



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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SMR Series

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

SMR

↑
Downsized
Higher ripple
SMQ P6-4



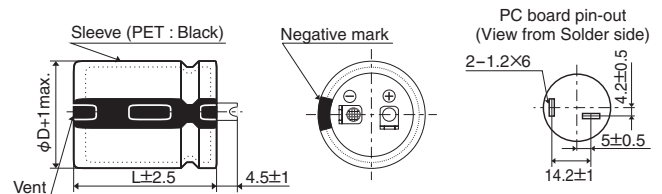
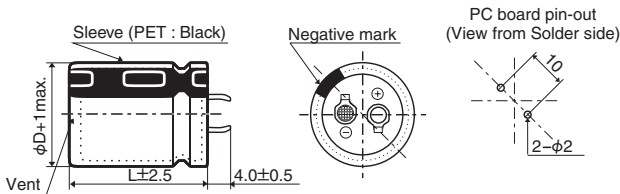
◆ SPECIFICATIONS

Items	Characteristics		
Category	-25 to +85°C		
Temperature Range	-25 to +85°C		
Rated Voltage Range	400 to 450V _{dc}		
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)		
Leakage Current	$I \leq 3\sqrt{CV}$ 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})	400V	420 & 450V
	tan δ (Max.)	0.15	0.20
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V _{dc})	400 to 450V	
	Z(-25°C)/Z(+20°C)	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 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.		
	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]

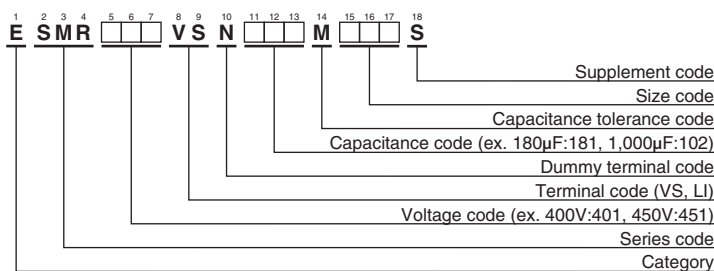
● Terminal Code : VS (φ22 to φ35) : Standard

● Terminal Code : LI (φ35)



The standard design has no plastic disc.

◆ PART NUMBERING SYSTEM



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

SMR 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.	
400	150	22 × 25	0.15	1.30	ESMR401VSN151MP25S	420	330	35 × 25	0.20	1.99	ESMR421VSN331MA25S	
	180	22 × 30	0.15	1.49	ESMR401VSN181MP30S		390	25.4 × 45	0.20	2.47	ESMR421VSN391MQ45S	
	220	22 × 35	0.15	1.69	ESMR401VSN221MP35S		390	30 × 35	0.20	2.32	ESMR421VSN391MR35S	
	220	25.4 × 25	0.15	1.65	ESMR401VSN221MQ25S		470	25.4 × 50	0.20	2.77	ESMR421VSN471MQ50S	
	270	22 × 40	0.15	1.90	ESMR401VSN271MP40S		470	30 × 40	0.20	2.61	ESMR421VSN471MR40S	
	270	25.4 × 30	0.15	1.88	ESMR401VSN271MQ30S		470	35 × 30	0.20	2.41	ESMR421VSN471MA30S	
	330	22 × 45	0.15	2.15	ESMR401VSN331MP45S		560	30 × 45	0.20	2.93	ESMR421VSN561MR45S	
	330	25.4 × 35	0.15	2.16	ESMR401VSN331MQ35S		560	35 × 35	0.20	2.67	ESMR421VSN561MA35S	
	330	30 × 25	0.15	2.10	ESMR401VSN331MR25S		680	30 × 50	0.20	3.28	ESMR421VSN681MR50S	
	390	22 × 50	0.15	2.40	ESMR401VSN391MP50S		680	35 × 40	0.20	3.11	ESMR421VSN681MA40S	
	390	25.4 × 40	0.15	2.40	ESMR401VSN391MQ40S		820	35 × 45	0.20	3.43	ESMR421VSN821MA45S	
	390	30 × 30	0.15	2.32	ESMR401VSN391MR30S		450	120	22 × 25	0.20	1.12	ESMR451VSN121MP25S
	390	35 × 25	0.15	2.05	ESMR401VSN391MA25S			150	22 × 30	0.20	1.32	ESMR451VSN151MP30S
	470	25.4 × 45	0.15	2.69	ESMR401VSN471MQ45S			180	22 × 35	0.20	1.49	ESMR451VSN181MP35S
	470	30 × 35	0.15	2.60	ESMR401VSN471MR35S			180	25.4 × 25	0.20	1.42	ESMR451VSN181MQ25S
	470	35 × 30	0.15	2.28	ESMR401VSN471MA30S			220	22 × 40	0.20	1.67	ESMR451VSN221MP40S
	560	30 × 40	0.15	2.92	ESMR401VSN561MR40S			220	25.4 × 30	0.20	1.66	ESMR451VSN221MQ30S
	560	35 × 30	0.15	2.48	ESMR401VSN561MA30S			220	30 × 25	0.20	1.68	ESMR451VSN221MR25S
	680	30 × 45	0.15	3.30	ESMR401VSN681MR45S			270	22 × 45	0.20	1.88	ESMR451VSN271MP45S
	680	35 × 35	0.15	2.79	ESMR401VSN681MA35S			270	25.4 × 35	0.20	1.87	ESMR451VSN271MQ35S
820	35 × 45	0.15	3.25	ESMR401VSN821MA45S	330	25.4 × 40		0.20	2.11	ESMR451VSN331MQ40S		
1,000	35 × 50	0.15	3.66	ESMR401VSN102MA50S	330	30 × 30		0.20	2.10	ESMR451VSN331MR30S		
420	120	22 × 25	0.20	1.15	ESMR421VSN121MP25S	330		35 × 25	0.20	2.10	ESMR451VSN331MA25S	
	180	22 × 30	0.20	1.48	ESMR421VSN181MP30S	390		25.4 × 50	0.20	2.37	ESMR451VSN391MQ50S	
	180	25.4 × 25	0.20	1.51	ESMR421VSN181MQ25S	390		30 × 35	0.20	2.32	ESMR451VSN391MR35S	
	220	22 × 35	0.20	1.68	ESMR421VSN221MP35S	390		35 × 30	0.20	2.32	ESMR451VSN391MA30S	
	220	25.4 × 30	0.20	1.71	ESMR421VSN221MQ30S	470		30 × 40	0.20	2.66	ESMR451VSN471MR40S	
	270	22 × 45	0.20	1.94	ESMR421VSN271MP45S	470		35 × 35	0.20	2.54	ESMR451VSN471MA35S	
	270	25.4 × 35	0.20	1.99	ESMR421VSN271MQ35S	560		30 × 45	0.20	2.93	ESMR451VSN561MR45S	
	270	30 × 25	0.20	1.87	ESMR421VSN271MR25S	560		35 × 40	0.20	2.87	ESMR451VSN561MA40S	
	330	22 × 50	0.20	2.20	ESMR421VSN331MP50S	680		35 × 45	0.20	3.21	ESMR451VSN681MA45S	
	330	25.4 × 40	0.20	2.24	ESMR421VSN331MQ40S	820	35 × 50	0.20	3.60	ESMR451VSN821MA50S		
	330	30 × 30	0.20	2.08	ESMR421VSN331MR30S							

◆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 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.