SMR Series

- Endurance with ripple current : 2,000 hours at 85℃
- Downsized and high ripple current from SMQ series
- Non solvent resistant type
- RoHS2 Compliant

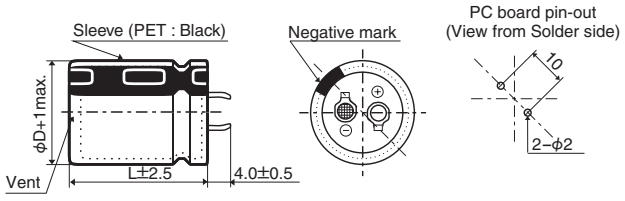
SMR
↑ Downsized Higher ripple
SMQ

◆SPECIFICATIONS

Items	Characteristics			
Category Temperature Range	-25 to +85℃			
Rated Voltage Range	400 to 450V_{dc}			
Capacitance Tolerance	±20% (M)			(at 20℃, 120Hz)
Leakage Current	I≦3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tan δ)	Rated voltage (V_{dc})	400V	420 & 450V	
	tan δ (Max.)	0.15	0.20	(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V_{dc})	400 to 450V		
	Z(-25℃)/Z(+20℃)	8		(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 2,000 hours at 85℃.			
	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℃ after exposing them for 1,000 hours at 85℃ 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		

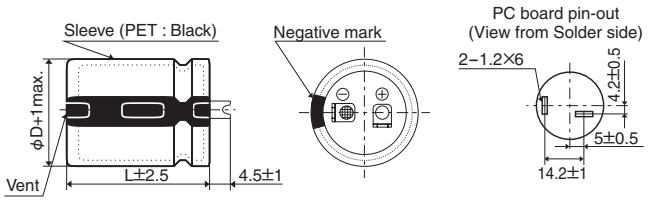
◆DIMENSIONS [mm]

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

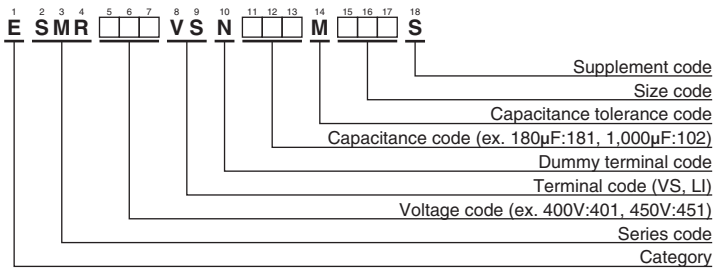


The standard design has no plastic disc.

●Terminal Code : LI (φ35)



◆PART NUMBERING SYSTEM



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

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SMR Series

◆STANDARD RATINGS

WV (V_{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 85℃, 120Hz)	Part No.
400	150	22 × 25	0.15	1.30	ESMR401VSN151MP25S
	180	22 × 30	0.15	1.49	ESMR401VSN181MP30S
	220	22 × 35	0.15	1.69	ESMR401VSN221MP35S
	220	25.4 × 25	0.15	1.65	ESMR401VSN221MQ25S
	270	22 × 40	0.15	1.90	ESMR401VSN271MP40S
	270	25.4 × 30	0.15	1.88	ESMR401VSN271MQ30S
	330	22 × 45	0.15	2.15	ESMR401VSN331MP45S
	330	25.4 × 35	0.15	2.16	ESMR401VSN331MQ35S
	330	30 × 25	0.15	2.10	ESMR401VSN331MR25S
	390	22 × 50	0.15	2.40	ESMR401VSN391MP50S
	390	25.4 × 40	0.15	2.40	ESMR401VSN391MQ40S
	390	30 × 30	0.15	2.32	ESMR401VSN391MR30S
	390	35 × 25	0.15	2.05	ESMR401VSN391MA25S
	470	25.4 × 45	0.15	2.69	ESMR401VSN471MQ45S
	470	30 × 35	0.15	2.60	ESMR401VSN471MR35S
	470	35 × 30	0.15	2.28	ESMR401VSN471MA30S
	560	30 × 40	0.15	2.92	ESMR401VSN561MR40S
	560	35 × 30	0.15	2.48	ESMR401VSN561MA30S
	680	30 × 45	0.15	3.30	ESMR401VSN681MR45S
	680	35 × 35	0.15	2.79	ESMR401VSN681MA35S
	820	35 × 45	0.15	3.25	ESMR401VSN821MA45S
	1,000	35 × 50	0.15	3.66	ESMR401VSN102MA50S
420	120	22 × 25	0.20	1.15	ESMR421VSN121MP25S
	180	22 × 30	0.20	1.48	ESMR421VSN181MP30S
	180	25.4 × 25	0.20	1.51	ESMR421VSN181MQ25S
	220	22 × 35	0.20	1.68	ESMR421VSN221MP35S
	220	25.4 × 30	0.20	1.71	ESMR421VSN221MQ30S
	270	22 × 45	0.20	1.94	ESMR421VSN271MP45S
	270	25.4 × 35	0.20	1.99	ESMR421VSN271MQ35S
	270	30 × 25	0.20	1.87	ESMR421VSN271MR25S
	330	22 × 50	0.20	2.20	ESMR421VSN331MP50S
	330	25.4 × 40	0.20	2.24	ESMR421VSN331MQ40S
	330	30 × 30	0.20	2.08	ESMR421VSN331MR30S

