

SMH Series

- Endurance with ripple current : 2,000 hours at 85°C
- Non solvent resistant type
- RoHS2 Compliant



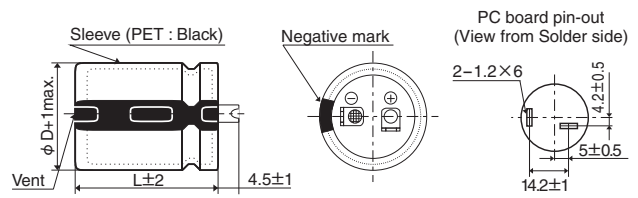
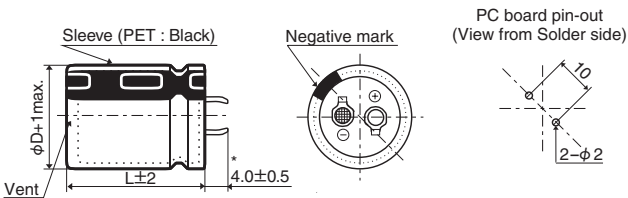
◆ SPECIFICATIONS

Items	Characteristics										
Category	-40 to +85°C										
Temperature Range	-40 to +85°C										
Rated Voltage Range	6.3 to 100V _{dc}										
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)										
Leakage Current	I=0.02CV or 3mA, whichever is smaller. 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})	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	tan δ (Max.)	0.60	0.50	0.40	0.30	0.25	0.20	0.15	0.15	0.15	(at 20°C, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (V _{dc})	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	
	Z(-25°C)/Z(+20°C)	4	4	4	3	3	2	2	2	2	
	Z(-40°C)/Z(+20°C)	15	15	15	10	8	6	6	5	5	(at 120Hz)
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	≤ ±20% 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)"

