.67		
						22 x 25	0.68		
82	826	20 x 30	0.78	20 x 30	0.73	20 x 35	0.76		
		22 x 25	0.80	22 x 25	0.75	22 x 30	0.82		
100	107	20 x 30	0.90	20 x 35	0.85	20 x 35	0.84	30 x 25	0.90
		22 x 30	0.94	22 x 30	0.87	22 x 35	0.90		
				25 x 25	0.92	25 x 25	0.92		
120	127	20 x 35	1.02	20 x 35	0.99	20 x 40	0.94	30 x 30	1.00
		22 x 30	1.04	22 x 30	1.01	22 x 35	1.02		
		25 x 25	1.08	25 x 25	1.03	25 x 30	1.04	35 x 25	1.00
						30 x 25	1.07		
150	157	20 x 40	1.16	20 x 45	1.15	22 x 40	1.12		
				22 x 35	1.19				
		22 x 35	1.18	25 x 30	1.19	25 x 35	1.19	30 x 35	1.20
		25 x 30	1.21	30 x 25	1.14	30 x 30	1.23		
180	187	22 x 40	1.34	22 x 45	1.36	22 x 50	1.26	30 x 40	1.40
		25 x 35	1.37	25 x 35	1.37	25 x 40	1.33	35 x 30	1.30
		30 x 25	1.45	30 x 25	1.35	30 x 30	1.38	30 x 45	1.60
220	227	22 x 45	1.50	22 x 50	1.69	25 x 45	1.51		
		25 x 35	1.56	25 x 40	1.58	30 x 35	1.56	35 x 35	1.50
		30 x 30	1.58	30 x 30	1.56	35 x 30	1.58		
270	277	25 x 40	1.70	25 x 45	1.83	25 x 50	1.65	30 x 50	1.80
		30 x 35	1.73	30 x 35	1.72	30 x 40	1.80	35 x 40	1.70
				35 x 30	1.76	35 x 35	1.81		
330	337	25 x 50	1.90	25 x 50	2.18	30 x 45	2.02	35 x 45	2.00
		30 x 40	1.95	30 x 40	1.98				
		35 x 30	1.95	35 x 35	2.04	35 x 35	2.05		
390	397	30 x 40	2.15	30 x 45	2.34	30 x 50	2.24	35 x 50	2.30
		35 x 35	2.17	35 x 35	2.26	35 x 40	2.27		
470	477	30 x 50	2.39	30 x 50	2.67	35 x 45	2.55		
		35 x 40	2.42	35 x 40	2.60				
560	567	35 x 45	2.71	35 x 45	2.93				
680	687	35 x 50	2.95						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

FEATURES

- High ripple current and high reliability.
- Low equivalent series resistance ESR.
- Different case sizes available for each capacitance value.
- Load life with ripple current: 5,000 hours.



SPECIFICATIONS

Item	Performance Characteristics					
Operating Temperature Range	-40 to +85°C			-25 to +85°C		
Rated Working Voltage Range	160 to 250V			385 to 650V		
Nominal Capacitance Range	47 to 2200μF					
Capacitance Tolerance	±20% at 120Hz, +20°C					
Leakage Current	I ≤ 3√CV (μA) after 5 minutes application of rated working voltage at +20°C					
tan δ (120Hz, +20°C)	Working Voltage (V)	160~420	450~650			
	tan δ (max.)	0.15	0.20			
Low Temperature Characteristics	Impedance ratio max. at 120Hz					
	Working Voltage (V)	160	200	250	385	400~650
	Z-25°C / Z+20°C	3	3	3	5	8
	Z-40°C / Z+20°C	15	-	-	-	-
High Temperature Loading	Test time	: 5,000 hours			Post test requirements at +20°C	
	Test temperature	: +85°C			Leakage current : ≤ Initial specified value	
	Test conditions	: Rated DC working voltage with rated ripple current			Cap. change : within ±20% of the initial measured value	
					tan δ : ≤ 200% of the initial specified value	
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits					
	Leakage current	: ≤ Initial specified value				
	Cap. change	: within ±15% of the initial measured value				
	tan δ	: ≤ 150% of the initial specified value				
Industrial Standard	JISC - 5101-4 (IEC 60384-4)					

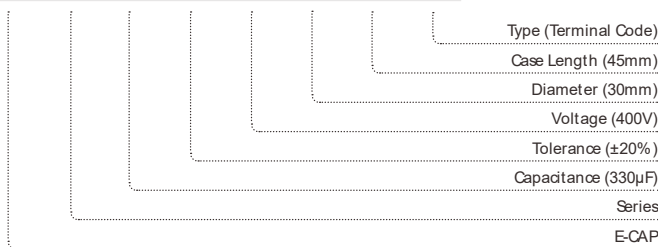
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)			
Rated Voltage	60	120	1k	10k~50k
160~250V	0.80	1.00	1.15	1.47
385~450V	0.80	1.00	1.15	1.47
500~650V	0.80	1.00	1.30	1.41

PART NUMBER SYSTEM (EXAMPLE : 400V 330μF)

1	2 3	4 5 6	7	8 9	10	11 12	13 14
E	DP	337	M	2G	P	45	SW



STANDARD RATINGS

Voltage (Code)		160V (2C)			200V (2D)			250V (2E)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
150	157							22 x 25	800	0.91
220	227	22 x 25	730	1.10	22 x 25	490	1.10	22 x 30	500	1.20
								25 x 25	490	1.20
330	337	22 x 30	490	1.40	22 x 30	330	1.40	22 x 40	330	1.60
					25 x 25	330	1.50	25 x 30	330	1.60
470	477	22 x 35	350	1.80	22 x 40	240	1.90	25 x 40	240	2.10
					30 x 25	350	1.90	30 x 30	240	2.00
680	687	25 x 35	240	2.40	25 x 40	160	2.50	30 x 40	160	2.70
					30 x 30	160	2.40			
1000	108	30 x 35	160	3.10	30 x 40	120	3.30	35 x 40	120	3.60
					35 x 35	120	3.50			
1500	158	30 x 45	120	4.20	35 x 45	80	4.60			
2200	228	35 x 50	80	5.80						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Maximum Impedance (mΩ) at 20°C 20kHz

Voltage (Code)		385V (2Y)			400V (2G)			420V (2M)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
68	686	22 x 25	1570	0.61	22 x 25	1570	0.61			
100	107	22 x 30	1070	0.79	22 x 30	1070	0.79	22 x 30	1600	0.79
		25 x 25	1070	0.80	25 x 25	1070	0.80	25 x 25	1600	0.80
120	127				22 x 35	890	0.92	22 x 30	1330	0.94
150	157	22 x 40	720	1.10	22 x 40	720	1.10	22 x 40	1070	1.08
		25 x 30	720	1.00	30 x 25	720	1.10	25 x 35	1070	1.11
180	187				30 x 30	600	1.20	25 x 35	890	1.21
								30 x 30	890	1.26
220	227	25 x 40	490	1.40	25 x 40	490	1.40	25 x 40	730	1.41
		30 x 30	490	1.40	30 x 35	490	1.50	30 x 35	730	1.46
270	277				30 x 35	400	1.60	30 x 35	590	1.62
								35 x 30	590	1.71
330	337	30 x 40	330	1.90	30 x 45	330	2.00	30 x 45	490	1.96
								35 x 35	490	1.98
390	397				30 x 50	280	2.20	30 x 50	410	2.22
470	477	35 x 40	240	2.50	35 x 45	240	2.60	35 x 45	340	2.58
560	567	35 x 45	200	2.80	35 x 50	200	2.90	35 x 50	290	2.93

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Maximum Impedance (mΩ) at 20°C 20kHz

Voltage (Code)		450V (2W)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current
47	476	22 x 25	3400	0.51
68	686	22 x 30	2350	0.65
		25 x 25	2350	0.66
100	107	22 x 40	1600	0.88
		25 x 30	1600	0.86
		30 x 25	1600	0.90
150	157	25 x 40	1070	1.20
		30 x 30	1070	1.10
180	187	30 x 35	890	1.30
220	227	30 x 40	730	1.50
270	277	30 x 45	600	1.80
330	337	35 x 40	490	2.10
470	477	35 x 50	350	2.70

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Maximum Impedance (mΩ) at 20°C 20kHz

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		500V (2H)		550V (25)		600V (26)		650V (F5)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
150	157	25 x 40	1.20	25 x 40	1.20	30 x 45	1.20	30 x 45	1.20
		30 x 35	1.20	30 x 35	1.20				
180	187	30 x 40	1.40	30 x 45	1.30	30 x 50	1.40	30 x 50	1.40
		35 x 30	1.30						
220	227	30 x 45	1.60	30 x 50	1.40	30 x 55	1.60	30 x 60	1.50
		35 x 35	1.50						
270	277	30 x 50	1.80	30 x 60	1.70	30 x 65	1.80	30 x 70	1.80
		35 x 40	1.70	35 x 45	1.70			35 x 50	1.70
330	337	30 x 55	2.00	30 x 70	2.00	35 x 55	2.00	30 x 85	2.10
		35 x 45	1.90	35 x 50	2.00	40 x 45	2.00	40 x 50	2.00
390	397	35 x 50	2.30	30 x 80	2.40	35 x 70	2.40	40 x 60	2.20
				35 x 60	2.30	40 x 50	2.40		
470	477	35 x 60	2.50	35 x 70	2.70	35 x 75	2.80	40 x 70	2.60
				40 x 60	2.70	40 x 60	2.80	45 x 55	2.70
560	567	35 x 70	2.80	35 x 80	3.10	35 x 85	3.20	40 x 80	3.20
		40 x 60	2.90	40 x 70	3.60	40 x 70	3.20	45 x 65	3.30
680	687	35 x 80	3.50	35 x 95	3.60	40 x 80	3.70	40 x 95	3.80
		40 x 70	3.60	40 x 80	4.30	45 x 70	3.60	45 x 75	3.60
820	827	35 x 90	4.20	40 x 100	4.40	45 x 85	4.20	45 x 90	4.20
		40 x 70	4.00	45 x 75	4.20	50 x 70	4.40	50 x 75	4.20
1000	108	40 x 80	4.70	45 x 90	4.90	45 x 90	5.10	45 x 100	4.90
		45 x 70	4.70	50 x 75	5.00	50 x 80	5.00	50 x 90	4.80
1200	128	40 x 90	5.50	45 x 100	5.70	50 x 90	5.60	50 x 100	5.60
		45 x 80	5.60	50 x 85	5.60				
1500	158	45 x 100	6.70	50 x 100	6.40	50 x 105	6.40		
		50 x 80	6.50						
1800	188	50 x 90	7.50						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



FEATURES

- Directly mountable on printed circuit board without holders.
- Terminal spacing fixed at 10mm for PC board plug in.
- Aluminum case designed with explosion-proof vent.
- Load life: 10,000 hours.



SPECIFICATIONS

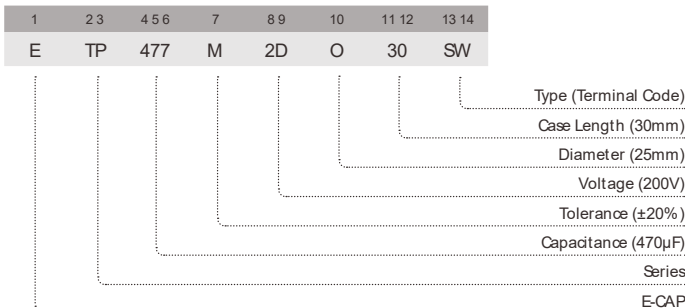
Item	Performance Characteristics		
Operating Temperature Range	-25 to +85°C		
Rated Working Voltage Range	200 to 450V		
Nominal Capacitance Range	56 to 2200µF		
Capacitance Tolerance	±20% at 120Hz, +20°C		
Leakage Current	I ≤ 3√CV (µA) after 5 minutes application of rated working voltage at +20°C		
tan δ (120Hz, +20°C)	Working Voltage (V)	200~250	400~450
	tan δ (max.)	0.15	0.15
Low Temperature Characteristics	Impedance ratio max. at 120Hz		
	Working Voltage (V)	200~250	400~450
	Z-25°C / Z+20°C	3	8
High Temperature Loading	Test time	: 10,000 hours	Post test requirements at +20°C
	Test temperature	: +85°C	Leakage current
	Test conditions	: Rated DC working voltage with rated ripple current	Cap. change
			tan δ
			: ≤ Initial specified value
			: within ±30% of the initial measured value
			: ≤ 300% of the initial specified value
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits		
	Leakage current	: ≤ Initial specified value	
	Cap. change	: within ±15% of the initial measured value	
	tan δ	: ≤ 150% of the initial specified value	
Industrial Standard	JISC - 5101-4 (IEC 60384-4)		

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)			
	60	120	1k	10k~50k
Rated Voltage				
200~250V	0.80	1.00	1.15	1.47
400~450V	0.80	1.00	1.15	1.47

PART NUMBER SYSTEM (EXAMPLE : 200V 470µF)



TP Large Can Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		200V (2D)		250V (2E)		400V (2G)		450V (2W)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
56	566							20 x 25	0.58
68	686					20 x 25	0.71	20 x 30 22 x 25	0.67 0.68
82	826					20 x 30 22 x 25	0.78 0.80	20 x 35 22 x 30	0.76 0.82
100	107					20 x 30 22 x 30	0.90 0.94	20 x 35 22 x 35	0.84 0.90
120	127					20 x 35 22 x 30 25 x 25	1.02 1.04 1.08	20 x 40 22 x 35 25 x 30	0.94 1.02 1.04
150	157					20 x 40 22 x 35 25 x 30	1.16 1.18 1.21	22 x 40 25 x 35 30 x 30	1.12 1.19 1.23
180	187			20 x 25	1.14	22 x 40 25 x 35 30 x 25	1.34 1.37 1.45	22 x 50 25 x 40 30 x 30	1.26 1.33 1.38
220	227	20 x 25	1.13	20 x 30 22 x 25	1.20 1.18	22 x 45 25 x 35 30 x 30	1.50 1.56 1.58	25 x 45 30 x 35 35 x 30	1.51 1.56 1.58
270	277	20 x 30 22 x 25	1.32 1.30	20 x 30 22 x 30	1.35 1.43	25 x 40 30 x 35	1.70 1.73	25 x 50 30 x 40 35 x 35	1.65 1.80 1.81
330	337	20 x 30 22 x 25	1.49 1.44	20 x 35 22 x 30 25 x 25	1.60 1.58 1.53	25 x 50 30 x 40 35 x 30	1.90 1.95 1.95	30 x 45 35 x 35	2.02 2.05
390	397	20 x 35 22 x 30 25 x 25	1.66 1.65 1.63	20 x 40 22 x 35 25 x 30	1.83 1.79 1.79	30 x 40 35 x 35	2.15 2.17	30 x 50 35 x 40	2.24 2.27
470	477	20 x 40 22 x 35 25 x 30 22 x 40	1.93 1.88 1.86 2.08	22 x 40 25 x 35 30 x 25 22 x 45	2.05 2.05 1.94 2.36	30 x 50 35 x 40	2.39 2.42	35 x 45	2.55
560	567	25 x 30 30 x 25 22 x 45	2.05 2.05 2.36	25 x 35 30 x 30 25 x 40	2.24 2.24 2.54	35 x 45	2.71		
680	687	25 x 35 30 x 30	2.36 2.36	30 x 35	2.58	35 x 50	2.95		
820	827	22 x 50 25 x 40 30 x 30	2.68 2.66 2.62	25 x 50 30 x 35 35 x 30	2.87 2.84 2.82				
1000	108	25 x 45 30 x 35 35 x 30	3.12 3.00 2.96	30 x 45 35 x 35	3.39 3.31				
1200	128	25 x 50 30 x 40 35 x 35	3.44 3.44 3.40	30 x 50 35 x 40	3.80 3.66				
1500	158	30 x 50 35 x 40	3.93 3.87	35 x 45	4.12				
1800	188	35 x 45	4.37	35 x 50	4.31				
2200	228	35 x 50	5.00						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size ΦD x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



FEATURES

- Highly reliable capacitors that withstand under high ripple current.
- Two or three dimensions with same ratings.
- Aluminum case designed explosion-proof vent.
- Best for switching power supplies.



SPECIFICATIONS

Item	Performance Characteristics	
Operating Temperature Range	-40 to +105°C	-25 to +105°C
Rated Working Voltage Range	10 to 100V	160 to 600V
Nominal Capacitance Range	47 to 56000µF	
Capacitance Tolerance	±20% at 120Hz, +20°C	
Leakage Current	I ≤ 3√CV (µA) after 5 minutes application of rated working voltage at +20°C	
tan δ (120Hz, +20°C)	Working Voltage (V)	10 16 25 35 50 63 80 100
	tan δ (max.)	0.55 0.50 0.45 0.35 0.30 0.30 0.25 0.20
	Working Voltage (V)	160~220 250 315~385 400~600
	tan δ (max.)	0.15 0.15 0.15 0.20
	For capacitance value >33000µF, add following calculated value: $\frac{(\text{rated capacitance}) - 33000\mu\text{F}}{10000\mu\text{F}} \times 0.1$	
Low Temperature Characteristics	Impedance ratio max. at 120Hz	
	Working Voltage (V)	10 16 25 35 50 63 80 100
	Z-25°C / Z+20°C	6 6 6 6 4 3 3 3
	Z-40°C / Z+20°C	15 15 15 15 15 15 15 15
High Temperature Loading	Working Voltage (V)	160~180 200~220 250 315~385 400 450 500~600
	Z-25°C / Z+20°C	8 8 8 8 8 8 8
	Test time	: 2,000 hours
	Test temperature	: +105°C
Shelf Life	Test conditions	: Rated DC working voltage with rated ripple current
	Post test requirements at +20°C	Leakage current : ≤Initial specified value Cap. change : within ±20% of the initial measured value tan δ : ≤200% of the initial specified value
	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits	
	Leakage current	: ≤Initial specified value Cap. change : within ±15% of the initial measured value tan δ : ≤150% of the initial specified value
Industrial Standard	JISC - 5101-4 (IEC 60384-4)	

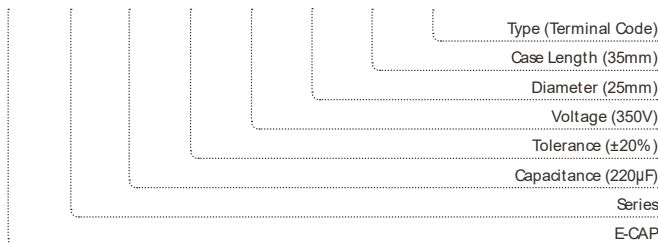
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)			
Rated Voltage	60	120	1k	10k~50k
10~100V	0.90	1.00	1.15	1.25
160~250V	0.80	1.00	1.25	1.47
315~500V	0.80	1.00	1.30	1.47
550~600V	0.80	1.00	1.30	1.41

PART NUMBER SYSTEM (EXAMPLE : 350V 220µF)

1	23	456	7	89	10	1112	1314
E	HP	227	M	2V	O	35	SW



HP Large Can Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		10V (1A)		16V (1C)		25V (1E)		35V (1V)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2700	278							20 x 25	1.62
3300	338							20 x 30	1.94
								22 x 25	1.90
3900	398					20 x 25	1.72	20 x 35	2.02
								22 x 30	2.00
4700	478					20 x 30	2.04	20 x 40	2.21
						22 x 25	2.00	22 x 35	2.20
								25 x 25	2.20
5600	568			20 x 25	1.89	20 x 35	2.23	22 x 35	2.40
						22 x 30	2.20	25 x 30	2.40
6800	688	20 x 25	1.41	20 x 30	2.25	20 x 40	2.72	22 x 40	2.60
				22 x 25	2.20	22 x 30	2.40	25 x 35	2.78
						25 x 25	2.40	30 x 25	2.78
8200	828	20 x 30	1.67	20 x 35	2.43	22 x 35	2.70	22 x 50	2.90
						25 x 30	2.70	25 x 40	2.90
				22 x 30	2.40	30 x 25	2.70	30 x 30	2.90
10000	109	20 x 30	1.88	20 x 40	2.79	22 x 40	3.00	25 x 45	3.20
		22 x 25	1.80	22 x 30	2.60	25 x 35	3.00	30 x 35	3.20
				25 x 25	2.60	30 x 30	3.00		
12000	129	20 x 35	2.23	22 x 35	2.90	22 x 50	3.20	25 x 50	3.50
		22 x 30	2.20	25 x 30	2.90	25 x 40	3.20	30 x 40	3.50
		25 x 25	2.20	30 x 25	2.90	30 x 30	3.20	35 x 30	3.50
15000	159	20 x 40	2.31	22 x 40	3.20	25 x 45	3.60	30 x 45	3.90
		22 x 35	2.30	25 x 35	3.20	30 x 35	3.60		
		25 x 25	2.30	30 x 30	3.20	35 x 30	3.60	35 x 35	3.90
		22 x 40	2.52	22 x 45	3.50	30 x 40	3.90		
18000	189	25 x 30	2.40	25 x 40	3.50			35 x 40	4.51
		30 x 25	2.49	30 x 30	3.50	35 x 35	3.90		
		22 x 45	2.60	25 x 45	3.80	30 x 45	4.30		
22000	229	25 x 35	2.60	30 x 35	3.80			35 x 45	5.24
		30 x 25	2.60	35 x 30	3.80	35 x 35	4.30		
27000	279	22 x 50	3.19	25 x 50	4.20				
		25 x 40	3.10	30 x 40	4.20	35 x 45	4.80		
		30 x 30	3.10	35 x 30	4.20				
33000	339	25 x 45	3.40	30 x 45	4.70				
		30 x 35	3.40	35 x 35	4.70	35 x 50	5.55		
		35 x 30	3.40						
39000	399	30 x 40	3.79	30 x 50	5.10				
		35 x 30	3.70	35 x 40	5.10				
47000	479	30 x 45	4.26	35 x 45	5.50				
		35 x 35	4.20						
56000	569	35 x 40	5.00						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		50V (1H)		63V (1J)		80V (1K)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
560	567							20 x 25	0.95
680	687							20 x 30	1.15
								22 x 25	1.09
820	827					20 x 25	1.04	20 x 35	1.31
								22 x 30	1.40
1000	108			20 x 25	1.21	20 x 30	1.24	20 x 35	1.43
						22 x 25	1.19	22 x 30	1.47
								25 x 25	1.45
1200	128			20 x 30	1.43	20 x 35	1.43	20 x 40	1.61
				22 x 25	1.40	22 x 30	1.50	22 x 35	1.69
								25 x 30	1.68
1500	158	20 x 25	1.29	20 x 35	1.52	20 x 35	1.57	22 x 40	1.97
				22 x 30	1.50	22 x 30	1.59	25 x 35	1.98
						25 x 25	1.59	30 x 25	1.95
1800	188	20 x 30	1.53	20 x 35	1.72	20 x 40	1.77	22 x 45	2.23
		22 x 25	1.50	22 x 30	1.70	22 x 35	1.79	25 x 40	2.20
				25 x 25	1.70	25 x 30	1.71	30 x 30	2.20
2200	228	20 x 35	1.72	20 x 40	2.01	22 x 40	2.03	25 x 45	2.53
				22 x 30	1.87	25 x 35	2.10	30 x 35	2.55
		22 x 30	1.70	25 x 30	2.00	30 x 25	1.98	35 x 30	2.60
2700	278	20 x 35	1.82	22 x 40	2.20	22 x 45	2.39	25 x 50	2.82
		22 x 30	1.80	25 x 35	2.20	25 x 40	2.35	30 x 40	2.86
		25 x 25	1.80	30 x 25	2.20	30 x 30	2.35	35 x 35	2.90
3300	338	20 x 40	2.01	22 x 45	2.60	25 x 45	2.64	30 x 45	3.30
		22 x 35	2.00	25 x 35	2.39	30 x 35	2.61		
		25 x 30	2.00	30 x 30	2.50	35 x 30	2.60	35 x 35	3.25
		22 x 40	2.23	25 x 40	2.57	25 x 25	2.92	30 x 50	3.60
3900	398	25 x 30	2.20			30 x 40	2.82		
		30 x 25	2.20	30 x 35	2.70	35 x 30	2.97	35 x 40	3.67
		22 x 45	2.50	25 x 50	3.00				
4700	478	25 x 35	2.43	30 x 40	3.00	30 x 45	3.34	35 x 45	3.80
		30 x 30	2.50	35 x 30	3.00	35 x 35	3.38		
5600	568	22 x 50	2.80	30 x 40	3.22	30 x 50	3.80	35 x 50	4.05
		25 x 40	2.80						
		30 x 30	2.76	35 x 35	3.30	35 x 40	3.80		
6800	688	25 x 45	3.30	30 x 50	3.86				
		30 x 35	3.30			35 x 45	3.90		
		35 x 30	3.30	35 x 40	3.84				
8200	828	30 x 40	3.71	35 x 45	4.43	35 x 50	4.20		
		35 x 35	3.85						
10000	109	30 x 45	4.30	35 x 50	5.11				
		35 x 40	4.49						
12000	129	35 x 45	4.56						
15000	159	35 x 50	4.80						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		160V (2C)		180V (2P)		200V (2D)		220V (2N)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
180	187							20 x 25	0.90
220	227			20 x 25	1.00	20 x 25	1.00	20 x 30 22 x 25	1.00 1.00
270	277	20 x 25	1.10	20 x 30 22 x 25	1.10 1.00	20 x 30 22 x 25	1.10 1.10	20 x 35 22 x 30	1.15 1.15
330	337	20 x 30 22 x 25	1.20 1.20	20 x 30 22 x 25	1.20 1.20	20 x 35 22 x 30 25 x 25	1.20 1.25 1.25	20 x 40 22 x 35 25 x 25	1.25 1.25 1.25
390	397	20 x 35 22 x 30	1.42 1.30	20 x 35 22 x 30 25 x 25	1.30 1.35 1.35	20 x 40 22 x 30 25 x 25	1.31 1.35 1.35	20 x 45 22 x 35 25 x 30	1.40 1.40 1.40
470	477	20 x 40 22 x 30 25 x 25	1.34 1.55 1.55	20 x 40 22 x 35 25 x 30	1.40 1.50 1.50	22 x 35 25 x 30 30 x 25	1.50 1.50 1.50	22 x 40 25 x 30 30 x 25	1.51 1.44 1.50
560	567	22 x 35 25 x 30	1.67 1.67	22 x 40 25 x 30 30 x 25	1.67 1.67 1.67	22 x 40 25 x 30 30 x 25	1.67 1.59 1.67	22 x 45 25 x 35 30 x 30 35 x 25	1.70 1.64 1.70 1.71
680	687	22 x 40 25 x 35 30 x 25	1.82 1.85 1.82	22 x 45 25 x 35 30 x 30	1.78 1.78 1.78	22 x 45 25 x 35 30 x 30	1.78 1.72 1.78	25 x 40 30 x 35 35 x 30	1.84 1.93 1.89
820	827	22 x 45 25 x 35 30 x 30	2.04 2.04 2.04	22 x 50 25 x 40 30 x 30	2.04 2.04 2.04	25 x 40 30 x 35 35 x 25	1.99 2.04 2.04	25 x 45 30 x 40 35 x 30	2.08 2.19 2.16
1000	108	25 x 45 30 x 35	2.40 2.25	25 x 45 30 x 35 35 x 30	2.30 2.30 2.30	25 x 50 30 x 35 35 x 30	2.42 2.30 2.30	30 x 45 35 x 35	2.50 2.44
1200	128	25 x 50 30 x 35 35 x 30	2.62 2.49 2.49	30 x 40 35 x 35	2.55 2.55	30 x 40 35 x 35	2.65 2.65	35 x 40	2.79
1500	158	30 x 40 35 x 35	2.84 2.84	30 x 45 35 x 35	2.90 2.90	35 x 40	3.08	35 x 45	3.22
1800	188	30 x 50 35 x 35	3.32 3.00	35 x 40	3.30	35 x 45	3.48		
2200	228	35 x 45	3.50	35 x 50	3.65				

