

FEATURES

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

SPECIFICATIONS

Item	Performance Characteristics																																																																				
Operating Temperature Range	-40 to +105℃																																																																				
Rated Working voltage Range	16 to 450V DC																																																																				
Nominal Capacitance Range	56~47000(uF)																																																																				
Capacitance Tolerance	±20%（120Hz, +20℃）																																																																				
Leakage Current	I≤3 √CV after 5minutes application of rated working voltage at +20℃																																																																				
Dissipation Factor tan δ (120Hz+20℃)	<table><tr><td>Working voltage(V)</td><td>10~16</td><td>25</td><td>35~50</td><td>63</td><td>80</td><td>100</td><td>160~200</td><td>250</td><td>315~450</td></tr><tr><td>tan δ (max.)</td><td>0.50</td><td>0.40</td><td>0.35</td><td>0.30</td><td>0.25</td><td>0.20</td><td>0.15</td><td>0.15</td><td>0.25</td></tr></table>													Working voltage(V)	10~16	25	35~50	63	80	100	160~200	250	315~450	tan δ (max.)	0.50	0.40	0.35	0.30	0.25	0.20	0.15	0.15	0.25																																				
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Low Temperature characteristics	<table><tr><td colspan="14">Impedance ratio max. at 120Hz</td></tr><tr><td>Working voltage(V)</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>80</td><td>100</td><td>160</td><td>200</td><td>250</td><td>315</td><td>400</td><td>450</td></tr><tr><td>Z-25℃/Z+20℃</td><td>6</td><td>6</td><td>6</td><td>4</td><td>3</td><td>3</td><td>3</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td></tr><tr><td>Z-40℃/Z+20℃</td><td>15</td><td>15</td><td>10</td><td>8</td><td>6</td><td>6</td><td>6</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td></tr></table>													Impedance ratio max. at 120Hz														Working voltage(V)	16	25	35	50	63	80	100	160	200	250	315	400	450	Z-25℃/Z+20℃	6	6	6	4	3	3	3	8	8	8	8	8	8	Z-40℃/Z+20℃	15	15	10	8	6	6	6	8	8	8	8	8	8
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Z-40℃/Z+20℃	15	15	10	8	6	6	6	8	8	8	8	8	8																																																								
Surge voltage	<table><tr><td>Working voltage(V)</td><td>10</td><td>16</td><td>25</td><td>35</td><td>40</td><td>50</td><td>63</td><td>100</td></tr><tr><td>Surge voltage</td><td>13</td><td>20</td><td>32</td><td>44</td><td>50</td><td>63</td><td>79</td><td>125</td></tr></table> <table><tr><td>Working voltage(V)</td><td>160</td><td>200</td><td>250</td><td>350</td><td>400</td><td>450</td></tr><tr><td>Surge voltage</td><td>200</td><td>250</td><td>300</td><td>400</td><td>450</td><td>500</td></tr></table>													Working voltage(V)	10	16	25	35	40	50	63	100	Surge voltage	13	20	32	44	50	63	79	125	Working voltage(V)	160	200	250	350	400	450	Surge voltage	200	250	300	400	450	500																								
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High temperature Loading	Test conditions After 3000 hours application of rated voltage at +105℃ the capacitor shall meet the following limits Post test requirements at +20℃ Leakage current : ≤ Initial specified value Capacitance change : ≤ ±20% of initial measured value tan δ : ≤200% of initial specified value																																																																				
Shelf life	At 105℃ no voltage applied after 1000hours the capacitors shall meet the following limite Post test requirements at+20℃ Leakage current :≤200 of Initial specified value Capacitance change :≤ ±15% of initial measured value Tan δ :≤150% of initial specified value																																																																				
Others	JIS C-5141 JIS C-5102																																																																				

Ripple current MULTIPLIERS

1)Maximum rms ripple current at 120Hz,105 °C are given in the table

2)Temperature multiplying factor: Where capacitors are operated at temperature other than 105°C, the maximum ripple current must be multiplied by the figure shown in the table below.

