

SMM Series

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

SMM

Longer life
SMQ

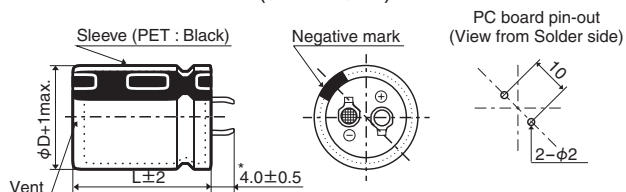


SPECIFICATIONS

Items	Characteristics			
Category	-25 to +85°C			
Temperature Range				
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	(at 20°C, 120Hz)
	tan δ (Max.)	0.15	0.20	
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V _{dc})	160 to 400V	420 & 450V	(at 120Hz)
	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]

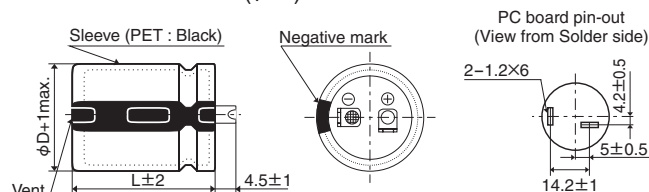
● Terminal Code : VS (φ22 to φ35) : Standard



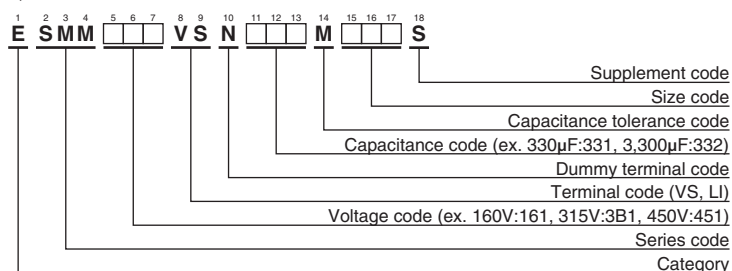
* φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

● Terminal Code : LI (φ35)



