

# SMQ Series

- Downsized from current standard SMG series
- Endurance : 2,000 hours at 85°C
- Non solvent resistant type
- RoHS2 Compliant

SMQ

↑ Downsized  
SMG



## ◆ SPECIFICATIONS

Items	Characteristics															
Category	-40 to +85°C(6.3 to 400V <sub>dc</sub> ) -25 to +85°C(450V <sub>dc</sub> )															
Temperature Range																
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>										160 to 450V <sub>dc</sub>					
	I=0.03CV or 4µA, whichever is greater.															
											CV ≤ 1,000		I=0.1CV+40 max.			
										CV > 1,000		I=0.04CV+100 max.				
Where, I : Max. leakage current (µA), C : Nominal capacitance (µF), V : Rated voltage (V) (at 20°C after 1 minute)																
Dissipation Factor (tan δ)	Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V	50V	63V	100V	160 to 250V	315 to 400V	450V				
	tan δ (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 1,000µF, add 0.02 to the value above for each 1,000µF 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 2,000 hours at 85°C.															
	Capacitance change	≤ ±20% of the initial value														
	D.F. (tan δ)	≤ 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 1,000 hours at 85°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.															
	Rated voltage	6.3 to 100V <sub>dc</sub>							160 to 450V <sub>dc</sub>							
	Capacitance change	≤ ±20% of the initial value							≤ ±20% of the initial value							
	D.F. (tan δ)	≤ 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 [mm]

- Terminal Code : E



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

## ◆ PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"



**SMQ**Series

**◆STANDARD RATINGS**

WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA <sub>rms</sub> /85°C, 120Hz)	Part No.	WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA <sub>rms</sub> /85°C, 120Hz)	Part No.
400	22	12.5 × 25	0.24	205	ESMQ401E□□220MK25S	450	4.7	10 × 12.5	0.24	46	ESMQ451E□□4R7MJC5S
	33	16 × 25	0.24	275	ESMQ401E□□330ML25S		10	10 × 20	0.24	80	ESMQ451E□□100MJ20S
	47	16 × 25	0.24	280	ESMQ401E□□470ML25S		22	12.5 × 25	0.24	140	ESMQ451E□□220MK25S
	68	16 × 31.5	0.24	340	ESMQ401E□□680MLN3S		33	16 × 25	0.24	180	ESMQ451E□□330ML25S
	100	18 × 35.5	0.24	440	ESMQ401E□□101MMP1S		47	16 × 31.5	0.24	220	ESMQ451E□□470MLN3S
450	2.2	8 × 11.5	0.24	28	ESMQ451E□□2R2MHB5D		68	18 × 35.5	0.24	260	ESMQ451E□□680MMP1S
	3.3	10 × 12.5	0.24	40	ESMQ451E□□3R3MJC5S		100	18 × 40	0.24	280	ESMQ451E□□101MM40S

□□ : Enter the appropriate lead forming or taping code.

**◆RATED RIPPLE CURRENT MULTIPLIERS**

## ● Frequency Multipliers

Capacitance(μF)	Frequency(Hz)					
	50	120	300	1k	10k	100k
1.0 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

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.