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

STANDARD RATINGS

Voltage (Code)		250V (2E)		315V (2F)		350V (2V)		385V (2Y)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
56	566							20 x 25	0.37
68	686					20 x 25	0.47	20 x 30 22 x 25	0.44 0.45
82	826			20 x 25	0.64	20 x 30	0.54	20 x 30 22 x 30	0.50 0.52
100	107			20 x 30	0.69	20 x 30 22 x 25	0.60 0.69	20 x 35 20 x 30 25 x 25	0.56 0.58 0.57
120	127			20 x 30	0.75	20 x 35	0.68	20 x 40 22 x 30 25 x 30	0.66 0.64 0.68
150	157	20 x 25	0.79	20 x 35 22 x 30 25 x 25	0.82 0.82 0.82	20 x 40 22 x 30	0.78 0.77	22 x 40 25 x 30 30 x 25	0.79 0.78 0.75
180	187	20 x 30 22 x 25	0.90 0.88	20 x 40 22 x 30 25 x 25	0.90 0.86 0.86	22 x 35 25 x 30 30 x 25	0.87 0.92 0.90	22 x 40 25 x 35 30 x 30	0.84 0.86 0.88
220	227	20 x 35	1.00	22 x 35 25 x 30	0.98 1.04	22 x 40 25 x 35	1.00 1.04	22 x 45 25 x 35 30 x 30	0.96 0.94 1.00
270	277	20 x 40 22 x 30 25 x 30	1.10 1.18 1.27	22 x 40 25 x 35 30 x 25	1.10 1.16 1.16	22 x 45 25 x 40 30 x 30	1.11 1.18 1.17	25 x 45 30 x 35 35 x 30	1.13 1.08 1.10
330	337	22 x 35 25 x 30 30 x 25	1.30 1.30 1.35	22 x 45 25 x 40 30 x 30	1.27 1.33 1.33	25 x 45 30 x 35 35 x 30	1.29 1.34 1.22	30 x 45 35 x 30	1.31 1.24
390	397	22 x 40 25 x 35 30 x 25	1.49 1.49 1.49	25 x 40 30 x 35 35 x 30	1.40 1.47 1.47	25 x 50 30 x 35	1.51 1.43	30 x 45 35 x 35	1.41 1.40
470	477	22 x 45 25 x 40 30 x 30	1.65 1.65 1.65	30 x 40 35 x 30	1.70 1.70	30 x 40 35 x 35	1.57 1.69	35 x 40	1.68
560	567	25 x 45 30 x 35	1.80 1.80	30 x 40 35 x 35	1.95 2.05	30 x 50 35 x 40	1.85 1.90	35 x 45	1.87
680	687	25 x 50 30 x 35 35 x 30	2.03 2.00 2.00	35 x 40	2.17	35 x 45	2.20		
820	827	30 x 40 35 x 35	2.30 2.30	35 x 45	2.20				
1000	108	30 x 50 35 x 40	2.70 2.69						
1200	128	35 x 45	3.09						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

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STANDARD RATINGS

Voltage (Code)		400V (2G)		420V (2M)		450V (2W)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
47	476					20 x 25	0.39
56	566	20 x 25	0.51	20 x 25	0.51	20 x 30	0.51
						22 x 25	0.50
						20 x 35	0.56
68	686	20 x 30	0.56	20 x 30	0.56	22 x 30	0.53
		22 x 25	0.55	22 x 25	0.55	25 x 25	0.53
						20 x 35	0.64
82	826	20 x 30	0.64	20 x 35	0.64	22 x 30	0.64
		22 x 25	0.64	22 x 25	0.64	25 x 25	0.64
						20 x 35	0.70
100	107	20 x 35	0.70	20 x 35	0.70	22 x 30	0.65
		22 x 30	0.70	22 x 30	0.70	25 x 25	0.64
		25 x 25	0.70	25 x 25	0.70	30 x 25	0.72
120	127	20 x 40	0.75	20 x 40	0.75	22 x 40	0.80
		22 x 30	0.70	22 x 30	0.70	25 x 30	0.80
				30 x 25	0.78	30 x 25	0.80
150	157	22 x 40	0.88	22 x 40	0.88	22 x 40	0.84
		25 x 30	0.83	25 x 35	0.88	25 x 35	0.88
		30 x 25	0.88	30 x 25	0.88	30 x 30	0.88
180	187	22 x 40	0.93	22 x 40	0.90	25 x 40	1.00
		25 x 35	0.98	25 x 35	0.92		
				30 x 30	0.98	30 x 30	0.96
		35 x 25	0.94				
220	227	22 x 45	1.05	22 x 45	1.05	25 x 45	1.12
		25 x 35	1.04	30 x 30	1.03	30 x 35	1.12
		30 x 30	1.10	35 x 25	1.10	35 x 30	1.12
		25 x 50	1.29	25 x 50	1.37	30 x 40	1.28
270	277	30 x 35	1.22	30 x 35	1.18	35 x 35	1.28
		35 x 30	1.22	35 x 30	1.22		
				30 x 45	1.55		
330	337	35 x 30	1.44	35 x 30	1.36	35 x 40	1.45
		30 x 45	1.60	30 x 45	1.60	35 x 40	1.55
390	397	35 x 35	1.60	35 x 40	1.66		
		470	477	35 x 40	1.90	35 x 40	1.81
560	567	35 x 45	2.12				

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		500V (2H)		550V (25)		600V (26)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
47	476	22 x 25	0.35				
56	566	22 x 25	0.38				
68	686	22 x 30	0.45				
82	826	22 x 35	0.54				
100	107	22 x 35	0.56				
120	127	22 x 40	0.64				
150	157	25 x 40	0.76				
180	187	30 x 35	0.86	30 x 40	0.93	30 x 50	0.90
				35 x 35	0.93	35 x 45	0.90
220	227	30 x 40	0.97	30 x 50	1.10	35 x 45	1.05
						35 x 50	1.05
270	277	30 x 45	1.12	35 x 40	1.21	35 x 50	1.24
330	337	30 x 45	1.36	35 x 50	1.40	35 x 60	1.48
		35 x 40	1.40				
390	397	30 x 50	1.50	35 x 55	1.65	35 x 65	1.67
		35 x 50	1.65	40 x 45	1.65	40 x 50	1.61
470	477	35 x 50	1.79	35 x 60	1.89	35 x 70	1.89
		35 x 60	1.93	35 x 70	2.02	40 x 60	1.91
560	567	35 x 60	2.10	35 x 70	2.20	35 x 90	2.31
		40 x 50	2.11	40 x 60	2.22	40 x 70	2.22
680	687	35 x 70	2.49	35 x 80	2.58	40 x 80	2.50
		40 x 60	2.51	40 x 70	2.62	45 x 70	2.52
820	827	35 x 70	2.90	35 x 90	2.90	40 x 90	2.79
		40 x 60	2.96	40 x 70	2.88	50 x 70	2.80
1000	108	40 x 80	3.45	40 x 90	3.44	45 x 85	3.01
		45 x 70	3.48	50 x 70	3.50	50 x 70	3.02
1200	128	40 x 90	3.90	45 x 85	3.84	45 x 100	3.40
		45 x 85	4.06	50 x 80	3.97	50 x 85	3.40
50 x 80	4.10						
1500	158	45 x 100	4.80	50 x 90	4.68	50 x 100	4.16
		50 x 90	4.90				
1800	188	50 x 100	5.60	50 x 105	5.48		

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

FEATURES

- Doesn't spark with DC over voltage.
- Load life: 2,000 hours at 105°C.



SPECIFICATIONS

Item	Performance Characteristics				
Operating Temperature Range	-25 to +105°C				
Rated Working Voltage Range	200 to 450V				
Nominal Capacitance Range	56 to 1200µF				
Capacitance Tolerance	±20% at 120Hz, +20°C				
Leakage Current	$I \leq 3\sqrt{CV}$ (µA) after 5 minutes application of rated working voltage at +20°C				
tan δ (120Hz, +20°C)	Working Voltage (V)	200	250	400	450
	tan δ (max.)	0.15	0.15	0.20	0.20
Low Temperature Characteristics	Impedance ratio max. at 120Hz				
	Rated Voltage (V)	200	250	400	450
	Z-25°C / Z+20°C	8	8	8	8
High Temperature Loading	Test time	: 2,000 hours		Post test requirements at +20°C	
	Test temperature	: +105°C		Leakage current : ≤Initial specified value	
	Test conditions	: Rated DC working voltage with rated ripple current		Cap. change : within ±20% of the initial measured value	
				tan δ : ≤200% of the initial specified value	
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits				
	Leakage current		: ≤Initial specified value		
	Cap. change		: within ±15% of the initial measured value		
	tan δ		: ≤150% of the initial specified value		
Industrial Standard	JISC - 5101-4 (IEC 60384-4)				

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient Rated Voltage	Freq. (Hz)	60	120	1k	10k~50k
		200~250V	0.80	1.00	1.25
400~450V	0.80	1.00	1.30	1.47	

PART NUMBER SYSTEM (EXAMPLE : 200V 220µF)

1	2 3	4 5 6	7	8 9	10	11 12	13 14
E	UP	227	M	2D	N	25	SW

Type (Terminal Code)
 Case Length (25mm)
 Diameter (22mm)
 Voltage (200V)
 Tolerance (±20%)
 Capacitance (220µF)
 Series
 E-CAP

STANDARD RATINGS

Voltage (Code)		200V (2D)		250V (2E)		400V (2G)		450V (2W)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
56	566					22 x 25	0.45		
68	686					22 x 25	0.51		
82	856					22 x 30	0.58		
100	107					22 x 30	0.66		
120	127			22 x 25	0.68	22 x 35	0.76		
						25 x 30	0.76		
150	157					22 x 40	0.85		
						25 x 35	0.85		
						30 x 30	0.85		
180	187	22 x 25	0.82	22 x 30	0.87	22 x 45	0.94	30 x 35	1.00
				25 x 25	0.93	25 x 40	0.95		
						30 x 30	0.95		
220	227	22 x 25	0.90	22 x 30	1.00	25 x 40	1.24	30 x 40	1.20
						30 x 35	1.24		
						35 x 30	1.24		
270	277	22 x 30	1.02	22 x 35	1.14	25 x 50	1.30		
				25 x 30	1.13	30 x 40	1.30		
				30 x 25	1.25	35 x 30	1.30		
330	337	22 x 35	1.20	22 x 40	1.28	30 x 45	1.47		
		25 x 30	1.20	25 x 35	1.29	35 x 35	1.47		
390	397	22 x 35	1.35	22 x 45	1.42			35 x 45	1.60
		25 x 30	1.35	25 x 40	1.46				
				30 x 30	1.52				
470	477	22 x 40	1.45	25 x 45	1.64				
		25 x 35	1.45						
		30 x 30	1.47	30 x 35	1.67				
560	567	22 x 45	1.62	25 x 50	1.82				
		25 x 35	1.60	30 x 40	1.87				
		30 x 30	1.60	35 x 30	1.99				
		25 x 40	1.82	30 x 45	2.12				
680	687	30 x 35	1.81	35 x 35	2.19				
		35 x 30	1.86						
820	827	25 x 50	2.11	30 x 50	2.39				
		30 x 40	2.11	35 x 40	2.42				
		35 x 30	2.11						
1000	108	30 x 45	2.40						
		35 x 35	2.40						
1200	128	30 x 50	2.69						
		35 x 40	2.65						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size ΦD x L (mm)

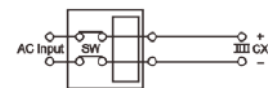
DC OVERVOLTAGE TEST CONDITIONS

The vent will operate and the capacitor shall become an open circuit without burning materials when the following test DC voltage is applied.

- Test DC voltage

Rated voltage	Normal Capacitance	Current Limit	Test Voltage
200Vdc	<330	4A	300/375Vdc
	330μF ≤ C < 470μF	5A	
	≥ 470μF	7A	
250Vdc	<330μF	4A	350/450Vdc
	330μF ≤ C < 470μF	5A	
	< 470μF	7A	
400Vdc	< 100μF	2A	500/600Vdc
	100μF ≤ C < 220μF	4A	
	≥ 220μF	7A	
450Vdc	< 100μF	2A	550/675Vdc
	100μF ≤ C < 220μF	4A	
	≥ 220μF	7A	

● Test circuit



Constant DC voltage/current power supply

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

FEATURES

- Highly reliable capacitors that withstand under high ripple current.
- Two or three dimensions with same ratings.
- Aluminum case designed explosion-proof vent.
- Best for switching power supplies.
- Load life: 3,000 hours.
- AEC-Q200 compliant. Please contact sales department for automotive specific PN.



SPECIFICATIONS

Item	Performance Characteristics								
Operating Temperature Range	-40 to +105°C	-25 to +105°C							
Rated Working Voltage Range	10 to 100V	160 to 600V							
Nominal Capacitance Range	47 to 56000µF								
Capacitance Tolerance	±20% at 120Hz, +20°C								
Leakage Current	I ≤ 3√CV (µA) after 5 minutes application of rated working voltage at +20°C								
tan δ (120Hz, +20°C)	Working Voltage (V)	10 16 25 35 50 63 80 100							
	tan δ (max.)	0.55 0.50 0.45 0.40 0.35 0.30 0.25 0.20							
	Working Voltage (V)	160~220 250 315~450 500~600							
	tan δ (max.)	0.15 0.15 0.25 0.2							
For capacitance value >33000µF, add following calculated value: $\frac{(\text{rated capacitance}) - 33000\mu\text{F}}{10000\mu\text{F}} \times 0.1$									
Low Temperature Characteristics	Impedance ratio max. at 120Hz								
	Working Voltage (V)	10	16	25	35	50	63	80	100
	Z-25°C / Z+20°C	6	6	6	6	4	3	3	3
	Z-40°C / Z+20°C	15	15	15	15	15	15	15	15
High Temperature Loading	Working Voltage (V)	160	200~220	250	315~385	400~420	450~600		
	Z-25°C / Z+20°C	8	8	8	8	8	8		
	Test time	: 3,000 hours			Post test requirements at +20°C				
	Test temperature	: +105°C			Leakage current : ≤ Initial specified value				
Shelf Life	Test conditions	: Rated DC working voltage with rated ripple current			Cap. change : within ±20% of the initial measured value				
					tan δ : ≤ 200% of the initial specified value				
	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits								
	Leakage current	: ≤ Initial specified value							
Cap. change	: within ±15% of the initial measured value								
tan δ	: ≤ 150% of the initial specified value								
Industrial Standard	JISC - 5101-4 (IEC 60384-4)								

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	60	120	1k	10k~50k
Rated Voltage				
10~100V	0.90	1.00	1.15	1.25
160~250V	0.80	1.00	1.25	1.47
315~450V	0.80	1.00	1.30	1.47
500~600V	0.80	1.00	1.28	1.41

PART NUMBER SYSTEM (EXAMPLE : 400V 100µF)

1	23	456	7	89	10	1112	1314
E	KP	107	M	2G	O	25	SW

Type (Terminal Code)
 Case Length (25mm)
 Diameter (25mm)
 Voltage (400V)
 Tolerance (±20%)
 Capacitance (100µF)
 Series
 E-CAP

STANDARD RATINGS

Voltage (Code)		10V (1A)		16V (1C)		25V (1E)		35V (1V)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2700	278							20 x 25	1.62
3300	338							20 x 30	1.94
								22 x 25	1.90
3900	398					20 x 25	1.72	20 x 35	2.02
								22 x 30	2.00
4700	478					20 x 30	2.04	20 x 40	2.21
						22 x 25	2.00	22 x 35	2.20
5600	568			20 x 25	1.89	20 x 35	2.23	22 x 35	2.40
						22 x 30	2.20	25 x 30	2.40
6800	688	20 x 25	1.41	20 x 30	2.25	20 x 40	2.72	22 x 40	2.60
				22 x 25	2.20	22 x 30	2.40	25 x 35	2.60
8200	828	20 x 30	1.67	20 x 35	2.43	22 x 35	2.70	22 x 50	2.90
				22 x 30	2.40	25 x 30	2.70	25 x 40	2.90
10000	109	20 x 30	1.88	20 x 40	2.79	22 x 40	3.00	25 x 45	3.20
				22 x 30	2.60	25 x 35	3.00	30 x 35	3.20
12000	129	20 x 35	2.23	22 x 35	2.90	22 x 50	3.20	25 x 50	3.50
				22 x 30	2.20	25 x 40	3.20	30 x 40	3.50
15000	159	20 x 40	2.31	22 x 40	3.20	25 x 45	3.60	30 x 45	3.90
				22 x 35	2.30	30 x 35	3.60	35 x 35	3.90
18000	189	25 x 25	2.30	30 x 25	3.11	35 x 30	3.60		
				22 x 40	2.52	22 x 45	3.50	30 x 40	3.90
22000	229	25 x 30	2.40	25 x 40	3.50	35 x 35	3.90	35 x 40	4.51
				30 x 25	2.49	30 x 30	3.50		
27000	279	22 x 45	2.60	25 x 45	3.80	30 x 45	4.30		
				25 x 35	2.60	30 x 30	3.80	35 x 35	4.30
33000	339	30 x 25	2.60	35 x 30	3.80	35 x 35	4.30	35 x 45	5.24
				22 x 45	3.19	25 x 50	4.20		
39000	399	25 x 40	3.10	30 x 35	4.20	35 x 45	4.80		
				30 x 30	3.10	35 x 30	4.20		
47000	479	25 x 45	3.40	30 x 40	4.70				
				30 x 35	3.40	35 x 35	4.70	35 x 50	5.55
56000	569	35 x 30	3.40	35 x 35	4.70				
				30 x 40	3.79	30 x 45	4.90		
56000	569	35 x 30	3.70	35 x 40	5.10				
				30 x 45	4.26	30 x 50	5.27		
56000	569	35 x 35	4.20	35 x 45	5.50				
				35 x 40	5.00				

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		50V (1H)		63V (1J)		80V (1K)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
560	567							20 x 25	0.95
680	687							20 x 30	1.15
								22 x 25	1.09
820	827					20 x 25	1.04	20 x 35	1.31
								22 x 30	1.40
1000	108			20 x 25	1.21	20 x 30	1.24	20 x 35	1.43
						22 x 25	1.19	22 x 30	1.47
								25 x 25	1.45
1200	128			20 x 30	1.43	20 x 35	1.43	20 x 40	1.61
				22 x 25	1.40	22 x 30	1.50	22 x 35	1.69
								25 x 30	1.68
1500	158	20 x 25	1.29	20 x 35	1.52	20 x 35	1.57	22 x 40	1.97
				22 x 30	1.50	22 x 30	1.59	25 x 35	1.98
						25 x 25	1.59	30 x 25	1.95
1800	188	20 x 30	1.53	20 x 35	1.72	20 x 40	1.77	22 x 45	2.23
		22 x 25	1.50	22 x 30	1.70	22 x 35	1.79	25 x 40	2.20
				25 x 25	1.70	25 x 30	1.71	30 x 30	2.20
2200	228	20 x 35	1.72	20 x 40	2.01	22 x 40	2.03	25 x 45	2.53
		22 x 30	1.70	22 x 35	2.00	25 x 35	2.10	30 x 35	2.55
				25 x 30	2.00	30 x 25	1.98	35 x 30	2.60
2700	278	20 x 35	1.82	22 x 40	2.20	22 x 45	2.39	25 x 50	2.82
		22 x 30	1.80	25 x 35	2.20	25 x 40	2.35	30 x 40	2.86
		25 x 25	1.80	30 x 25	2.20	30 x 30	2.35	35 x 35	2.90
3300	338	20 x 40	2.01	22 x 45	2.60	25 x 45	2.64	30 x 45	3.30
		22 x 35	2.00	25 x 35	2.39	30 x 35	2.61	35 x 35	3.25
		25 x 30	2.00	30 x 30	2.50	35 x 30	2.60	35 x 35	3.25
3900	398	22 x 40	2.23	25 x 40	2.57	25 x 50	2.92	30 x 50	3.60
		25 x 30	2.20			30 x 40	2.82	35 x 40	3.67
		30 x 25	2.20	30 x 35	2.70	35 x 30	2.97	35 x 40	3.67
4700	478	22 x 45	2.50	25 x 50	3.00	30 x 45	3.34		
		25 x 35	2.43	30 x 40	3.00			35 x 45	3.80
		30 x 30	2.50	35 x 30	3.00	35 x 35	3.38		
5600	568	22 x 50	2.80	30 x 40	3.22	30 x 50	3.80	35 x 50	4.05
		25 x 40	2.80	35 x 35	3.30	35 x 40	3.80		
		30 x 30	2.76						
6800	688	25 x 45	3.30	30 x 50	3.86				
		30 x 35	3.30			35 x 45	3.90		
		35 x 30	3.30	35 x 40	3.84				
8200	828	30 x 40	3.71	35 x 45	4.43	35 x 50	4.20		
		35 x 35	3.85						
10000	109	30 x 50	4.51	35 x 50	5.11				
		35 x 40	4.49						
12000	129	35 x 45	4.56						
15000	159	35 x 50	4.80						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		160V (2C)		180V (2P)		200V (2D)		220V (2N)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
180	187							20 x 25	0.90
220	227			20 x 25	1.00	20 x 25	1.00	20 x 30 22 x 25	1.00 1.00
270	277	20 x 25	1.10	20 x 30 22 x 25	1.10 1.00	20 x 30 22 x 25	1.10 1.10	20 x 35 22 x 30	1.15 1.15
330	337	20 x 30 22 x 25	1.20 1.20	20 x 35 22 x 30	1.20 1.20	20 x 35 22 x 30 25 x 25	1.20 1.25 1.25	20 x 40 22 x 35 25 x 25	1.25 1.25 1.25
390	397	20 x 35 22 x 30	1.42 1.30	20 x 35 22 x 30 25 x 25	1.30 1.35 1.35	20 x 40 22 x 35 25 x 30	1.31 1.35 1.35	20 x 45 22 x 35 25 x 25	1.40 1.40 1.40
470	477	20 x 40 22 x 30 25 x 25	1.34 1.55 1.55	20 x 40 22 x 35 25 x 30	1.40 1.50 1.50	22 x 40 25 x 30 30 x 25	1.50 1.50 1.50	22 x 40 25 x 30 30 x 25	1.51 1.44 1.50
560	567	22 x 35 25 x 30	1.67 1.67	22 x 40 25 x 30 30 x 25	1.67 1.67 1.67	22 x 45 25 x 35 30 x 25	1.67 1.70 1.67	25 x 35 30 x 30 35 x 25	1.64 1.70 1.71
680	687	22 x 40 25 x 35 30 x 25	1.82 1.85 1.82	22 x 45 25 x 35 30 x 30	1.78 1.78 1.78	22 x 50 25 x 40 30 x 30	1.78 1.82 1.78	25 x 40 30 x 35 35 x 30	1.84 1.93 1.89
820	827	22 x 45 25 x 40 30 x 30	2.04 2.04 2.04	22 x 50 25 x 40 30 x 30	2.04 2.04 2.04	25 x 45 30 x 35 35 x 30	2.10 2.04 2.04	25 x 45 30 x 40 35 x 30	2.08 2.19 2.16
1000	108	25 x 45 30 x 35	2.40 2.25	25 x 45 30 x 35 35 x 30	2.30 2.30 2.30	25 x 50 30 x 40 35 x 35	2.42 2.30 2.30	30 x 45 35 x 35	2.50 2.44
1200	128	25 x 50 30 x 40 35 x 30	2.62 2.49 2.49	30 x 40 35 x 35	2.55 2.55	30 x 45 35 x 35	2.65 2.65	35 x 40	2.79
1500	158	30 x 45 35 x 35	2.84 2.84	30 x 45 35 x 40	2.90 2.90	35 x 40	3.08	35 x 45	3.22
1800	188	30 x 50 35 x 40	3.32 3.00	35 x 45	3.30	35 x 45	3.48		
2200	228	35 x 45	3.50	35 x 50	3.65				

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

STANDARD RATINGS

Voltage (Code)		250V (2E)		315V (2F)		350V (2V)		385V (2Y)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
56	566							20 x 25	0.37
68	686					20 x 25	0.47	20 x 30 22 x 25	0.44 0.45
82	826			20 x 25	0.64	20 x 30	0.54	20 x 30 22 x 30	0.50 0.52
100	107			20 x 30	0.69	20 x 30 22 x 25	0.60 0.69	20 x 35 22 x 30 25 x 25	0.56 0.58 0.57
120	127			20 x 30 22 x 25	0.75 0.75	20 x 35 22 x 30 25 x 25	0.68 0.75 0.75	20 x 40 22 x 35 25 x 30	0.66 0.68 0.68
150	157	20 x 25	0.79	20 x 35 22 x 30 25 x 25	0.82 0.82 0.82	20 x 40 22 x 35 25 x 30	0.78 0.82 0.83	22 x 40 25 x 30 30 x 25	0.79 0.78 0.75
180	187	20 x 30 22 x 25	0.90 0.88	20 x 40 22 x 35 25 x 30	0.90 0.92 0.93	22 x 40 25 x 30 30 x 25	0.92 0.92 0.90	22 x 45 25 x 35 30 x 30	0.89 0.86 0.88
220	227	20 x 35 22 x 30 25 x 25	1.00 1.00 1.08	22 x 40 25 x 30 30 x 25	1.04 1.04 1.04	22 x 50 25 x 35 30 x 30	1.05 1.04 1.02	22 x 50 25 x 40 30 x 30	1.01 1.00 1.00
270	277	20 x 40 22 x 35 25 x 30	1.10 1.18 1.27	22 x 45 25 x 35 30 x 25	1.16 1.16 1.16	22 x 50 25 x 40 30 x 30	1.16 1.18 1.17	25 x 45 30 x 40 35 x 30	1.13 1.14 1.10
330	337	22 x 40 25 x 30 30 x 25	1.30 1.30 1.35	22 x 50 25 x 40 30 x 30	1.33 1.33 1.33	25 x 45 30 x 35 35 x 30	1.29 1.34 1.22	30 x 45 35 x 35	1.31 1.32
390	397	22 x 45 25 x 35 30 x 30	1.49 1.49 1.49	25 x 45 30 x 35 35 x 30	1.47 1.47 1.47	25 x 50 30 x 40 35 x 35	1.51 1.51 1.47	30 x 50 35 x 40	1.48 1.48
470	477	22 x 50 25 x 40 30 x 30	1.65 1.65 1.65	30 x 40 35 x 30	1.70 1.70	30 x 45 35 x 35	1.65 1.69	35 x 45	1.76
560	567	25 x 45 30 x 35 25 x 50	1.80 1.80 2.03	30 x 45 35 x 35	2.05 2.05	30 x 50 35 x 40	1.85 1.90	35 x 50	1.95
680	687	30 x 40 35 x 30	2.00 2.00	35 x 40	2.17	35 x 45	2.20		
820	827	30 x 45 35 x 35	2.30 2.30	35 x 45	2.20				
1000	108	30 x 50 35 x 40	2.70 2.69						
1200	128	35 x 45	3.09						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

