

FEATURES

1. Highly reliable capacitors that withstand under high ripple current.
2. Two 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°C	-25 to +105°C												
Rated Working Voltage Range	16 to 100V	160 to 450V DC												
Nominal Capacitance Range	56 ~ 47000μF													
Capacitance Tolerance	±20% (120Hz, +20°C)													
Leakage Current	$I \leq 3\sqrt{CV}$ (μA) after 5 minutes application of rated working voltage at +20°C													
Dissipation Factor tan δ (120Hz, +20°C)	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												
Low Temperature Characteristics	Impedance ratio max. at 120Hz													
	Working voltage (V)	16	25	35	50	63	80	100	160	200	250	315	400	450
	Z-25°C/ Z+20°C	6	6	6	4	3	3	3	8	8	8	8	8	8
Z-40°C/ Z+20°C	15	15	10	8	6	6	6							
High Temperature Loading	Test conditions After 2000 hours application of rated voltage at +105°C the capacitor shall meet the following limits													
	Post test requirements at +20°C Leakage current : ≤ Initial specified value Capacitance change : ≤ ±20% of initial measured value tan δ : ≤ 200% of initial specified value													
Shelf Life	At 105°C no voltage applied after 1000 hours the capacitors shall meet the following limits													
	Leakage current : ≤ 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 MULTIPLIER

- 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

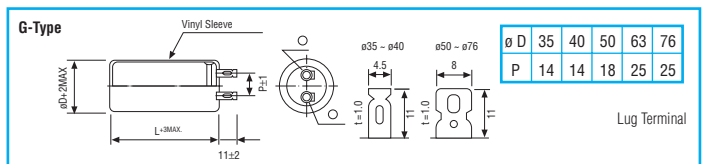
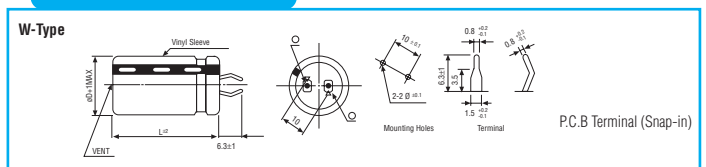
Temperature (°C)	20 ~ 45	65	85	105
Factor	1	0.91	0.73	0.36

- 3) Frequency multiplying factor:
If capacitors 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

CASE SIZE TABLE



105°C PCB Snap -in Terminal Type

DIMENSIONS

ø D x L (mm)

Voltage (Code)		16V (1C)				25V (1E)				35V (1V)				50V (1H)			
Cap. (µF)	Code	22	25	30	35	22	25	30	35	22	25	30	35	22	25	30	35
1800	188													22X25			
														1.31			
2700	278													22X30	25X25		
														1.70	1.70		
3300	338									22x25				22X35	25X30		
										1.43				1.96	2.00		
3900	398									22X30				22X40	25X35	30X25	
										1.65				2.25	2.28	2.22	
4700	478					22X25				22X35	25X25			22X45	25X40	30X30	
						1.55				1.89	1.78			2.56	2.61	2.58	
5600	568					22X30				22X35	25X30	30X25		22X50	25X40	30X35	
						1.76				2.02	2.04	2.12		2.89	2.81	2.95	
6800	688	22X25				22X30	25x25			22X40	25X35				25X50	30X40	35X30
		1.60				1.91	1.91			2.28	2.31				3.37	3.39	3.31
8200	828	22X30				22X35	25X30	30X25		22X50	25X40	30X30				30X45	35X35
		1.85				2.14	2.16	2.25		2.67	2.60	2.56				3.71	3.66
10000	109	22X30	25X25			22X40	25X35				25X45	30X35				30X50	35X40
		1.99	1.99			2.40	2.44				2.92	2.92				4.09	4.07
12000	129	22X35	25X30			22X45	25X40	30X30			25X50	30X40	35X30				35X45
		2.28	2.30			2.69	2.74	2.70			3.26	3.28	3.20				4.50
15000	159	22X40	25X35				25X45	30X35	35X30			30X45	35X35				
		2.64	2.68				3.15	3.13	3.22			3.74	3.69				
18000	189	22X45	25X40				25X50	30X40									35X40
		2.98	3.04				3.54	3.54									4.16
22000	229		25X45	3.00				30X45	35X35								35X50
			3.40	30X35				4.24	3.96								4.92
27000	279		25X50	3.39	35x30				35X45								
			3.81	30X40	3.74				4.75								
33000	339			3.83	35x35				35X50								
				30X45	4.24				5.39								
39000	399			4.30	35x40												
				30X50	4.72												
47000	479			4.74	35x45												
					5.27												

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

ø D x L (mm)

