

SMM Series

- Longer life from SMQ series
- Endurance with ripple current : 3,000 hours at 85°C
- Non solvent resistant type
- RoHS2 Compliant



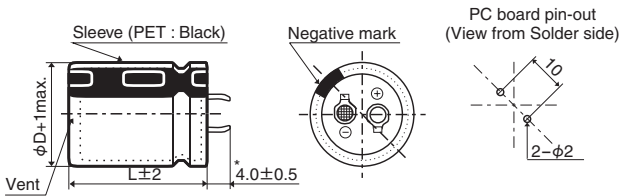
SPECIFICATIONS

Items	Characteristics		
Category	-25 to +85°C		
Temperature Range	-25 to +85°C		
Rated Voltage Range	160 to 450V _{dc}		
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)		
Leakage Current	I ≤ 3/CV Where, I : Max. leakage current (µA), C : Nominal capacitance (µF), V : Rated voltage (V) (at 20°C after 5 minutes)		
Dissipation Factor (tan δ)	Rated voltage (V _{dc})	160 to 400V	420 & 450V
	tan δ (Max.)	0.15	0.20
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V _{dc})	160 to 400V	420 & 450V
	Z(-25°C)/Z(+20°C)	4	8
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 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.		
	Capacitance change	≤ ±15% of the initial value	
	D.F. (tan δ)	≤ 150% of the initial specified value	
	Leakage current	≤ The initial specified value	

DIMENSIONS [mm]

● Terminal Code : VS (φ22 to φ35) : Standard

● Terminal Code : LI (φ35)



* φD=35mm : 3.5 ± 0.5mm

The standard design has no plastic disc.

PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
160 to 250V _{dc}	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450V _{dc}	0.77	1.00	1.16	1.30	1.41	1.43

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.

◆STANDARD RATINGS

Table with columns for WV (Vdc), Cap (μF), Case size φD×L(mm), tan δ, Rated ripple current (Arms/85°C, 120Hz), and Part No. The table is organized into three main sections based on voltage ratings: 160V, 180V, and 200V. Each section contains two columns of data. The 160V section lists 26 different capacitor models. The 180V section lists 30 models. The 200V section lists 28 models.

SMM Series

◆STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/85°C, 120Hz)	Part No.	WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/85°C, 120Hz)	Part No.
420	120	22 × 30	0.20	1.07	ESMM421VSN121MP30S	450	82	25.4 × 20	0.20	0.74	ESMM451VSN820MQ20S
	120	25.4 × 25	0.20	1.08	ESMM421VSN121MQ25S		82	30 × 20	0.20	0.79	ESMM451VSN820MR20S
	120	30 × 20	0.20	0.95	ESMM421VSN121MR20S		100	22 × 30	0.20	0.95	ESMM451VSN101MP30S
	150	22 × 35	0.20	1.21	ESMM421VSN151MP35S		100	25.4 × 25	0.20	0.97	ESMM451VSN101MQ25S
	150	25.4 × 30	0.20	1.26	ESMM421VSN151MQ30S		100	30 × 20	0.20	0.87	ESMM451VSN101MR20S
	150	30 × 25	0.20	1.30	ESMM421VSN151MR25S		120	22 × 35	0.20	1.07	ESMM451VSN121MP35S
	150	35 × 20	0.20	1.11	ESMM421VSN151MA20S		120	25.4 × 30	0.20	1.09	ESMM451VSN121MQ30S
	180	22 × 40	0.20	1.33	ESMM421VSN181MP40S		120	30 × 25	0.20	1.12	ESMM451VSN121MR25S
	180	25.4 × 35	0.20	1.42	ESMM421VSN181MQ35S		120	35 × 20	0.20	0.99	ESMM451VSN121MA20S
	180	30 × 25	0.20	1.48	ESMM421VSN181MR25S		150	22 × 40	0.20	1.18	ESMM451VSN151MP40S
	180	35 × 20	0.20	1.16	ESMM421VSN181MA20S		150	25.4 × 30	0.20	1.25	ESMM451VSN151MQ30S
	220	22 × 45	0.20	1.55	ESMM421VSN221MP45S		150	30 × 25	0.20	1.29	ESMM451VSN151MR25S
	220	25.4 × 35	0.20	1.58	ESMM421VSN221MQ35S		150	35 × 20	0.20	1.06	ESMM451VSN151MA20S
	220	30 × 30	0.20	1.65	ESMM421VSN221MR30S		180	22 × 45	0.20	1.32	ESMM451VSN181MP45S
	220	35 × 25	0.20	1.47	ESMM421VSN221MA25S		180	25.4 × 35	0.20	1.40	ESMM451VSN181MQ35S
	270	25.4 × 40	0.20	1.74	ESMM421VSN271MQ40S		180	30 × 30	0.20	1.45	ESMM451VSN181MR30S
	270	30 × 35	0.20	1.90	ESMM421VSN271MR35S		180	35 × 25	0.20	1.33	ESMM451VSN181MA25S
	270	35 × 30	0.20	1.94	ESMM421VSN271MA30S		220	22 × 50	0.20	1.48	ESMM451VSN221MP50S
	330	25.4 × 50	0.20	2.20	ESMM421VSN331MQ50S		220	25.4 × 40	0.20	1.59	ESMM451VSN221MQ40S
	330	30 × 35	0.20	1.98	ESMM421VSN331MR35S		220	30 × 30	0.20	1.64	ESMM451VSN221MR30S
	330	35 × 35	0.20	2.17	ESMM421VSN331MA35S		220	35 × 25	0.20	1.66	ESMM451VSN221MA25S
	390	30 × 40	0.20	2.22	ESMM421VSN391MR40S		270	25.4 × 45	0.20	1.73	ESMM451VSN271MQ45S
	390	35 × 35	0.20	2.27	ESMM421VSN391MA35S		270	30 × 35	0.20	1.89	ESMM451VSN271MR35S
	470	30 × 45	0.20	2.50	ESMM421VSN471MR45S		270	35 × 30	0.20	1.90	ESMM451VSN271MA30S
470	35 × 40	0.20	2.61	ESMM421VSN471MA40S	330		25.4 × 50	0.20	2.12	ESMM451VSN331MQ50S	
560	35 × 45	0.20	2.95	ESMM421VSN561MA45S	330		30 × 40	0.20	2.12	ESMM451VSN331MR40S	
680	35 × 50	0.20	3.15	ESMM421VSN681MA50S	330		35 × 35	0.20	2.15	ESMM451VSN331MA35S	
450	47	22 × 20	0.20	0.54	ESMM451VSN470MP20S		390	30 × 45	0.20	2.35	ESMM451VSN391MR45S
	56	22 × 20	0.20	0.59	ESMM451VSN560MP20S		390	35 × 40	0.20	2.38	ESMM451VSN391MA40S
	68	22 × 25	0.20	0.71	ESMM451VSN680MP25S		470	30 × 50	0.20	2.65	ESMM451VSN471MR50S
	68	25.4 × 20	0.20	0.68	ESMM451VSN680MQ20S		470	35 × 45	0.20	2.68	ESMM451VSN471MA45S
	82	22 × 25	0.20	0.86	ESMM451VSN820MP25S		560	35 × 50	0.20	2.88	ESMM451VSN561MA50S

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