Temperature coefficient

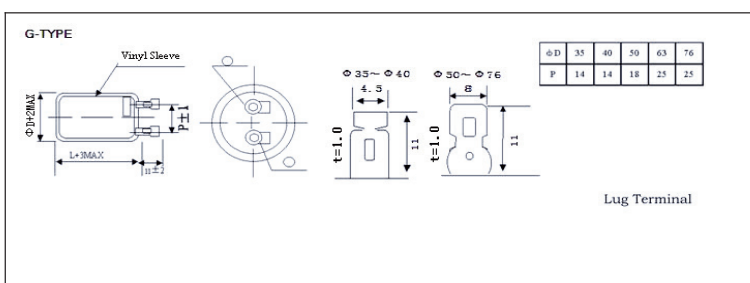
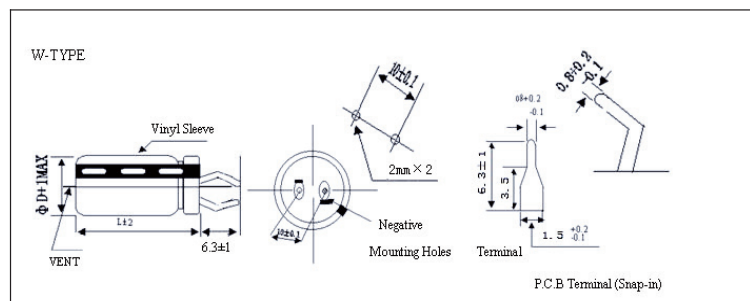
Temperature (°C)	20~45	65	75	105
Factor	1	0.91	0.73	0.36

3) Frequency multiplying factor:

If capacitor are used to filter circuits at a frequency other than 120Hz, the maximum ripple current must be multiplied by the figure shown in the table below.

Frequency coefficient

Frequency(Hz)	60	120	1k	10~50k
10~100V	0.9	1.0	1.15	1.25
160~250V	0.8	1.0	1.25	1.47
350~450V	0.8	1.0	1.30	1.47



DIMENSIONS

 $\Phi D \times L(\text{mm})$

Cap.(μF)	Code	Voltage ΦD	16V(1C)				25V(1E)				35V(1V)			
			22	25	30	35	22	25	30	35	22	25	30	35
3300	338										22×25			
											1.43			
4700	478						22×25				22×35			
							1.56				2.0			
5600	568						22×30				22×35	25×30		
							1.78				2.10	2.01		
6800	688	22×25					22×30	25×25			22×40	25×35	30×25	
		1.73					1.91	1.91			2.38	2.28	2.28	
8200	828	22×30					22×35	25×30	30×25		22×50	25×40	30×30	
		1.98					2.14	2.18	2.25		2.78	2.72	2.73	
10000	109	22×30	25×25				22×40	25×35				25×45	30×35	
		2.05	2.03				2.48	2.50				3.02	3.02	
12000	129	22×35	25×30	30×25			22×45	25×40	30×30			25×50	30×40	
		2.28	2.26	2.38			2.69	2.76	2.72			3.35	3.26	
15000	159	22×40	25×35	30×30				25×45	30×35	35×30			30×45	35×35
		2.65	2.65	2.56				3.20	3.13	3.24			3.70	3.68
18000	189	22×45	22×40	30×35				25×50	30×40					35×40
		2.98	3.15	3.05				3.54	3.54					4.36
22000	229		25×45	30×35					30×45	35×35				35×50
			3.40	3.39					4.24	3.96				4.90
27000	279			30×40	35×35					35×45				
				3.82	3.74					4.75				
33000	339			30×45	35×35					35×50				
				4.30	4.26					5.42				
39000	399				35×40									
					4.75									
47000	479				35×45									
					5.38									

Allowable Ripple (A rms)at 105℃ 120Hz

 $\Phi D \times L(\text{mm})$

Cap.(μF)	Code	Voltage ΦD	50V(1H)				63V(1J)				80V(1K)			
			22	25	30	35	22	25	30	35	22	25	30	35
820	827										22×25			
											1.11			
1000	109										22×30	25×25		
											1.29	1.29		
1200	128						22×25				22×30	25×25		
							1.25				1.39	1.39		
1500	158						22×30	25×25			22×35	25×30		
							1.44	1.44			1.61	1.62		
1800	188	22×30					22×30	25×25			22×40	25×35	30×25	
		1.13					1.52	1.52			1.83	1.86	1.81	
2200	228	22×30					22×35	25×30			22×45	25×35	30×30	
		1.48					1.75	1.75			2.09	2.01	2.10	
2700	278	22×30	25×25				22×40	25×35	30×25			25×45	30×35	
		1.70	1.70				2.03	2.10	1.93			2.43	2.43	
3300	338	22×35	25×30				22×50	25×40	30×30			25×50	30×40	35×30
		1.96	2.00				2.32	2.27	2.24			2.76	2.78	2.71
3900	398	22×40	25×35	30×25				25×45	30×35				30×45	35×35
		2.25	2.28	2.22				2.54	2.55				3.12	3.07
4700	478	22×45	25×40	30×30				25×50	30×40	35×30			30×50	35×40
		2.56	2.61	2.58				2.90	2.90	2.83			3.52	3.50
5600	568	22×50	25×40	30×35					30×45	35×35				35×45
		2.89	2.81	2.95					3.28	3.24				3.87
6800	688		25×50	30×40	35×30				30×50	35×40				35×50
			3.37	3.39	3.31				3.73	3.71				4.19
8200	828			30×45	35×35					35×45				
				3.71	3.66					4.16				
10000	109			30×50	35×35					35×50				
				4.09	4.07					4.69				
12000	129				35×45									
					4.50									

