

SMS, PR Series

PC Board Plug-in Type

Aluminum Electrolytic Capacitors

Features

- Case size is one or two ranks smaller than SM series

Specifications

- Operating temperature range :
100 ≥ : -40°C ~ +85°C, 100V < : -25°C ~ 85°C
- Rated working voltage : 10 ~ 450V_{DC}
- Rated capacitance : 56 ~ 33,000μF
- Capacitance tolerance : (at 120Hz, +20°C), ±20% or -10 ~ +30%
- Tan δ : (at 120Hz, +20°C)

W.V.	10	16	25	35	50	63	80	100
Tan δ max.	0.35	0.35	0.35	0.35	0.25	0.25	0.20	0.20

W.V.	160	180	200	250	315	350	400	450
Tan δ max.	0.20	0.20	0.20	0.23	0.23	0.23	0.25	0.25

Add 0.01 per 1,000μF for more than 1,000μF items.

- DC leakage current : max.

$$I = 0.03 CV \mu A \text{ or } 3mA$$

whichever is smaller.

where I = DC leakage current in μA

C = rated capacitance in μF

V = rated working voltage in V

DC leakage current shall be measured after 5 minutes application of the DC rated working voltage through the 1000Ω resistor at 20°C

- Load life :

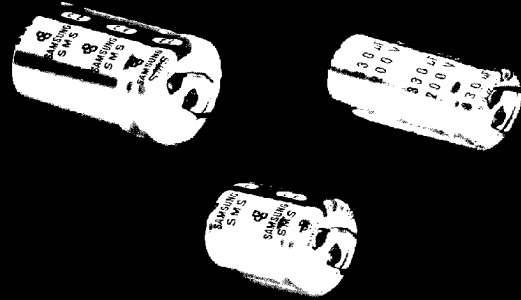
After 2000 hours application of DC rated working voltage at 85°C, the measurements shall meet following limits.

Measurements shall be performed after 2 hours exposure at room temperature.

Capacitance change	±20% of the initial measured value.
Tan δ	< 150% of the initial specified value
DC leakage current	< the initial specified value

- Shelf life :

After storage for 500 hours at 85°C without voltage application, the measurements shall meet the following limits.



Capacitance change	±20% of the initial measured value.
Tan δ	≤ 150% of the initial specified value
DC leakage current	< the initial specified value.

Measurements shall be performed after exposure for 24 hours at room temperature after application of DC rated voltage to the capacitors for 30 minutes.

- Low temperature impedance stability.

Impedance ratio against value at +20°C, 120Hz

W.V.(V DC)	*1 -25°C/+20°C	*2 -40°C/+20°C
10	5	18
16~35	4	15
50~100	3	10
160~200	3	-
250~450	4	-

* 1...add 0.5 per 1,000μF for more than 1,000μF items.

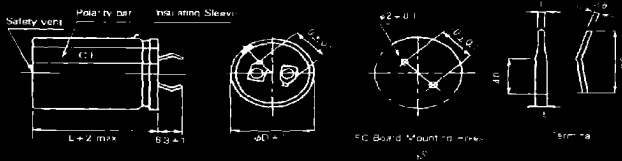
* 2...add 1.0 per 1,000μF for more than 1,000μF items.

- Maximum permissible ripple current :

Refer to standard products table

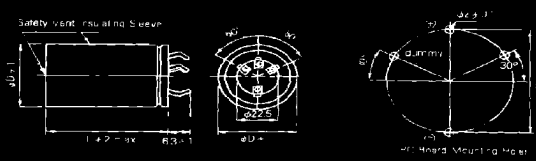
Dimensions

SM2 : Case size($\phi 22 \sim \phi 35$)

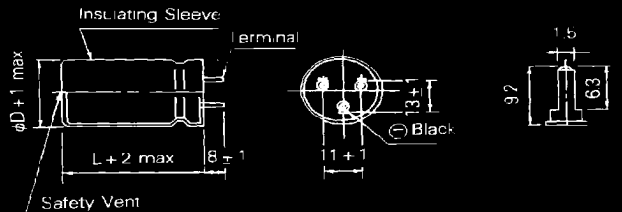


SM4 : Case size($\phi 35$)

