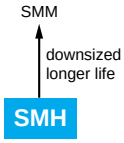
SMH Series

●Endurance with ripple current : 85℃ 2000 hours
●Non solvent-proof type

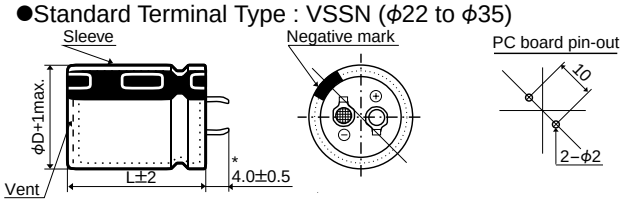


◆SPACIFICATIONS

Items	Characteristics												
Category Temperature Range	−40 to +85℃ (6.3 to 100Vdc) −25 to +85℃ (160 to 450Vdc)												
Rated Voltage Range	6.3 to 450Vdc												
Capacitance Tolerance	±20% (M) (at 20℃, 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℃ after 5 minutes)												
Dissipation Factor (tanδ)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	160 to 250V	315 to 400V	450V
	tanδ (Max.)	0.60	0.50	0.40	0.30	0.25	0.20	0.15	0.15	0.15	0.10*	0.15	0.15
	* : 0.15 for φD=35mm (at 20℃, 120Hz)												
Low Temperature Characteristics (Max. Impedance Ratio)	Rated voltage (Vdc)	6.3V	10V	16V	25V	35V	50V	63V	80V	100V	160 to 250V	315 to 400V	450V
	Z(−25℃)/Z(+20℃)	4	4	4	3	3	2	2	2	2	4	4	8
	Z(−40℃)/Z(+20℃)	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℃ after subjected to DC voltage with the rated ripple current is applied for 2000 hours at 85℃.												
	Capacitance change	≦±20% of the initial value											
	D.F. (tanδ)	≦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 1000 hours at 85℃ without voltage applied.												
	Capacitance change	≦±20% of the initial value											
	D.F. (tanδ)	≦150% of the initial specified value											
	Leakage current	≦The initial specified value											

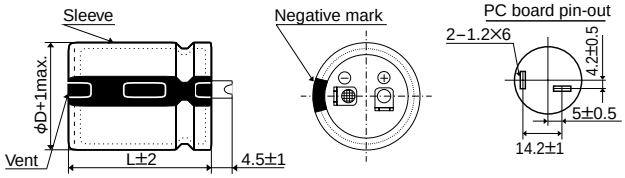
◆DIMENSIONS [mm]

●Standard Terminal Type : VSSN (φ22 to φ35)

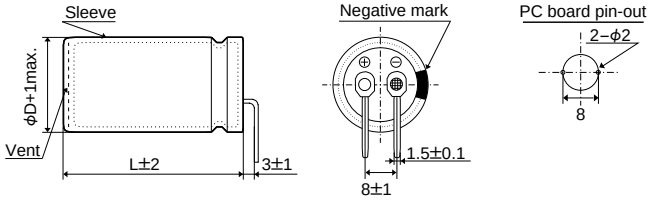


*φD=35mm : 3.5±0.5mm

●Terminal Type : LISN (φ35)



●Terminal Type : LCSN (φ22×30 to 50L)



◆PART NUMBERING SYSTEM

SMH 100 VSSN 1200 M 22B

- 22B : Case code
- M : Cap tolerance (±20%)
- 1200 : Nominal cap in μF
- VSSN : Terminal type
- 100 : Rated voltage in volts
- SMH : Series name

SMH Series

◆STANDARD RATINGS

μF \ Vdc / φD	6.3				10				16			
	22	25.4	30	35	22	25.4	30	35	22	25.4	30	35
8,200									22×25 2.51			
10,000									22×25 2.77			
12,000					22×25 2.39				22×30 2.86	25.4×25 2.95		
15,000	22×25 2.44				22×30 2.76	25.4×25 2.77			22×35 3.29	25.4×30 3.46	30×25 3.66	
18,000	22×30 2.67	25.4×25 2.70			22×35 3.12	25.4×25 3.04			22×40 3.72	25.4×35 3.98	30×25 4.00	
22,000	22×30 3.06	25.4×25 3.07			22×40 3.55	25.4×30 3.48	30×25 3.53		22×50 4.37	25.4×40 4.26	30×30 4.21	35×25 4.15
27,000	22×35 3.49	25.4×30 3.52	30×25 3.57		22×45 4.04	25.4×35 3.98	30×30 3.73	35×25 3.73		25.4×45 4.72	30×35 4.82	35×30 4.65
33,000	22×40 3.97	25.4×35 4.02	30×25 3.95		22×50 4.58	25.4×40 4.54	30×30 4.13	35×25 4.13		25.4×50 5.33	30×40 5.36	35×30 5.15
39,000	22×50 4.55	25.4×40 4.50	30×30 4.45	35×25 4.51		25.4×45 5.08	30×35 5.05	35×30 4.80			30×45 6.01	35×35 5.95
47,000		25.4×45 5.09	30×35 5.06	35×30 5.01		25.4×50 5.73	30×40 5.72	35×30 5.27			30×50 6.79	35×40 6.76
56,000		25.4×50 5.71	30×40 5.70	35×30 5.77			30×45 6.44	35×35 6.38				35×45 7.62
68,000			30×45 6.48	35×35 6.42			30×50 7.27	35×40 7.27				35×50 8.63
82,000			30×50 7.32	35×40 7.29				35×50 8.49				
100,000				35×45 8.31	← Upper : Case size φD×L (mm) ← Lower : Rated ripple current (Arms) at 85℃, 120Hz							

