Aluminum Electrolytic Capacitors **HP** Series

Features

- PCB Snap-In type 105℃
- Directly mountable on printed circuit board without holders.
- Terminal spacing fixed at 10mm for pc board plug in.



Specification

Items	Performance	
Capacitance Tolerance	±20%	(at 120Hz, 20℃)
Rated Voltage Range	10 to 100 VDC	160 to 450 VDC
Capacitance Range	470 to 47000 μF	47 to 2200 μF
Operating Temperature Range	-40 to + 105℃	-25 to 105℃
Leakage Current (at 20℃)	I≦0.02 CV After 5 minutes application of working voltage. I＝Leakage current (μA), C＝Rated capacitance (μF), V＝Rated voltage (V)	

Dissipation Factor (Tan δ at 120Hz, 20℃)

Rated Voltage	10	16	25	35	50	63	100	160	200	250	350	400	450
Tan δ (max)	0.50	0.50	0.40	0.40	0.30	0.30	0.25	0.15	0.15	0.15	0.20	0.20	0.20

Low Temperature Characteristics (at 120Hz)

Impedance ratio shall not exceed the values given in the table below.

Rated Voltage	10	16	25	35	50	63	100	160	200	250	350	400	450
Z-25℃/Z+20℃	5	5	4	4	4	4	4	4	4	4	4	8	8
Z-40℃/Z+20℃	15	15	15	12	12	12	12	-	-	-	-	-	-

Load Life

After 2000 hours application of W.V. at 105℃,
the capacitor shall meet the following limits.

Capacitance change	:	≦±25% of initial value
Dissipation factor	:	≦200% of initial specified value
Leakage Current	:	≦Initial specified value

Shelf Life

After storage for 1000 hours at 105℃, with no voltage applied and being stabilized at + 20℃, Capacitor shall meet the limit specified in load life.

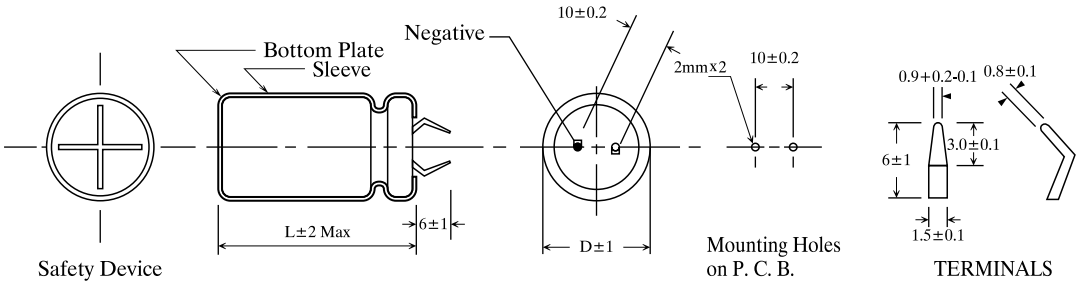
Ripple Current & Frequency Multiplier

Freq.(Hz) / W.V. (V)	60 (50)	120	500	1K	10K up
Under 100	0.90	1.00	1.13	1.19	1.20
160 to 250	0.81	1.00	1.17	1.32	1.45
350 to up	0.77	1.00	1.16	1.30	1.41

Ripple Current & Temperature Multiplier

Temperature(℃)	85	105
Multiplier	1.50	1.00

DIAGRAM OF DIMENSIONS



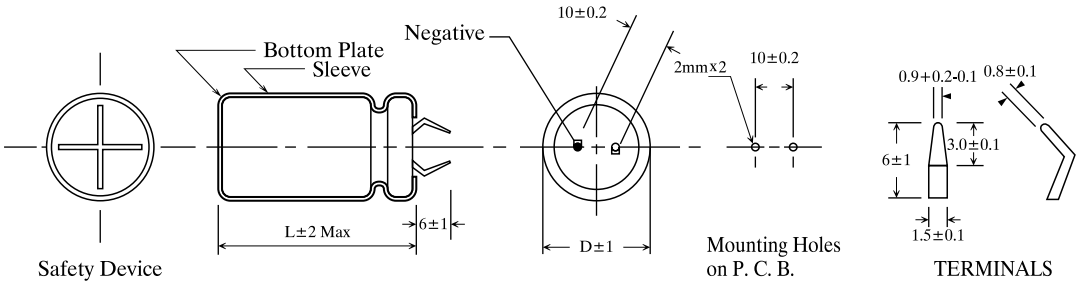
DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension : ø D x L (mm)