Voltage (Code)		63V (1J)				80V (1K)				100V (2A)			
Cap. (µF)	Code	22	25	30	35	22	25	30	35	22	25	30	35
560	567									22X25			
										1.07			
820	827					22X25				22X30	25X25		
						1.11				1.35	1.35		
1000	108					22X30	25X25			22X35	25X30		
						1.29	1.29			1.54	1.56		
1200	128	22X25				22X30	25X25			22X40	25X35	30X25	
		1.25				1.39	1.39			1.74	1.76	1.71	
1500	158	22X30	25X25			22X35	25X30			22X45	25X40	30X30	
		1.44	1.44			1.61	1.62			1.99	2.03	2.00	
1800	188	22X30	25X25			22X40	25X35	30X25			25X45	30X35	
		1.52	1.52			1.83	1.86	1.81			2.28	2.27	
2200	228	22X35	25X30			22X45	25X35	30X30			25X50	30X40	35X30
		1.73	1.75			2.09	2.01	2.10			2.57	2.59	2.52
2700	278	22X40	25X35	30X25			25X45	30X35				30X45	35X35
		1.97	1.99	1.93			2.43	2.43				2.94	2.90
3300	338	22X50	25X40	30X30			25X50	30X40	35X30			30X50	35X40
		2.32	2.27	2.24			2.76	2.78	2.71			3.32	3.31
3900	398		25X45	30X35				30X45	35X35				35X45
			2.54	2.55				3.12	3.07				3.69
4700	478		25X50	30X40	35X30			30X50	35X40				35X50
			2.88	2.90	2.83			3.52	3.50				4.14
5600	568			30X45	35X35				35X45				
				3.28	3.24				3.87				
6800	688			30X50	35X40				35X50				
				3.73	3.71				4.19				
8200	828				35X45								
					4.16								
10000	109				35X50								
					4.69								

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

105°C PCB Snap -in Terminal Type

DIMENSIONS

∅ D x L (mm)

Cap. (μF)	Voltage (Code)	Code	∅D	160V (2C)				180V (2Z)				200V (2D)				250V (2E)						
				22	25	30	35	22	25	30	35	22	25	30	35	22	25	30	35			
150	157																	22x25 0.65				
180	187																	22x30 0.75				
220	227																	22x30 0.85	25x25 0.85			
270	277	22x25 0.90						22x30 0.90				22x30 0.90						22x35 1.00	25x30 1.00	30x25 1.00		
330	337	22x30 1.00						22x35 1.05				22x35 1.05	25x30					22x40 1.10	25x35 1.10	30x30 1.10		
390	397	22x30 1.15						22x40 1.20	25x30 1.20			22x40 1.25	25x30 1.25					22x45 1.25	25x40 1.25	30x30 1.25		
470	477	22x35 1.30	25x30 1.30					22x40 1.30	25x35 1.30			22x45 1.35	25x35 1.35	30x30 1.35					25x45 1.30	30x35 1.30	35x30 1.30	
560	567	22x40 1.45	25x35 1.45					22x45 1.40	25x40 1.40	30x30 1.40			22x50 1.50	25x40 1.50	30x30 1.50				25x50 1.55	30x40 1.55	35x30 1.55	
680	687	22x45 1.65	25x40 1.65	30x30 1.65				22x50 1.65	25x40 1.65	30x35 1.65				25x45 1.70	30x35 1.70	35x30 1.70				30x45 1.80	35x35 1.80	
820	827	22x50 1.80	25x40 1.80	30x35 1.80	35x25 1.80			25x50 1.85	30x40 1.85	35x30 1.85				30x40 1.90	35x30 1.90						35x40 1.95	
1000	108		25x50 2.00	30x40 2.00	35x30 2.00					30x45 2.05	35x35 2.05			30x50 2.15	35x35 2.15						35x45 2.30	
1200	128			30x45 2.30	35x35 2.30					30x50 2.30	35x40 2.30				35x40 2.30						35x50 2.65	
1500	158			30x50 2.65	35x40 2.65					30x50 2.70	35x45 2.70				35x50 2.75							
1800	188				35x45 3.05						35x50 3.15											
2200	228				35x50 3.50																	Case size Allowable Ripple

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

∅ D x L (mm)

Cap. (μF)	Voltage (Code)	Code	∅D	315V (2F)				400V (2G)				450V (2W)										
				22	25	30	35	22	25	30	35	22	25	30	35							
56	566													22x30 0.41								
68	686							22x25 0.40						22x30 0.48	25x25 0.48							
82	826	22x25 0.46						22x30 0.50	25x25 0.50					22x35 0.56								
100	107	22x30 0.55						22x35 0.55	25x30 0.55					22x40 0.64	25x30 0.61	30x25 0.63						
120	127	22x30 0.60	25x25 0.60					22x40 0.60	25x30 0.60	30x25 0.60				22x45 0.72	25x35 0.71							
150	157	22x35 0.70	25x30 0.70	30x25 0.70				22x45 0.70	25x35 0.70	30x30 0.70				22x50 0.83	25x40 0.81	30x35 0.80	35x25 0.82					
180	187	22x40 0.83	25x30 0.78	30x25 0.82				22x50 0.85	25x40 0.85	30x30 0.85	35x25 0.85			25x45 0.92	30x35 0.91							
220	227	22x45 0.90	25x35 0.90	30x30 0.90					25x45 0.90	30x35 0.90	35x30 0.90				30x40 1.05	35x30 1.03						
270	277	22x50 1.00	25x40 1.00	30x35 1.00	35x25 1.00				25x50 1.00	30x40 1.00	35x30 1.00				30x50 1.21	35x35 1.19						
330	337		25x50 1.25	30x35 1.25	35x30 1.25					30x45 1.25	35x35 1.25					35x40 1.38						
390	397			30x40 1.35	35x35 1.35					30x50 1.35	35x40 1.35					35x45 1.55						
470	477			30x50 1.45	35x40 1.45						35x45 1.45					35x50 1.74						
560	567				35x45 1.65						35x50 1.65											
680	687				35x50 1.90																	Case size Allowable Ripple

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