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STANDARD RATINGS

Voltage (Code)		400V (2G)		420V (2M)		450V (2W)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
47	476					20 x 25	0.39
56	566	20 x 25	0.51	20 x 25	0.51	20 x 30	0.51
						22 x 25	0.50
68	686	20 x 30	0.56	20 x 30	0.56	20 x 35	0.56
						22 x 30	0.53
						25 x 25	0.53
82	826	20 x 30	0.64	20 x 35	0.64	20 x 35	0.64
						22 x 30	0.64
						25 x 25	0.64
100	107	20 x 35	0.70	20 x 35	0.70	22 x 35	0.69
						22 x 30	0.70
						25 x 25	0.70
120	127	20 x 40	0.75	20 x 40	0.75	22 x 40	0.80
						22 x 35	0.75
						25 x 30	0.76
150	157	22 x 40	0.88	22 x 40	0.88	22 x 45	0.88
						25 x 30	0.83
						30 x 25	0.88
180	187	22 x 45	0.98	22 x 45	0.95	25 x 40	1.00
						30 x 30	0.98
220	227	22 x 50	1.10	25 x 45	1.13	25 x 45	1.12
						25 x 40	1.10
						30 x 30	1.10
270	277	25 x 50	1.29	25 x 50	1.37	30 x 40	1.28
						30 x 35	1.22
						35 x 30	1.22
330	337	30 x 45	1.55	30 x 45	1.49	30 x 50	1.45
						35 x 30	1.44
390	397	30 x 45	1.60	30 x 50	1.67	35 x 40	1.55
470	477	35 x 40	1.90	35 x 45	1.90	35 x 50	1.85
560	567	35 x 45	2.12				

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

STANDARD RATINGS

Voltage (Code)		500V (2H)		550V (25)		600V (26)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
150	157	25 x 45	0.86	25 x 50	0.86	30 x 50	0.78
		30 x 40	0.90	30 x 45	0.90	35 x 45	0.82
		35 x 35	0.90	35 x 40	0.92	35 x 50	0.86
180	187	25 x 50	1.00	30 x 50	1.06	30 x 60	0.92
		30 x 40	1.02	35 x 40	1.04	35 x 45	0.90
220	227	30 x 45	1.18	30 x 60	1.34	35 x 50	1.12
		35 x 35	1.12	35 x 40	1.26		
270	277	30 x 50	1.34	30 x 60	1.48	35 x 50	1.30
		35 x 40	1.34	35 x 50	1.50		
330	337	30 x 60	1.61	30 x 60	1.64	35 x 60	1.58
		35 x 40	1.50	35 x 50	1.68	40 x 50	1.58
390	397	30 x 60	1.75	35 x 60	1.83	35 x 65	1.78
		35 x 50	1.76	40 x 50	1.83	40 x 50	1.72
470	477	35 x 50	1.93	35 x 60	2.00	35 x 70	2.02
		40 x 40	1.90	40 x 50	2.00	40 x 60	2.04
560	567	35 x 60	2.28	35 x 70	2.34	40 x 70	2.26
		40 x 50	2.27	40 x 60	2.36		
680	687	35 x 70	2.68	40 x 70	2.78	45 x 70	2.60
		40 x 60	2.70	45 x 60	2.78		
820	827	40 x 70	3.18	45 x 70	3.26	50 x 70	2.85
		45 x 60	3.18	50 x 60	3.25		
1000	108	40 x 80	3.72	45 x 90	4.02	50 x 80	3.15
		45 x 70	3.75	50 x 80	4.05		
1200	128	40 x 90	4.30	45 x 80	4.18	50 x 90	3.62
		45 x 80	4.35	50 x 80	4.44		
1500	158	45 x 90	4.90	50 x 90	5.23	50 x 100	4.40
		50 x 90	5.20	50 x 100	5.48		
1800	188	50 x 105	5.90	50 x 105	5.80	50 x 110	4.85

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)



FEATURES

- High ripple current.
- Two or three dimensions with same ratings.
- Aluminum case designed explosion-proof vent.
- Best for switching power supplies.
- Load life with ripple current : 105°C 5,000 hours.
- AEC-Q200 compliant. Please contact sales department for automotive specific PN.



SPECIFICATIONS

Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C			-25 to +105°C				
Rated Working Voltage Range	10 to 100V			160 to 550V				
Nominal Capacitance Range	82 to 47000µF							
Capacitance Tolerance	±20% at 120Hz, +20°C							
Leakage Current	I ≤ 3√CV (µA) after 5 minutes application of rated working voltage at +20°C							
tan δ (120Hz, +20°C)	Working Voltage (V)	10	16	25	35	50	63~100	
	tan δ (max.)	0.60	0.45	0.30	0.25	0.20	0.15	
	Working Voltage (V)	160~400	420~550					
	tan δ (max.)	0.15	0.20					
For capacitance value >33000µF, add following calculated value: $\frac{(\text{rated capacitance}) - 33000\mu\text{F}}{10000\mu\text{F}} \times 0.1$								
Low Temperature Characteristics	Impedance ratio max. at 120Hz							
	Working Voltage (V)	10	16	25	35	50	63~100	
	Z-25°C / Z+20°C	6	6	6	6	4	3	
	Z-40°C / Z+20°C	15	15	15	15	15	15	
High Temperature Loading	Working Voltage (V)	160	250	315	350	400~420	450~550	
	Z-25°C / Z+20°C	8	8	8	8	8	8	
High Temperature Loading	Test time : 5,000 hours				Post test requirements at +20°C			
	Test temperature : +105°C				Leakage current : ≤ Initial specified value			
High Temperature Loading	Test conditions : Rated DC working voltage with rated ripple current				Cap. change : within ±20% of the initial measured value			
					tan δ : ≤ 200% of the initial specified value			
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits							
	Leakage current : ≤ Initial specified value							
Shelf Life	Cap. change : within ±15% of the initial measured value							
	tan δ : ≤ 150% of the initial specified value							
Industrial Standard	JISC - 5101-4 (IEC 60384-4)							

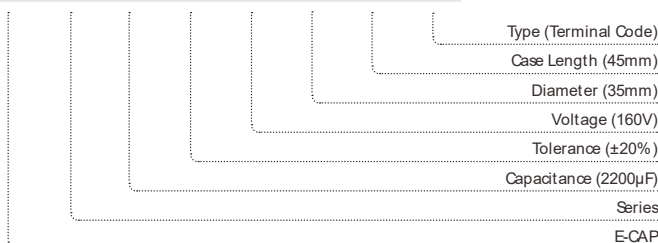
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	60	120	1k	10k~50k
Rated Voltage				
10~100V	0.90	1.00	1.15	1.25
160~250V	0.80	1.00	1.25	1.47
315~450V	0.80	1.00	1.30	1.47
500~550V	0.80	1.00	1.30	1.41

PART NUMBER SYSTEM (EXAMPLE : 160V 2200µF)

1	23	456	7	89	10	11 12	13 14
E	EP	228	M	2C	Q	45	SW



EP Large Can Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		10V (1A)		16V (1C)		25V (1E)		35V (1V)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2200	228							22 x 25	1.10
3300	338							22 x 30	1.42
								25 x 25	1.41
3900	398					22 x 25	1.31	22 x 35	1.58
								25 x 30	1.58
4700	478					22 x 30	1.51	22 x 40	1.78
						25 x 25	1.51	30 x 25	1.77
5600	568							25 x 35	1.98
				22 x 25	1.44	22 x 35	1.70	30 x 30	1.98
								35 x 25	2.03
6800	688	22 x 25	1.30	22 x 30	1.66	22 x 40	1.92	22 x 50	2.26
				25 x 25	1.66	25 x 30	1.87	25 x 40	2.24
						30 x 25	1.90	25 x 50	2.57
8200	828			22 x 35	1.87	25 x 35	2.14	25 x 50	2.57
						30 x 30	2.15	30 x 35	2.50
						35 x 25	2.19	35 x 30	2.55
10000	109	22 x 30	1.65	22 x 40	2.12	22 x 50	2.45	30 x 40	2.86
		25 x 25	1.64	25 x 30	2.07	25 x 40	2.43	35 x 35	2.88
				30 x 25	2.11				
12000	129	22 x 35	1.85	25 x 35	2.37	25 x 50	2.78	30 x 50	3.32
		25 x 30	1.85	30 x 30	2.37	30 x 35	2.70	35 x 40	3.30
		30 x 25	1.89	35 x 25	2.42	35 x 30	2.76		
15000	159	22 x 40	2.12	22 x 50	2.74	30 x 40	3.13		
		25 x 35	2.16	25 x 40	2.71	35 x 35	3.16		
18000	189	22 x 50	2.45	25 x 50	3.11	30 x 50	3.64	35 x 50	4.29
		25 x 40	2.43						
		30 x 30	2.37	30 x 35	3.02				
		35 x 25	2.42	35 x 30	3.09	35 x 40	3.61		
22000	229	30 x 35	2.73	30 x 40	3.46				
		35 x 30	2.79	35 x 35	3.49				
27000	279	25 x 50	3.11	30 x 50	4.07	35 x 50	4.70		
		30 x 40	3.13	35 x 40	4.04				
33000	339	35 x 35	3.49						
39000	399	30 x 50	3.99	35 x 50	5.16				
		35 x 40	3.96						
47000	479	35 x 50	4.62						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

STANDARD RATINGS

Voltage (Code)		50V (1H)		63V (1J)		80V (1K)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
390	397							22 x 25	0.78
560	567							22 x 30	0.99
								25 x 25	0.98
680	687					22 x 25	0.97	22 x 35	1.12
								22 x 40	1.26
820	827					22 x 30	1.12	25 x 30	1.23
								30 x 25	1.25
1000	108			22 x 25	1.00	22 x 35	1.70	25 x 35	1.41
						25 x 25	1.92	30 x 30	1.42
								35 x 25	1.45
1200	128			22 x 30	1.15	22 x 40	1.42	22 x 50	1.60
						25 x 30	1.39	25 x 40	1.59
				25 x 25	1.15	30 x 25	1.41	30 x 35	1.61
1500	158	22 x 25	1.02	22 x 35	1.32	25 x 35	1.62	25 x 50	1.86
								30 x 40	1.87
								35 x 30	1.85
1800	188	22 x 30	1.17	22 x 40	1.49	22 x 50	1.84		
				25 x 30	1.45	25 x 40	1.82	35 x 35	2.07
		25 x 25	1.17	30 x 25	1.48	30 x 30	1.78		
						35 x 25	1.82		
2200	228	22 x 35	1.33	25 x 35	1.67	25 x 50	2.11	30 x 50	2.40
				30 x 30	1.68	30 x 35	2.05		
				35 x 25	1.71	35 x 30	2.09	35 x 40	2.39
2700	278	22 x 40	1.51	22 x 50	1.92	30 x 40	2.35		
		25 x 30	1.47	25 x 40	1.90			35 x 50	2.81
		30 x 25	1.50	30 x 35	1.93	35 x 35	2.37		
3300	338	25 x 35	1.70	25 x 50	2.20	30 x 50	2.75		
		30 x 30	1.70						
		35 x 25	1.74	35 x 30	2.18	35 x 40	2.73		
3900	398	22 x 50	1.91	30 x 40	2.41				
		25 x 40	1.89	35 x 35	2.43				
4700	478	30 x 35	2.11	30 x 50	2.80	35 x 50	3.46		
		35 x 30	2.16	35 x 40	2.78				
5600	568	25 x 50	2.38						
		30 x 40	2.39						
		35 x 35	2.41						
6800	688	30 x 50	2.79	35 x 50	3.55				
		35 x 40	2.78						
10000	109	35 x 50	3.57						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		160V (2C)		200V (2D)		250V (2E)		315V (2F)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
150	157							22 x 30	0.86
180	187							22 x 35	0.98
								25 x 30	1.01
220	227					22 x 30	1.09	22 x 40	1.10
								30 x 25	1.17
270	277			22 x 25	1.10	22 x 35	1.28	22 x 45	1.24
								25 x 35	1.27
330	337					25 x 30	1.42	22 x 50	1.39
								25 x 40	1.45
								30 x 30	1.40
390	397	22 x 30	1.42	22 x 35	1.47	22 x 45	1.61	25 x 45	1.60
				25 x 30	1.50	25 x 35	1.53		
						30 x 30	1.62		
470	477			22 x 40	1.64	22 x 50	1.79	25 x 50	1.78
								30 x 40	1.81
								35 x 30	1.82
560	567	22 x 35	1.77	22 x 45	1.82	25 x 45	1.98	30 x 45	2.02
		25 x 30	1.81	25 x 35	1.82				
				30 x 25	1.78	30 x 35	1.95	35 x 35	2.00
680	687	22 x 40	1.98	22 x 50	1.90	25 x 50	2.21	30 x 50	2.21
		25 x 35	2.01	25 x 40	1.98	30 x 40	2.18		
		30 x 25	1.96	30 x 30	1.98	35 x 30	2.15	35 x 40	2.29
820	827	22 x 45	2.20	25 x 45	2.20	30 x 45	2.45	35 x 45	2.57
				30 x 35	2.22	35 x 35	2.38		
1000	108	25 x 45	2.65	25 x 50	2.46	30 x 50	2.68	35 x 50	2.89
		30 x 35	2.55	30 x 40	2.53				
		35 x 25	2.55	35 x 35	2.77	35 x 40	2.72		
1200	128	25 x 50	2.93	30 x 45	2.84				
		30 x 40	2.84	35 x 35	2.88	35 x 45	3.05		
		35 x 30	2.86						
1500	158	30 x 45	3.17	35 x 40	3.34	35 x 50	3.49		
		35 x 35	3.22						
1800	188	30 x 50	3.53	35 x 45	3.74				
		35 x 40	3.66						
2200	228	35 x 45	4.14						
2700	278	35 x 50	4.68						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

STANDARD RATINGS

Voltage (Code)		350V (2V)		400V (2G)		420V (2M)		450V (2W)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
82	826							22 x 30	0.64
100	107			22 x 30	0.71	22 x 30	0.71	22 x 35 25 x 30	0.74 0.75
120	127	22 x 30	0.78	22 x 35	0.80	22 x 35 25 x 30	0.80 0.83	22 x 40	0.82
150	157	22 x 35	0.90	22 x 40 25 x 35	0.91 0.99	22 x 40	0.91	22 x 45 25 x 35 30 x 30	0.93 0.94 1.00
180	187	25 x 30	1.01	22 x 45 25 x 35 30 x 30	1.01 1.03 1.10	22 x 45 25 x 40 30 x 30	1.01 1.10 1.10	22 x 50 25 x 40 30 x 30	1.01 1.03 1.03
220	227	22 x 45 25 x 35 30 x 30	1.16 1.14 1.21	22 x 50 25 x 40	1.14 1.19	25 x 45 30 x 35 35 x 25	1.20 1.21 1.22	25 x 45 30 x 35 35 x 30	1.16 1.17 1.24
270	277	22 x 50 25 x 40 30 x 30	1.26 1.31 1.27	25 x 50 30 x 35	1.39 1.35	25 x 50 30 x 40 35 x 30	1.35 1.37 1.38	25 x 50 30 x 40 35 x 35	1.31 1.33 1.39
330	337	25 x 45 30 x 35	1.46 1.43	30 x 45 35 x 30	1.59 1.52	30 x 45 35 x 35	1.50 1.54	30 x 50	1.58
390	397	25 x 50 30 x 40 35 x 35	1.62 1.60 1.76	30 x 45 35 x 35	1.68 1.67	30 x 50 35 x 40	1.72 1.73	35 x 40	1.73
470	477	30 x 45 35 x 35	1.81 1.83	30 x 50 35 x 40	1.89 1.90	35 x 45	1.94	35 x 50	1.98
560	567	30 x 50 35 x 40	2.00 2.07	35 x 45	2.12	35 x 50	2.17		
680	687	35 x 45	2.34	35 x 50	2.39				
820	827	35 x 50	2.62						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

STANDARD RATINGS

Voltage (Code)		500V (2H)		550V (25)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current
100	107	22 x 45	0.67	25 x 40	0.70
		25 x 40	0.68	25 x 50	0.78
120	127	22 x 50	0.80	30 x 40	0.80
		25 x 40	0.78	35 x 30	0.78
150	157	25 x 45	0.92	25 x 50	0.89
		30 x 40	0.96	30 x 45	0.94
		35 x 30	0.94	35 x 35	0.93
180	187	25 x 50	1.04	30 x 50	1.08
		30 x 45	1.10	35 x 40	1.08
220	227	30 x 50	1.28	30 x 60	1.30
		35 x 40	1.28	35 x 50	1.30
270	277	30 x 50	1.40	30 x 60	1.44
		35 x 40	1.40	35 x 50	1.46
330	337	30 x 50	1.54	35 x 60	1.90
		35 x 45	1.60		
390	397	30 x 60	1.80	35 x 70	2.04
		35 x 50	1.82	40 x 60	2.08
470	477	30 x 60	1.98	35 x 70	2.22
		35 x 50	2.00	40 x 60	2.30
560	567	35 x 60	2.36	35 x 90	2.70
		35 x 70	2.50	40 x 80	2.76
680	687	35 x 80	2.88	40 x 90	3.20
		40 x 70	2.92	45 x 70	3.08
820	827	40 x 80	3.42	45 x 85	3.66
		45 x 75	3.54	50 x 70	3.58
1000	108	45 x 80	4.02	45 x 100	4.24
		50 x 70	4.20	50 x 85	4.18
1200	128	45 x 100	5.10	50 x 100	4.82
		50 x 80	4.90		

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



FEATURES

- High ripple current and high reliability.
- Low equivalent series resistance ESR.
- Different case sizes available for each capacitance value.
- Load life with ripple current : 5,000 hours.



SPECIFICATIONS

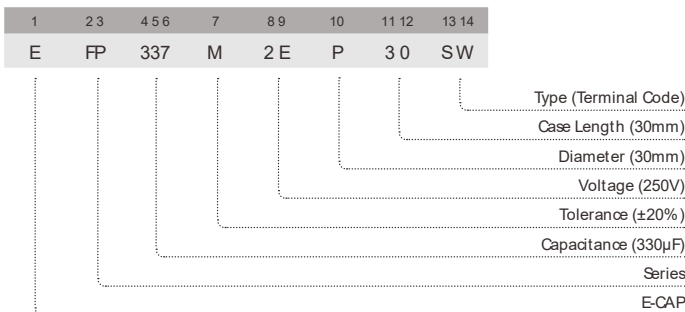
Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C	-25 to +105°C						
Rated Working Voltage Range	10 to 100V	200 to 450V						
Nominal Capacitance Range	100 to 33000µF							
Capacitance Tolerance	±20% at 120Hz, +20°C							
Leakage Current	I ≤ 3√CV (µA) after 5 minutes application of rated working voltage at +20°C							
tan δ (120Hz, +20°C)	Working Voltage (V)	10 16 25 35 50 63~100 200~400 450						
	tan δ (max.)	0.60 0.45 0.30 0.25 0.20 0.15 0.15 0.20						
Low Temperature Characteristics	Impedance ratio max. at 120Hz							
	Working Voltage (V)	10	16	25	35	50	63~100	
	Z-25°C / Z+20°C	6	6	6	6	4	3	
	Z-40°C / Z+20°C	15	15	15	15	15	15	
High Temperature Loading	Working Voltage (V)	200	250	400	450			
	Z-25°C / Z+20°C	8	8	8	8			
Shelf Life	Test time	: 5,000 hours		Post test requirements at +20°C				
	Test temperature	: +105°C		Leakage current : ≤ Initial specified value				
Industrial Standard	Test conditions	: Rated DC working voltage with rated ripple current		Cap. change : within ±20% of the initial measured value				
				tan δ : ≤ 200% of the initial specified value				
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits							
	Leakage current	: ≤ Initial specified value						
	Cap. change	: within ±15% of the initial measured value						
	tan δ	: ≤ 150% of the initial specified value						
Industrial Standard	JISC - 5101-4 (IEC 60384-4)							

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)	Rated Voltage			
		60	120	1k	10k~50k
	10~100V	0.90	1.00	1.15	1.25
	160~250V	0.80	1.00	1.25	1.47
	315~450V	0.80	1.00	1.30	1.47

PART NUMBER SYSTEM (EXAMPLE : 250V 330µF)



FP Large Can Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		10V (1A)			16V (1C)			25V (1E)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
4700	478							22 x 30	57	1.6
								25 x 25	57	1.6
6800	688	22 x 25	78	1.4	22 x 30	49	1.8	25 x 30	43	1.9
10000	109	22 x 30	56	1.8	25 x 30	36	2.2	25 x 40	32	2.5
15000	159	22 x 40	39	2.3	25 x 40	26	2.8	30 x 40	23	3.2
22000	229	30 x 35	28	3.0	30 x 40	18	3.5			
33000	339	30 x 45	20	3.9						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
Maximum Impedance (mΩ) at 20°C 20kHz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)			50V (1H)			63V (1J)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
1000	108							22 x 25	159	1.0
1500	158							22 x 35	106	1.4
2200	228	22 x 25	90	1.1	22 x 35	90	1.4	25 x 35	72	1.7
								30 x 30	85	1.8
3300	338	22 x 30	60	1.5	25 x 35	60	1.8	30 x 40	56	2.3
		25 x 25	60	1.5						
4700	478	22 x 40	48	1.9	30 x 35	45	2.2	35 x 35	45	2.7
6800	688	25 x 40	37	2.3	30 x 50	35	2.9	35 x 50	31	3.6
10000	109	30 x 40	28	2.9	35 x 45	26	3.6			
15000	159	35 x 40	20	3.8						
18000	189	35 x 45	18	4.3						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
Maximum Impedance (mΩ) at 20°C 20kHz

Case Size Φ D x L (mm)

Voltage (Code)		80V (1K)			100V (2A)			200V (2D)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
220	227							22 x 30	700	0.96
330	337							22 x 40	470	1.3
470	477							25 x 40	330	1.7
								30 x 30	330	1.7
560	567				25 x 25	190	1.0			
680	687				22 x 35	156	1.2	30 x 40	230	2.2
					25 x 35	106	1.4	35 x 45	160	3.1
1000	108	25 x 25	133	1.3	30 x 30	106	1.5			
1200	128	30 x 25	110	1.5						
1500	158	25 x 35	89	1.8	30 x 40	70	1.9	35 x 50	110	3.9
2200	228	30 x 35	60	2.0	30 x 50	60	2.3			
3300	338	35 x 35	48	2.8	35 x 50	40	3.0			
4700	478	35 x 45	34	3.4						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
Maximum Impedance (mΩ) at 20°C 20kHz

Case Size Φ D x L (mm)

Voltage (Code)		250V (2E)			400V (2G)			450V (2W)		
Cap. (μF)	Code	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current	Case Size	Impedance	Ripple Current
100	107				25 x 30	1090	0.7	22 x 45	1600	0.75
								30 x 30	1600	0.76
150	157				25 x 40	730	0.95	25 x 45	1070	1.0
					30 x 30	730	0.94	30 x 35	1070	0.99
220	227	25 x 30	700	1.0	30 x 40	500	1.3	30 x 45	730	1.3
					35 x 30	500	1.3	35 x 35	730	1.3
330	337	25 x 40	470	1.4	30 x 50	330	1.7	35 x 50	490	1.8
		30 x 30	470	1.4	35 x 40	330	1.7			
390	397				35 x 45	280	1.9	35 x 50	410	2.0
470	477	30 x 35	330	1.8	35 x 50	240	2.2			
680	687	30 x 45	230	2.3						
1000	108	35 x 45	160	3.1						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
Maximum Impedance (mΩ) at 20°C 20kHz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



FEATURES

- High ripple current and high reliability.
- Two or three dimensions with same ratings.
- Aluminum case designed explosion-proof vent.
- Best for ballast application.
- Load life with ripple current : 105°C 7,000 hours.