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

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.
160	270	22 × 20	0.15	1.30	ESMM161VSN271MP20S	200	390	22 × 30	0.15	1.73	ESMM201VSN391MP30S
	390	22 × 25	0.15	1.63	ESMM161VSN391MP25S		390	25.4 × 25	0.15	1.71	ESMM201VSN391MQ25S
	390	25.4 × 20	0.15	1.62	ESMM161VSN391MQ20S		390	30 × 20	0.15	1.71	ESMM201VSN391MR20S
	470	22 × 30	0.15	1.86	ESMM161VSN471MP30S		470	22 × 30	0.15	1.97	ESMM201VSN471MP30S
	470	25.4 × 25	0.15	1.86	ESMM161VSN471MQ25S		470	25.4 × 25	0.15	1.95	ESMM201VSN471MQ25S
	560	22 × 30	0.15	2.15	ESMM161VSN561MP30S		470	30 × 20	0.15	1.88	ESMM201VSN471MR20S
	560	25.4 × 25	0.15	2.15	ESMM161VSN561MQ25S		560	22 × 35	0.15	2.18	ESMM201VSN561MP35S
	560	30 × 20	0.15	2.05	ESMM161VSN561MR20S		560	25.4 × 30	0.15	2.15	ESMM201VSN561MQ30S
	680	22 × 35	0.15	2.35	ESMM161VSN681MP35S		560	30 × 25	0.15	2.15	ESMM201VSN561MR25S
	680	25.4 × 30	0.15	2.33	ESMM161VSN681MQ30S		560	35 × 20	0.15	2.05	ESMM201VSN561MA20S
	680	30 × 25	0.15	2.33	ESMM161VSN681MR25S		680	22 × 40	0.15	2.48	ESMM201VSN681MP40S
	680	35 × 20	0.15	2.26	ESMM161VSN681MA20S		680	25.4 × 30	0.15	2.48	ESMM201VSN681MQ30S
	820	22 × 40	0.15	2.68	ESMM161VSN821MP40S		680	30 × 25	0.15	2.48	ESMM201VSN681MR25S
	820	25.4 × 30	0.15	2.65	ESMM161VSN821MQ30S		680	35 × 20	0.15	2.36	ESMM201VSN681MA20S
	820	30 × 25	0.15	2.64	ESMM161VSN821MR25S		820	22 × 45	0.15	2.81	ESMM201VSN821MP45S
	820	35 × 20	0.15	2.49	ESMM161VSN821MA20S		820	25.4 × 35	0.15	2.79	ESMM201VSN821MQ35S
	1,000	22 × 45	0.15	3.02	ESMM161VSN102MP45S		820	30 × 30	0.15	2.80	ESMM201VSN821MR30S
	1,000	25.4 × 35	0.15	3.00	ESMM161VSN102MQ35S		820	35 × 25	0.15	2.83	ESMM201VSN821MA25S
	1,000	30 × 30	0.15	2.96	ESMM161VSN102MR30S		1,000	22 × 50	0.15	3.28	ESMM201VSN102MP50S
	1,000	35 × 25	0.15	3.13	ESMM161VSN102MA25S		1,000	25.4 × 40	0.15	3.28	ESMM201VSN102MQ40S
	1,200	22 × 50	0.15	3.47	ESMM161VSN122MP50S		1,000	30 × 35	0.15	3.15	ESMM201VSN102MR35S
	1,200	25.4 × 40	0.15	3.43	ESMM161VSN122MQ40S		1,000	35 × 30	0.15	3.26	ESMM201VSN102MA30S
	1,200	30 × 30	0.15	3.41	ESMM161VSN122MR30S		1,200	25.4 × 45	0.15	3.61	ESMM201VSN122MQ45S
	1,200	35 × 25	0.15	3.40	ESMM161VSN122MA25S		1,200	30 × 35	0.15	3.61	ESMM201VSN122MR35S
	1,500	25.4 × 50	0.15	3.96	ESMM161VSN152MQ50S		1,200	35 × 30	0.15	3.57	ESMM201VSN122MA30S
	1,500	30 × 35	0.15	3.96	ESMM161VSN152MR35S		1,500	30 × 45	0.15	4.13	ESMM201VSN152MR45S
	1,500	35 × 30	0.15	3.94	ESMM161VSN152MA30S		1,500	35 × 35	0.15	4.06	ESMM201VSN152MA35S
	1,800	30 × 40	0.15	4.31	ESMM161VSN182MR40S		1,800	30 × 50	0.15	4.60	ESMM201VSN182MR50S
	1,800	35 × 35	0.15	4.28	ESMM161VSN182MA35S		1,800	35 × 40	0.15	4.59	ESMM201VSN182MA40S
	2,200	30 × 50	0.15	4.96	ESMM161VSN222MR50S		2,200	35 × 45	0.15	5.25	ESMM201VSN222MA45S
	2,200	35 × 40	0.15	4.96	ESMM161VSN222MA40S	220	180	22 × 20	0.15	1.06	ESMM221VSN181MP20S
	2,700	35 × 45	0.15	5.57	ESMM161VSN272MA45S		270	22 × 25	0.15	1.47	ESMM221VSN271MP25S