WV (V_{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/ 85℃, 120Hz)	Part No.
420	330	35 × 25	0.20	1.99	ESMR421VSN331MA25S
	390	25.4 × 45	0.20	2.47	ESMR421VSN391MQ45S
	390	30 × 35	0.20	2.32	ESMR421VSN391MR35S
	470	25.4 × 50	0.20	2.77	ESMR421VSN471MQ50S
	470	30 × 40	0.20	2.61	ESMR421VSN471MR40S
	470	35 × 30	0.20	2.41	ESMR421VSN471MA30S
	560	30 × 45	0.20	2.93	ESMR421VSN561MR45S
	560	35 × 35	0.20	2.67	ESMR421VSN561MA35S
	680	30 × 50	0.20	3.28	ESMR421VSN681MR50S
	680	35 × 40	0.20	3.11	ESMR421VSN681MA40S
	820	35 × 45	0.20	3.43	ESMR421VSN821MA45S
450	120	22 × 25	0.20	1.12	ESMR451VSN121MP25S
	150	22 × 30	0.20	1.32	ESMR451VSN151MP30S
	180	22 × 35	0.20	1.49	ESMR451VSN181MP35S
	180	25.4 × 25	0.20	1.42	ESMR451VSN181MQ25S
	220	22 × 40	0.20	1.67	ESMR451VSN221MP40S
	220	25.4 × 30	0.20	1.66	ESMR451VSN221MQ30S
	220	30 × 25	0.20	1.68	ESMR451VSN221MR25S
	270	22 × 45	0.20	1.88	ESMR451VSN271MP45S
	270	25.4 × 35	0.20	1.87	ESMR451VSN271MQ35S
	330	25.4 × 40	0.20	2.11	ESMR451VSN331MQ40S
	330	30 × 30	0.20	2.10	ESMR451VSN331MR30S
	330	35 × 25	0.20	2.10	ESMR451VSN331MA25S
	390	25.4 × 50	0.20	2.37	ESMR451VSN391MQ50S
	390	30 × 35	0.20	2.32	ESMR451VSN391MR35S
	390	35 × 30	0.20	2.32	ESMR451VSN391MA30S
	470	30 × 40	0.20	2.66	ESMR451VSN471MR40S
	470	35 × 35	0.20	2.54	ESMR451VSN471MA35S
	560	30 × 45	0.20	2.93	ESMR451VSN561MR45S
	560	35 × 40	0.20	2.87	ESMR451VSN561MA40S
	680	35 × 45	0.20	3.21	ESMR451VSN681MA45S
	820	35 × 50	0.20	3.60	ESMR451VSN821MA50S

◆RATED RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
400 to 450V_{dc}	0.77	1.00	1.16	1.30	1.41	1.43

The deterioration of aluminum electrolytic capacitors accelerates their life due to the internal heating produced by ripple current. For details, refer to Section "5-3 Ripple Current Effect on Lifetime" in the catalog, Technical Note.

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