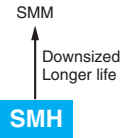


SMH Series

- 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											
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.	WV (V _{dc})	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (Arms/85°C, 120Hz)	Part No.
50	3,300	25.4 × 25	0.20	2.38	ESMH500VSN332MQ25S	80	1,200	22 × 25	0.15	1.69	ESMH800VSN122MP25S
	3,900	22 × 35	0.20	2.65	ESMH500VSN392MP35S		1,500	22 × 25	0.15	1.88	ESMH800VSN152MP25S
	3,900	25.4 × 30	0.20	2.68	ESMH500VSN392MQ30S		1,800	22 × 30	0.15	2.14	ESMH800VSN182MP30S
	3,900	30 × 25	0.20	2.55	ESMH500VSN392MR25S		1,800	25.4 × 25	0.15	2.26	ESMH800VSN182MQ25S
	4,700	22 × 40	0.20	2.99	ESMH500VSN472MP40S		2,200	22 × 35	0.15	2.44	ESMH800VSN222MP35S
	4,700	25.4 × 35	0.20	3.03	ESMH500VSN472MQ35S		2,200	25.4 × 30	0.15	2.46	ESMH800VSN222MQ30S
	4,700	30 × 25	0.20	2.81	ESMH500VSN472MR25S		2,200	30 × 25	0.15	2.49	ESMH800VSN222MR25S
	5,600	22 × 45	0.20	3.36	ESMH500VSN562MP45S		2,700	22 × 40	0.15	2.78	ESMH800VSN272MP40S
	5,600	25.4 × 35	0.20	3.31	ESMH500VSN562MQ35S		2,700	25.4 × 35	0.15	2.81	ESMH800VSN272MQ35S
	5,600	30 × 30	0.20	3.37	ESMH500VSN562MR30S		2,700	30 × 25	0.15	2.75	ESMH800VSN272MR25S
	5,600	35 × 25	0.20	3.42	ESMH500VSN562MA25S		3,300	22 × 45	0.15	3.16	ESMH800VSN332MP45S
	6,800	22 × 50	0.20	3.81	ESMH500VSN682MP50S		3,300	25.4 × 40	0.15	3.21	ESMH800VSN332MQ40S
	6,800	25.4 × 40	0.20	3.81	ESMH500VSN682MQ40S		3,300	30 × 30	0.15	3.17	ESMH800VSN332MR30S
	6,800	30 × 35	0.20	3.85	ESMH500VSN682MR35S		3,300	35 × 25	0.15	3.21	ESMH800VSN332MA25S
	6,800	35 × 30	0.20	3.85	ESMH500VSN682MA30S		3,900	22 × 50	0.15	3.52	ESMH800VSN392MP50S
	8,200	25.4 × 50	0.20	4.37	ESMH500VSN822MQ50S		3,900	25.4 × 45	0.15	3.59	ESMH800VSN392MQ45S
	8,200	30 × 40	0.20	4.36	ESMH500VSN822MR40S		3,900	30 × 35	0.15	3.57	ESMH800VSN392MP35S
	8,200	35 × 30	0.20	4.41	ESMH500VSN822MA30S		3,900	35 × 25	0.15	3.50	ESMH800VSN392MA25S
10,000	30 × 45	0.20	4.97	ESMH500VSN103MR45S	4,700	25.4 × 50	0.15	4.05	ESMH800VSN472MQ50S		
10,000	35 × 35	0.20	4.92	ESMH500VSN103MA35S	4,700	30 × 40	0.15	4.05	ESMH800VSN472MR40S		
12,000	30 × 50	0.20	5.60	ESMH500VSN123MR50S	4,700	35 × 30	0.15	4.09	ESMH800VSN472MA30S		
12,000	35 × 40	0.20	5.58	ESMH500VSN123MA40S	5,600	30 × 45	0.15	4.55	ESMH800VSN562MR45S		
15,000	35 × 45	0.20	6.44	ESMH500VSN153MA45S	5,600	35 × 35	0.15	4.51	ESMH800VSN562MA35S		
18,000	35 × 50	0.20	6.71	ESMH500VSN183MA50S	6,800	30 × 50	0.15	5.16	ESMH800VSN682MR50S		
63	1,800	22 × 25	0.15	1.82	ESMH630VSN182MP25S	6,800	35 × 40	0.15	5.14	ESMH800VSN682MA40S	