	3,300	35 × 50	0.15	6.21	ESMM161VSN332MA50S		270	25.4 × 20	0.15	1.35	ESMM221VSN271MQ20S
180	220	22 × 20	0.15	1.18	ESMM181VSN221MP20S		330	22 × 30	0.15	1.70	ESMM221VSN331MP30S
	330	22 × 25	0.15	1.77	ESMM181VSN331MP25S		330	25.4 × 25	0.15	1.69	ESMM221VSN331MQ25S
	330	25.4 × 20	0.15	1.49	ESMM181VSN331MQ20S		330	30 × 20	0.15	1.58	ESMM221VSN331MR20S
	390	22 × 25	0.15	1.84	ESMM181VSN391MP25S		390	22 × 30	0.15	1.89	ESMM221VSN391MP30S
	470	22 × 30	0.15	1.91	ESMM181VSN471MP30S		390	25.4 × 25	0.15	1.84	ESMM221VSN391MQ25S
	470	25.4 × 25	0.15	2.08	ESMM181VSN471MQ25S		390	30 × 20	0.15	1.71	ESMM221VSN391MR20S
	470	30 × 20	0.15	1.88	ESMM181VSN471MR20S		470	22 × 35	0.15	2.08	ESMM221VSN471MP35S
	560	22 × 35	0.15	2.25	ESMM181VSN561MP35S		470	25.4 × 30	0.15	2.08	ESMM221VSN471MQ30S
	560	25.4 × 25	0.15	2.25	ESMM181VSN561MQ25S		470	30 × 25	0.15	2.12	ESMM221VSN471MR25S
	680	22 × 35	0.15	2.48	ESMM181VSN681MP35S		470	35 × 20	0.15	1.88	ESMM221VSN471MA20S
	680	25.4 × 30	0.15	2.50	ESMM181VSN681MQ30S		560	22 × 40	0.15	2.33	ESMM221VSN561MP40S
	680	30 × 25	0.15	2.46	ESMM181VSN681MR25S		560	25.4 × 35	0.15	2.38	ESMM221VSN561MQ35S
	680	35 × 20	0.15	2.26	ESMM181VSN681MA20S		560	30 × 25	0.15	2.31	ESMM221VSN561MR25S
	820	22 × 40	0.15	2.86	ESMM181VSN821MP40S		560	35 × 20	0.15	2.14	ESMM221VSN561MA20S
	820	25.4 × 35	0.15	2.75	ESMM181VSN821MQ35S		680	22 × 45	0.15	2.63	ESMM221VSN681MP45S
	820	30 × 25	0.15	2.69	ESMM181VSN821MR25S		680	25.4 × 35	0.15	2.68	ESMM221VSN681MQ35S
	1,000	22 × 50	0.15	3.10	ESMM181VSN102MP50S		680	30 × 30	0.15	2.62	ESMM221VSN681MR30S
	1,000	25.4 × 40	0.15	3.06	ESMM181VSN102MQ40S		680	35 × 25	0.15	2.58	ESMM221VSN681MA25S
	1,000	30 × 30	0.15	3.10	ESMM181VSN102MR30S		820	25.4 × 45	0.15	3.01	ESMM221VSN821MQ45S
	1,000	35 × 25	0.15	2.98	ESMM181VSN102MA25S		820	30 × 35	0.15	2.99	ESMM221VSN821MR35S
	1,200	25.4 × 45	0.15	3.63	ESMM181VSN122MQ45S		820	35 × 30	0.15	2.79	ESMM221VSN821MA30S
	1,200	30 × 35	0.15	3.55	ESMM181VSN122MR35S		1,000	25.4 × 50	0.15	3.40	ESMM221VSN102MQ50S
	1,200	35 × 30	0.15	3.49	ESMM181VSN122MA30S		1,000	30 × 35	0.15	3.42	ESMM221VSN102MR35S
	1,500	30 × 40	0.15	4.10	ESMM181VSN152MR40S		1,000	35 × 30	0.15	3.29	ESMM221VSN102MA30S
	1,500	35 × 35	0.15	4.02	ESMM181VSN152MA35S		1,200	30 × 40	0.15	3.88	ESMM221VSN122MR40S
	1,800	30 × 45	0.15	4.55	ESMM181VSN182MR45S	250	150	22 × 20	0.15	0.97	ESMM251VSN151MP20S
	1,800	35 × 35	0.15	4.54	ESMM181VSN182MA35S		180	22 × 20	0.15	1.06	ESMM251VSN181MP20S
	2,200	35 × 40	0.15	4.83	ESMM181VSN222MA40S		220	22 × 25	0.15	1.24	ESMM251VSN221MP25S
	2,700	35 × 50	0.15	5.30	ESMM181VSN272MA50S		220	25.4 × 20	0.15	1.22	ESMM251VSN221MQ20S
200	220	22 × 20	0.15	1.18	ESMM201VSN221MP20S		270	22 × 25	0.15	1.50	ESMM251VSN271MP25S
	270	22 × 25	0.15	1.37	ESMM201VSN271MP25S						
	270	25.4 × 20	0.15	1.35	ESMM201VSN271MQ20S						
	330	22 × 25	0.15	1.51	ESMM201VSN331MP25S						
	330	25.4 × 20	0.15	1.49	ESMM201VSN331MQ20S						

