

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 ≤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	0.40	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	JIS C - 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	2 3	4 5 6	7	8 9	10	11 12	13 14	
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
						22 x 30	2.56	25 x 30	2.89
								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
								30 x 30	3.61
12000	129	20 x 30	2.44	20 x 40	3.20	22 x 40	3.53	25 x 45	4.01
		22 x 25	2.41	22 x 30	3.13	25 x 35	3.48	30 x 35	4.01
				25 x 25	2.96	30 x 25	3.53	35 x 30	4.02
15000	159	20 x 35	2.90	22 x 35	3.69	22 x 50	4.08	30 x 40	4.80
		22 x 30	2.88	25 x 30	3.64	25 x 40	4.00		
		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		
		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	5.19		
		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 45	7.62				
		35 x 35	6.40						
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 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
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 25	1.77	22 x 30	2.12
1500	158							25 x 25	2.10
				20 x 25	1.69	20 x 35	2.10	22 x 35	2.45
1800	188					22 x 30	2.01	25 x 30	2.43
				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 35	2.25	25 x 35	2.77
						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	3.12
				22 x 30	2.35	25 x 30	2.53	25 x 40	3.20
3300	338	22 x 25	1.93	25 x 25	2.30	30 x 25	2.50	30 x 30	3.10
3900	398	20 x 35	2.21	20 x 40	2.52	22 x 45	2.93	25 x 45	3.61
				22 x 35	2.50	25 x 35	2.93	30 x 35	3.60
4700	478	22 x 30	2.21	25 x 30	2.49	30 x 30	2.91	35 x 30	3.71
5600	568	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
6800	688	25 x 25	2.38	30 x 25	2.78	30 x 30	3.23	35 x 35	4.07
8200	828	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
10000	109	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
12000	129	30 x 25	3.01	30 x 30	3.37	35 x 30	4.10		
15000	159	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		
18000	189	30 x 30	3.43	35 x 30	3.75				
22000	229	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		
27000	279	30 x 35	3.87	35 x 35	4.33				
33000	339	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				
39000	399	35 x 30	4.41						
47000	479	30 x 40	5.02	30 x 50	5.49				
		35 x 35	4.92	35 x 40	5.47				
56000	569	30 x 50	5.60	35 x 50	6.30				
		35 x 40	5.60						
68000	689								
82000	829	35 x 45	6.44						
100000	109	35 x 50	6.71						

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

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

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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	22 x 30	0.91
150	157							25 x 25	0.95
						20 x 35	1.05	20 x 40	1.05
						22 x 30	1.14	22 x 35	1.04
180	187			20 x 30	0.95	25 x 25	1.16	25 x 30	1.08
				20 x 35	1.08	20 x 40	1.18	20 x 40	1.18
		20 x 25	1.14	22 x 30	1.23	22 x 35	1.28	25 x 35	1.20
220	227			25 x 25	1.31	25 x 30	1.30	30 x 25	1.28
		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
270	277	22 x 25	1.18	25 x 30	1.40	30 x 25	1.47	30 x 30	1.40
		20 x 30	1.35	22 x 40	1.60	22 x 45	1.62	25 x 40	1.56
						25 x 35	1.65		
330	337					30 x 30	1.71	30 x 35	1.62
		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
390	397	25 x 25	1.53	30 x 30	1.89	30 x 35	1.93	35 x 30	1.85
		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		
470	477	25 x 30	1.79	30 x 30	2.05	35 x 30	2.19	35 x 35	2.06
		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				
560	567	30 x 25	1.94	35 x 30	2.25	35 x 35	2.43	35 x 40	2.30
		22 x 45	2.36	30 x 40	2.50	30 x 45	2.60		
		25 x 35	2.24	35 x 35	2.56	35 x 35	2.62	35 x 45	2.57
680	687	30 x 30	2.24						
		25 x 40	2.54	30 x 45	2.67	35 x 40	3.00	35 x 50	2.80
820	827	30 x 35	2.58	35 x 40	2.90				
		25 x 50	2.87	30 x 50	3.12				
		30 x 35	2.84			35 x 50	3.30		
1000	108	35 x 30	2.82	35 x 45	3.29				
		30 x 45	3.39	35 x 50	3.40				
1200	128	35 x 35	3.31						
		30 x 50	3.80						
1500	158	35 x 40	3.66						
		35 x 45	4.12						
1800	188	35 x 50	4.31						

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

Case Size Φ D 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	30 x 35	1.20
		22 x 35	1.18	22 x 35	1.19	25 x 35	1.19		
		25 x 30	1.21	25 x 30	1.19	30 x 30	1.23		
				30 x 25	1.14				
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		
220	227	22 x 45	1.50	22 x 50	1.69	25 x 45	1.51	30 x 45	1.60
		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 35	2.05		
		35 x 30	1.95	35 x 35	2.04				
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						

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Case Size ΦD x L (mm)

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