SPECIFICATIONS

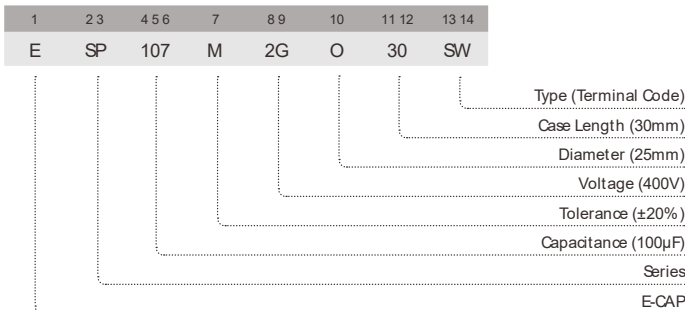
Item	Performance Characteristics								
Operating Temperature Range	-40 to +105°C				-25 to +105°C				
Rated Working Voltage Range	160 to 250V				315 to 450V				
Nominal Capacitance Range	39 to 2200µF								
Capacitance Tolerance	±20% at 120Hz, +20°C								
Leakage Current	I ≤ 3√CV (µA) after 5 minutes application of rated working voltage at +20°C								
tan δ (120Hz, +20°C)	Working Voltage (V)	160	200	250	315	350	400	450	
	tan δ (max.)	0.15	0.15	0.15	0.15	0.15	0.15	0.20	
Low Temperature Characteristics	Impedance ratio max. at 120Hz								
	Working Voltage (V)	160~250			315~450				
	Z-25°C / Z+20°C	3			8				
High Temperature Loading	Test time : 7,000 hours				Post test requirements at +20°C				
	Test temperature : +105°C				Leakage current : ≤Initial specified value				
	Test conditions : Rated DC working voltage with rated ripple current				Cap. change : within ±20% of the initial measured value				
					tan δ : ≤250% of the initial specified value				
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits								
	Leakage current : ≤Initial specified value								
	Cap. change : within ±15% of the initial measured value								
	tan δ : ≤150% of the initial specified value								
Industrial Standard	JISC - 5101-4 (IEC 60384-4)								

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient Rated Voltage	Freq. (Hz)			
	60	120	1k	10k~50k
160~250V	0.80	1.00	1.25	1.47
315~450V	0.80	1.00	1.30	1.47

PART NUMBER SYSTEM (EXAMPLE : 400V 100µF)



SP

Large Can Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		160V (2C)		200V (2D)		250V (2E)		315V (2F)			
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current		
82	826							22 x 25	0.64		
100	107							22 x 30	0.69		
120	127							22 x 30	0.75		
								25 x 25	0.75		
150	157							22 x 35	0.82		
								25 x 30	0.82		
								30 x 25	0.82		
180	187					22 x 30	0.90	22 x 40	0.90		
						25 x 25	0.90	25 x 35	0.90		
220	227							30 x 25	0.90		
						22 x 30	1.00	22 x 45	1.00		
				22 x 25	1.00	25 x 25	1.00	25 x 40	1.00		
270	277	22 x 25	1.10			22 x 30	1.10	22 x 35	1.10		
						25 x 25	1.10	25 x 30	1.10	30 x 35	1.10
								30 x 25	1.10	35 x 30	1.10
330	337	22 x 30	1.20			22 x 30	1.20	22 x 40	1.20		
						25 x 25	1.20	25 x 35	1.20	30 x 40	1.20
								30 x 25	1.20	35 x 30	1.20
390	397	22 x 30	1.30			22 x 35	1.30	22 x 45	1.30		
						25 x 25	1.30	25 x 35	1.30	30 x 45	1.30
						30 x 25	1.30	30 x 30	1.30	35 x 35	1.30
470	477	22 x 35	1.40			22 x 40	1.40	25 x 45	1.40		
						25 x 35	1.40	30 x 35	1.40	30 x 50	1.40
						30 x 30	1.40	35 x 30	1.40	35 x 40	1.40
560	567	22 x 40	1.50			22 x 45	1.50	25 x 50	1.50		
						25 x 30	1.50	30 x 35	1.50	35 x 45	1.50
						30 x 25	1.50	30 x 30	1.50	35 x 30	1.50
680	687	22 x 45	1.70			25 x 40	1.70	30 x 45	1.70		
						25 x 35	1.70			35 x 50	1.70
						30 x 30	1.70	30 x 35	1.70	35 x 35	1.70
820	827	25 x 40	2.00			25 x 50	2.00	30 x 50	2.00		
						30 x 40	2.00				
						30 x 30	2.00	35 x 30	2.00	35 x 40	2.00
1000	108	25 x 45	2.20			30 x 45	2.20	35 x 45	2.20		
						30 x 35	2.20	35 x 35	2.20		
1200	128	25 x 50	2.30			30 x 50	2.30				
						30 x 40	2.30	35 x 50	2.30		
						35 x 35	2.30	35 x 40	2.30		
1500	158	30 x 45	2.50			35 x 50	2.50				
						35 x 35	2.50				
1800	188	30 x 50	2.70								
						35 x 40	2.70				
2200	228	35 x 50	2.90								

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		350V (2V)		400V (2G)		450V (2W)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
39	396					22 x 25	0.37
47	476					22 x 30	0.40
56	566					22 x 35	0.47
						25 x 25	0.47
68	686					22 x 40	0.53
						25 x 30	0.53
82	826	22 x 25	0.64	22 x 35	0.64	22 x 45	0.56
				25 x 25	0.64	25 x 35	0.56
100	107	22 x 30	0.69	22 x 35	0.69	22 x 50	0.64
		25 x 25	0.69	25 x 30	0.69	25 x 40	0.64
120	127	22 x 35	0.75	22 x 40	0.75	25 x 45	0.72
		25 x 30	0.75	25 x 35	0.75	30 x 30	0.72
150	157	22 x 40	0.82	22 x 50	0.82	25 x 50	0.79
		25 x 30	0.82	25 x 40	0.82	30 x 40	0.79
		30 x 25	0.82	30 x 30	0.82	35 x 30	0.79
180	187	22 x 45	0.90	25 x 45	0.90	30 x 45	0.87
		25 x 35	0.90	30 x 35	0.90	35 x 35	0.87
		30 x 30	0.90	35 x 25	0.90		
220	227	22 x 50	1.00	25 x 50	1.00	30 x 50	1.00
		25 x 40	1.00	30 x 40	1.00	35 x 40	1.00
		30 x 30	1.00	35 x 30	1.00		
270	277	25 x 50	1.10	30 x 45	1.10	35 x 45	1.19
		30 x 35	1.10	35 x 35	1.10		
		35 x 30	1.10				
330	337	30 x 45	1.20	30 x 50	1.20	35 x 50	1.38
		35 x 35	1.20	35 x 40	1.20		
390	397	30 x 50	1.30	35 x 45	1.30		
		35 x 40	1.30				
470	477	35 x 40	1.40	35 x 50	1.40		
560	567	35 x 50	1.50				

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size Φ D x L (mm)

FEATURES

- Designed for withstanding vibration.
- Suited for washing machines and etc.



SPECIFICATIONS

Item	Performance Characteristics							
Operating Temperature Range	-40 to +105°C				-25 to +105°C			
Rated Working Voltage Range	10 to 100V				160 to 500V			
Nominal Capacitance Range	39 to 56000µF							
Capacitance Tolerance	±20% at 120Hz, +20°C							
Leakage Current	I ≤ 3√CV (µA) after 5 minutes application of rated working voltage at +20°C							
tan δ (120Hz, +20°C)	Working Voltage (V)	10	16	25	35	50	63	80
	tan δ (max.)	0.55	0.50	0.45	0.35	0.30	0.30	0.25
	Working Voltage (V)	100	160~250	315~450	500			
	tan δ (max.)	0.20	0.15	0.15	0.20			
	For capacitance value >33000µF, add following calculated value: $\frac{(\text{rated capacitance}) - 33000\mu\text{F}}{10000\mu\text{F}} \times 0.1$							
Low Temperature Characteristics	Impedance ratio max. at 120Hz							
	Working Voltage (V)	10~25	35	50	63~100	160~250	315~450	500
	Z-25°C / Z+20°C	4	6	4	3	8	8	8
	Z-40°C / Z+20°C	15	15	15	15	-	-	-
High Temperature Loading	Test time	: 2,000 hours			Post test requirements at +20°C			
	Test temperature	: +105°C			Leakage current : ≤Initial specified value			
	Test conditions	: Rated DC working voltage with rated ripple current			Cap. change : within ±20% of the initial measured value			
					tan δ : ≤200% of the initial specified value			
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits							
	Leakage current	: ≤Initial specified value						
	Cap. change	: within ±15% of the initial measured value						
	tan δ	: ≤150% of the initial specified value						
Industrial Standard	JISC - 5101-4 (IEC 60384-4)							

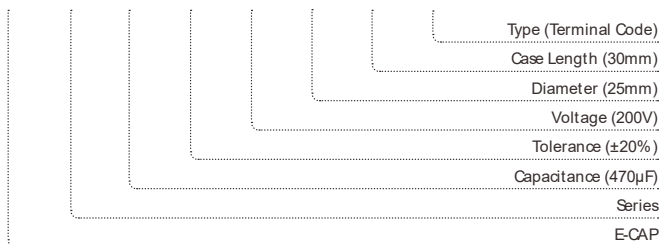
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	60	120	1k	10k~50k
10~100V	0.90	1.00	1.15	1.25
160~250V	0.80	1.00	1.25	1.47
315~500V	0.80	1.00	1.30	1.47

PART NUMBER SYSTEM (EXAMPLE : 200V 470µF)

1	23	456	7	89	10	1112	1314
E	VP	477	M	2D	O	30	SW



STANDARD RATINGS

Voltage (Code)		10V (1A)		16V (1C)		25V (1E)		35V (1V)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2700	278							20 x 25	1.29
3300	338							20 x 30	1.57
								22 x 25	1.45
3900	398					20 x 25	1.58	20 x 35	1.78
								22 x 30	1.69
4700	478					20 x 30	1.65	20 x 40	2.02
								22 x 35	2.02
						22 x 25	1.61	25 x 25	1.62
5600	568			20 x 25	1.68	20 x 35	1.85	22 x 35	2.13
						22 x 30	1.80	25 x 30	2.00
6800	688	20 x 25	1.31	20 x 30	1.80	20 x 40	2.11	22 x 40	2.41
				22 x 25	1.75	22 x 35	2.09	25 x 35	2.31
						25 x 25	1.87	30 x 25	2.31
8200	828	20 x 30	1.59	20 x 35	2.08	22 x 40	2.31	22 x 50	2.85
				22 x 30	2.00	25 x 30	2.34	25 x 40	2.73
						30 x 25	2.16	30 x 30	2.75
10000	109	20 x 30	1.88	20 x 40	2.15	22 x 45	2.65	25 x 45	3.05
		22 x 25	1.77	22 x 30	2.10	25 x 35	2.61	30 x 35	3.05
				25 x 25	2.05	30 x 30	2.61		
12000	129	20 x 35	2.18	22 x 35	2.31	22 x 50	2.80	25 x 50	3.37
		22 x 30	2.10	25 x 30	2.30	25 x 40	2.81	30 x 40	3.23
		25 x 25	1.94	30 x 25	2.30	30 x 30	2.74	35 x 30	3.19
15000	159	20 x 40	2.27	22 x 40	2.68	25 x 45	3.27	30 x 45	3.72
		22 x 35	2.23	25 x 35	2.58	30 x 35	3.13		
		25 x 30	2.10	30 x 30	2.57	35 x 30	3.26	35 x 35	3.67
18000	189	22 x 40	2.41	22 x 50	3.20	30 x 40	3.56		
		25 x 30	2.34	25 x 40	3.16			35 x 40	4.37
		30 x 25	2.25	30 x 30	2.98	35 x 35	3.84		
22000	229	22 x 45	2.58	25 x 45	3.36	30 x 45	4.04		
		25 x 35	2.54	30 x 35	3.30			35 x 45	4.92
		30 x 30	2.50	35 x 30	3.25	35 x 35	3.75		
27000	279	22 x 50	3.17	25 x 50	3.85				
		25 x 40	3.07	30 x 40	3.80	35 x 45	4.74		
		30 x 30	2.95	35 x 35	3.93				
33000	339	25 x 45	3.39	30 x 45	4.30				
		30 x 35	3.33	35 x 35	4.27	35 x 50	5.50		
		35 x 30	3.21						
39000	399	30 x 40	3.70	30 x 50	4.81				
		35 x 35	3.68	35 x 40	4.80				
47000	479	30 x 45	4.22	35 x 45	5.53				
		35 x 40	4.16						
56000	569	35 x 50	5.00						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size ΦD x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		50V (1H)		63V (1J)		80V (1K)		100V (2A)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
560	567							20 x 25	0.95
680	687							20 x 30	1.15
								22 x 25	1.09
820	827					20 x 25	1.04	20 x 35	1.31
								22 x 30	1.32
1000	108			20 x 25	1.10	20 x 30	1.24	20 x 35	1.43
								22 x 30	1.47
						22 x 25	1.19	25 x 25	1.45
1200	128			20 x 30	1.20	20 x 35	1.43	20 x 40	1.61
								22 x 35	1.69
				22 x 25	1.20	22 x 30	1.44	25 x 30	1.68
1500	158	20 x 25	1.15	20 x 35	1.47	20 x 35	1.57	22 x 40	1.97
								25 x 35	1.98
				22 x 30	1.47	25 x 25	1.59	30 x 25	1.95
1800	188	20 x 30	1.39	20 x 35	1.58	20 x 40	1.77	22 x 45	2.23
				22 x 30	1.58	22 x 35	1.79	25 x 40	2.20
		22 x 25	1.34	25 x 25	1.52	25 x 30	1.71	30 x 30	2.20
2200	228	20 x 35	1.60	20 x 40	1.80	22 x 40	2.03	25 x 45	2.53
				22 x 35	1.82	25 x 35	1.98	30 x 35	2.55
		22 x 30	1.60	25 x 30	1.75	30 x 25	1.98	35 x 30	2.50
2700	278	20 x 35	1.73	22 x 40	2.07	22 x 45	2.39	25 x 50	2.82
		22 x 30	1.70	25 x 35	2.11	25 x 40	2.35	30 x 40	2.86
		25 x 25	1.70	30 x 25	1.72	30 x 30	2.35	35 x 35	2.89
3300	338	20 x 40	1.97	22 x 45	2.33	25 x 45	2.64	30 x 45	3.30
		22 x 35	1.97	25 x 35	2.27	30 x 35	2.61	35 x 35	3.25
		25 x 30	1.88	30 x 30	2.24	35 x 30	2.47		
3900	398	22 x 40	2.22	25 x 40	2.51	25 x 50	2.92	30 x 50	3.60
		25 x 30	2.20			30 x 40	2.82		
		30 x 25	1.95	30 x 35	2.55	35 x 30	2.97	35 x 40	3.67
4700	478	22 x 45	2.43	25 x 50	2.91	30 x 45	3.34		
		25 x 35	2.43	30 x 40	2.86			35 x 45	3.80
		30 x 30	2.25	35 x 30	2.80	35 x 35	3.38		
5600	568	22 x 50	2.75	30 x 40	3.22	30 x 50	3.80		
		25 x 40	2.72					35 x 50	4.05
		30 x 30	2.64	35 x 35	3.20	35 x 40	3.80		
6800	688	25 x 45	3.30	30 x 50	3.65				
		30 x 35	3.30			35 x 45	3.90		
		35 x 30	3.25	35 x 40	3.65				
8200	828	30 x 40	3.60						
		35 x 35	3.60	35 x 45	4.04	35 x 50	4.20		
10000	109	30 x 50	4.05						
		35 x 40	4.04	35 x 50	4.48				
12000	129	35 x 45	4.56						
15000	159	35 x 50	4.77						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size ΦD x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		160V (2C)		180V (2P)		220V (2D)		220V (2N)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
180	187							20 x 25	0.81
220	227			20 x 25	0.81	20 x 25	0.83	20 x 30 22 x 25	0.94 0.94
270	277	20 x 25	0.87	20 x 30 22 x 25	0.95 0.97	20 x 30 22 x 25	0.97 0.99	20 x 35 22 x 30	1.10 1.09
330	337	20 x 30 22 x 25	1.02 1.03	20 x 35 22 x 30	1.09 1.13	20 x 35 22 x 30 25 x 25	1.17 1.20 1.20	20 x 40 22 x 35 25 x 25	1.18 1.24 1.14
390	397	20 x 35 22 x 30	1.15 1.17	20 x 35 25 x 25	1.28 1.33	20 x 40 25 x 25	1.27 1.34	20 x 45 25 x 30	1.33 1.26
470	477	20 x 40 22 x 30 25 x 25	1.25 1.28 1.29	20 x 40 22 x 35 25 x 30	1.34 1.39 1.43	22 x 40 25 x 30 30 x 25	1.44 1.44 1.48	22 x 40 25 x 30 30 x 25	1.41 1.39 1.37
560	567	22 x 35 25 x 30	1.45 1.49	22 x 40 25 x 30 30 x 25	1.56 1.53 1.56	22 x 45 25 x 35 30 x 30	1.60 1.60 1.60	22 x 45 25 x 35 30 x 30 35 x 25	1.60 1.56 1.61 1.52
680	687	22 x 40 25 x 35 30 x 25	1.64 1.70 1.63	22 x 45 25 x 35 30 x 30	1.76 1.76 1.74	22 x 50 25 x 40 30 x 30	1.75 1.76 1.74	25 x 40 30 x 35 35 x 30	1.75 1.76 1.72
820	827	22 x 45 25 x 40 30 x 30	1.85 1.92 1.91	22 x 50 25 x 40 30 x 30	1.97 1.99 1.93	25 x 45 30 x 35 35 x 30	2.10 2.11 2.10	25 x 45 30 x 40 35 x 30	1.97 2.06 1.95
1000	108	25 x 45 30 x 35	2.17 2.19	25 x 45 30 x 35 35 x 30	2.24 2.24 2.20	25 x 50 30 x 40 35 x 35	2.36 2.40 2.30	30 x 45 35 x 35	2.44 2.20
1200	128	25 x 50 30 x 40 35 x 30	2.43 2.48 2.25	30 x 40 35 x 35	2.53 2.54	30 x 45 35 x 35	2.69 2.53	35 x 40	2.37
1500	158	30 x 45 35 x 35	2.82 2.62	30 x 50 35 x 40	3.03 2.91	35 x 40	2.97	35 x 45	2.64
1800	188	30 x 50 35 x 40	3.13 2.97	35 x 45	3.25	35 x 50	3.45		
2200	228	35 x 45	3.34	35 x 50	3.62				

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size ΦD x L (mm)

STANDARD RATINGS

Voltage (Code)		250V (2E)		315V (2F)		350V (2V)		385V (2Y)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
56	566							20 x 25	0.37
68	686					20 x 25	0.41	20 x 30 22 x 25	0.44 0.45
82	826			20 x 25	0.39	20 x 30	0.45	20 x 30 22 x 30	0.50 0.52
100	107			20 x 30	0.45	20 x 30 22 x 25	0.51 0.53	20 x 35 22 x 30 25 x 25	0.56 0.58 0.57
120	127			20 x 30 22 x 25	0.54 0.56	20 x 35 22 x 30 25 x 25	0.59 0.61 0.62	20 x 40 22 x 35 25 x 30	0.68 0.68 0.68
150	157	20 x 25	0.71	20 x 35 22 x 30 25 x 25	0.64 0.66 0.65	20 x 40 22 x 35 25 x 30	0.70 0.73 0.73	22 x 40 25 x 30 30 x 25	0.79 0.78 0.75
180	187	20 x 30 22 x 25	0.82 0.84	20 x 40 22 x 35 25 x 30	0.75 0.78 0.71	22 x 40 25 x 30 30 x 25	0.83 0.80 0.81	22 x 45 25 x 35 30 x 30	0.89 0.86 0.88
220	227	20 x 35 22 x 30 25 x 25	0.95 0.97 0.99	22 x 40 25 x 30 30 x 25	0.89 0.85 0.83	22 x 45 25 x 35 30 x 30	0.94 0.92 0.98	22 x 50 25 x 40 30 x 30	1.01 1.00 1.00
270	277	20 x 40 22 x 35 25 x 30	1.08 1.11 1.15	22 x 45 25 x 35 30 x 30	1.01 0.98 1.01	22 x 50 25 x 40 30 x 30	1.07 1.05 1.03	25 x 45 30 x 40 35 x 30	1.13 1.14 1.10
330	337	22 x 40 25 x 30 30 x 25	1.26 1.26 1.31	22 x 50 25 x 40 30 x 35	1.14 1.12 1.21	25 x 45 30 x 35 35 x 30	1.24 1.24 1.18	30 x 45 35 x 35	1.31 1.32
390	397	22 x 45 25 x 35 30 x 30	1.41 1.42 1.50	25 x 45 30 x 35 35 x 30	1.31 1.30 1.23	25 x 50 30 x 40 35 x 35	1.38 1.39 1.39	30 x 50 35 x 40	1.48 1.48
470	477	22 x 50 25 x 40 30 x 30	1.58 1.61 1.61	30 x 40 35 x 35	1.53 1.47	30 x 45 35 x 35	1.57 1.50	35 x 45	1.76
560	567	25 x 45 30 x 35	1.80 1.84	30 x 45 35 x 40	1.65 1.66	30 x 50 35 x 40	1.75 1.69	35 x 50	1.95
680	687	25 x 50 30 x 40 35 x 30	2.03 2.09 1.96	35 x 45	1.96	35 x 45	1.96		
820	827	30 x 45 35 x 35	2.35 2.26	35 x 50	2.19				
1000	108	30 x 50 35 x 40	2.64 2.57						
1200	128	35 x 45	2.88						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size ΦD x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		400V (2G)		420V (2M)		450V (2W)		500V (2H)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
39	396							22 x 30	0.35
47	476					20 x 25	0.36	22 x 35	0.41
56	566	20 x 25	0.40	20 x 25	0.40	20 x 30	0.41	22 x 40	0.47
						22 x 25	0.42		
68	686	20 x 30	0.48	20 x 30	0.48	20 x 35	0.47	22 x 45	0.54
		22 x 25	0.49	22 x 25	0.50	22 x 30	0.50		
82	826	20 x 30	0.54	20 x 35	0.53	20 x 40	0.53	25 x 40	0.62
		22 x 30	0.56	22 x 30	0.56	22 x 35	0.56		
100	107	20 x 35	0.60	20 x 35	0.58	22 x 40	0.64	25 x 45	0.67
		22 x 30	0.62	22 x 30	0.63	25 x 30	0.63		
		25 x 25	0.61	25 x 25	0.63	30 x 25	0.67		
120	127	20 x 40	0.71	20 x 45	0.71	22 x 45	0.72	25 x 50	0.77
		22 x 35	0.73	22 x 35	0.73	25 x 35	0.71	35 x 30	0.72
		25 x 30	0.73	25 x 30	0.72	30 x 30	0.77		
150	157	22 x 40	0.85	22 x 45	0.86	22 x 50	0.80	30 x 40	0.82
		25 x 35	0.85	25 x 35	0.83	25 x 40	0.82		
		30 x 25	0.79	30 x 25	0.83	30 x 30	0.85		
180	187	22 x 45	0.95	22 x 50	1.02	25 x 45	0.93	30 x 50	1.01
		25 x 35	0.92	25 x 40	0.94	30 x 35	0.97		
		30 x 30	0.95	30 x 30	0.95				
220	227	22 x 50	1.08	25 x 45	1.13	25 x 50	1.05	35 x 45	1.12
		25 x 40	1.05	30 x 35	1.09	30 x 40	1.10		
		30 x 35	1.24	35 x 30	1.05	35 x 30	1.01		
270	277	25 x 50	1.29	25 x 50	1.37	30 x 45	1.25	35 x 50	1.29
		30 x 40	1.30	30 x 40	1.25	35 x 35	1.26		
		35 x 30	1.18	35 x 35	1.25				
330	337	30 x 45	1.47	30 x 45	1.49	30 x 50	1.42		
		35 x 35	1.41	35 x 35	1.42	35 x 40	1.44		
390	397	30 x 50	1.64	30 x 50	1.67	35 x 45	1.61		
		35 x 40	1.59	35 x 40	1.61				
470	477	35 x 45	1.87	35 x 45	1.86	35 x 50	1.80		
560	567	35 x 50	2.09						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size ΦD x L (mm)

FEATURES

- One rank smaller case sized than HP series.
- Suited for equipment down sizing.



SPECIFICATIONS

Item	Performance Characteristics	
Operating Temperature Range	-40 to +105°C	-25 to +105°C
Rated Working Voltage Range	160 to 250V	400 to 450V
Nominal Capacitance Range	100 to 3300µF	
Capacitance Tolerance	±20% at 120Hz, +20°C	
Leakage Current	I ≤ 3 √CV (µA) after 5 minutes application of rated working voltage at +20°C	
tan δ (120Hz, +20°C)	Working Voltage (V)	160 180 200 220 250 400 420 450
	tan δ (max.)	0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.20
Low Temperature Characteristics	Impedance ratio max. at 120Hz	
	Working Voltage (V)	160~250 400~450
	Z-25°C / Z+20°C	4 8
	Z-40°C / Z+20°C	15 -
High Temperature Loading	Test time : 2,000 hours	Post test requirements at +20°C
	Test temperature : +105°C	Leakage current : ≤ Initial specified value
	Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±20% of the initial measured value
		tan δ : ≤ 200% of the initial specified value
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits	
	Leakage current	: ≤ Initial specified value
	Cap. change	: within ±15% of the initial measured value
	tan δ	: ≤ 150% of the initial specified value
Industrial Standard	JISC - 5101-4 (IEC 60384-4)	

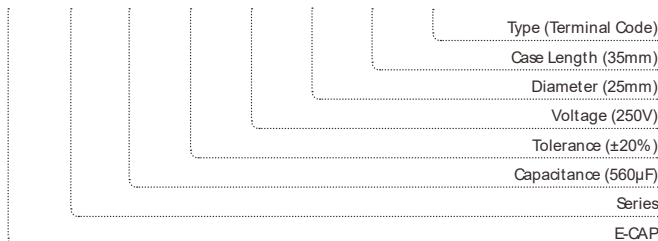
RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	60	120	1k	10k~50k
Rated Voltage				
160~250V	0.85	1.00	1.32	1.45
400~450V	0.82	1.00	1.30	1.41

PART NUMBER SYSTEM (EXAMPLE : 250V 560µF)

1	2 3	4 5 6	7	8 9	10	11 12	13 14
E	GP	567	M	2 E	O	3 5	SW



STANDARD RATINGS

Voltage (Code)		160V (2C)		180V (2P)		200V (2D)		220V (2N)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
330	337							22 x 25	1.26
390	397							22 x 30	1.34
470	477			22 x 25	1.30	22 x 25	1.20	22 x 35	1.48
								25 x 25	1.40
560	567	22 x 25	1.40	22 x 30	1.50	22 x 30	1.48	22 x 35	1.45
						25 x 25	1.48	25 x 30	1.45
680	687	22 x 30	1.50	22 x 35	1.70	22 x 35	1.60	22 x 40	1.65
		25 x 25	1.70	25 x 30	1.70	25 x 30	1.60	25 x 35	1.78
820	827			22 x 40	2.00	22 x 40	1.75	30 x 25	1.65
				25 x 35	2.00	25 x 35	1.75	22 x 50	1.93
		25 x 30	2.00	30 x 25	2.00	30 x 25	1.75	25 x 40	1.93
1000	108	22 x 40	2.10	22 x 45	2.10	22 x 45	2.04	30 x 30	1.85
		25 x 35	2.20	25 x 35	2.05	25 x 40	2.04	35 x 25	1.93
		30 x 25	2.20	30 x 30	2.20	30 x 30	2.04	25 x 45	2.15
1200	128	25 x 40	2.30	22 x 50	2.15	25 x 45	2.30	30 x 35	2.33
				25 x 40	2.15			35 x 30	2.33
		30 x 30	2.30	30 x 35	2.30	30 x 35	2.30	30 x 40	2.50
		35 x 25	2.30	35 x 25	2.15	35 x 25	2.30	35 x 30	2.35
1500	158	25 x 45	2.50	25 x 50	2.40	25 x 50	2.57	30 x 45	2.55
		30 x 35	2.50	30 x 40	2.50	30 x 40	2.57		
		35 x 30	2.50	35 x 30	2.35	35 x 30	2.57	35 x 35	2.50
1800	188	30 x 40	2.70	30 x 45	2.70	30 x 45	2.68	35 x 40	2.70
		35 x 30	2.55	35 x 35	2.70	35 x 35	2.68		
2200	228	30 x 45	2.90	30 x 50	2.90	30 x 50	2.92	35 x 50	2.95
		35 x 35	2.90	35 x 40	2.90	35 x 40	2.92		
2700	278	35 x 40	3.00	35 x 45	3.00	35 x 45	3.27		
3300	338	35 x 45	3.10	35 x 50	3.10				