◆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.
250	330	22 × 30	0.15	1.66	ESMM251VSN331MP30S	350	180	30 × 20	0.15	1.16	ESMM351VSN181MR20S
	330	25.4 × 25	0.15	1.61	ESMM251VSN331MQ25S		220	22 × 35	0.15	1.47	ESMM351VSN221MP35S
	330	30 × 20	0.15	1.58	ESMM251VSN331MR20S		220	25.4 × 30	0.15	1.53	ESMM351VSN221MQ30S
	390	22 × 35	0.15	1.88	ESMM251VSN391MP35S		220	30 × 25	0.15	1.54	ESMM351VSN221MR25S
	390	25.4 × 30	0.15	1.88	ESMM251VSN391MQ30S		220	35 × 20	0.15	1.29	ESMM351VSN221MA20S
	390	30 × 25	0.15	1.86	ESMM251VSN391MR25S		270	22 × 40	0.15	1.70	ESMM351VSN271MP40S
	390	35 × 20	0.15	1.71	ESMM251VSN391MA20S		270	25.4 × 35	0.15	1.73	ESMM351VSN271MQ35S
	470	22 × 35	0.15	2.15	ESMM251VSN471MP35S		270	30 × 25	0.15	1.80	ESMM351VSN271MR25S
	470	25.4 × 35	0.15	2.15	ESMM251VSN471MQ35S		270	35 × 20	0.15	1.49	ESMM351VSN271MA20S
	470	30 × 25	0.15	2.05	ESMM251VSN471MR25S		330	22 × 45	0.15	1.87	ESMM351VSN331MP45S
	470	35 × 20	0.15	1.88	ESMM251VSN471MA20S		330	25.4 × 35	0.15	1.97	ESMM351VSN331MQ35S
	560	22 × 40	0.15	2.48	ESMM251VSN561MP40S		330	30 × 30	0.15	2.03	ESMM351VSN331MR30S
	560	25.4 × 35	0.15	2.35	ESMM251VSN561MQ35S		330	35 × 25	0.15	1.80	ESMM351VSN331MA25S
	560	30 × 25	0.15	2.35	ESMM251VSN561MR25S		390	25.4 × 40	0.15	2.14	ESMM351VSN391MQ40S
	680	22 × 50	0.15	2.61	ESMM251VSN681MP50S		390	30 × 35	0.15	2.23	ESMM351VSN391MR35S
	680	25.4 × 40	0.15	2.67	ESMM251VSN681MQ40S		390	35 × 30	0.15	2.30	ESMM351VSN391MA30S
	680	30 × 30	0.15	2.71	ESMM251VSN681MR30S		470	25.4 × 50	0.15	2.55	ESMM351VSN471MQ50S
	680	35 × 25	0.15	2.58	ESMM251VSN681MA25S		470	30 × 35	0.15	2.53	ESMM351VSN471MR35S
	820	25.4 × 45	0.15	3.01	ESMM251VSN821MQ45S		470	35 × 30	0.15	2.55	ESMM351VSN471MA30S
	820	30 × 35	0.15	2.98	ESMM251VSN821MR35S		560	30 × 40	0.15	2.73	ESMM351VSN561MR40S
	820	35 × 30	0.15	2.96	ESMM251VSN821MA30S		560	35 × 35	0.15	2.75	ESMM351VSN561MA35S
	1,000	30 × 40	0.15	3.56	ESMM251VSN102MR40S		680	30 × 50	0.15	3.15	ESMM351VSN681MR50S
	1,000	35 × 35	0.15	3.48	ESMM251VSN102MA35S		680	35 × 40	0.15	3.15	ESMM351VSN681MA40S
	1,200	30 × 45	0.15	3.99	ESMM251VSN122MR45S		820	35 × 45	0.15	3.47	ESMM351VSN821MA45S
	1,200	35 × 35	0.15	3.84	ESMM251VSN122MA35S		1,000	35 × 50	0.15	3.60	ESMM351VSN102MA50S
315	100	22 × 20	0.15	0.79	ESMM3B1VSN101MP20S	400	68	22 × 20	0.15	0.65	ESMM401VSN680MP20S
	120	25.4 × 20	0.15	0.90	ESMM3B1VSN121MQ20S		82	22 × 25	0.15	0.84	ESMM401VSN820MP25S
	150	22 × 25	0.15	1.06	ESMM3B1VSN151MP25S		82	25.4 × 20	0.15	0.74	ESMM401VSN820MQ20S
	150	25.4 × 20	0.15	1.00	ESMM3B1VSN151MQ20S		100	22 × 25	0.15	0.99	ESMM401VSN101MP25S
	180	22 × 30	0.15	1.29	ESMM3B1VSN181MP30S		100	25.4 × 20	0.15	0.82	ESMM401VSN101MQ20S
	180	25.4 × 25	0.15	1.38	ESMM3B1VSN181MQ25S		120	22 × 30	0.15	1.09	ESMM401VSN121MP30S
	180	30 × 20	0.15	1.16	ESMM3B1VSN181MR20S		120	25.4 × 25	0.15	1.13	ESMM401VSN121MQ25S
	220	22 × 30	0.15	1.41	ESMM3B1VSN221MP30S		120	30 × 20	0.15	0.95	ESMM401VSN121MR20S