	2,200	22 × 30	0.15	2.31	ESMH630VSN222MP30S	8,200	35 × 45	0.15	5.83	ESMH800VSN822MA45S	
	2,200	25.4 × 25	0.15	2.30	ESMH630VSN222MQ25S	10,000	35 × 50	0.15	6.63	ESMH800VSN103MA50S	
	2,700	22 × 35	0.15	2.40	ESMH630VSN272MP35S	100	820	22 × 25	0.15	1.86	ESMH101VSN821MP25S
	2,700	25.4 × 25	0.15	2.40	ESMH630VSN272MQ25S		1,200	22 × 30	0.15	2.09	ESMH101VSN122MP30S
	3,300	22 × 35	0.15	2.62	ESMH630VSN332MP35S		1,200	25.4 × 25	0.15	2.10	ESMH101VSN122MQ25S
	3,300	25.4 × 30	0.15	2.64	ESMH630VSN332MQ30S		1,500	22 × 35	0.15	2.41	ESMH101VSN152MP35S
	3,300	30 × 25	0.15	2.78	ESMH630VSN332MR25S		1,500	25.4 × 30	0.15	2.43	ESMH101VSN152MQ30S
	3,900	22 × 40	0.15	2.93	ESMH630VSN392MP40S		1,500	30 × 25	0.15	2.46	ESMH101VSN152MR25S
	3,900	25.4 × 35	0.15	2.97	ESMH630VSN392MQ35S		1,800	22 × 40	0.15	2.71	ESMH101VSN182MP40S
	3,900	30 × 30	0.15	3.00	ESMH630VSN392MR30S		1,800	25.4 × 35	0.15	2.75	ESMH101VSN182MQ35S
	3,900	35 × 25	0.15	3.00	ESMH630VSN392MA25S		1,800	30 × 25	0.15	2.72	ESMH101VSN182MR25S
	4,700	22 × 50	0.15	3.39	ESMH630VSN472MP50S		2,200	22 × 45	0.15	3.08	ESMH101VSN222MP45S
	4,700	25.4 × 40	0.15	3.36	ESMH630VSN472MQ40S		2,200	25.4 × 40	0.15	3.13	ESMH101VSN222MQ40S
	4,700	30 × 30	0.15	3.32	ESMH630VSN472MR30S		2,200	30 × 30	0.15	3.09	ESMH101VSN222MR30S
	4,700	35 × 25	0.15	3.36	ESMH630VSN472MA25S		2,200	35 × 25	0.15	3.14	ESMH101VSN222MA25S
	5,600	25.4 × 45	0.15	3.77	ESMH630VSN562MQ45S		2,700	22 × 50	0.15	3.53	ESMH101VSN272MP50S
	5,600	30 × 35	0.15	3.75	ESMH630VSN562MR35S		2,700	25.4 × 45	0.15	3.57	ESMH101VSN272MQ45S
	5,600	35 × 30	0.15	3.76	ESMH630VSN562MA30S		2,700	30 × 35	0.15	3.55	ESMH101VSN272MR35S
	6,800	25.4 × 50	0.15	4.27	ESMH630VSN682MQ50S		2,700	35 × 30	0.15	3.71	ESMH101VSN272MA30S
	6,800	30 × 40	0.15	4.27	ESMH630VSN682MR40S		3,300	25.4 × 50	0.15	4.06	ESMH101VSN332MQ50S
	6,800	35 × 30	0.15	4.15	ESMH630VSN682MA30S		3,300	30 × 40	0.15	4.05	ESMH101VSN332MR40S
	8,200	30 × 45	0.15	4.83	ESMH630VSN822MR45S		3,300	35 × 30	0.15	4.05	ESMH101VSN332MA30S
	8,200	35 × 35	0.15	4.79	ESMH630VSN822MA35S		3,900	30 × 45	0.15	4.54	ESMH101VSN392MR45S
10,000	30 × 50	0.15	5.49	ESMH630VSN103MR50S	3,900		35 × 35	0.15	4.49	ESMH101VSN392MA35S	
10,000	35 × 40	0.15	5.47	ESMH630VSN103MA40S	4,700		30 × 50	0.15	5.13	ESMH101VSN472MR50S	
12,000	35 × 45	0.15	6.19	ESMH630VSN123MA45S	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

● 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 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.