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size ΦD x L (mm)

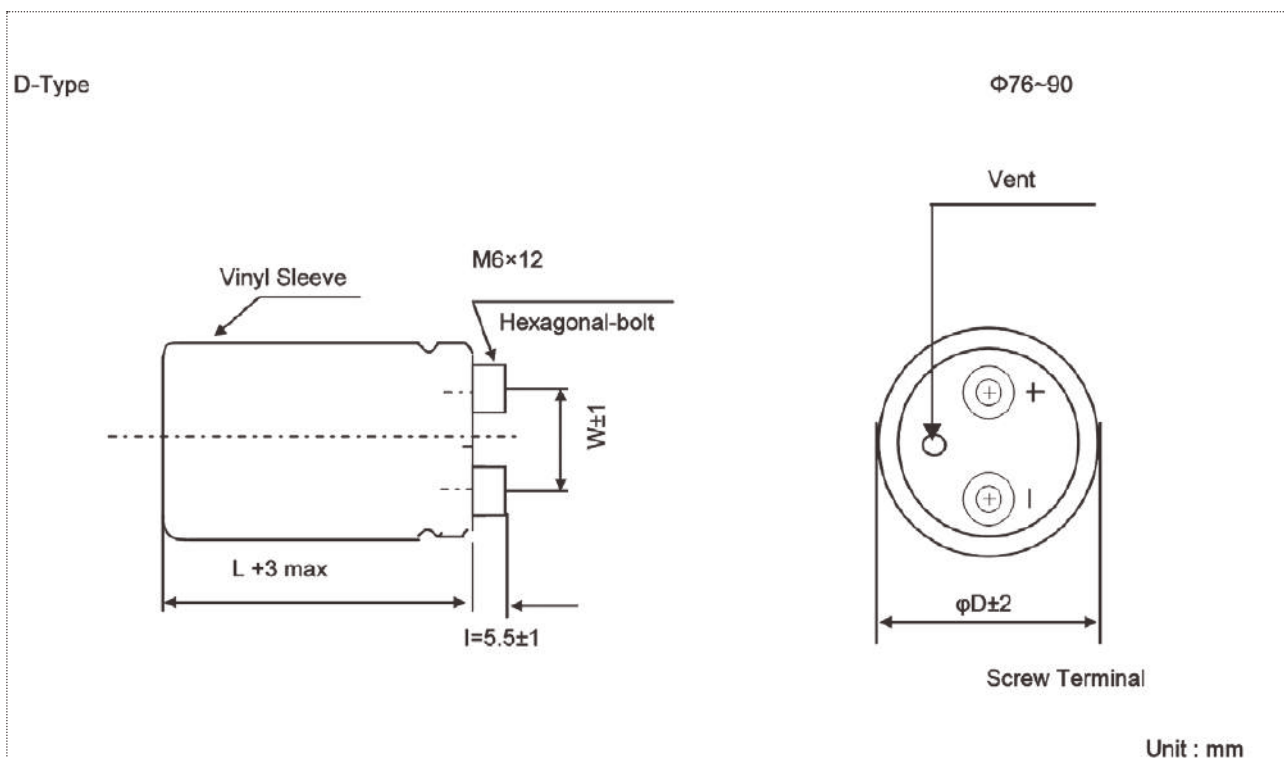
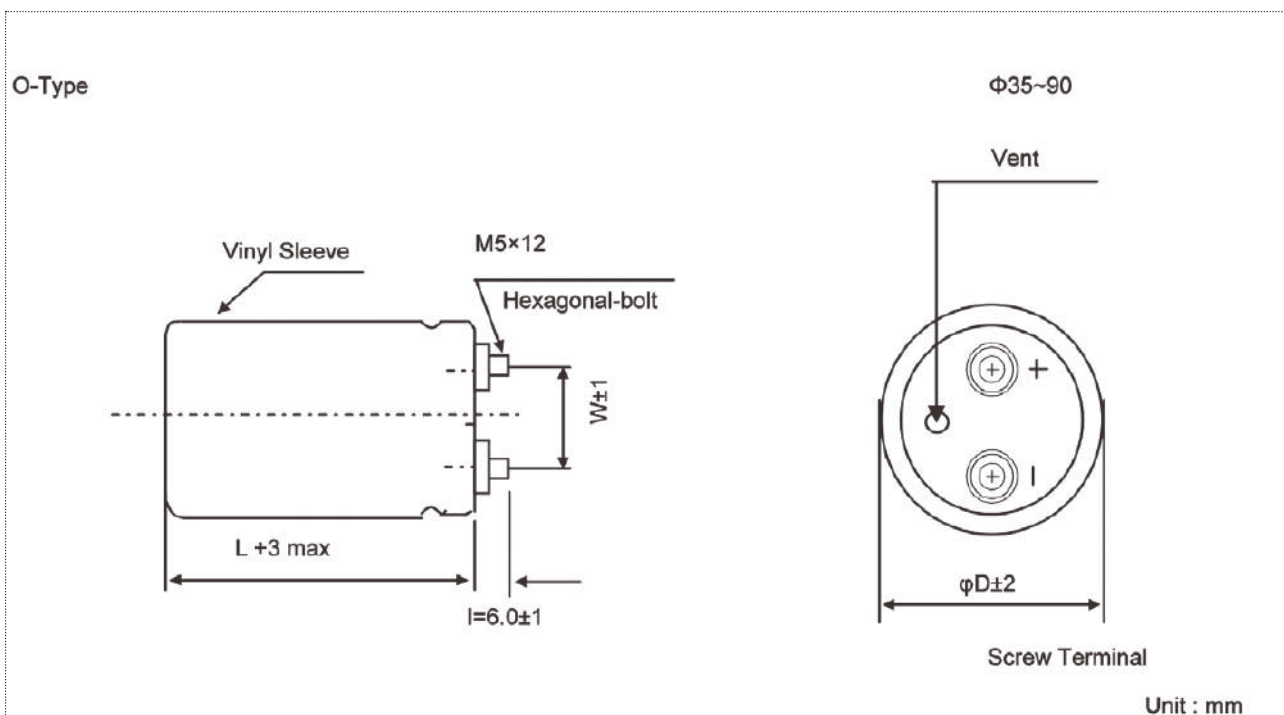
STANDARD RATINGS

Voltage (Code)		250V (2E)		400V (2G)		420V (2M)		450V (2W)	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
100	107							22 x 25	0.64
120	127			22 x 25	0.68	22 x 30	0.81	22 x 30 25 x 25	0.69 0.69
150	157					22 x 35 25 x 25	0.84 0.82	22 x 35 25 x 30	0.72 0.79
180	187			22 x 30 25 x 25	0.73 0.73	22 x 35 25 x 30	0.85 0.91	22 x 40 25 x 30	0.79 0.79
220	227			22 x 35 25 x 30	0.85 0.85	22 x 40 25 x 35 30 x 25	0.95 1.05 0.95	22 x 45 25 x 35 30 x 30	0.87 0.87 0.79
270	277			22 x 40 25 x 35 30 x 25	1.00 1.00 1.00	22 x 50 25 x 40 30 x 30	1.15 1.25 1.25	25 x 50 30 x 35 35 x 35	1.20 1.20 1.20
330	337			22 x 50 25 x 40 30 x 30 35 x 25	1.15 1.15 1.15 1.15	25 x 45 30 x 35	1.35 1.42	25 x 50 30 x 35	1.20 1.20
390	397	22 x 30 25 x 25	1.20 1.20	25 x 45 30 x 35 35 x 30	1.40 1.40 1.55	25 x 50 30 x 40 35 x 30	1.45 1.61 1.45	30 x 40 35 x 35	1.38 1.38
470	477	22 x 35 25 x 30	1.30 1.30	25 x 50 30 x 40 35 x 30	1.55 1.55 1.55	30 x 45 35 x 35	1.86 1.70	30 x 45 35 x 40	1.55 1.55
560	567	22 x 40 25 x 35 30 x 25	1.40 1.50 1.40	30 x 45 35 x 35	1.63 1.63	35 x 40	1.90	35 x 45	1.70
680	687	22 x 45 25 x 40 30 x 30	1.50 1.70 1.70	30 x 50 35 x 40	1.80 1.80	35 x 45	2.05	35 x 50	1.91
820	827	25 x 45 30 x 35 35 x 30	2.00 2.00 2.00	35 x 45	2.00				
1000	108	25 x 50 30 x 40 35 x 30	2.20 2.20 2.00	35 x 50	2.14				
1200	128	30 x 45 35 x 35	2.30 2.20						
1500	158	30 x 50 35 x 40	2.30 2.30						
1800	188	35 x 45	2.50						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz

Case Size ΦD x L (mm)

CASE SIZE TABLE



FEATURES

- Small case size, high rated voltage, capacitance and ripple current, stable and reliable performance, forming complete sets of undear electric station.
- Suitable for use in electronic and industrial equipments such as computer, programming control exchanger for power supplies filtering and energy storing.



SPECIFICATIONS

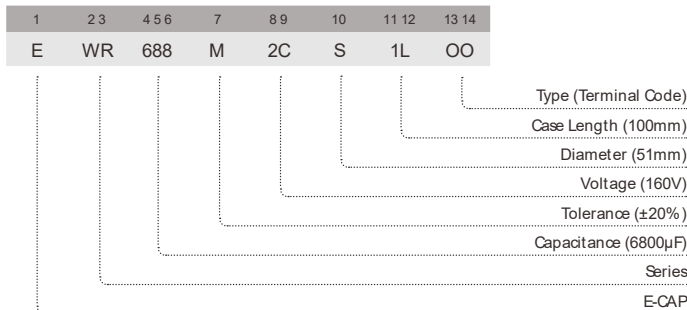
Item	Performance Characteristics	
Operating Temperature Range	-40 to +85°C	-25 to +85°C
Rated Working Voltage Range	10 to 100V	160 to 630V
Nominal Capacitance Range	100 to 680000μF	
Capacitance Tolerance	±20% at 120Hz, +20°C	
Leakage Current	I ≤ 0.02CV (μA) or 5 (mA) whichever is smaller measured after 5 minutes application of rated working voltage at +20°C	
tan δ (120Hz, +20°C)	The values shown in the STANDARD RATINGS tables	
Low Temperature Characteristics	Impedance ratio max. at 120Hz	
	Working Voltage (V)	10~100 160~630
	Z-25°C / Z+20°C	— 8
	Z-40°C / Z+20°C	15 —
High Temperature Loading	Test time : 2,000 hours	Post test requirements at +20°C
	Test temperature : +85°C	Leakage current : ≤ Initial specified value
	Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±20% of the initial measured value
		tan δ : ≤ 200% of the initial specified value
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits	
	Leakage current : ≤ Initial specified value	
	Cap. change : within ±20% of the initial measured value	
	tan δ : ≤ 175% of the initial specified value	
Industrial Standard	JISC - 5101-4 (IEC 60384-4)	

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)				
Rated Voltage	50	120	300	1k	10k~
<160V	0.80	1.00	1.08	1.15	1.15
≥160V	0.80	1.00	1.08	1.15	1.20

PART NUMBER SYSTEM (EXAMPLE : 160V 6800μF)



CASE SIZE TABLE

Method mount metal bracket

Unit : mm

Method to mount resin bushing (φ76) (Apply to L=150 or more)

Unit : mm

*** B**
3-leg brackets for φ90 capacitors have different hole shapes from the ordinary ones illustrated below.

Unit : mm

Method to mount resin bushing (φ90) (Apply to L=150 or more)

Unit : mm

Screw terminal type (φ35)

Unit : mm

Dimension of terminal pitch (w) and Nominal dia. of bolt

ΦD	w	α	Nominal dia. of bolt
35	12.7	3	M5
51	22.0	3	M5
63.5	28.6	3	M5
76	31.8	3	M5
90	31.8	3	M5

Dimensions of mounting bracket

Voltage (Code)		3 - Leg				2 - Leg				
Symbol	ΦD	51	63.5	76	90	35	51	63.5	76	90
P		32.5	38.1	44.5	50.8	24	33.2	40.5	46.5	53
A		38.5	43	49.2	58.5	29	40	46.5	53	59
T		7.5	8.0	7.0	8.0	6.0	6.0	7.0	6.0	6.0
S		5.0	5.0	5.0	5.0	3.5	4.5	4.5	4.5	4.5
U		12	14	14	18	10	14	14	14	14
θ °		60	60	60	60	30	30	30	30	30
H		20	25	30	35	15	25	35	35	35
h		15	20	24	25	10	15	20	20	20

STANDARD RATINGS

Voltage (Code)		10V (1A)			16V (1C)			25V (1E)		
SV		13			20			32		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
18000	189							35 x 50	0.35	4.0
27000	279				35 x 50	0.45	4.2			
39000	399	35 x 50	0.60	4.7				35 x 80	0.40	6.2
47000	479							35 x 100	0.40	7.4
56000	569				35 x 80	0.60	6.5	35 x 120	0.45	8.3
82000	829	35 x 80	0.60	7.0	35 x 100	0.70	8.0	51 x 80	0.50	9.7
100000	10T	35 x 100	0.70	8.0	35 x 120	0.70	9.6	51 x 100	0.60	10.8
120000	12T	35 x 120	0.70	9.4	51 x 80	0.80	9.6	51 x 120	0.60	12.0
150000	15T	51 x 80	0.90	9.8	51 x 100	0.90	11.2			
180000	18T							63.5 x 100	0.75	14.7
220000	22T	51 x 100	1.00	10.3	51 x 120	1.00	14.2	63.5 x 100	0.80	15.0
270000	27T	51 x 120	1.20	12.8	63.5 x 100	1.20	15.3	76 x 100	0.90	18.3
330000	33T				63.5 x 120	1.30	17.1	76 x 120	1.00	20.7
390000	39T	63.5 x 100	1.50	15.3	76 x 100	1.60	18.0	76 x 140	1.20	22.1
470000	47T	63.5 x 120	2.00	16.0	76 x 100	1.80	19.3			
560000	56T	76 x 120	2.50	17.3	76 x 140	2.00	20.7	90 x 140	1.50	25.8
680000	68T	76 x 120	3.00	18.7						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)			50V (1H)			63V (1J)		
SV		44			63			79		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
5600	568							35 x 50	0.20	3.0
10000	109				35 x 50	0.25	3.9	35 x 80	0.25	4.0
15000	159	35 x 50	0.30	3.9				35 x 100	0.25	5.3
18000	189				35 x 80	0.25	5.2	35 x 120	0.25	6.2
22000	229				35 x 100	0.30	5.7	51 x 80	0.30	6.5
27000	279				35 x 120	0.35	6.6			
33000	339	35 x 80	0.40	6.0				51 x 100	0.35	8.1
39000	399	35 x 100	0.40	6.7	51 x 80	0.40	7.4	51 x 120	0.35	9.5
47000	479	35 x 120	0.45	8.0				63.5 x 100	0.40	10.2
56000	569				51 x 100	0.40	9.8			
68000	689	51 x 80	0.50	8.5	51 x 120	0.45	11.1	63.5 x 120	0.45	12.7
82000	829	51 x 100	0.55	10.3	63.5 x 100	0.50	12.2			
100000	10T	51 x 120	0.60	11.3				76 x 120	0.45	16.7
120000	12T	51 x 120	0.60	12.8	63.5 x 120	0.50	15.0	76 x 140	0.50	19.0
150000	15T	63.5 x 100	0.70	13.2	76 x 115	0.60	17.7	90 x 140	0.55	22.0
180000	18T	63.5 x 120	0.70	15.3	76 x 120	0.60	18.1			
220000	22T	76 x 100	0.75	17.8	76 x 140	0.70	19.5			
270000	27T	76 x 120	0.80	18.4	90 x 140	0.80	23.2			
330000	33T	76 x 140	0.90	22.0						
470000	47T	90 x 140	1.00	28.0						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



STANDARD RATINGS

Voltage (Code)		80V (1K)			100V (2A)			160V (2C)		
SV		100			125			200		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
1200	128							35 x 50	0.15	2.0
2200	228				35 x 50	0.10	2.1	35 x 80	0.15	3.4
2700	278							35 x 100	0.15	3.7
3300	338	35 x 50	0.15	2.5				35 x 120	0.15	4.5
4700	478				35 x 80	0.15	3.4	51 x 80	0.20	5.6
6800	688	35 x 80	0.20	3.7	35 x 100	0.15	4.2	51 x 100	0.20	7.5
8200	828				35 x 120	0.15	5.0	51 x 120	0.20	8.1
10000	109	35 x 100	0.20	4.9	51 x 80	0.20	5.2	63.5 x 100	0.20	9.8
12000	129	35 x 120	0.20	5.4				63.5 x 120	0.20	10.8
15000	159	51 x 80	0.25	6.0				76 x 100	0.20	12.7
18000	189				51 x 120	0.20	8.1	76 x 120	0.20	14.0
22000	229	51 x 100	0.30	7.1	63.5 x 100	0.25	8.6	76 x 130	0.20	16.6
27000	279	51 x 120	0.30	8.6	63.5 x 120	0.25	10.3	76 x 140	0.20	16.6
33000	339	63.5 x 100	0.35	9.3	76 x 100	0.25	11.1	90 x 140	0.25	18.9
39000	399				76 x 120	0.25	12.4			
47000	479	63.5 x 120	0.35	12.0	76 x 140	0.25	14.3			
68000	689	76 x 120	0.35	15.4	90 x 140	0.30	18.0			
82000	829	76 x 140	0.35	18.1						
100000	10T	90 x 140	0.40	21.0						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz Case Size Φ D x L (mm)
 tan δ at 20°C 120Hz

Voltage (Code)		200V (2D)			250V (2E)			350V (2V)		
SV		250			300			400		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
390	397							35 x 50	0.25	1.9
560	567				35 x 50	0.15	1.3			
680	687							35 x 80	0.25	2.9
820	827	35 x 50	0.15	1.6						
1000	108							35 x 100	0.25	3.8
1200	128				35 x 80	0.15	2.3	35 x 120	0.25	4.2
1500	158				35 x 100	0.15	3.0	51 x 80	0.25	4.5
1800	188	35 x 80	0.15	2.8	35 x 120	0.15	3.3			
2200	228	35 x 100	0.15	3.6	51 x 80	0.15	3.7	51 x 90	0.25	5.8
2700	278	35 x 120	0.15	4.0						
3300	338	51 x 80	0.15	4.5	51 x 100	0.15	5.1	51 x 130	0.25	8.3
3900	398				51 x 120	0.15	5.9	63.5 x 110	0.25	9.2
4700	478	51 x 100	0.15	6.5	63.5 x 95	0.20	6.7	63.5 x 130	0.25	10.9
5600	568	51 x 120	0.15	7.6	63.5 x 100	0.20	6.9	76 x 90	0.25	10.3
6800	688				63.5 x 120	0.20	8.7	76 x 115	0.25	11.7
8200	828	63.5 x 100	0.20	9.5				76 x 130	0.25	14.0
10000	109	63.5 x 120	0.20	11.0	76 x 120	0.20	11.1	76 x 155	0.25	15.6
12000	129	76 x 100	0.20	11.5	76 x 150	0.20	12.2			
15000	159	76 x 120	0.20	12.8	76 x 140	0.20	13.0	90 x 150	0.25	20.0
18000	189	76 x 140	0.20	15.0	76 x 155	0.25	16.1			
22000	229	90 x 140	0.25	15.6	90 x 140	0.20	14.9			
					90 x 150	0.20	18.5			
					90 x 155	0.20	19.0			

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz Case Size Φ D x L (mm)
 tan δ at 20°C 120Hz

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STANDARD RATINGS

Voltage (Code)		400V (2G)			450V (2W)			500V (2H)		
SV		450			500			550		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
470	477							51 x 80	0.25	1.8
680	687							51 x 105	0.25	2.5
820	827							51 x 105	0.25	2.8
1000	108	51 x 80	0.25	3.4	51 x 80	0.25	3.5	51 x 115	0.25	3.2
1200	128	51 x 80	0.25	3.8	51 x 100	0.25	4.5			
1500	158	51 x 105	0.25	4.5	51 x 105	0.25	5.0	51 x 115	0.25	4.0
1800	188	51 x 105	0.25	5.2	51 x 115	0.25	5.6	63.5 x 95	0.25	4.0
		63.5 x 95	0.25	6.4	51 x 130	0.25	6.5	63.5 x 115	0.25	4.8
2200	228	51 x 100	0.25	5.6				63.5 x 130	0.25	5.7
		51 x 140	0.25	6.5	63.5 x 95	0.25	6.5			
2700	278	51 x 130	0.25	7.1	63.5 x 115	0.25	7.8	76 x 115	0.25	6.5
3300	338	63.5 x 115	0.25	8.5	63.5 x 130	0.25	9.1			
					76 x 115	0.25	9.0			
3900	398	63.5 x 130	0.25	9.7	63.5 x 160	0.25	9.5	76 x 130	0.25	8.4
					76 x 115	0.25	9.7			
4700	478	63.5 x 160	0.25	10.5	76 x 130	0.25	11.2			
		76 x 105	0.25	10.3						
		76 x 115	0.25	10.7	90 x 120	0.25	11.5			
5600	568	63.5 x 190	0.25	12.0						
		76 x 115	0.25	11.5	76 x 155	0.25	13.3			
		76 x 130	0.25	12.2						
6800	688	76 x 150	0.25	14.4	76 x 155	0.25	14.4			
		76 x 155	0.25	14.6	76 x 170	0.25	15.0			
					90 x 155	0.25	15.3			
8200	828	76 x 155	0.25	14.6						
		76 x 170	0.25	15.0	90 x 155	0.25	17.0			
		90 x 150	0.25	16.5						
		90 x 155	0.25	16.8						
10000	109	76 x 170	0.25	17.5						
		90 x 130	0.25	17.1						
		90 x 150	0.25	18.2	90 x 170	0.25	18.5			
		90 x 155	0.25	18.5						
		90 x 160	0.25	18.7						
12000	129	90 x 170	0.25	20.5	90 x 230	0.25	23.5			
15000	159	90 x 230	0.25	26.5						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		550V (25)			600V (26)			630V (2J)		
SV		600			650			680		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
100	107	35 x 50	0.25	0.6						
180	187	35 x 80	0.25	1.0						
270	277	35 x 100	0.25	1.3						
330	337	35 x 120	0.25	1.6						
390	397	51 x 80	0.25	1.7						
560	567	51 x 100	0.25	2.1						
		63.5 x 120	0.25	2.5						
680	687	51 x 130	0.25	2.7						
		63.5 x 130	0.25	3.0						
820	827	51 x 130	0.25	3.1						
		63.5 x 100	0.25	3.5						
1000	108				63.5 x 120	0.30	5.3	63.5 x 130	0.30	5.9
1200	128	76 x 100	0.25	4.2	76 x 100	0.30	6.0	76 x 110	0.30	6.7
1500	158	76 x 100	0.25	4.6	76 x 120	0.30	7.3	76 x 130	0.30	8.1
1800	188	76 x 100	0.25	5.2	76 x 140	0.30	8.6	76 x 150	0.30	9.6
2200	228	76 x 110	0.25	5.9	90 x 120	0.30	9.6	90 x 130	0.30	10.7
2700	278				90 x 140	0.30	11.3	90 x 150	0.30	12.6
3300	338	76 x 140	0.25	8.0	90 x 160	0.30	13.2	90 x 170	0.30	14.7
3900	398				90 x 180	0.30	15.6	90 x 190	0.30	17.3

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



FEATURES

- Load life of 2,000 hours application of ripple current at 85°C.
- Higher ripple current than WRseries, high reliability type.
- Inverter-use.