	220	25.4 × 25	0.15	1.47	ESMM3B1VSN221MQ25S		150	22 × 35	0.15	1.24	ESMM401VSN151MP35S
	220	30 × 20	0.15	1.28	ESMM3B1VSN221MR20S		150	25.4 × 30	0.15	1.27	ESMM401VSN151MQ30S
	270	22 × 35	0.15	1.68	ESMM3B1VSN271MP35S		150	30 × 25	0.15	1.20	ESMM401VSN151MR25S
	270	25.4 × 30	0.15	1.70	ESMM3B1VSN271MQ30S		180	22 × 40	0.15	1.41	ESMM401VSN181MP40S
	270	30 × 25	0.15	1.55	ESMM3B1VSN271MR25S		180	25.4 × 30	0.15	1.44	ESMM401VSN181MQ30S
	270	35 × 20	0.15	1.43	ESMM3B1VSN271MA20S		180	30 × 25	0.15	1.52	ESMM401VSN181MR25S
	330	22 × 40	0.15	1.91	ESMM3B1VSN331MP40S		180	35 × 20	0.15	1.16	ESMM401VSN181MA20S
	330	25.4 × 35	0.15	1.94	ESMM3B1VSN331MQ35S		220	22 × 45	0.15	1.58	ESMM401VSN221MP45S
	330	30 × 25	0.15	1.98	ESMM3B1VSN331MR25S		220	25.4 × 35	0.15	1.64	ESMM401VSN221MQ35S
	390	22 × 45	0.15	2.07	ESMM3B1VSN391MP45S		220	30 × 30	0.15	1.66	ESMM401VSN221MR30S
	390	25.4 × 40	0.15	2.11	ESMM3B1VSN391MQ40S		220	35 × 25	0.15	1.47	ESMM401VSN221MA25S
	390	30 × 30	0.15	2.15	ESMM3B1VSN391MR30S		270	22 × 50	0.15	1.65	ESMM401VSN271MP50S
	390	35 × 25	0.15	1.95	ESMM3B1VSN391MA25S		270	25.4 × 40	0.15	1.79	ESMM401VSN271MQ40S
	470	25.4 × 45	0.15	2.31	ESMM3B1VSN471MQ45S		270	30 × 30	0.15	1.82	ESMM401VSN271MR30S
	470	30 × 35	0.15	2.38	ESMM3B1VSN471MR35S		270	35 × 25	0.15	1.63	ESMM401VSN271MA25S
	470	35 × 30	0.15	2.46	ESMM3B1VSN471MA30S		330	25.4 × 45	0.15	2.00	ESMM401VSN331MQ45S
	560	25.4 × 50	0.15	2.46	ESMM3B1VSN561MQ50S		330	30 × 35	0.15	2.05	ESMM401VSN331MR35S
350	560	30 × 35	0.15	2.63	ESMM3B1VSN561MR35S	420	330	35 × 30	0.15	2.05	ESMM401VSN331MA30S
	560	35 × 30	0.15	2.69	ESMM3B1VSN561MA30S		390	25.4 × 50	0.15	2.12	ESMM401VSN391MQ50S
	680	30 × 45	0.15	2.82	ESMM3B1VSN681MR45S		390	30 × 40	0.15	2.26	ESMM401VSN391MR40S
	680	35 × 35	0.15	3.05	ESMM3B1VSN681MA35S		390	35 × 35	0.15	2.28	ESMM401VSN391MA35S
	820	30 × 50	0.15	3.28	ESMM3B1VSN821MR50S		470	30 × 45	0.15	2.51	ESMM401VSN471MR45S
	820	35 × 40	0.15	3.45	ESMM3B1VSN821MA40S		470	35 × 35	0.15	2.54	ESMM401VSN471MA35S
	1,000	35 × 45	0.15	3.59	ESMM3B1VSN102MA45S		560	30 × 50	0.15	2.85	ESMM401VSN561MR50S
	82	22 × 20	0.15	0.72	ESMM351VSN820MP20S		560	35 × 40	0.15	2.85	ESMM401VSN561MA40S
	120	22 × 25	0.15	1.04	ESMM351VSN121MP25S		680	35 × 50	0.15	3.10	ESMM401VSN681MA50S
	120	25.4 × 20	0.15	0.90	ESMM351VSN121MQ20S		47	22 × 20	0.20	0.54	ESMM421VSN470MP20S
	150	22 × 30	0.15	1.20	ESMM351VSN151MP30S		56	22 × 20	0.20	0.59	ESMM421VSN560MP20S
	150	25.4 × 25	0.15	1.22	ESMM351VSN151MQ25S		68	25.4 × 20	0.20	0.68	ESMM421VSN680MQ20S
	150	30 × 20	0.15	1.06	ESMM351VSN151MR20S		82	22 × 25	0.20	0.85	ESMM421VSN820MP25S
	180	22 × 30	0.15	1.34	ESMM351VSN181MP30S		82	25.4 × 20	0.20	0.74	ESMM421VSN820MQ20S
	180	25.4 × 25	0.15	1.37	ESMM351VSN181MQ25S		100	22 × 30	0.20	0.97	ESMM421VSN101MP30S
							100	25.4 × 25	0.20	0.98	ESMM421VSN101MQ25S
							100	30 × 20	0.20	0.87	ESMM421VSN101MR20S

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