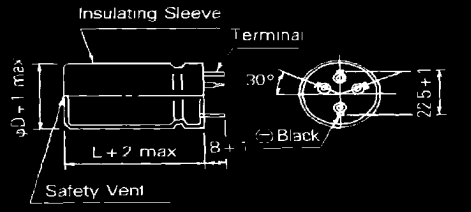
(UNIT : mm)



PR3 : Case size($\phi 25 \sim \phi 35$)



PR4 : Case size($\phi 35$)



Case Size Table

($\phi D \times L$: mm)

W.V(code)		16V(1C)			
CAP. (μF)	Ripple Current	Case Size $\phi D \times L$ (mm)			
		22 ϕ	25 ϕ	30 ϕ	35 ϕ
8200	2.56	22 \times 25			
10000	2.85	22 \times 30			
12000	3.06	22 \times 30	25 \times 25		
15000	3.29	22 \times 35	25 \times 30	30 \times 25	
18000	3.80	22 \times 40	25 \times 35		
22000	4.52	22 \times 50	25 \times 40	30 \times 30	
27000	4.82		25 \times 45	30 \times 35	
33000	5.46			30 \times 40	35 \times 30
39000	6.15			30 \times 45	35 \times 35
47000	6.90			30 \times 50	35 \times 40
56000	7.62				35 \times 45
68000	8.42				35 \times 50

W.V(code)		25V(1E)			
CAP. (μF)	Ripple Current	Case Size $\phi D \times L$ (mm)			
		22 ϕ	25 ϕ	30 ϕ	35 ϕ
5600	2.11	22 \times 25			
6800	2.47	22 \times 30	25 \times 25		
8200	2.78	22 \times 35	25 \times 30		
10000	3.16	22 \times 40	25 \times 30	30 \times 25	
12000	3.48	22 \times 45	25 \times 35	30 \times 30	
15000	4.10	22 \times 50	25 \times 40	30 \times 30	
18000	4.53		25 \times 45	30 \times 35	35 \times 30
22000	5.19			30 \times 40	35 \times 35
27000	5.95			30 \times 50	35 \times 40
33000	6.65				35 \times 45
39000	7.52				35 \times 50

Ripple Current : [A] r.m.s. at 120Hz, +85°C

Case Size Table

(ϕ D \times L : mm)

W.V(code)		35V(1V)			
CAP. (μ F)	Ripple Current	Case Size ϕ D \times L (mm)			
		22 ϕ	25 ϕ	30 ϕ	35 ϕ
3900	2.16	22 \times 25			
4700	2.42	22 \times 30	25 \times 25		
5600	2.66	22 \times 35	25 \times 30		
6800	2.89	22 \times 40	25 \times 30	30 \times 25	
8200	3.20	22 \times 45	25 \times 35		
10000	3.60	22 \times 50	25 \times 40	30 \times 30	
12000	4.15		25 \times 45	30 \times 35	35 \times 30
15000	4.80			30 \times 40	35 \times 35
18000	5.30			30 \times 45	35 \times 40
22000	6.20				35 \times 45
27000	6.89				35 \times 50

W.V(code)		50V(1H)			
CAP. (μ F)	Ripple Current	Case Size ϕ D \times L (mm)			
		22 ϕ	25 ϕ	30 ϕ	35 ϕ
2200	1.91	22 \times 25			
3300	2.35	22 \times 30	25 \times 25		
3900	2.68	22 \times 35	25 \times 30		
4700	3.01	22 \times 40	25 \times 35	30 \times 25	
5600	3.43	22 \times 45	25 \times 40	30 \times 30	35 \times 25
6800	3.87	22 \times 50	25 \times 45	30 \times 35	
8200	4.41		25 \times 50	30 \times 40	35 \times 30
10000	4.92			30 \times 45	35 \times 35
12000	5.60			30 \times 50	35 \times 40
15000	6.44				35 \times 45
18000	6.71				35 \times 50