◆STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/85°C, 120Hz)		Part No.
				Arms	V _{ac}	
50	3,300	25.4 × 25	0.20	2.38		ESMH500VSN332MQ25S
	3,900	22 × 35	0.20	2.65		ESMH500VSN392MP35S
	3,900	25.4 × 30	0.20	2.68		ESMH500VSN392MQ30S
	3,900	30 × 25	0.20	2.55		ESMH500VSN392MR25S
	4,700	22 × 40	0.20	2.99		ESMH500VSN472MP40S
	4,700	25.4 × 35	0.20	3.03		ESMH500VSN472MQ35S
	4,700	30 × 25	0.20	2.81		ESMH500VSN472MR25S
	5,600	22 × 45	0.20	3.36		ESMH500VSN562MP45S
	5,600	25.4 × 35	0.20	3.31		ESMH500VSN562MQ35S
	5,600	30 × 30	0.20	3.37		ESMH500VSN562MR30S
	5,600	35 × 25	0.20	3.42		ESMH500VSN562MA25S
	6,800	22 × 50	0.20	3.81		ESMH500VSN682MP50S
	6,800	25.4 × 40	0.20	3.81		ESMH500VSN682MQ40S
	6,800	30 × 35	0.20	3.85		ESMH500VSN682MR35S
	6,800	35 × 30	0.20	3.85		ESMH500VSN682MA30S
	8,200	25.4 × 50	0.20	4.37		ESMH500VSN822MQ50S
	8,200	30 × 40	0.20	4.36		ESMH500VSN822MR40S
	8,200	35 × 30	0.20	4.41		ESMH500VSN822MA30S
63	1,800	22 × 25	0.15	1.82		ESMH630VSN182MP25S
	2,200	22 × 30	0.15	2.31		ESMH630VSN222MP30S
	2,200	25.4 × 25	0.15	2.30		ESMH630VSN222MQ25S
	2,700	22 × 35	0.15	2.40		ESMH630VSN272MP35S
	2,700	25.4 × 25	0.15	2.40		ESMH630VSN272MQ25S
	3,300	22 × 35	0.15	2.62		ESMH630VSN332MP35S
	3,300	25.4 × 30	0.15	2.64		ESMH630VSN332MQ30S
	3,300	30 × 25	0.15	2.78		ESMH630VSN332MR25S
	3,900	22 × 40	0.15	2.93		ESMH630VSN392MP40S
	3,900	25.4 × 35	0.15	2.97		ESMH630VSN392MQ35S
	3,900	30 × 30	0.15	3.00		ESMH630VSN392MR30S
	3,900	35 × 25	0.15	3.00		ESMH630VSN392MA25S
	4,700	22 × 50	0.15	3.39		ESMH630VSN472MP50S
	4,700	25.4 × 40	0.15	3.36		ESMH630VSN472MQ40S
	4,700	30 × 30	0.15	3.32		ESMH630VSN472MR30S
	4,700	35 × 25	0.15	3.36		ESMH630VSN472MA25S
	5,600	25.4 × 45	0.15	3.77		ESMH630VSN562MQ45S
	80	1,200	22 × 25	0.15	1.69	
1,500		22 × 25	0.15	1.88		ESMH800VSN152MP25S
1,800		22 × 30	0.15	2.14		ESMH800VSN182MP30S
1,800		25.4 × 25	0.15	2.26		ESMH800VSN182MQ25S
2,200		22 × 35	0.15	2.44		ESMH800VSN222MP35S
2,200		25.4 × 30	0.15	2.46		ESMH800VSN222MQ30S
2,200		30 × 25	0.15	2.49		ESMH800VSN222MR25S
2,700		22 × 40	0.15	2.78		ESMH800VSN272MP40S
2,700		25.4 × 35	0.15	2.81		ESMH800VSN272MQ35S
2,700		30 × 25	0.15	2.75		ESMH800VSN272MR25S
3,300		22 × 45	0.15	3.16		ESMH800VSN332MP45S
3,300		25.4 × 40	0.15	3.21		ESMH800VSN332MQ40S
3,300		30 × 30	0.15	3.17		ESMH800VSN332MR30S
3,300		35 × 25	0.15	3.21		ESMH800VSN332MA25S
3,900		22 × 50	0.15	3.52		ESMH800VSN392MP50S
3,900		25.4 × 45	0.15	3.59		ESMH800VSN392MQ45S
3,900		30 × 35	0.15	3.57		ESMH800VSN392MR35S
100		3,900	35 × 25	0.15	3.50	
	4,700	25.4 × 50	0.15	4.05		ESMH800VSN472MQ50S
	4,700	30 × 40	0.15	4.05		ESMH800VSN472MR40S
	4,700	35 × 30	0.15	4.09		ESMH800VSN472MA30S
	5,600	30 × 45	0.15	4.55		ESMH800VSN562MR45S
	5,600	35 × 35	0.15	4.51		ESMH800VSN562MA35S
	6,800	30 × 50	0.15	5.16		ESMH800VSN682MR50S
	6,800	35 × 40	0.15	5.14		ESMH800VSN682MA40S
	8,200	35 × 45	0.15	5.83		ESMH800VSN822MA45S
	10,000	35 × 50	0.15	6.63		ESMH800VSN103MA50S
	820	22 × 25	0.15	1.86		ESMH101VSN821MP25S
	1,200	22 × 30	0.15	2.09		ESMH101VSN122MP30S
	1,200	25.4 × 25	0.15	2.10		ESMH101VSN122MQ25S
	1,500	22 × 35	0.15	2.41		ESMH101VSN152MP35S
	1,500	25.4 × 30	0.15	2.43		ESMH101VSN152MQ30S
	1,500	30 × 25	0.15	2.46		ESMH101VSN152MR25S
	1,800	22 × 40	0.15	2.71		ESMH101VSN182MP40S
	1,800	25.4 × 35	0.15	2.75		ESMH101VSN182MQ35S
1,800	30 × 25	0.15	2.72		ESMH101VSN182MR25S	
2,200	22 × 45	0.15	3.08		ESMH101VSN222MP45S	
2,200	25.4 × 40	0.15	3.13		ESMH101VSN222MQ40S	
2,200	30 × 30	0.15	3.09		ESMH101VSN222MR30S	
2,200	35 × 25	0.15	3.14		ESMH101VSN222MA25S	
2,700	22 × 50	0.15	3.53		ESMH101VSN272MP50S	
2,700	25.4 × 45	0.15	3.57		ESMH101VSN272MQ45S	
2,700	30 × 35	0.15	3.55		ESMH101VSN272MR35S	
2,700	35 × 30	0.15	3.71		ESMH101VSN272MA30S	
3,300	25.4 × 50	0.15	4.06		ESMH101VSN332MQ50S	
3,300	30 × 40	0.15	4.05		ESMH101VSN332MR40S	
3,300	35 × 30	0.15	4.05		ESMH101VSN332MA30S	
3,900	30 × 45	0.15	4.54		ESMH101VSN392MR45S	
3,900	35 × 35	0.15	4.49		ESMH101VSN392MA35S	
4,700	30 × 50	0.15	5.13		ESMH101VSN472MR50S	
4,700	35 × 40	0.15	5.11		ESMH101VSN472MA40S	
5,600	35 × 45	0.15	5.75		ESMH101VSN562MA45S	
6,800	35 × 50	0.15	6.50		ESMH101VSN682MA50S	

*For the rated voltage ≥ 160V_{dc}, please use SMQ series

◆RATED RIPPLE CURRENT MULTIPLIERS

③ Frequency Multipliers

Frequency(Hz)	50	120	300	1k	10k	50k
6.3 to 50V _{dc}	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100V _{dc}	0.92	1.00	1.07	1.13	1.19	1.20

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.