

# SMQ Series

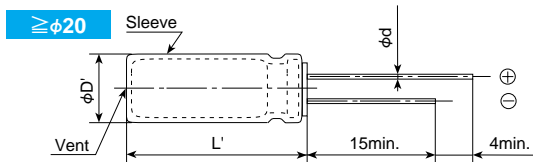
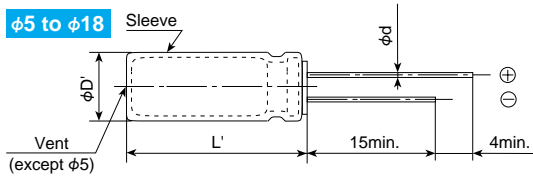
- Downsized from current standard SMG series
- Endurance : 85°C 2000 hours
- Non Solvent-proof type



## ◆ SPECIFICATIONS

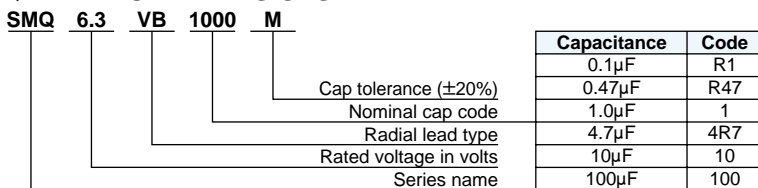
Items	Characteristics														
Category Temperature Range	-40 to +85°C(6.3 to 400V <sub>dc</sub> ) -25 to +85°C(450V <sub>dc</sub> )														
Rated Voltage Range	6.3 to 450V <sub>dc</sub>														
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)														
Leakage Current	6.3 to 100V <sub>dc</sub>														
	≤φ18	I=0.03CV or 4μA, whichever is greater.													
		(at 20C after 1 minute)											(at 20°C)		
≥φ20	I=0.03CV											(at 20°C after 3 minutes)			
Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)															
Dissipation Factor (tanδ)	Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	315 to 400V	450V			
	tanδ (Max.)	0.28	0.24	0.20	0.16	0.14	0.12	0.09	0.08	0.20	0.24	0.24			
When nominal capacitance exceeds 1000μF, add 0.02 to the value above for each 1000μF increase. (at 20°C, 120Hz)															
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 200V	250V	350V	400V	450V	
	Z(-25°C)/Z(+20°C)	≤φ8	5	4	3	2	2	2	2	2	3	3	4	4	6
		≥φ10	5	4	3	2	2	2	2	2	3	3	4	4	6
	Z(-40°C)/Z(+20°C)	≤φ8	12	10	8	5	4	3	3	3	8	10	8	8	—
≥φ10		12	10	8	5	4	3	3	3	4	4	6	6	—	
(at 120Hz)															
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C.														
	Capacitance change	≤±20% of the initial value													
	D.F. (tanδ)	≤200% of the initial specified value													
	Leakage current	≤The initial specified value													
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours at 85°C without voltage applied.														
	Rated voltage	6.3 to 100V <sub>dc</sub>						160 to 450V <sub>dc</sub>							
	Capacitance change	≤±15% of the initial value						≤±20% of the initial value							
	D.F. (tanδ)	≤200% of the initial specified value						≤200% of the initial specified value							
	Leakage current	≤The initial specified value						≤500% of the initial specified value							

## ◆ DIMENSIONS (Radial Lead Type=VB) [mm]



φD	5	6.3	8	10	12.5	16	18	20	22
φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0	1.0
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0	10.0
φD'	φD+0.5max.							φD+0.5max.	
L'	L+1.5max.							L+2.0max.	