W.V(code)		63V(1J)			
CAP. (μ F)	Ripple Current	Case Size ϕ D \times L (mm)			
		22 ϕ	25 ϕ	30 ϕ	35 ϕ
1800	1.82	22 \times 25			
2200	2.14	22 \times 30	25 \times 25		
2700	2.49	22 \times 35	25 \times 30		
3300	2.72	22 \times 40	25 \times 30	30 \times 25	
3900	3.09	22 \times 45	25 \times 35		
4700	3.37	22 \times 50	25 \times 40	30 \times 30	35 \times 25
5600	3.71		25 \times 45	30 \times 35	
6800	4.33		25 \times 50	30 \times 40	35 \times 30
8200	4.80			30 \times 45	35 \times 35
10000	5.49			30 \times 50	35 \times 40
12000	6.30				35 \times 45

W.V(code)		80V(1K)			
CAP. (μ F)	Ripple Current	Case Size ϕ D \times L (mm)			
		22 ϕ	25 ϕ	30 ϕ	35 ϕ
1200	1.77	22 \times 25			
1500	2.01	22 \times 30			
1800	2.26	22 \times 35	25 \times 25		
2200	2.53	22 \times 40	25 \times 30	30 \times 25	
2700	2.91	22 \times 45	25 \times 35		
3300	2.23	22 \times 50	25 \times 40	30 \times 30	35 \times 25
3900	3.62		25 \times 45	30 \times 35	
4700	4.10		25 \times 50	30 \times 40	35 \times 30
5600	4.51			30 \times 45	35 \times 35
6800	5.14			30 \times 50	35 \times 40
8200	5.83				35 \times 45
10000	6.62				35 \times 50

Ripple Current : [A], r.m.s. at 120Hz, +85°C

Case Size Table

(ϕ D×L : mm)

W. V(code)		100V(2A)			
CAP. (μ F)	Ripple Current	Case Size ϕ D×L(mm)			
		22 ϕ	25 ϕ	30 ϕ	35 ϕ
820	1.86	22×25			
1000	2.02	22×30			
1200	2.12	22×35	25×25		
1500	2.43	22×40	25×30	30×25	
1800	2.65	22×45	25×35		
2200	3.10	22×50	25×40	30×30	35×25
2700	3.60		25×45	30×35	35×30
3300	4.05		25×50	30×40	
3900	4.50			30×45	35×35
4700	5.12			30×50	35×40
5600	5.75				35×45
6800	6.01				35×50

W. V(code)		160V(2C)			
CAP. (μ F)	Ripple Current	Case Size ϕ D×L(mm)			
		22 ϕ	25 ϕ	30 ϕ	35 ϕ
330	1.40	22×25			
390	1.54	22×30			
470	1.75	22×30	25×25		
560	1.95	22×35	25×30		
680	2.21	22×40	25×30	30×25	
820	2.46	22×45	25×35	30×30	
1000	2.80	22×50	25×40	30×30	35×25
1200	3.15		25×45	30×35	35×30
1500	3.70			30×45	35×35
1800	4.02			30×50	35×40
2200	4.50				35×45
2700	5.51				35×50

W. V(code)		180V(2Y)			
CAP. (μ F)	Ripple Current	Case Size ϕ D×L(mm)			
		22 ϕ	25 ϕ	30 ϕ	35 ϕ
330	1.35	22×25			
390	1.55	22×30	25×25		
470	1.75	22×35	25×30		
560	1.98	22×40	25×30	30×25	
680	2.25	22×45	25×35		
820	2.52	22×50	25×40	30×30	35×25
1000	2.85		25×45	30×35	35×30
1200	3.30			30×40	35×35
1500	3.75			30×50	35×40
1800	4.02				35×45
2200	4.60				35×50