SPECIFICATIONS

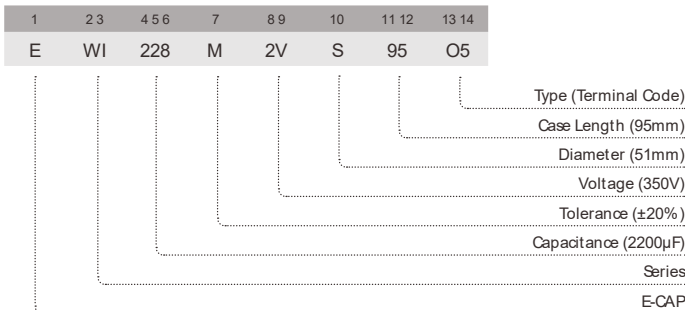
Item	Performance Characteristics			
Operating Temperature Range	-25 to +85°C			
Rated Working Voltage Range	350 to 450V			
Nominal Capacitance Range	390 to 22000μF			
Capacitance Tolerance	±20% at 120Hz, +20°C			
Leakage Current	$I \leq 0.02CV$ (μA) or 5 (mA) whichever is smaller measured after 5 minutes application of rated working voltage at +20°C			
tan δ (120Hz, +20°C)	0.25			
Low Temperature Characteristics	Impedance ratio max. at 120Hz			
	<table border="1"> <tr> <td>Working Voltage (V)</td> <td>350~450</td> </tr> <tr> <td>Z-25°C / Z+20°C</td> <td>8</td> </tr> </table>	Working Voltage (V)	350~450	Z-25°C / Z+20°C
Working Voltage (V)	350~450			
Z-25°C / Z+20°C	8			
High Temperature Loading	Test time : 2,000 hours Test temperature : +85°C Test conditions : Rated DC working voltage with rated ripple current			
	Post test requirements at +20°C Leakage current : ≤Initial specified value Cap. change : within ±20% of the initial measured value tan δ : ≤200% of the initial specified value			
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits Leakage current : ≤Initial specified value Cap. change : within ±20% of the initial measured value tan δ : ≤175% of the initial specified value			
Industrial Standard	JISC- 5101-4 (IEC 60384-4)			

RIPPLE CURRENT MULTIPLIER

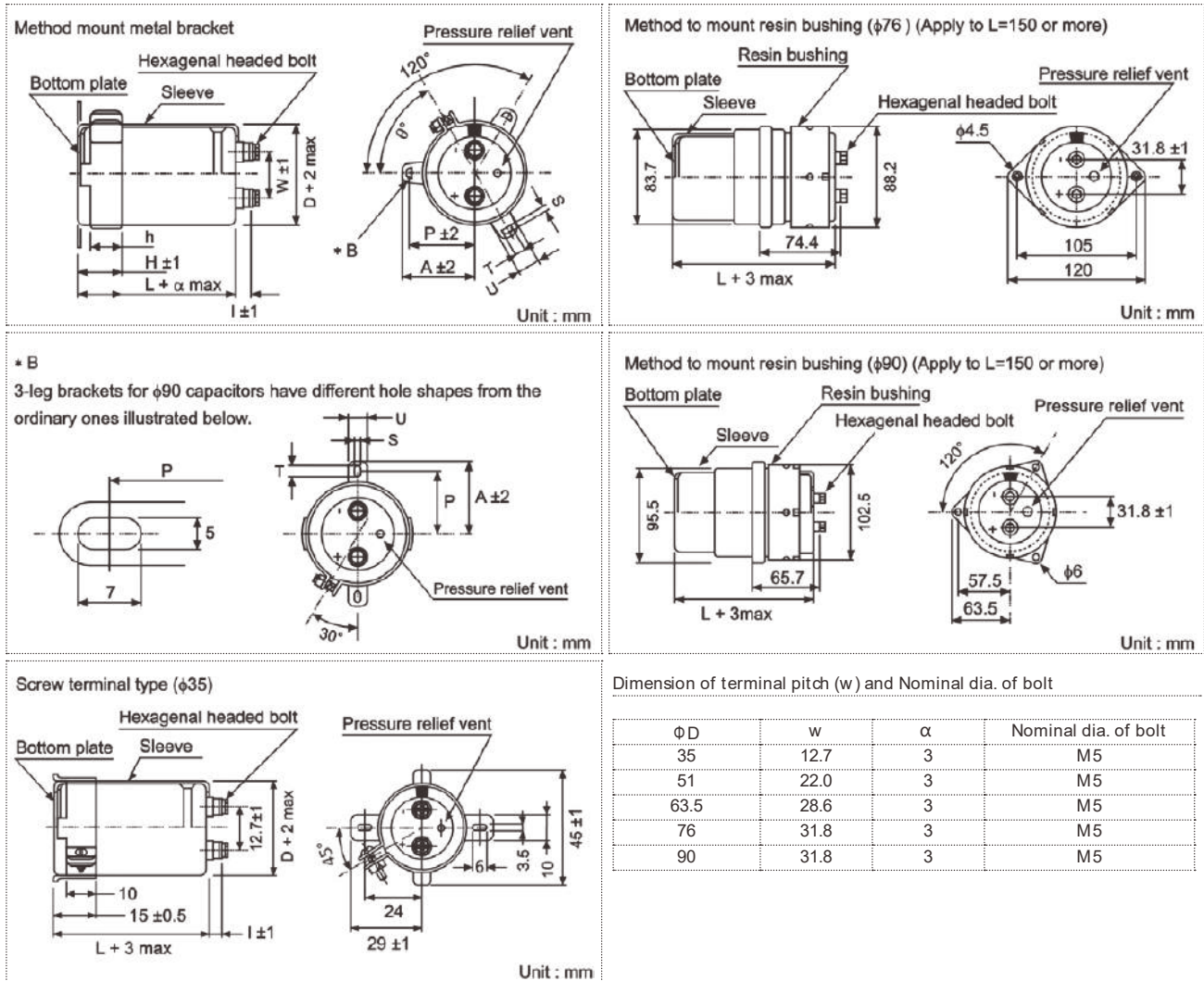
Frequency Coefficient

Coefficient	50	120	300	1k	10k~
<160V	0.80	1.00	1.08	1.15	1.15
≥160V	0.80	1.00	1.08	1.15	1.20

PART NUMBER SYSTEM (EXAMPLE : 350V 2200μF)



CASE SIZE TABLE



Dimensions of mounting bracket

Voltage (Code)		3-Leg				2-Leg				
Symbol	φD	51	63.5	76	90	35	51	63.5	76	90
P		32.5	38.1	44.5	50.8	24	33.2	40.5	46.5	53
A		38.5	43	49.2	58.5	29	40	46.5	53	59
T		7.5	8.0	7.0	8.0	6.0	6.0	7.0	6.0	6.0
S		5.0	5.0	5.0	5.0	3.5	4.5	4.5	4.5	4.5
U		12	14	14	18	10	14	14	14	14
θ°		60	60	60	60	30	30	30	30	30
H		20	25	30	35	15	25	35	35	35
h		15	20	24	25	10	15	20	20	20



STANDARD RATINGS

Voltage (Code)		350V (2V)		400V (2G)		450V (2W)	
SV		400		450		500	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
390	397	35 x 50	1.9				
560	567			35 x 80	2.8		
680	687	35 x 80	3.1				
820	827			35 x 100	3.8		
1000	108	35 x 100	4.2	35 x 120	4.5	51 x 75	5.4
1200	128	35 x 120	4.8	51 x 75	4.9	51 x 95	6.6
1500	158	51 x 75	5.3			51 x 115	7.6
1800	188			51 x 95	6.4	51 x 130	8.3
2200	228	51 x 95	7.1	51 x 130	8.1	63.5 x 95	10.0
2700	278			63.5 x 96	8.9	63.5 x 115	11.7
3300	338	51 x 130	10.0	63.5 x 115	11.3	63.5 x 130	12.0
3900	398	63.5 x 115	11.7	63.5 x 130	12.3	76 x 115	13.3
4700	478	63.5 x 130	13.5	76 x 106	13.8	76 x 130	15.4
				76 x 115	14.3		
5600	568	76 x 115	15.5	76 x 130	16.5	76 x 155	18.2
6800	688	76 x 130	17.9	76 x 144	19.0	90 x 155	20.6
				76 x 155	19.6		
8200	828	76 x 155	20.4	90 x 155	22.0	90 x 155	22.1
10000	109	90 x 130	21.7	90 x 155	23.6	90 x 195	27.2
12000	129	90 x 155	24.7	90 x 195	27.5	90 x 235	32.1
15000	159	90 x 195	28.6	90 x 235	32.1		
18000	189	90 x 235	34.1				
22000	229			90 x 235	38.9		

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

WI

Screw Terminal Type Aluminum Electrolytic Capacitors

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

FEATURES

- Load life of 2,000 hours application of ripple current at 105°C.
- Suitable for use in electronic and industrial equipments such as computer, programming control exchanger for power supplies filtering and energy storing.



SPECIFICATIONS

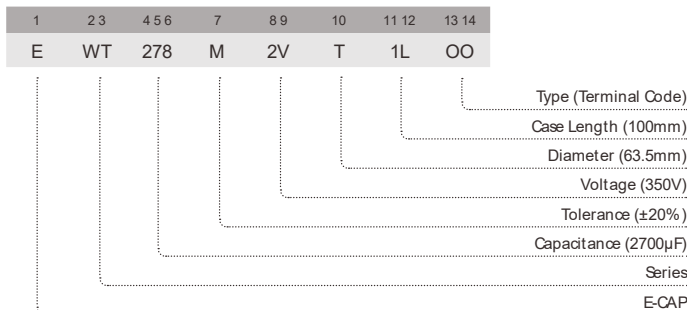
Item	Performance Characteristics	
Operating Temperature Range	-40 to +105°C	-25 to +105°C
Rated Working Voltage Range	10 to 100V	160 to 500V
Nominal Capacitance Range	180 to 680000µF	
Capacitance Tolerance	±20% at 120Hz, +20°C	
Leakage Current	I ≤ 0.02CV (µA) or 5 (mA) whichever is smaller measured after 5 minutes application of rated working voltage at +20°C	
tan δ (120Hz, +20°C)	The values shown in the STANDARD RATING Tables	
Low Temperature Characteristics	Impedance ratio max. at 120Hz	
	Working Voltage (V)	10~100 160~500
	Z-25°C / Z+20°C	- 8
	Z-40°C / Z+20°C	15 -
High Temperature Loading	Test time : 2,000 hours	Post test requirements at +20°C
	Test temperature : +105°C	Leakage current : ≤ Initial specified value
	Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±20% of the initial measured value
		tan δ : ≤ 200% of the initial specified value
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits	
	Leakage current : ≤ Initial specified value	
	Cap. change : within ±20% of the initial measured value	
	tan δ : ≤ 200% of the initial specified value	
Industrial Standard	JISC - 5101-4 (IEC 60384-4)	

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	50	120	300	1k	10k~
<160V	0.80	1.00	1.08	1.15	1.15
≥160V	0.80	1.00	1.08	1.15	1.20

PART NUMBER SYSTEM (EXAMPLE : 350V 2700µF)



CASE SIZE TABLE

Method mount metal bracket

Unit : mm

Method to mount resin bushing (φ76) (Apply to L=150 or more)

Unit : mm

*** B**
3-leg brackets for φ90 capacitors have different hole shapes from the ordinary ones illustrated below.

Unit : mm

Method to mount resin bushing (φ90) (Apply to L=150 or more)

Unit : mm

Screw terminal type (φ35)

Unit : mm

Dimension of terminal pitch (w) and Nominal dia. of bolt

Φ D	w	α	Nominal dia. of bolt
35	12.7	3	M5
51	22.0	3	M5
63.5	28.6	3	M5
76	31.8	3	M5
90	31.8	3	M5

Dimensions of mounting bracket

Voltage (Code)		3 - Leg				2 - Leg				
Symbol	Φ D	51	63.5	76	90	35	51	63.5	76	90
P		32.5	38.1	44.5	50.8	24	33.2	40.5	46.5	53
A		38.5	43	49.2	58.5	29	40	46.5	53	59
T		7.5	8.0	7.0	8.0	6.0	6.0	7.0	6.0	6.0
S		5.0	5.0	5.0	5.0	3.5	4.5	4.5	4.5	4.5
U		12	14	14	18	10	14	14	14	14
θ °		60	60	60	60	30	30	30	30	30
H		20	25	30	35	15	25	35	35	35
h		15	20	24	25	10	15	20	20	20

STANDARD RATINGS

Voltage (Code)		10V (1A)			16V (1C)			25V (1E)		
SV		13			20			32		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
12000	129							35 x 50	0.35	3.7
15000	159							35 x 50	0.35	4.1
18000	189				35 x 50	0.40	4.2	35 x 60	0.35	4.8
22000	229				35 x 50	0.40	4.7	35 x 60	0.35	5.3
27000	279	35 x 50	0.45	4.9	35 x 60	0.40	5.5	35 x 80	0.35	6.4
33000	339	35 x 50	0.50	5.1	35 x 60	0.45	5.7	35 x 80	0.40	6.7
39000	399	35 x 60	0.50	5.9	35 x 80	0.45	6.8	35 x 100	0.40	7.8
47000	479	35 x 80	0.50	7.1	35 x 80	0.50	7.1	35 x 120	0.40	9.3
56000	569	35 x 80	0.60	7.1	35 x 100	0.50	8.4	51 x 80	0.45	9.7
68000	689	35 x 100	0.60	8.5	35 x 100	0.55	8.8	51 x 100	0.45	11.2
82000	829	35 x 100	0.65	8.9	51 x 80	0.55	10.7	51 x 100	0.50	11.2
100000	10T	35 x 120	0.65	10.7	51 x 80	0.65	10.8	51 x 120	0.50	14.8
120000	12T	51 x 80	0.75	11.0	51 x 100	0.65	13.1	63.5 x 100	0.65	14.9
150000	15T	51 x 100	0.80	13.2	51 x 120	0.70	15.3	63.5 x 120	0.65	17.9
180000	18T	51 x 120	0.80	15.7	51 x 120	0.80	15.7	63.5 x 120	0.80	17.9
220000	22T	51 x 120	0.85	16.8	63.5 x 120	0.85	19.2	76 x 120	0.85	21.3
270000	27T	63.5 x 120	1.00	19.6	63.5 x 120	1.00	19.6	76 x 120	1.00	21.7
330000	33T	63.5 x 120	1.20	19.7	76 x 120	1.30	21.1	76 x 140	1.20	23.4
390000	39T	76 x 120	1.50	21.3	76 x 120	1.50	21.3	90 x 140	1.50	24.9
470000	47T	76 x 120	1.80	21.4	76 x 140	1.60	24.2			
560000	56T	76 x 140	2.00	23.6	90 x 140	2.00	28.1			
680000	68T	90 x 140	2.40	26.0	90 x 140	2.40	28.5			

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)			50V (1H)			63V (1J)		
SV		44			63			79		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
2700	278							35 x 50	0.20	2.3
3300	338							35 x 50	0.20	2.5
3900	398				35 x 50	0.20	2.8	35 x 50	0.20	2.8
4700	478				35 x 50	0.20	3.1	35 x 50	0.20	3.1
5600	568				35 x 50	0.20	3.3	35 x 60	0.20	3.5
6800	688				35 x 50	0.25	3.3	35 x 60	0.20	3.9
8200	828	35 x 50	0.30	3.3	35 x 60	0.25	3.8	35 x 80	0.20	4.7
10000	109	35 x 50	0.30	3.6	35 x 80	0.25	4.6	35 x 80	0.25	4.7
12000	129	35 x 60	0.30	4.2	35 x 80	0.25	5.1	35 x 100	0.25	5.5
15000	159	35 x 60	0.30	4.7	35 x 80	0.25	5.7	35 x 120	0.25	6.6
18000	189	35 x 80	0.30	5.7	35 x 100	0.25	6.7	51 x 80	0.25	7.4
22000	229	35 x 80	0.30	6.3	35 x 120	0.25	8.1	51 x 100	0.25	9.0
27000	279	35 x 100	0.30	7.5	51 x 80	0.25	9.1	51 x 120	0.25	10.9
33000	339	35 x 120	0.30	9.0	51 x 100	0.25	11.1	51 x 120	0.25	12.0
39000	399	51 x 80	0.35	9.2	51 x 120	0.25	13.1	63.5 x 100	0.30	12.5
47000	479	51 x 100	0.35	11.2	51 x 120	0.30	13.9	63.5 x 120	0.30	14.9
56000	569	51 x 100	0.40	11.4	63.5 x 100	0.35	13.9	63.5 x 120	0.30	16.3
68000	689	51 x 120	0.40	13.6	63.5 x 120	0.35	16.6	76 x 120	0.35	18.4
82000	829	63.5 x 100	0.45	14.8	76 x 120	0.40	18.9	76 x 140	0.40	20.0
100000	10T	63.5 x 120	0.45	17.6	76 x 120	0.45	19.5	76 x 140	0.50	20.0
120000	12T	63.5 x 120	0.55	17.6	76 x 120	0.55	19.5	90 x 140	0.60	21.8
150000	15T	76 x 120	0.65	19.8	90 x 140	0.60	23.9			
180000	18T	76 x 120	0.80	19.8	90 x 140	0.75	23.9			
220000	22T	76 x 140	0.80	23.4						
270000	27T	90 x 140	1.00	25.5						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

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STANDARD RATINGS

Voltage (Code)		80V (1K)			100V (2A)			160V (2C)		
SV		100			125			200		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
560	567							35 x 50	0.15	1.2
680	687							35 x 50	0.15	1.3
820	827							35 x 50	0.15	1.4
1000	108							35 x 50	0.15	1.6
1200	128							35 x 60	0.15	1.9
1500	158							35 x 60	0.15	2.1
1800	188				35 x 50	0.10	2.7	35 x 80	0.15	2.5
2200	228	35 x 50	0.15	2.4	35 x 50	0.10	3.0	35 x 80	0.15	2.8
2700	278	35 x 50	0.15	2.7	35 x 60	0.10	3.5	35 x 100	0.15	3.3
3300	338	35 x 50	0.15	3.0	35 x 80	0.10	4.2	35 x 120	0.15	3.8
3900	398	35 x 60	0.15	3.4	35 x 80	0.12	4.2	51 x 80	0.20	3.8
4700	478	35 x 60	0.15	3.7	35 x 100	0.12	5.0	51 x 100	0.20	4.6
5600	568	35 x 80	0.15	4.5	35 x 100	0.12	5.4	51 x 100	0.20	5.1
6800	688	35 x 80	0.15	4.9	35 x 120	0.15	5.8	51 x 120	0.20	6.1
8200	828	35 x 100	0.20	5.1	51 x 80	0.15	6.4	63.5 x 100	0.20	7.0
10000	109	35 x 120	0.20	6.1	51 x 100	0.15	7.8	63.5 x 120	0.20	8.4
12000	129	51 x 80	0.20	6.7	51 x 120	0.15	9.3	76 x 100	0.20	9.4
15000	159	51 x 100	0.20	8.3	51 x 120	0.15	10.4	76 x 120	0.20	11.4
18000	189	51 x 120	0.20	9.9	63.5 x 100	0.20	10.4	76 x 140	0.20	13.4
22000	229	51 x 120	0.20	11.0	63.5 x 120	0.20	12.5	90 x 140	0.25	14.5
27000	279	63.5 x 100	0.25	11.4	76 x 120	0.25	13.7	90 x 140	0.25	16.0
33000	339	76 x 100	0.25	13.9	76 x 120	0.25	15.2			
39000	399	76 x 100	0.30	13.9	76 x 140	0.30	16.1			
47000	479	76 x 120	0.30	16.5	90 x 140	0.30	19.3			
56000	569	76 x 120	0.30	18.1	90 x 140	0.30	21.1			
68000	689	76 x 140	0.35	19.7						
82000	829	90 x 140	0.40	22.1						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		200V (2D)			250V (2E)			315V (2F)		
SV		250			300			365		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
180	187							35 x 50	0.10	0.8
220	227							35 x 50	0.10	0.9
270	277				35 x 50	0.15	0.8	35 x 50	0.10	1.0
330	337	35 x 50	0.15	0.9	35 x 50	0.15	0.9	35 x 50	0.10	1.1
390	397	35 x 50	0.15	1.0	35 x 50	0.15	1.0	35 x 50	0.10	1.2
470	477	35 x 50	0.15	1.1	35 x 50	0.15	1.1	35 x 60	0.10	1.4
560	567	35 x 50	0.15	1.2	35 x 50	0.15	1.2	35 x 60	0.10	1.5
680	687	35 x 50	0.15	1.3	35 x 60	0.15	1.4	35 x 80	0.10	1.7
820	827	35 x 50	0.15	1.4	35 x 80	0.15	1.6	35 x 80	0.15	1.7
1000	108	35 x 60	0.15	1.7	35 x 80	0.20	1.6	35 x 100	0.15	2.0
1200	128	35 x 60	0.15	1.9	35 x 80	0.20	1.8	35 x 120	0.15	2.4
1500	158	35 x 80	0.15	2.3	35 x 100	0.20	2.1	51 x 80	0.15	2.7
1800	188	35 x 80	0.15	2.5	35 x 120	0.20	2.5	51 x 100	0.15	3.3
2200	228	35 x 100	0.15	3.0	51 x 80	0.20	2.9	51 x 120	0.15	4.0
2700	278	35 x 120	0.15	3.6	51 x 100	0.20	3.5	51 x 120	0.15	4.4
3300	338	51 x 80	0.15	4.1	51 x 120	0.20	4.2	63.5 x 100	0.15	5.1
3900	398	51 x 100	0.15	4.9	51 x 120	0.20	4.6	63.5 x 120	0.15	6.0
4700	478	63.5 x 100	0.20	5.3	63.5 x 120	0.20	5.7	76 x 100	0.15	6.8
5600	568	63.5 x 100	0.20	5.8	63.5 x 120	0.20	6.3	76 x 120	0.15	8.0
6800	688	63.5 x 120	0.20	6.9	76 x 120	0.20	7.7	76 x 130	0.15	9.2
8200	828	63.5 x 120	0.20	7.6	76 x 120	0.20	8.4	90 x 140	0.15	11.4
10000	109	76 x 120	0.20	9.3	76 x 140	0.20	10.0	90 x 140	0.15	12.6
12000	129	76 x 120	0.20	10.2	90 x 140	0.20	11.9			
15000	159	76 x 140	0.20	12.2						
18000	189	90 x 140	0.25	13.1						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

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WT

Screw Terminal Type Aluminum Electrolytic Capacitors

STANDARD RATINGS

Voltage (Code)		350V (2V)			400V (2G)			450V (2W)		
SV		400			450			500		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
470	477							51 x 80	0.15	1.4
680	687							51 x 80	0.15	1.6
1000	108				51 x 80	0.15	2.2	51 x 80	0.15	1.8
1200	128	51 x 80	0.15	2.4	51 x 80	0.15	2.5			
1500	158	51 x 80	0.15	2.8	51 x 115	0.15	3.0	51 x 115	0.15	3.5
1800	188	51 x 105	0.15	3.2						
2200	228	51 x 115	0.15	3.8	63.5 x 95	0.15	4.0	63.5 x 115	0.15	5.0
2700	278	63.5 x 95	0.15	4.5				76 x 100	0.15	5.8
3300	338				63.5 x 115	0.15	5.0	76 x 100	0.15	6.5
3900	398	76 x 90	0.15	6.0						
4700	478				76 x 115	0.15	7.0	76 x 130	0.15	8.0
5600	568	76 x 130	0.15	8.3	76 x 140	0.15	8.5	76 x 155	0.15	9.0
6800	688	76 x 140	0.15	9.5	90 x 130	0.15	10.0	90 x 155	0.15	10.5
8200	828	90 x 140	0.15	11.4				90 x 195	0.15	13.0
10000	109							90 x 195	0.15	14.0
12000	129							90 x 230	0.15	15.7
15000	159							90 x 250	0.15	18.2

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		500V (2H)		
SV		550		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current
330	337	51 x 80	0.15	1.1
470	477	51 x 80	0.15	1.3
680	687	51 x 105	0.15	1.8
1000	108	51 x 115	0.15	2.1
1500	158	63.5 x 115	0.15	3.0
2200	228	63.5 x 130	0.15	3.7
2700	278	63.5 x 150	0.15	4.4
		76 x 115	0.15	4.4
3300	338	63.5 x 170	0.15	5.2
		76 x 155	0.15	5.2
3900	398	76 x 155	0.15	5.8
4700	478	76 x 190	0.15	6.9
		90 x 155	0.15	6.9
5600	568	90 x 155	0.15	7.2
6800	688	90 x 170	0.15	8.3
8200	828	90 x 220	0.15	10.2
10000	109	90 x 250	0.15	12.0

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

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FEATURES

- High voltage and capacitance, high ripple, high reliability, guarantee 5,000 hours load life at 85°C.
- Suitable for use in changeable current circuits in changeable frequencies air-condition etc.



SPECIFICATIONS

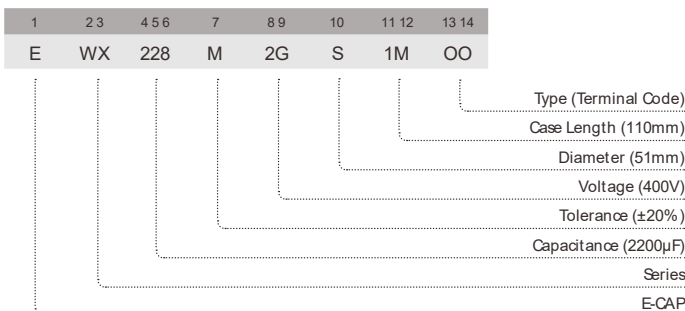
Item	Performance Characteristics										
Operating Temperature Range	-40 to +85°C	-25 to +85°C									
Rated Working Voltage Range	10 to 100V	160 to 550V									
Nominal Capacitance Range	1000 to 1500000μF										
Capacitance Tolerance	±20% at 120Hz, +20°C										
Leakage Current	I ≤ 0.02CV (μA) or 5 (mA) whichever is smaller measured after 5 minutes application of rated working voltage at +20°C										
tan δ (120Hz, +20°C)	Φ D	L	V	10	16	25	35	50	63	80	100
	35	80~100	100	0.6	0.4	0.4	0.3	0.3	0.3	0.2	0.1
				120	0.7	0.6	0.4	0.3	0.3	0.2	0.2
	51	70~100	100	0.9	0.6	0.5	0.4	0.3	0.3	0.2	0.2
				120~140	1	0.8	0.5	0.4	0.3	0.3	0.2
	63.5	100	100	0.9	-	-	0.5	0.4	0.3	0.3	-
				105~220	1.2	0.8	0.7	-	-	0.3	0.3
	76	100	100	1.6	-	-	0.7	-	-	-	-
				120~140	1.6	1.1	0.8	0.8	0.6	0.5	0.4
	90	140~220	2	1.5	1	0.9	0.8	0.6	0.4	0.3	
	100	250	2.4	1.5	1	0.9	0.8	0.6	0.4	0.3	
	Φ D	L	V	160~250	350~450						
	35	80~120	100	0.15	0.25						
	51	70~140	100	0.15	0.25						
63.5	90~190	100	0.20	0.25							
76	90~220	100	0.20	0.25							
90	130~230	100	0.20	0.25							
100	250	100	0.25	0.25							
Low Temperature Characteristics	Impedance ratio max. at 120Hz		Working Voltage (V)		10~100	160~500					
	Z-25°C / Z+20°C				-	8					
	Z-40°C / Z+20°C				15	-					
High Temperature Loading	Test time	: 5,000 hours				Post test requirements at +20°C					
	Test temperature	: +85°C				Leakage current : ≤ initial specified value					
Shelf Life	Test conditions	: Rated DC working voltage with rated ripple current				Cap. change : within ±20% of the initial measured value					
							tan δ : ≤ 200% of the initial specified value				
Industrial Standard	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits										
	Leakage current		: ≤ initial specified value								
	Cap. change		: within ±20% of the initial measured value								
	tan δ		: ≤ 200% of the initial specified value								