Allowable Ripple (A rms)at 105℃ 120Hz

DIMENSIONS

 $\Phi D \times L(\text{mm})$

Voltage Cap.(μF) Code ΦD		100V(2A)				160V(2C)				200V(2D)			
		22	25	30	35	22	25	30	35	22	25	30	35
270	277									22×30			
										0.90			
330	337					22×30				22×35	25×30		
						1.00				1.15	1.15		
390	397					22×30				22×40	25×30		
						1.28				1.30	1.30		
470	477					22×35	25×30			22×45	25×35	30×30	
						1.42	1.42			1.48	1.48	1.48	
560	567	22×35				22×40	25×35			22×50	25×40	30×30	
		1.07				1.65	1.65			1.65	1.65	1.65	
680	687	22×35	25×30			22×45	25×40				25×45	30×35	35×30
		1.22	1.22			1.72	1.72				1.76	1.76	1.76
820	827	22×40	25×35			22×50	25×40	30×30	35×25			30×40	35×30
		1.35	1.35			2.01	2.02	2.02	2.02			2.01	2.01
1000	108	22×45	25×35				25×50	30×35	35×30			30×50	35×35
		1.54	1.56				2.25	2.25	2.25			2.40	2.40
1200	128	22×50	25×35	30×25				30×40	35×35				35×40
		1.74	1.76	1.71				2.45	2.45				2.58
1500	158	22×50	25×40	30×30				30×45	35×40				35×50
		1.99	2.03	2.00				2.82	2.82				3.0
1800	188		25×45	30×35				30×50	35×45				
			2.28	2.27				3.30	3.05				
2200	228		25×50	30×40	35×30				35×50				
			2.57	2.28	2.52				3.50				
2700	278			30×50	35×35				35×50				
				2.90	2.90				4.0				
3300	338				35×40								
					3.31								
3900	398				35×45								
					3.69								
4700	478				35×50								
					4.14								

Case Size
Allowable ripple

Allowable Ripple (A rms) at 105°C 120Hz

 $\Phi D \times L(\text{mm})$

Voltage Cap.(μF) Code ΦD		250V(2E)				400V(2G)				450V(2W)			
		22	25	30	35	22	25	30	35	22	25	30	35
56	566									22×30			
										0.41			
68	686					22×25				22×30	25×25		
						0.45				0.50	0.50		
82	826					22×30	25×25			22×35			
						0.52	0.52			0.60			
100	107					22×35	25×30			22×40	25×30	30×25	
						0.65	0.65			0.69	0.69	0.69	
120	127					22×40	25×30	30×25		22×45	25×35		
						0.75	0.75	0.75		0.80	0.80		
150	157	22×25				22×45	25×35	30×30		22×50	25×40	30×35	35×25
		0.65				0.88	0.85	0.85		0.88	0.88	0.88	0.88
180	187	22×30				22×50	25×40	30×30	35×25		25×45	30×35	
		0.75				0.96	0.96	0.96	0.96		1.00	1.00	
220	227	22×30	25×25				25×45	30×35	35×30			30×40	35×30
		1.00	1.00				1.11	1.11	1.11			1.11	1.11
270	277	22×35	25×30	30×25			25×50	30×40	35×35			30×50	35×35
		1.18	1.18	1.18			1.22	1.22	1.22			1.26	1.26
330	337	22×40	25×35	30×30				30×45	35×35				35×40
		1.28	1.28	1.28				1.43	1.43				1.42
390	397	22×45	25×40	30×30				30×50	35×40				35×45
		1.48	1.48	1.48				1.62	1.62				1.55
470	477		25×45	30×35	35×30				35×45				35×50
			1.70	1.70	1.70				2.08				1.82
560	567		25×50	30×40	35×30				35×50				
			2.0	2.0	2.0				2.12				
680	687			30×45	35×35								
				2.10	2.10								
820	827				35×40								
					2.18								
1000	108				35×45								
					2.30								

Case Size
Allowable ripple

Allowable Ripple (A rms) at 105°C 120Hz