## ◆ PART NUMBERING SYSTEM



◆STANDARD RATINGS

$\mu\text{F}$ \ $V_{\text{dc}}$	6.3		10		16		25		35		50		63	
0.1											5×11	1.3		
0.22											5×11	2.9		
0.33											5×11	4.3		
0.47											5×11	6.2		
1.0											5×11	17		
2.2											5×11	28		
3.3											5×11	35		
4.7											5×11	41		
10											5×11	60		
22											5×11	95	5×11	100
33											5×11	125	6.3×11	140
47										5×11	130	6.3×11	6.3×11	170
68										6.3×11	160	6.3×11	8×11.5	220
100							5×11	180	6.3×11	210	8×11.5	260	8×11.5	280
220			5×11	240	6.3×11	260	6.3×11	280	8×11.5	385	10×12.5	430	10×16	490
330			6.3×11	290	6.3×11	320	8×11.5	440	10×12.5	490	10×16	590	10×20	710
470			6.3×11	350	8×11.5	440	10×12.5	550	10×16	650	10×20	760	12.5×20	900
1,000	8×11.5	540	10×12.5	650	10×12.5	700	10×16	860	12.5×20	1,150	12.5×25	1,350	16×25	1,300
2,200	10×16	890	10×16	990	10×20	1,000	12.5×25	1,550	16×25	1,800	16×31.5	1,980	18×35.5	2,300
3,300	10×20	1,190	12.5×20	1,450	12.5×25	1,700	16×25	1,980	16×31.5	2,100	18×35.5	2,500	20×40	2,700
4,700	12.5×20	1,550	12.5×25	1,800	16×25	2,100	16×25	2,200	16×35.5	2,500	20×40	2,900	22×50	3,400
6,800	12.5×25	1,920	16×25	2,250	16×25	2,250	16×35.5	2,600	18×40	2,800	22×50	3,500		
10,000	16×25	2,350	16×31.5	2,550	16×35.5	2,710	18×40	2,800	22×50	3,700				
15,000	16×31.5	2,550	16×35.5	2,880	18×40	3,100	22×50	3,800						
22,000	18×35.5	3,200	18×40	3,400	22×40	3,800								
33,000	20×40	3,500	22×50	4,500										
47,000	22×50	3,900												

Rated ripple current (mA rms) at 85°C, 120Hz  
Case size  $\phi$ D×L (mm)

$\mu\text{F}$ \ $V_{\text{dc}}$	100		160		200		250		350		400		450	
0.1	5×11	2.1												
0.22	5×11	4.7												
0.33	5×11	7.0												
0.47	5×11	10									6.3×11	12		
1.0	5×11	21			6.3×11	22					6.3×11	22		
2.2	5×11	30			6.3×11	33			6.3×11	30	8×11.5	38	8×11.5	28
3.3	5×11	40			6.3×11	40	6.3×11	40	8×11.5	46	8×11.5	48	10×12.5	40
4.7	5×11	45			6.3×11	50	6.3×11	50	8×11.5	55	10×12.5	60	10×12.5	46
10	5×11	70	8×11.5	80	8×11.5	80	10×12.5	100	10×12.5	90	10×16	90	10×20	80
22	6.3×11	130	10×12.5	130	10×16	150	10×20	170	12.5×20	185	12.5×25	205	12.5×25	140
33	8×11.5	180	10×16	180	10×20	205	10×20	200	12.5×25	240	16×25	275	16×25	180
47	8×11.5	200	10×20	210	12.5×20	270	12.5×20	270	16×25	325	16×25	280	16×31.5	220
68	10×12.5	270	12.5×20	350	12.5×25	350	16×25	380	16×25	400	16×31.5	340	18×35.5	260
100	10×16	340	12.5×25	430	16×25	475	16×25	440	18×31.5	530	18×35.5	440	18×40	280
220	12.5×20	550	16×31.5	760	16×35.5	700	18×35.5	680						
330	12.5×25	760	18×35.5	995	18×40	950								
470	16×25	1,000	18×40	1,200										
1,000	18×35.5	1,350												
2,200	22×50	2,400												

Rated ripple current (mA rms) at 85°C, 120Hz  
Case size  $\phi$ D×L (mm)

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

( $\phi$ 5 to  $\phi$ 18)

Capacitance ( $\mu\text{F}$ ) \ Frequency (Hz)	50	120	300	1k	10k	100k
0.1 to 4.7	0.65	1.00	1.35	1.75	2.30	2.50
10 to 68	0.75	1.00	1.25	1.50	1.75	1.80
100 to 1,000	0.80	1.00	1.15	1.30	1.40	1.50
2,200 to	0.85	1.00	1.03	1.05	1.08	1.08

( $\phi$ 20 to  $\phi$ 22)

Rated Voltage ( $V_{\text{s}}$ ) \ Frequency (Hz)	50	120	300	1k	10k	100k
6.3 to 50	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100	0.92	1.00	1.07	1.13	1.19	1.20