W. V(code)		200V(2D)			
CAP. (μ F)	Ripple Current	Case Size ϕ D×L(mm)			
		22 ϕ	25 ϕ	30 ϕ	35 ϕ
270	1.41	22×25			
330	1.56	22×30			
390	1.68	22×35	25×25		
470	1.85	22×35	25×30	30×25	
560	2.43	22×40	25×35	30×25	
680	2.68	22×50	25×40	30×30	
820	2.93		25×45	30×35	35×25
1000	3.25		25×50	30×40	35×30
1200	3.50			30×45	35×35
1500	3.87			30×50	35×40
1800	4.32				35×45
2200	4.92				35×50

Ripple Current : [A] r.m.s. at 120Hz, +85°C

Case Size Table

(ϕ D×L : mm)

W.V(code)		250V(2E)			
CAP. (μ F)	Ripple	Case Size ϕ D×L(mm)			
	Current	22 ϕ	25 ϕ	30 ϕ	35 ϕ
180	1.07	22×25			
220	1.17	22×30			
270	1.31	22×30	25×25		
330	1.75	22×35	25×30		
390	1.91	22×40	25×35	30×25	
470	2.11	22×45	25×40	30×30	
560	2.25		25×45	30×35	35×25
680	2.50		25×50	30×40	35×30
820	2.77			30×45	35×35
1000	3.32			30×50	35×40
1200	3.53				35×45
1500	4.04				35×50

W.V(code)		315V(2F)			
CAP. (μ F)	Ripple	Case Size ϕ D×L(mm)			
	Current	22 ϕ	25 ϕ	30 ϕ	35 ϕ
100	0.77	22×25			
120	0.83	22×30			
150	0.98	22×30	25×25		
180	1.10	22×35	25×30		
220	1.25	22×40	25×35	30×25	
270	1.45	22×45	25×40	30×30	
330	1.60		25×45	30×35	35×25
390	1.86		25×50	30×35	35×30
470	2.07			30×40	35×35
560	2.33			30×45	35×40
680	2.66				35×45
820	3.00				35×50

W.V(code)		350V(2V)			
CAP. (μ F)	Ripple	Case Size ϕ D×L(mm)			
	Current	22 ϕ	25 ϕ	30 ϕ	35 ϕ
82	0.70	22×25			
100	0.81	22×30			
120	0.92	22×30	25×25		
150	1.05	22×35	25×30		
180	1.13	22×40	25×35	30×25	
220	1.31	22×45	25×40	30×30	35×25
270	1.54		25×45	30×35	35×30
330	1.72		25×50	30×40	35×30
390	2.01			30×45	35×35
470	2.32			30×50	35×40
560	2.53				35×45
680	2.95				35×50

W.V(code)		400V(2G)			
CAP. (μ F)	Ripple	Case Size ϕ D×L(mm)			
	Current	22 ϕ	25 ϕ	30 ϕ	35 ϕ
82	0.83	22×25			
100	0.92	22×30	25×25		
120	1.02	22×35	25×30		
150	1.16	22×40	25×30	30×25	
180	1.44	22×45	25×35	30×30	
220	1.49	22×50	25×40	30×30	35×25
270	1.67		25×45	30×35	35×30
330	1.90			30×40	35×35
390	2.13			30×45	35×40
470	2.39				35×45
560	2.69				35×50