RIPPLE CURRENT MULTIPLIER

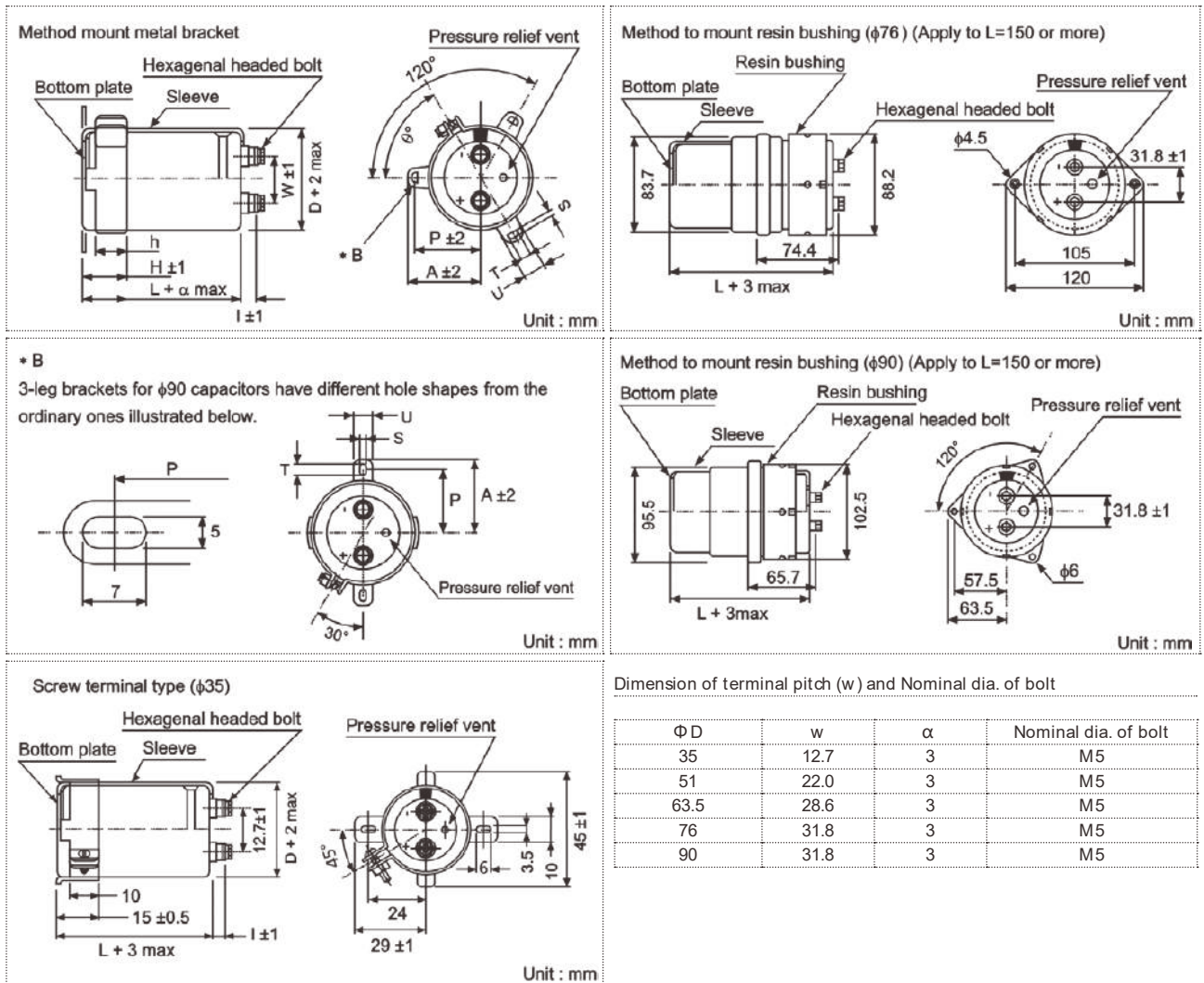
Frequency Coefficient

Coefficient	Rated Voltage	50	120	300	1k	10k~
Freq. (Hz)	<160V	0.80	1.00	1.08	1.15	1.15
	≥160V	0.80	1.00	1.08	1.15	1.20

PART NUMBER SYSTEM (EXAMPLE : 400V 2200μF)



CASE SIZE TABLE



Dimensions of mounting bracket

Voltage (Code)		3 - Leg				2 - Leg				
Symbol	ΦD	51	63.5	76	90	35	51	63.5	76	90
P		32.5	38.1	44.5	50.8	24	33.2	40.5	46.5	53
A		38.5	43	49.2	58.5	29	40	46.5	53	59
T		7.5	8.0	7.0	8.0	6.0	6.0	7.0	6.0	6.0
S		5.0	5.0	5.0	5.0	3.5	4.5	4.5	4.5	4.5
U		12	14	14	18	10	14	14	14	14
θ°		60	60	60	60	30	30	30	30	30
H		20	25	30	35	15	25	35	35	35
h		15	20	24	25	10	15	20	20	20



STANDARD RATINGS

Voltage (Code)		10V (1A)		16V (1C)		25V (1E)		35V (1V)	
SV		13		20		32		44	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
33000	339					35 x 80	6.2	35 x 80	6.2
47000	479	35 x 80	6.0	35 x 80	6.4	35 x 100	8.2	35 x 120	8.2
68000	689	35 x 80	7.2	35 x 100	7.9	35 x 120	9.4	51 x 80	9.3
100000	10T	35 x 100	8.8	35 x 120	10.6	51 x 100	12.0	51 x 120	13.6
150000	15T	51 x 80	10.7	51 x 100	11.5	51 x 120	15.3	63.5 x 100	14.5
220000	22T	51 x 100	13.0	51 x 120	15.6	63.5 x 120	18.9	76 x 100	16.8
330000	33T	63.5 x 100	15.9	63.5 x 120	25.1	76 x 120	24.8	76 x 140	24.8
470000	47T	63.5 x 120	19.0	76 x 120	30.5	90 x 170	30.8	90 x 170	32.6
680000	68T	76 x 120	22.8	90 x 170	33.0	90 x 220	33.3	90 x 220	35.2
1000000	10M	90 x 170	27.7	90 x 220	36.0				
1500000	15M	90 x 220	33.9						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		50V (1H)		63V (1J)		80V (1K)		100V (2A)	
SV		63		79		100		125	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
4700	478							35 x 80	3.8
6800	688							35 x 100	4.5
10000	109			35 x 80	4.1	35 x 100	4.6	51 x 80	5.4
15000	159	35 x 80	5.4	35 x 100	5.5	35 x 120	6.0	51 x 100	6.6
22000	229	35 x 100	6.1	35 x 120	7.1	51 x 100	7.2	63.5 x 100	7.7
33000	339	51 x 70	7.0	51 x 100	9.7	51 x 120	9.2	76 x 100	10.8
47000	479	51 x 90	8.6	51 x 120	11.7	63.5 x 120	13.8	76 x 120	14.9
68000	689	51 x 120	11.9	63.5 x 120	16.2	63.5 x 140	15.5	76 x 150	18.8
100000	10T	63.5 x 100	14.2	63.5 x 140	20.8	90 x 140	23.4	90 x 170	22.1
150000	15T	76 x 120	18.6	90 x 140	28.6	90 x 170	26.5	90 x 220	27.0
220000	22T	90 x 140	20.3	90 x 170	28.3	90 x 220	28.9		
330000	33T	90 x 170	25.3	90 x 220	31.2				
470000	47T	90 x 220	33.2						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		160V (2C)		200V (2D)		250V (2E)		350V (2V)	
SV		200		250		300		400	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
1000	108					35 x 80	2.4		
1500	158			35 x 80	2.9	35 x 100	3.0		
2200	228	35 x 80	3.2	35 x 100	3.5	51 x 80	4.0	51 x 100	7.7
2700	278							51 x 120	9.3
3300	338	35 x 120	4.7	51 x 80	4.8	51 x 100	5.4	51 x 130	10.8
3900	398							63.5 x 120	12.1
4700	478	51 x 80	5.0	51 x 100	6.3	63.5 x 100	7.3	63.5 x 130	14.0
5600	568							63.5 x 160	16.6
								76 x 120	16.1
6800	688	51 x 100	6.4	51 x 140	7.3	63.5 x 120	8.9	63.5 x 190	20.0
8200	828							76 x 130	18.6
10000	109	63.5 x 100	9.1	63.5 x 120	9.8	76 x 120	11.8	76 x 170	25.2
12000	129							90 x 160	29.1
15000	159	76 x 100	12.0	76 x 120	13.0	90 x 140	16.4	90 x 190	35.7
22000	229	76 x 140	16.9	90 x 140	15.9	90 x 170	17.9		
33000	339	90 x 140	19.2	90 x 170	19.5	90 x 220	19.7		
47000	479	90 x 170	20.6	90 x 220	20.9				
68000	689	90 x 220	22.3						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		400V (2G)		450V (2W)		500V (2H)		550V (25)	
SV		450		500		550		600	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
1000	108	51 x 80	5.0	51 x 80	5.0	51 x 110	4.2	51 x 130	4.3
1200	128	51 x 80	5.8	51 x 100	5.7	63.5 x 90	4.8	63.5 x 110	5.0
1500	158	51 x 100	6.4	51 x 100	6.3	63.5 x 90	5.5	63.5 x 130	6.0
1800	188	51 x 100	7.0	51 x 120	7.6	63.5 x 110	6.5	76 x 100	6.4
2200	228	63.5 x 90	8.3	51 x 130	8.8	63.5 x 130	7.7	76 x 110	7.4
		51 x 140	8.5	63.5 x 100	8.5				
2700	278	51 x 130	9.8	63.5 x 120	10.1	76 x 110	8.8	76 x 120	8.5
3300	338	63.5 x 120	11.1	63.5 x 130	11.7	76 x 130	10.4	76 x 140	10.1
				76 x 110	12.0				
3900	398	63.5 x 130	12.7	63.5 x 160	13.8	76 x 130	11.4	76 x 160	11.7
				76 x 120	13.4				
4700	478	63.5 x 130	13.8	76 x 130	15.5	90 x 130	13.7	90 x 150	13.7
		63.5 x 160	15.2	90 x 120	15.0				
		76 x 120	14.7						
5600	568	63.5 x 190	18.2	76 x 155	18.0	90 x 150	15.9	90 x 170	15.8
		76 x 130	16.9	90 x 155	18.3				
6800	688	76 x 150	18.2	76 x 170	20.7	90 x 170	18.5	90 x 200	18.6
				90 x 150	21.0				
8200	828	76 x 155	21.8	90 x 160	24.1	90 x 190	21.4		
		76 x 170	22.8						
		90 x 150	23.0						
10000	109	90 x 160	26.6	90 x 155	26.7				
				90 x 170	27.8				
12000	129	90 x 170	30.0	90 x 230	29.5				
15000	159	90 x 230	32.0						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)



FEATURES

- Load life of 5,000 hours application of ripple current at +105°C.
- High reliability products.



SPECIFICATIONS

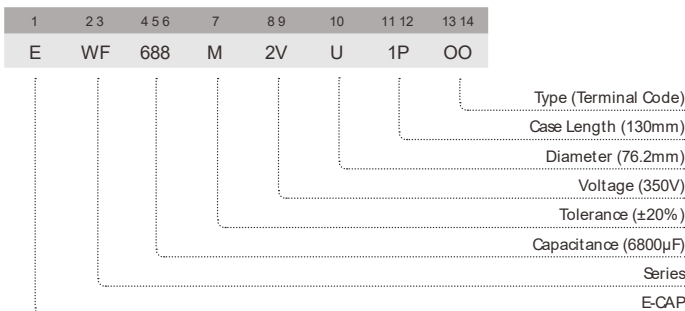
Item	Performance Characteristics	
Operating Temperature Range	-40 to +105°C	-25 to +105°C
Rated Working Voltage Range	10 to 100V	160 to 500V
Nominal Capacitance Range	330 to 390000μF	
Capacitance Tolerance	±20% at 120Hz, +20°C	
Leakage Current	I ≤ 0.02CV (μA) or 5 (mA) whichever is smaller measured after 5 minutes application of rated working voltage at +20°C	
tan δ (120Hz, +20°C)	The values shown in the STANDARD RATINGS tables	
Low Temperature Characteristics	Impedance ratio max. at 120Hz	
	Working Voltage (V)	10~100 160~500
	Z-25°C / Z+20°C	— 8
	Z-40°C / Z+20°C	15 —
High Temperature Loading	Test time : 5,000 hours	Post test requirements at +20°C
	Test temperature : +105°C	Leakage current : ≤ Initial specified value
	Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±20% of the initial measured value
		tan δ : ≤ 200% of the initial specified value
Shelf Life	At +105°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits	
	Leakage current : ≤ Initial specified value	
	Cap. change : within ±20% of the initial measured value	
	tan δ : ≤ 200% of the initial specified value	
Industrial Standard	JISC - 5101-4 (IEC 60384-4)	

RIPPLE CURRENT MULTIPLIER

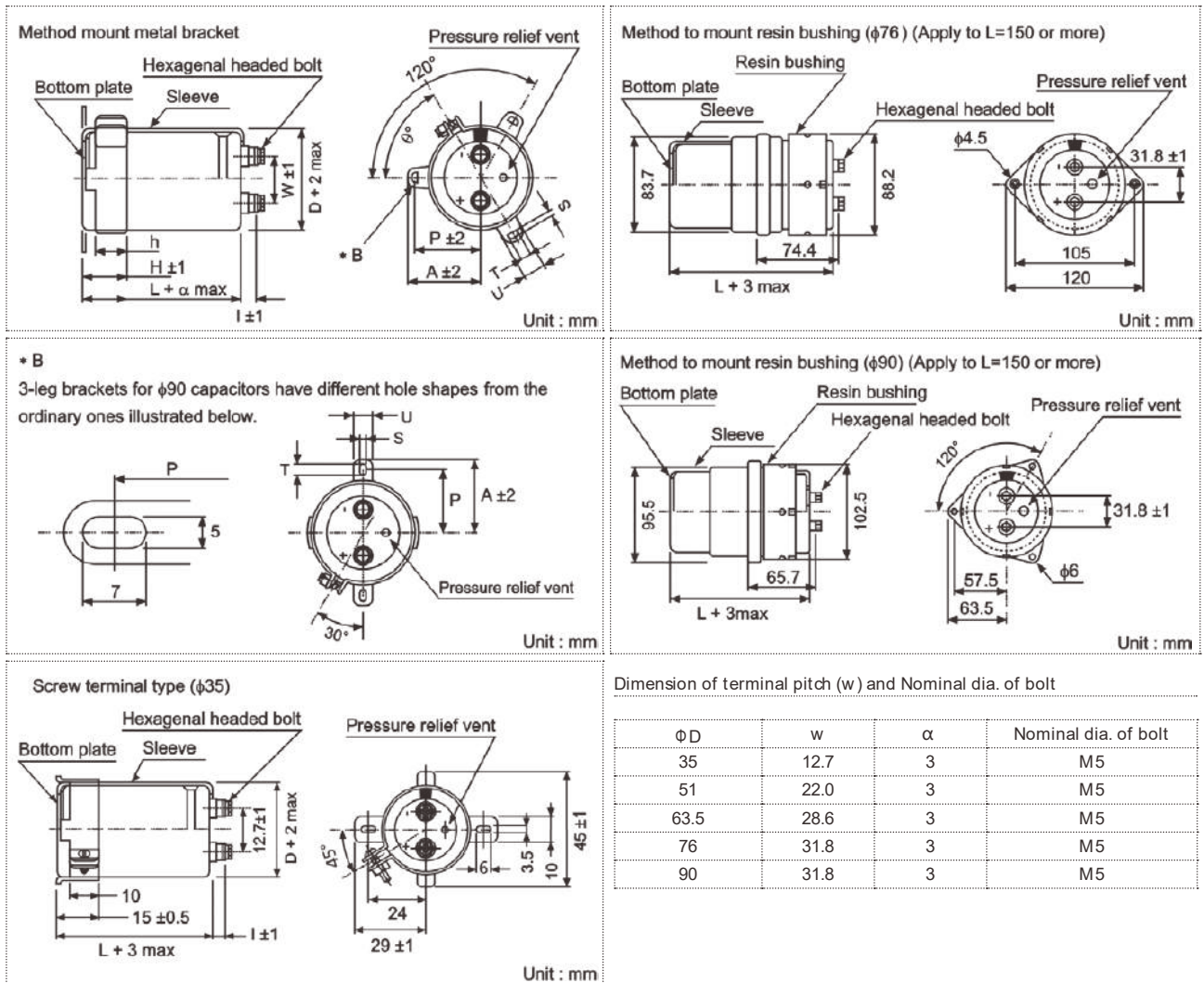
Frequency Coefficient

Coefficient	Freq. (Hz)	Rated Voltage				
		50	120	300	1k	10k~
<160V		0.80	1.00	1.08	1.15	1.15
≥160V		0.80	1.00	1.08	1.15	1.20

PART NUMBER SYSTEM (EXAMPLE : 350V 6800μF)



CASE SIZE TABLE



Dimensions of mounting bracket

Voltage (Code)		3 - Leg				2 - Leg				
Symbol	φD	51	63.5	76	90	35	51	63.5	76	90
P		32.5	38.1	44.5	50.8	24	33.2	40.5	46.5	53
A		38.5	43	49.2	58.5	29	40	46.5	53	59
T		7.5	8.0	7.0	8.0	6.0	6.0	7.0	6.0	6.0
S		5.0	5.0	5.0	5.0	3.5	4.5	4.5	4.5	4.5
U		12	14	14	18	10	14	14	14	14
θ °		60	60	60	60	30	30	30	30	30
H		20	25	30	35	15	25	35	35	35
h		15	20	24	25	10	15	20	20	20



STANDARD RATINGS

Voltage (Code)		10V (1A)			16V (1C)			25V (1E)		
SV		13			20			32		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
12000	129							35 x 80	0.35	3.3
15000	159				35 x 50	0.45	2.9	35 x 80	0.35	3.7
18000	189				35 x 80	0.45	3.5	35 x 80	0.35	4.0
22000	229				35 x 80	0.45	3.9	35 x 80	0.35	4.5
27000	279	35 x 80	0.45	4.3	35 x 80	0.45	4.3	35 x 100	0.40	5.0
33000	339	35 x 80	0.45	4.7	35 x 100	0.50	4.8	35 x 120	0.40	5.9
39000	399	35 x 80	0.45	5.3	35 x 100	0.50	5.3	51 x 80	0.40	6.5
47000	479	35 x 100	0.45	6.1	35 x 120	0.50	6.2	51 x 100	0.40	7.9
56000	569	35 x 100	0.50	6.2	51 x 80	0.60	6.3	51 x 120	0.40	8.8
68000	689	35 x 120	0.60	6.8	51 x 100	0.60	7.6	51 x 120	0.50	9.1
82000	829	51 x 80	0.60	7.8	51 x 120	0.70	8.3	63.5 x 100	0.50	10.6
100000	10T	51 x 100	0.70	8.5	51 x 120	0.70	9.2	63.5 x 120	0.60	11.4
120000	12T	51 x 100	0.70	9.5	63.5 x 100	0.80	9.9	76 x 100	0.60	12.8
150000	15T	63.5 x 100	0.80	11.0	76 x 100	0.80	12.3	76 x 120	0.75	13.7
180000	18T	63.5 x 100	0.80	12.1	76 x 120	0.80	14.5	76 x 140	0.76	16.1
220000	22T	76 x 100	1.00	13.2	76 x 140	1.00	15.2	90 x 140	1.00	16.6
270000	27T	76 x 120	1.20	14.4	90 x 140	1.20	16.8			
330000	33T	76 x 140	1.20	17.0						
390000	39T	90 x 140	1.40	18.6						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		35V (1V)			50V (1H)			63V (1J)		
SV		44			63			79		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
2700	278							35 x 50	0.19	1.9
3300	338							35 x 50	0.15	2.1
3900	398				35 x 50	0.20	2.0	35 x 80	0.20	2.7
4700	478				35 x 50	0.25	2.2	35 x 80	0.20	2.9
5600	568				35 x 80	0.25	2.8	35 x 80	0.20	3.2
6800	688				35 x 80	0.25	3.0	35 x 80	0.20	3.5
8200	828	35 x 80	0.30	3.0	35 x 80	0.25	3.3	35 x 100	0.25	4.2
10000	109	35 x 80	0.30	3.3	35 x 80	0.25	3.7	35 x 120	0.25	4.3
12000	129	35 x 80	0.30	3.6	35 x 100	0.25	4.4	51 x 80	0.25	4.8
15000	159	35 x 80	0.30	4.1	35 x 120	0.30	4.7	51 x 100	0.25	5.9
18000	189	35 x 100	0.30	4.8	51 x 80	0.35	4.8	51 x 120	0.30	6.3
22000	229	35 x 120	0.35	5.2	51 x 100	0.35	5.9	51 x 120	0.30	6.7
27000	279	51 x 80	0.40	5.9	51 x 120	0.35	7.0	63.5 x 120	0.30	8.8
33000	339	51 x 100	0.40	6.6	63.5 x 100	0.40	7.6	76 x 120	0.35	10.0
39000	399	51 x 120	0.40	7.8	63.5 x 120	0.40	8.9	76 x 140	0.35	12.5
47000	479	51 x 120	0.45	8.0	63.5 x 120	0.40	9.8	90 x 140	0.40	13.8
56000	569	63.5 x 100	0.45	9.2	76 x 120	0.40	11.9			
68000	689	63.5 x 120	0.45	11.0	76 x 140	0.45	13.1			
82000	829	76 x 120	0.50	12.7	90 x 140	0.50	14.8			
100000	10T	76 x 140	0.60	13.5						
120000	12T	90 x 140	0.60	16.1						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

STANDARD RATINGS

Voltage (Code)		80V (1K)			100V (2A)			160V (2C)		
SV		100			125			200		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
680	687							35 x 50	0.15	1.1
820	827							35 x 80	0.15	1.2
1000	108							35 x 80	0.15	1.3
1200	128				35 x 50	0.15	1.4	35 x 80	0.15	1.5
1500	158				35 x 80	0.15	1.6	35 x 80	0.15	1.7
1800	188				35 x 80	0.15	1.8	35 x 100	0.15	2.0
2200	228	35 x 50	0.15	1.9	35 x 80	0.15	2.0	35 x 120	0.15	2.3
2700	278	35 x 80	0.15	2.2	35 x 80	0.15	2.4	35 x 120	0.15	2.7
3300	338	35 x 80	0.15	2.5	35 x 100	0.15	2.8	51 x 100	0.15	3.3
3900	398	35 x 80	0.15	2.9	35 x 120	0.15	3.1	51 x 120	0.15	3.8
4700	478	35 x 100	0.15	3.1	51 x 80	0.15	3.6	51 x 120	0.15	4.2
5600	568	35 x 100	0.15	3.6	51 x 100	0.15	4.3	51 x 120	0.15	4.7
6800	688	35 x 120	0.20	4.1	51 x 120	0.15	5.0	63.5 x 120	0.15	5.7
8200	828	51 x 80	0.20	4.8	51 x 120	0.15	5.5	76 x 100	0.20	6.4
10000	109	51 x 100	0.20	5.6	63.5 x 100	0.15	6.4	76 x 120	0.20	6.6
12000	129	51 x 100	0.20	6.1	63.5 x 120	0.20	6.6	76 x 140	0.20	7.8
15000	159	51 x 120	0.20	7.4	76 x 100	0.20	7.5	90 x 140	0.20	9.5
18000	189	63.5 x 120	0.25	8.0	76 x 120	0.25	8.0			
22000	229	76 x 100	0.25	9.1	76 x 140	0.25	9.4			
27000	279	76 x 120	0.30	9.7	90 x 140	0.30	10.4			
33000	339	76 x 140	0.30	11.5						
39000	399	90 x 140	0.30	12.5						

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		200V (2G)			250V (2W)			350V (2H)		
SV		250			300			400		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
330	337				35 x 50	0.15	0.7			
390	397				35 x 80	0.15	0.8			
470	477	35 x 50	0.15	0.9	35 x 80	0.15	0.9			
560	567	35 x 80	0.15	1.0	35 x 80	0.15	1.0			
680	687	35 x 80	0.15	1.1	35 x 100	0.15	1.2			
820	827	35 x 80	0.15	1.3	35 x 100	0.15	1.4	51 x 80	0.25	3.3
1000	108	35 x 80	0.15	1.5	35 x 120	0.15	1.6			
1200	128	35 x 100	0.15	1.7	51 x 80	0.15	1.8			
1500	158	35 x 120	0.15	1.9	51 x 90	0.15	2.1	51 x 90	0.25	5.2
1800	188	35 x 120	0.15	2.2	51 x 100	0.15	2.4			
2200	228	51 x 80	0.15	2.7	51 x 110	0.15	2.7	51 x 110	0.25	7.0
2700	278	51 x 100	0.15	3.2	63.5 x 90	0.15	3.2	51 x 130	0.25	8.4
3300	338	51 x 120	0.15	3.5	63.5 x 120	0.15	4.0	63.5 x 90	0.25	8.1
3900	398	63.5 x 100	0.15	4.0	76 x 90	0.15	4.2	51 x 150	0.25	9.9
4700	478	63.5 x 120	0.15	4.7	76 x 120	0.15	5.2	63.5 x 130	0.25	11.5
5600	568	76 x 100	0.15	5.3	76 x 140	0.15	6.1	76 x 90	0.25	10.8
6800	688	76 x 120	0.15	6.3	76 x 140	0.15	6.7	63.5 x 150	0.25	14.7
8200	828	76 x 140	0.20	6.4				76 x 140	0.25	17.4
10000	109	90 x 140	0.20	7.7				76 x 150	0.25	19.6
15000	159							76 x 190	0.25	23.0
22000	229							90 x 190	0.25	30.6
								90 x 260	0.25	42.7

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.



STANDARD RATINGS

Voltage (Code)		400 (2G)			450V (2W)			500V (2H)		
SV		450			500			550		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
470	477							51 x 80	0.25	2.4
560	567				51 x 80	0.25	2.6			
680	687	51 x 80	0.25	3.0						
820	827							51 x 90	0.25	3.6
1000	108				51 x 90	0.25	4.0	51 x 110	0.25	4.4
1200	128	51 x 90	0.25	4.7	51 x 110	0.25	4.8	51 x 130	0.25	5.2
1500	158							63.5 x 90	0.25	5.0
1800	188	51 x 110	0.25	6.3	51 x 130	0.25	6.4	51 x 150	0.25	6.3
					63.5 x 90	0.25	6.2	63.5 x 110	0.25	6.8
2200	228	51 x 130	0.25	7.5	51 x 150	0.25	7.6			
		63.5 x 90	0.25	7.3	63.5 x 110	0.25	7.5			
2700	278	51 x 150	0.25	8.9	63.5 x 130	0.25	8.9	63.5 x 150	0.25	9.6
		63.5 x 110	0.25	8.8	76 x 110	0.25	9.1	76 x 110	0.25	9.2
3300	338	63.5 x 130	0.25	10.5	63.5 x 150	0.25	10.6			
		76 x 90	0.25	9.9	76 x 110	0.25	10.6			
3900	398				76 x 130	0.25	11.9	76 x 150	0.25	12.7
								90 x 130	0.25	11.9
4700	478	63.5 x 150	0.25	13.4	76 x 140	0.25	13.6			
		76 x 130	0.25	13.9						
5600	568				76 x 150	0.25	13.8			
6800	688	76 x 150	0.25	17.9	76 x 190	0.25	17.3	90 x 190	0.25	18.8
		90 x 130	0.25	17.2	90 x 150	0.25	16.7			
8200	828	76 x 190	0.25	20.8						
		90 x 150	0.25	20.1						
10000	109				90 x 200	0.25	23.3	90 x 260	0.25	26.3
12000	129	90 x 190	0.25	27.4						
15000	159				90 x 250	0.25	31.7			

Maximum Allowable Ripple Current (Arms) at 105°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

WF

Screw Terminal Type Aluminum Electrolytic Capacitors

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

FEATURES

- Load life of 10,000 hours application of ripple current at 85°C.
- High ripple, high reliability.
- Best for use in industrial power supplies for inverter circuitry.