- Always read "Notes on Use" before using the product in order to enable you to use the product correctly and prevent any faults and accidents from occurring.
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[Part Numbering System](#)

[Part Numbering System \(Appendix\)](#)

[Standardization](#)

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[Available Terminals for Snap-in and Screw Mount Type](#)

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ESMH251ELL331MP35S	ESMH250VSN682MQ25T	ESMH350VSN153MR40S	ESMH251VSN391MQ30T
ESMH451VRT391MB35T	ESMH500VSN153MA45T	ESMH3B1VNN102MA50S	ESMH630VSN103MR50S
ESMH101VND103MA63T	ESMH160VSN153MR25T	ESMH500VSN103MA35C	ESMH160VNN153MP35T
ESMH201VNN331MP30T	ESMH201VNN471MP35T	ESMH201VSN122MQ50T	ESMH250VSN682MP30S
ESMH350VNN682MP40T	ESMH350VSN153MQ50T	ESMH401VNN221MA25T	ESMH401VNN221MP50T
ESMH401VNN331MA30T	ESMH451VNN560MP25T	ESMH500VNN103MR45T	ESMH500VNN153MA45T
ESMH500VNN222MP25S	ESMH500VNN682MP50T	ESMH500VNN822MQ50T	ESMH800VNN392MR35T
ESMH800VNN472MQ50T	ESMH800VNN682MA40T	ESMH800VNN822MA45T	ESMH800VSN182MP30S
ESMH630VNN682MR40T	ESMH401VNN101MP30T	ESMH350VNN153MA35T	ESMH451VNN181MA25T
ESMH201VNN222MA50T	ESMH401VNN151MP35T	ESMH201VNN152MA40T	ESMH500VNN822MR40T
ESMH500VNN183MA50T	ESMH451VNN471MA50T	ESMH160VNN123MP30T	ESMH160VNN123MQ25T
ESMH201VNN182MA45T	ESMH451VNN391MA45T	ESMH500VNN332MQ25T	ESMH250VNN153MQ40T
ESMH800VNN332MQ40T	ESMH101VNN562MA45T	ESMH630VNN123MA45T	ESMH630VNN332MP35T
ESMH500VNN472MP40T	ESMH250VNN223MR45T	ESMH401VNN681MA50T	ESMH350VNN472MQ25T
ESMH201VNN102MA30T	ESMH451VNN271MR40T	ESMH251VNN102MA40T	ESMH500VNN222MP25T
ESMH201VNN102MR40T	ESMH251VNN561MQ40T	ESMH401VNN561MA45T	ESMH401VNN471MA40T
ESMH800VNN472MA30T	ESMH161VNN391MP25T	ESMH250VNN822MP35T	ESMH401VNN561MR50T
ESMH100VRD823MA50T	ESMH101VNN332MR40T	ESMH101VNN472MA40T	ESMH101VNN472MR50T
ESMH101VSN102MN35S	ESMH160VNN223MR30T	ESMH161VNN222MA45T	ESMH161VNN681MP40T
ESMH181VNN182MA45T	ESMH201VNN102MQ50T	ESMH250VNN473MA63T	ESMH251VNN102MR50T
ESMH251VNN331MP35T	ESMH251VNN331MQ30T	ESMH251VNN471MQ35T	ESMH251VRD152MA50T
ESMH350VNN153MQ50T	ESMH350VNN153MR40T	ESMH350VNN223MA45T	ESMH350VNN273MA50T
ESMH350VNN333MA63T	ESMH350VNN472MP30T	ESMH350VSN472MN35S	ESMH351VNN681MA45T
ESMH401VNN101MQ25T	ESMH401VNN122MA80T	ESMH401VNN181MQ35T	ESMH401VNN181MR30T
ESMH401VNN221MQ40T	ESMH401VNN271MQ45T	ESMH401VNN821MA63T	ESMH401VRD102MA80T