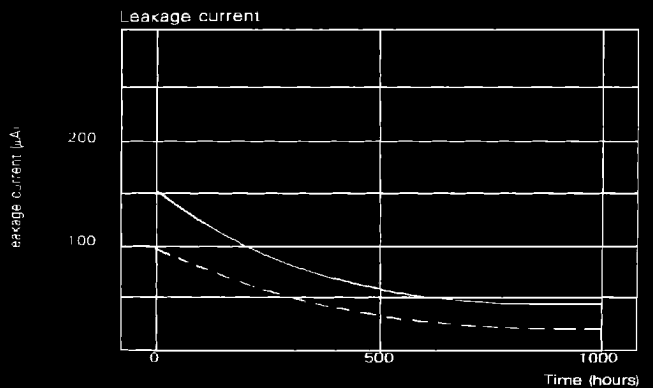
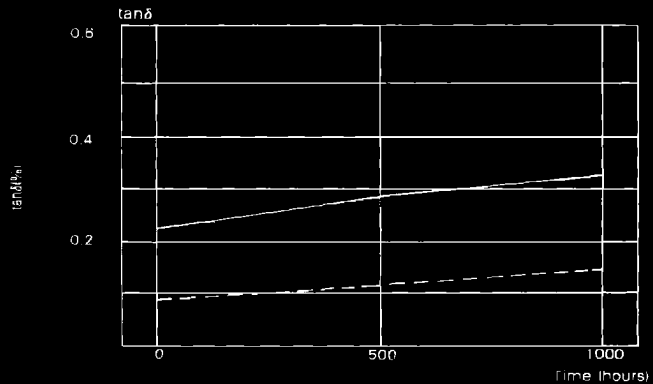
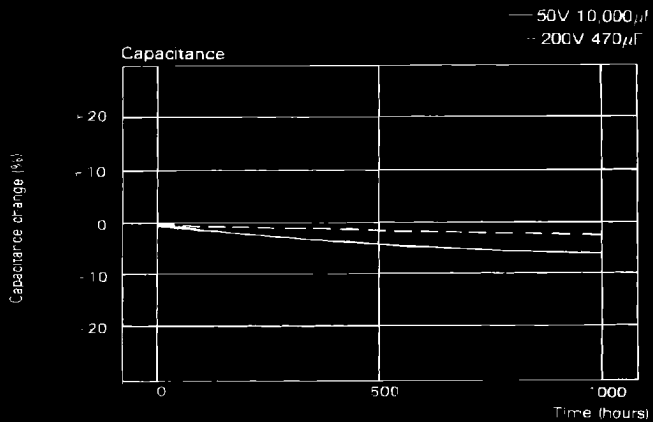
Ripple Current : [A] r.m.s. at 120Hz, +85°C

SMS Series

Case Size Table (φ D × L : mm)

W.V(code)		450V(2W)			
CAP. (μF)	Ripple Current	Case Size φ D × L(mm)			
		22 φ	25 φ	30 φ	35 φ
56	0.59	22 × 25			
68	0.63	22 × 30			
82	0.78	22 × 30	25 × 25		
100	0.92	22 × 35	25 × 30		
120	1.04	22 × 40	25 × 35	30 × 25	
150	1.19	22 × 50	25 × 40	30 × 30	
180	1.35		25 × 45	30 × 35	35 × 25
220	1.55		25 × 50	30 × 40	35 × 30
270	1.78			30 × 45	35 × 35
330	2.01			30 × 50	35 × 40
390	2.24				35 × 45
470	2.53				35 × 50

Load life characteristics(at 85°C, W.V. applied)



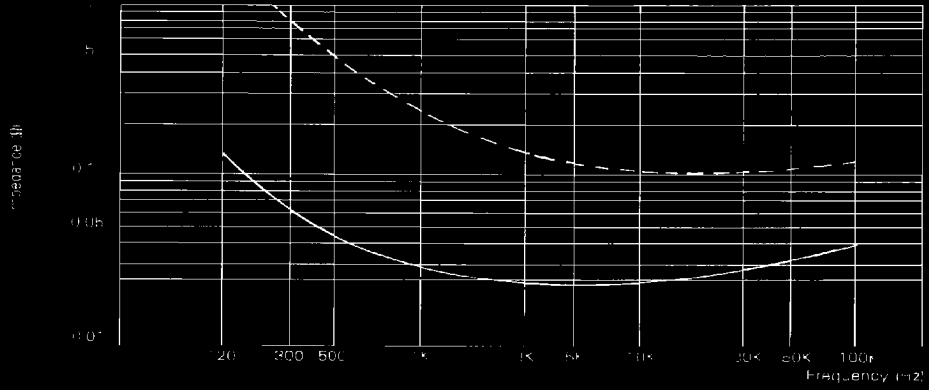
SMS Series

Characteristics

■ Frequency characteristics

50V 10,000 μ F

200V 470 μ F



■ Temperature characteristics

50V 10,000 μ F

200V 470 μ F