SPECIFICATIONS

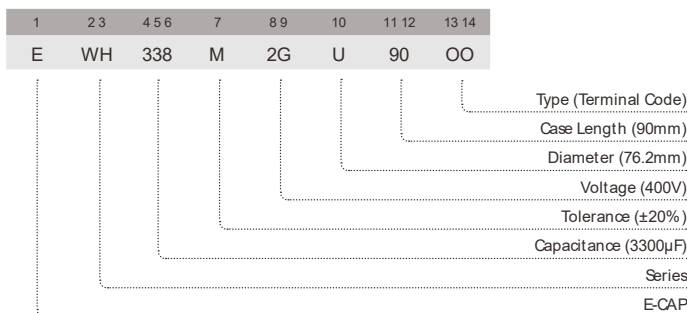
Item	Performance Characteristics								
Operating Temperature Range	-25 to +85°C								
Rated Working Voltage Range	350 to 500V								
Nominal Capacitance Range	470 to 22000µF								
Capacitance Tolerance	±20% at 120Hz, +20°C								
Leakage Current	I ≤ 0.02CV (µA) or 5 (mA) whichever is smaller measured after 5 minutes application of rated working voltage at +20°C								
tan δ (120Hz, +20°C)	Working Voltage (V) 350~500								
	tan δ (max.) 0.2								
Low Temperature Characteristics	Impedance ratio max. at 120Hz								
	Working Voltage (V) 350~500 Z-25°C / Z+20°C 8								
High Temperature Loading	<table border="0"> <tr> <td>Test time : 10,000 hours</td> <td>Post test requirements at +20°C</td> </tr> <tr> <td>Test temperature : +85°C</td> <td>Leakage current : ≤ Initial specified value</td> </tr> <tr> <td>Test conditions : Rated DC working voltage with rated ripple current</td> <td>Cap. change : within ±20% of the initial measured value</td> </tr> <tr> <td></td> <td>tan δ : value ≤ 300% of the initial specified value</td> </tr> </table>	Test time : 10,000 hours	Post test requirements at +20°C	Test temperature : +85°C	Leakage current : ≤ Initial specified value	Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±20% of the initial measured value		tan δ : value ≤ 300% of the initial specified value
Test time : 10,000 hours	Post test requirements at +20°C								
Test temperature : +85°C	Leakage current : ≤ Initial specified value								
Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±20% of the initial measured value								
	tan δ : value ≤ 300% of the initial specified value								
Shelf Life	<p>At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits</p> <table border="0"> <tr> <td>Leakage current : ≤ Initial specified value</td> </tr> <tr> <td>Cap. change : within ±20% of the initial measured value</td> </tr> <tr> <td>tan δ : ≤ 300% of the initial specified value</td> </tr> </table>	Leakage current : ≤ Initial specified value	Cap. change : within ±20% of the initial measured value	tan δ : ≤ 300% of the initial specified value					
Leakage current : ≤ Initial specified value									
Cap. change : within ±20% of the initial measured value									
tan δ : ≤ 300% of the initial specified value									
Industrial Standard	JISC - 5101-4 (IEC 60384-4)								

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient \ Freq. (Hz)	50	120	300	1k	10k~
Rated Voltage <160V	0.80	1.00	1.08	1.15	1.15
Rated Voltage ≥160V	0.80	1.00	1.08	1.15	1.20

PART NUMBER SYSTEM (EXAMPLE : 400V 3300µF)



CASE SIZE TABLE

Method mount metal bracket

Unit : mm

Method to mount resin bushing (φ76) (Apply to L=150 or more)

Unit : mm

*** B**
3-leg brackets for φ90 capacitors have different hole shapes from the ordinary ones illustrated below.

Unit : mm

Method to mount resin bushing (φ90) (Apply to L=150 or more)

Unit : mm

Screw terminal type (φ35)

Unit : mm

Dimension of terminal pitch (w) and Nominal dia. of bolt

ΦD	w	α	Nominal dia. of bolt
35	12.7	3	M5
51	22.0	3	M5
63.5	28.6	3	M5
76	31.8	3	M5
90	31.8	3	M5

Dimensions of mounting bracket

Voltage (Code)		3 - Leg				2 - Leg			
Symbol	ΦD	51	63.5	76	90	51	63.5	76	90
P		32.5	38.1	44.5	50.8	33.2	40.5	46.5	53
A		38.5	43	49.2	58.5	40	46.5	53	59
T		7.5	8.0	7.0	8.0	6.0	7.0	6.0	6.0
S		5.0	5.0	5.0	5.0	4.5	4.5	4.5	4.5
U		12	14	14	18	14	14	14	14
θ °		60	60	60	60	30	30	30	30
H		20	25	30	35	25	35	35	35
h		15	20	24	25	15	20	20	20

STANDARD RATINGS

Voltage (Code)		350V (2V)		400V (2G)		450V (2W)		500V (2H)	
SV		400		450		500		550	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
470	477							51 x 80	2.4
560	567					51 x 80	2.6		
680	687			51 x 80	3.0				
820	827	51 x 80	3.3					51 x 90	3.6
1000	108					51 x 90	4.0	51 x 110	4.4
1200	128			51 x 90	4.7	51 x 110	4.8	51 x 130	5.2
1500	158	51 x 90	5.2					63.5 x 90	5.0
1800	188			51 x 110	6.3	51 x 130	6.4	63.5 x 110	6.8
						63.5 x 90	6.2		
2200	228	51 x 110	7.0	51 x 130	7.5	51 x 150	7.6		
				63.5 x 90	7.3	63.5 x 110	7.5		
2700	278	51 x 130	8.4	51 x 150	8.9	63.5 x 130	8.9	63.5 x 150	9.6
		63.5 x 90	8.1	63.5 x 110	8.8	76 x 90	8.4	76 x 110	9.2
3300	338	51 x 150	9.9	63.5 x 130	10.5	63.5 x 150	10.6		
				76 x 90	9.9	76 x 110	10.2		
3900	398	63.5 x 130	11.5			76 x 130	11.9	76 x 150	12.7
		76 x 90	10.8					90 x 130	11.9
4700	478			63.5 x 150	13.4	76 x 115	12.4		
				76 x 130	13.9	76 x 150	14.0		
5600	568	63.5 x 150	14.7			90 x 130	14.2		
6800	688	76 x 130	16.8	76 x 150	17.9	76 x 190	17.3	90 x 190	18.8
				90 x 130	17.2	90 x 150	16.7		
8200	828	76 x 150	19.6	76 x 190	20.8				
				90 x 150	20.1				
10000	109	76 x 190	23.0			90 x 190	22.8	90 x 270	26.8
12000	129			90 x 190	27.4				
15000	159	90 x 190	30.6			90 x 270	32.8		
22000	229	90 x 270	43.5	90 x 270	39.4				

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)



FEATURES

- Load life of 20,000 hours application of ripple current at 85°C.
- High ripple, high reliability.
- Best for use in industrial power supplies for inverter circuitry.



SPECIFICATIONS

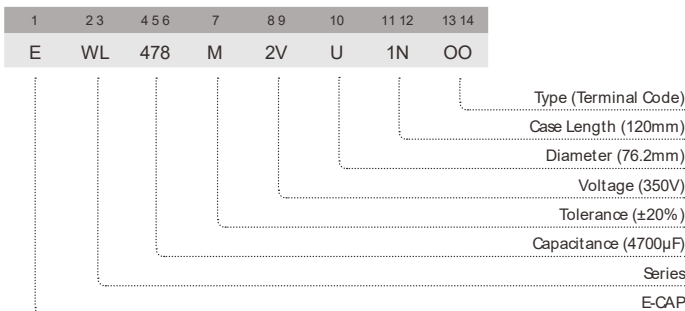
Item	Performance Characteristics								
Operating Temperature Range	-25 to +85°C								
Rated Working Voltage Range	350 to 450V								
Nominal Capacitance Range	2200 to 12000μF								
Capacitance Tolerance	±20% at 120Hz, +20°C								
Leakage Current	I ≤ 0.02CV (μA) or 5 (mA) whichever is smaller measured after 5 minutes application of rated working voltage at +20°C								
tan δ (120Hz, +20°C)	Working Voltage (V) 350~450								
	tan δ (max.) 0.25								
Low Temperature Characteristics	Impedance ratio max. at 120Hz								
	Working Voltage (V) 350~450 Z-25°C / Z+20°C 8								
High Temperature Loading	<table border="0"> <tr> <td>Test time : 20,000 hours</td> <td>Post test requirements at +20°C</td> </tr> <tr> <td>Test temperature : +85°C</td> <td>Leakage current : ≤ Initial specified value</td> </tr> <tr> <td>Test conditions : Rated DC working voltage with rated ripple current</td> <td>Cap. change : within ±30% of the initial measured value</td> </tr> <tr> <td></td> <td>tan δ : ≤ 300% of the initial specified value</td> </tr> </table>	Test time : 20,000 hours	Post test requirements at +20°C	Test temperature : +85°C	Leakage current : ≤ Initial specified value	Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±30% of the initial measured value		tan δ : ≤ 300% of the initial specified value
Test time : 20,000 hours	Post test requirements at +20°C								
Test temperature : +85°C	Leakage current : ≤ Initial specified value								
Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±30% of the initial measured value								
	tan δ : ≤ 300% of the initial specified value								
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits Leakage current : ≤ Initial specified value Cap. change : within ±20% of the initial measured value tan δ : ≤ 200% of the initial specified value								
Industrial Standard	JISC - 5101-4 (IEC 60384-4)								

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient \ Freq. (Hz)	50	120	300	1k	10k~
Rated Voltage < 160V	0.80	1.00	1.08	1.15	1.15
Rated Voltage ≥ 160V	0.80	1.00	1.08	1.15	1.20

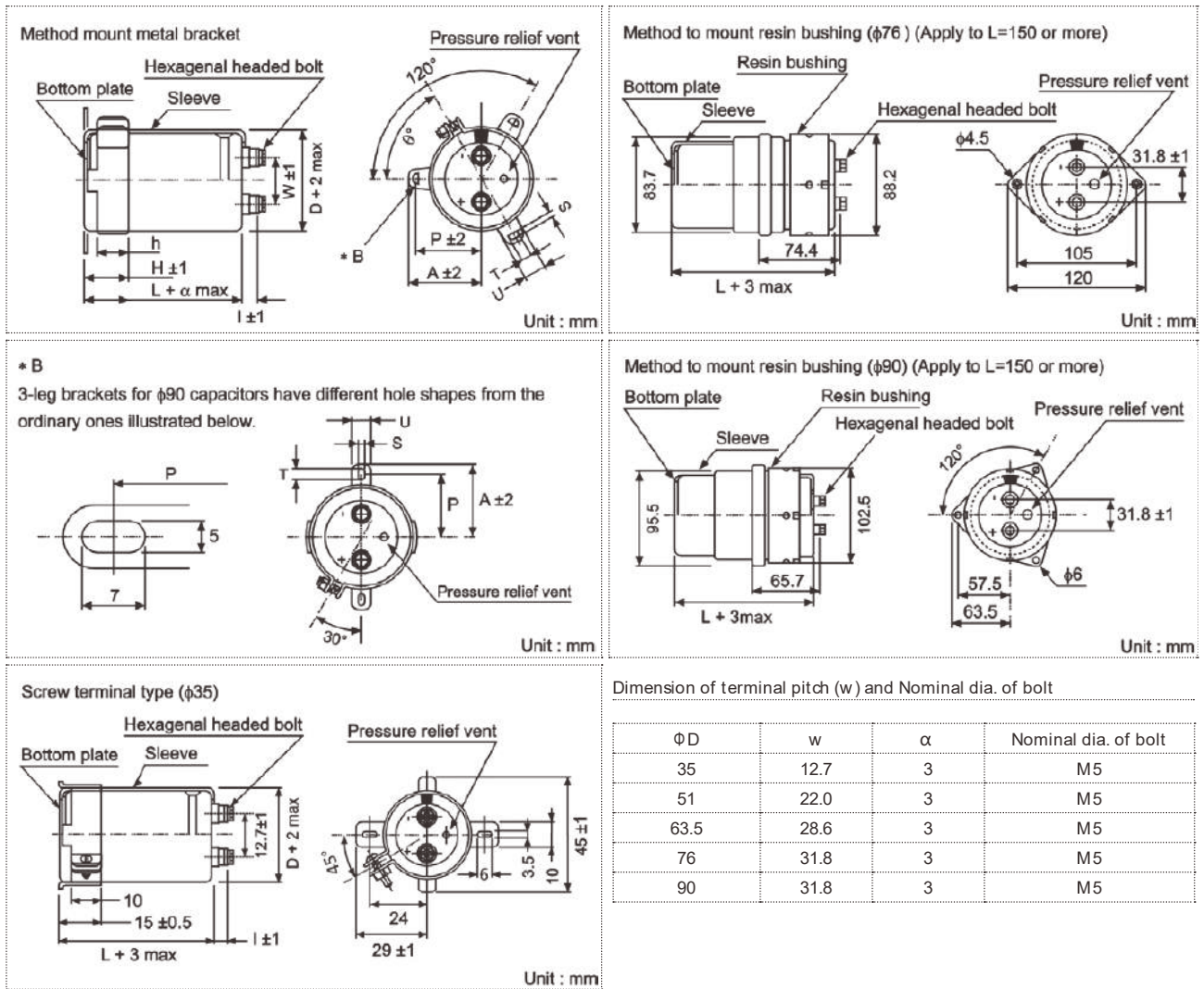
PART NUMBER SYSTEM (EXAMPLE : 350V 4700μF)



WL

Screw Terminal Type Aluminum Electrolytic Capacitors

CASE SIZE TABLE



Dimensions of mounting bracket

Voltage (Code)		3 - Leg			2 - Leg		
Symbol	ΦD	63.5	76	90	63.5	76	90
P		38.1	44.5	50.8	40.5	46.5	53
A		43	49.2	58.5	46.5	53	59
T		8.0	7.0	8.0	7.0	6.0	6.0
S		5.0	5.0	5.0	4.5	4.5	4.5
U		14	14	18	14	14	14
θ°		60	60	60	30	30	30
H		25	30	35	35	35	35
h		20	24	25	20	20	20



STANDARD RATINGS

Voltage (Code)		350V (2V)		400V (2G)		450V (2W)	
SV		400		450		500	
Cap. (μF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
2200	228					63.5 x 120	9.1
2700	278			63.5 x 120	10.1	63.5 x 130	10.6
						76 x 120	11.2
3300	338	63.5 x 120	11.1	63.5 x 130	11.7	63.5 x 160	12.7
						76 x 130	13.0
3900	398	63.5 x 130	12.8	63.5 x 160	13.8	63.5 x 170	14.4
				76 x 120	14.7		
4700	478	63.5 x 160	15.2	63.5 x 170	15.8	76 x 160	16.7
		76 x 120	14.7	76 x 130	15.5		
5600	568	63.5 x 170	17.3	63.5 x 190	18.2	76 x 190	20.1
		76 x 130	16.9	76 x 160	18.3	90 x 160	19.9
6800	688	63.5 x 190	20.0	76 x 170	21.0	90 x 170	23.0
		76 x 160	20.2				
8200	828	76 x 170	23.1	90 x 160	24.1	90 x 190	26.4
10000	109	90 x 160	26.6	90 x 190	29.1	90 x 190	29.1
12000	129	90 x 190	32.0				

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size Φ D x L (mm)

WL

Screw Terminal Type Aluminum Electrolytic Capacitors

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

FEATURES

- +125°C, high temperature.
- High reliability equipment in automotive power electronics, e.g. integrated starter alternator.



SPECIFICATIONS

Item	Performance Characteristics			
Operating Temperature Range	-25 to +125°C			
Rated Working Voltage Range	160 to 400V			
Nominal Capacitance Range	330 to 15000µF			
Capacitance Tolerance	±20% at 120Hz, +20°C			
Leakage Current	I ≤ 0.02CV (µA) or 5 (mA) whichever is smaller measured after 5 minutes application of rated working voltage at +20°C			
tan δ (120Hz, +20°C)	The values shown in the STANDARD RATINGS tables			
Low Temperature Characteristics	Impedance ratio max. at 120Hz			
	<table border="1"> <tr> <td>Working Voltage (V)</td> <td>160~400</td> </tr> <tr> <td>Z-25°C / Z+20°C</td> <td>8</td> </tr> </table>	Working Voltage (V)	160~400	Z-25°C / Z+20°C
Working Voltage (V)	160~400			
Z-25°C / Z+20°C	8			
High Temperature Loading	Test time : 3,000 hours	Post test requirements at +20°C		
	Test temperature : +125°C	Leakage current : ≤ Initial specified value		
	Test conditions : Rated DC working voltage with rated ripple current	Cap. change : within ±30% of the initial measured value		
		tan δ : ≤ 300% of the initial specified value		
Shelf Life	At +125°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits			
	Leakage current : ≤ Initial specified value			
	Cap. change : within ±20% of the initial measured value			
	tan δ : ≤ 200% of the initial specified value			
Industrial Standard	JISC - 5101-4 (IEC 60384-4)			

RIPPLE CURRENT MULTIPLIER

Frequency Coefficient

Coefficient	Freq. (Hz)	50	120	300	1k	10k~
Rated Voltage	<160V	0.80	1.00	1.08	1.15	1.15
	≥160V	0.80	1.00	1.08	1.15	1.20

PART NUMBER SYSTEM (EXAMPLE : 200V 1000µF)

1	23	456	7	89	10	1112	1314
E	WB	108	M	2D	Q	80	OO

Type (Terminal Code)
 Case Length (80mm)
 Diameter (35mm)
 Voltage (200V)
 Tolerance (±20%)
 Capacitance (1000µF)
 Series
 E-CAP

CASE SIZE TABLE

Method mount metal bracket

Unit : mm

Method to mount resin bushing (φ76) (Apply to L=150 or more)

Unit : mm

*** B**
3-leg brackets for φ90 capacitors have different hole shapes from the ordinary ones illustrated below.

Unit : mm

Method to mount resin bushing (φ90) (Apply to L=150 or more)

Unit : mm

Screw terminal type (φ35)

Unit : mm

Dimension of terminal pitch (w) and Nominal dia. of bolt

φD	w	α	Nominal dia. of bolt
35	12.7	3	M5
51	22.0	3	M5
63.5	28.6	3	M5
76	31.8	3	M5
90	31.8	3	M5

Dimensions of mounting bracket

Voltage (Code)		3 - Leg				2 - Leg				
Symbol	φD	51	63.5	76	90	35	51	63.5	76	90
P		32.5	38.1	44.5	50.8	24	33.2	40.5	46.5	53
A		38.5	43	49.2	58.5	29	40	46.5	53	59
T		7.5	8.0	7.0	8.0	6.0	6.0	7.0	6.0	6.0
S		5.0	5.0	5.0	5.0	3.5	4.5	4.5	4.5	4.5
U		12	14	14	18	10	14	14	14	14
θ °		60	60	60	60	30	30	30	30	30
H		20	25	30	35	15	25	35	35	35
h		15	20	24	25	10	15	20	20	20

STANDARD RATINGS

Voltage (Code)		160V (2C)			200V (2D)			250V (2E)		
SV		200			250			300		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
330	337							35 x 50	0.15	0.7
390	397							35 x 80	0.15	0.8
470	477				35 x 50	0.15	0.9	35 x 80	0.15	0.9
560	567				35 x 80	0.15	1.0	35 x 80	0.15	1.0
680	687	35 x 50	0.15	1.1	35 x 80	0.15	1.1	35 x 100	0.15	1.2
820	827	35 x 80	0.15	1.2	35 x 80	0.15	1.3	35 x 100	0.15	1.4
1000	108	35 x 80	0.15	1.3	35 x 80	0.15	1.5	35 x 120	0.15	1.6
1200	128	35 x 80	0.15	1.5	35 x 100	0.15	1.7	51 x 80	0.15	1.8
1500	158	35 x 80	0.15	1.7	35 x 120	0.15	1.9	51 x 100	0.15	2.2
1800	188	35 x 100	0.15	2.0	35 x 120	0.15	2.2	51 x 120	0.15	2.6
2200	228	35 x 120	0.15	2.3	51 x 80	0.15	2.7	51 x 120	0.15	2.8
2700	278	35 x 120	0.15	2.7	51 x 100	0.15	3.2	63.5 x 100	0.15	3.3
3300	338	51 x 100	0.15	3.3	51 x 120	0.15	3.5	63.5 x 120	0.15	4.0
3900	398	51 x 120	0.15	3.8	63.5 x 100	0.15	4.0	76 x 100	0.15	4.4
4700	478	51 x 120	0.15	4.2	63.5 x 120	0.15	4.7	76 x 120	0.15	5.2
5600	568	51 x 120	0.15	4.7	76 x 100	0.15	5.3	76 x 140	0.15	6.1
6800	688	63.5 x 120	0.15	5.7	76 x 120	0.15	6.3	90 x 140	0.15	7.4
8200	828	76 x 100	0.20	6.4	76 x 140	0.20	6.4			
10000	109	76 x 120	0.20	6.6	90 x 140	0.20	7.7			
12000	129	76 x 140	0.20	7.8						
15000	159	90 x 140	0.20	9.5						

Maximum Allowable Ripple Current (Arms) at 125°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

Voltage (Code)		350V (2V)			400V (2G)		
SV		400			450		
Cap. (μF)	Code	Case Size	tan δ	Ripple Current	Case Size	tan δ	Ripple Current
680	687				51 x 80	0.25	3.0
820	827	51 x 80	0.25	3.3			
1200	128				51 x 100	0.25	4.7
1500	158	51 x 100	0.25	5.2			
1800	188				63.5 x 90	0.25	6.3
2200	228	63.5 x 90	0.25	7.0	63.5 x 110	0.25	7.5
2700	278	63.5 x 110	0.25	8.4	63.5 x 120	0.25	8.8
3300	338	63.5 x 120	0.25	9.9	63.5 x 140	0.25	10.5
					76 x 110	0.25	9.9
3900	398	63.5 x 140	0.25	11.5			
		76 x 110	0.25	10.8			
4700	478				63.5 x 150	0.25	13.4
5600	568	76 x 150	0.25	14.7			
6800	688	76 x 170	0.25	16.8	76 x 190	0.25	17.9
					90 x 160	0.25	17.2
8200	828	76 x 190	0.25	19.6	90 x 190	0.25	20.1
10000	109	90 x 190	0.25	23.0			

Maximum Allowable Ripple Current (Arms) at 125°C 120Hz
tan δ at 20°C 120Hz

Case Size Φ D x L (mm)

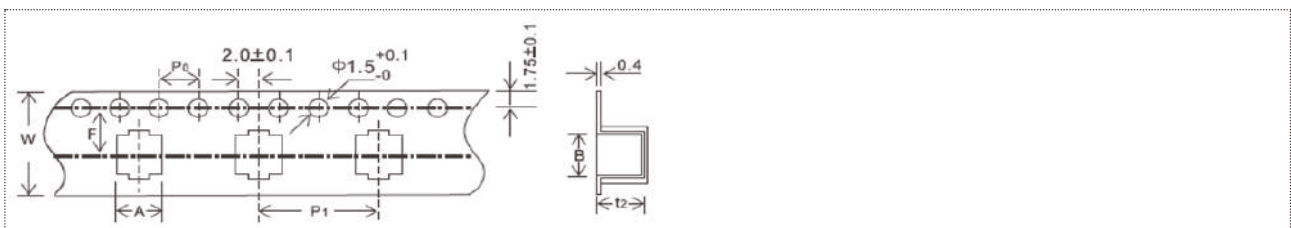
Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.

PACKAGING SPECIFICATIONS

	Specifications		Quantity	
	Φ 4× 5.4		2,000 pcs	
Φ 5 ~ 6.3× 5.4 ~ 7.7		1,000 pcs		
Φ 8× 6.2		1,000 pcs		
Φ 8 ~ 10× 10.2		500 pcs		
Φ 12.5× 13.5		200 pcs		
Φ 12.5× 16		150 pcs		
Φ 16× 16.5		125 pcs		
Φ 16× 21.5		75 pcs		

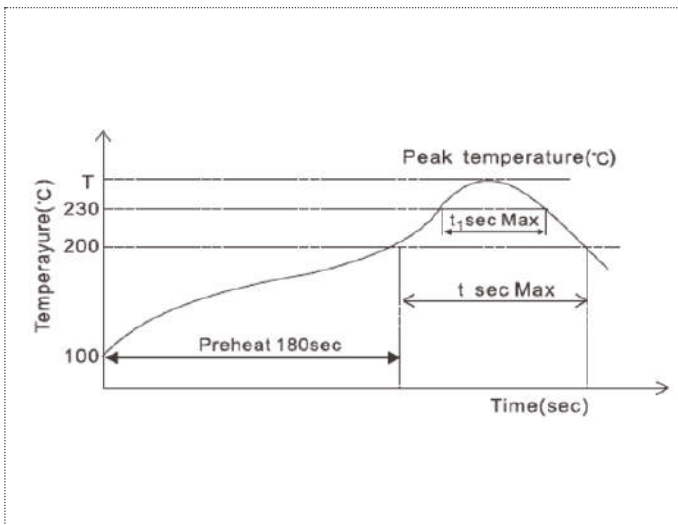
Φ D	4	5	6.3	8	10	12	16
A	14	14	18	26	26	34	46

TAPING DIMENSIONS



Specifications	W ±0.30	A	B	P ₁ ±0.10	F ±0.10	t ₂
Φ 4× 5.4	12.0	4.7	4.7	8.0	5.5	5.8
Φ 5× 5.4	12.0	6.0	6.0	12.0	5.5	5.8
Φ 6.3× 5.4	16.0	7.0	7.0	12.0	7.5	5.8
Φ 6.3× 7.7	16.0	7.0	7.0	12.0	7.5	8.3
Φ 8× 6.2	16.0	8.7	8.7	12.0	7.5	6.8
Φ 8× 10.2	24.0	8.7	8.7	16.0	11.5	11.0
Φ 10× 10.2	24.0	10.7	10.7	16.0	11.5	11.0
Φ 12.5× 13.5	32.0	13.4	13.4	24	14.2	14.4
Φ 12.5× 16	32.0	13.4	13.4	24	14.2	16.3
Φ 16× 16.5	44.0	17.5	17.5	28	20.2	17.4
Φ 16× 21.2	44.0	17.5	17.5	28	20.2	22.4

REFLOW SOLDERING FOR CHIP CAPACITORS



ALLOWABLE RANGE OF PEAK TEMPERATURE

Size	T (°C)	t (second)	t ₁ (second)
Φ 4 Φ 6.3	255	100	50
Φ 8	245	100	40
Φ 10 Φ 16	245	100	40

RECOMMENDED LAND SIZE

Size	X	Y	a
Φ 4	1.6	2.6	1.0
Φ 5	1.6	3.0	1.4
Φ 6.3	1.6	3.5	2.1
Φ 8	2.5	3.5	3.0
Φ 10	2.5	4.0	4.5
Φ 12.5	2.5	6.0	5.0
Φ 16	3.0	6.5	8.0

- Preheat shall be done 100°C-200°C and for maximum 180 seconds.
- The temperature at capacitor top shall not exceed +255°C.
- The duration for over +200°C temperature at capacitor top shall not exceed 110 seconds.
- If capacitors are subject to the conditions other than the allowable range of reflow. Please contact us.