Ripple Current : A/rms at 120Hz,105℃

VDC / μF	10V		16V		25V		35V		50V		63V		100V	
	ø DxL	Ripple	ø DxL	Ripple	ø DxL	Ripple	ø DxL	Ripple	ø DxL	Ripple	ø DxL	Ripple	ø DxL	Ripple
470													22x26 25x26	0.72 0.68
680													22x32 25x26	0.98 0.98
1000													22x35 25x32	1.13 1.13
1500									22x26 25x26	0.98 1.10	22x32 25x26	1.02 1.02	22x46 25x41 30x32	1.68 1.68 1.68
2200									22x26 25x26	1.46 1.46	22x36 25x32	1.46 1.46	25x51 30x41	2.97 2.97
3300									22x41 25x32	2.08 2.08	22x42 25x41 30x32	2.37 2.37 2.34	30x51 35x47	4.38 4.38
4700					22x26 25x26	1.72 1.72	22x32 25x26	2.37 2.16	22x46 25x41 30x32	2.73 2.73 2.73	25x51 30x41	3.22 3.22	35x56	5.32
6800					22x32 25x26	2.48 2.48	22x41 25x36 30x32	3.12 3.12 3.12	25x46 30x41	3.14 3.14	30x51 35x48	4.49 4.49		
10000	22.32 25x26	2.12 2.12	22x36 25x32	2.82 2.82	22x41 25x36 30x32	3.38 3.38 3.38	25x41 30x32	3.78 3.78	30x51 35x42	3.99 3.99	30x51 35x46	5.52 5.52		
15000	22x32 25x32	2.64 2.64	22x41 25x36	3.14 3.14	25x46 30x36	4.42 4.42	30x41 35x37	4.46 4.46	35x58	4.98				
22000	22x41 25x36 30x32	3.06 3.06 3.06	25x51 30x36	4.03 4.03	25x51 30x51 35x40	4.79 5.02 5.02	30x52 35x52	4.98 5.38						
33000	25x46 30x36	3.58 3.58	25x51 30x41 35x37	4.65 4.65 4.65	35x46	5.98	35x53	5.42						
47000	30x46 35x37	4.18 4.18	35x47	6.22										

DIAGRAM OF DIMENSIONS



DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension : ø D x L (mm)
Ripple Current : A/rms at 120Hz,105℃

VDC / μF	160V		200V		250V		350V		400V		450V	
	ø DxL	Ripple	ø DxL	Ripple	ø DxL	Ripple	ø DxL	Ripple	ø DxL	Ripple	ø DxL	Ripple
47											22x27 25x26	0.32 0.32
68											22x32 25x32	0.50 0.50
100							22x26	0.50	22x32 25x32	0.78 0.82	22x41 25x32 30x32	0.68 0.68 0.68
150					22x26 25x26	0.50 0.50	22x36 25x32	0.65 0.65	22x41 25x32 30x32	0.86 0.86 0.86	22x51 25x48 30x36	0.87 0.87 0.87
220			22x32 25x26	0.78 0.78	22x26 25x32	0.86 0.86	22x46 25x36 30x32	0.88 0.88 0.88	22x51 25x41 30x41	1.03 1.03 1.03	25x51 30x48	0.98 1.12
330	22x32 25x26	0.82 0.82	22x32 25x26	1.10 1.10	22x36 25x32 30x32	1.02 1.02 1.02	25x41 30x41	0.92 0.92	25x52 30x48 35x42	1.20 1.34 1.34	30x53 35x47	1.27 1.48
470	22x36 25x32	1.02 1.02	22x41 25x41 30x32	1.45 1.45 1.48	22x46 25x46 30x36 35x32	1.34 1.65 1.65 1.65	25x51 30x46	1.40 1.40	25x58 30x52 35x52	1.67 1.67 1.67	35x53	1.67
680	22x46 25x41 30x32	1.48 1.50 1.67	22x56 25x40 30x36	1.80 1.80 1.80	25x53 30x46 35x37	1.67 2.02 2.02	35x42	1.65	30x64 35x52	2.18 2.18		
1000	22x56 25x51 30x41	1.98 2.03 2.03	25x51 30x42 35x42	2.05 2.30 2.30	30x51 35x51	2.28 2.52	35x63	1.68	35x62	2.36		
1500	30x51 25x42	2.46 2.46	30x51 35x53	2.75 3.10								
2200	35x51	3.18	35x63	3.58								