μF \ Vdc / φD	25				35				50			
	22	25.4	30	35	22	25.4	30	35	22	25.4	30	35
2,200									22×25 1.91			
3,300									22×30 2.37	25.4×25 2.38		
3,900					22×25 2.22				22×35 2.65	25.4×30 2.68	30×25 2.55	
4,700					22×30 2.41	25.4×25 2.42			22×40 2.99	25.4×35 3.03	30×25 2.81	
5,600	22×25 2.21				22×35 2.75	25.4×25 2.64			22×45 3.36	25.4×35 3.31	30×30 3.37	35×25 3.42
6,800	22×30 2.40	25.4×25 2.56			22×40 2.80	25.4×30 2.74	30×25 2.97		22×50 3.81	25.4×40 3.81	30×35 3.85	35×30 3.85
8,200	22×35 2.72	25.4×25 2.80			22×45 3.47	25.4×35 3.10	30×30 3.13	35×25 2.73		25.4×50 4.37	30×40 4.36	35×30 4.41
10,000	22×40 3.09	25.4×30 3.12	30×25 3.21		22×50 3.57	25.4×40 3.53	30×30 3.46	35×25 3.02			30×45 4.97	35×35 4.92
12,000	22×45 3.48	25.4×35 3.43	30×30 3.86	35×25 3.54		25.4×45 3.98	30×35 4.01	35×30 4.42			30×50 5.60	35×40 5.58
15,000	22×50 4.00	25.4×40 3.95	30×30 4.00	35×25 3.95		25.4×50 4.54	30×40 4.52	35×35 5.01				35×45 6.44
18,000		25.4×45 4.45	30×35 4.46	35×30 4.63			30×45 4.71	35×40 5.54				35×50 6.71
22,000		25.4×50 5.02	30×45 5.21	35×35 5.16			30×50 5.33	35×45 6.04				
27,000			30×50 5.94	35×40 5.92				35×50 6.89				
33,000				35×45 6.75	← Upper : Case size φD×L (mm) ← Lower : Rated ripple current (Arms) at 85℃, 120Hz							
39,000				35×50 7.56								

◆CASE CODE [mm]

Case code	Case size φDXL	Case code	Case size φDXL	Case code	Case size φDXL	Case code	Case size φDXL
22A	22×25	25A	25.4×25	30A	30×25	35A	35×25
22B	22×30	25B	25.4×30	30B	30×30	35B	35×30
22C	22×35	25C	25.4×35	30C	30×35	35C	35×35
22D	22×40	25D	25.4×40	30D	30×40	35D	35×40
22E	22×45	25E	25.4×45	30E	30×45	35E	35×45
22F	22×50	25F	25.4×50	30F	30×50	35F	35×50

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Frequency (Hz)	50	120	300	1k	10k	50k
6.3 to 50Vdc	0.95	1.00	1.03	1.05	1.08	1.08
63 to 100Vdc	0.92	1.00	1.07	1.13	1.19	1.20
160 to 250Vdc	0.81	1.00	1.17	1.32	1.45	1.50
315 to 450Vdc	0.77	1.00	1.16	1.30	1.41	1.43

CAT. No. E1001D

SMH Series

◆STANDARD RATINGS

Vdc / μF \ φD	63				80				100			
	22	25.4	30	35	22	25.4	30	35	22	25.4	30	35
820									22×25 1.86			
1,200					22×25 1.69				22×30 2.09	25.4×25 2.10		
1,500					22×25 1.88				22×35 2.41	25.4×30 2.43	30×25 2.46	
1,800	22×25 1.82				22×30 2.14	25.4×25 2.26			22×40 2.71	25.4×35 2.75	30×25 2.72	
2,200	22×30 2.31	25.4×25 2.30			22×35 2.44	25.4×30 2.46	30×25 2.49		22×45 3.08	25.4×40 3.13	30×30 3.09	35×25 3.14
2,700	22×35 2.40	25.4×25 2.40			22×40 2.78	25.4×35 2.81	30×25 2.75		22×50 3.53	25.4×45 3.57	30×35 3.55	35×30 3.71
3,300	22×35 2.62	25.4×30 2.64	30×25 2.78		22×45 3.16	25.4×40 3.21	30×30 3.17	35×25 3.21		25.4×50 4.06	30×40 4.05	35×30 4.05
3,900	22×40 2.93	25.4×35 2.97	30×30 3.00	35×25 3.00	22×50 3.52	25.4×45 3.59	30×35 3.57	35×25 3.50			30×45 4.54	35×35 4.49
4,700	22×50 3.39	25.4×40 3.36	30×30 3.32	35×25 3.36		25.4×50 4.05	30×40 4.05	35×30 4.09			30×50 5.13	35×40 5.11
5,600		25.4×45 3.77	30×35 3.75	35×30 3.76			30×45 4.55	35×35 4.51				35×45 5.75
6,800		25.4×50 4.27	30×40 4.27	35×30 4.15			30×50 5.16	35×40 5.14				35×50 6.50
8,200			30×45 4.83	35×35 4.79				35×45 5.83				
10,000			30×50 5.49	35×40 5.47				35×50 6.63				
12,000				35×45 6.19	← Upper : Case size φD×L (mm) ← Lower : Rated ripple current (Arms) at 85℃, 120Hz							

Vdc / μF \ φD	160				180				200			
	22	25.4	30	35	22	25.4	30	35	22	25.4	30	35
270					22×25 1.27				22×25 1.27			
330	22×25 1.40				22×25 1.40				22×30 1.45	25.4×25 1.45		
390	22×25 1.52				22×30 1.58	25.4×25 1.58			22×30 1.58	25.4×25 1.58		
470	22×30 1.73	25.4×25 1.74			22×35 1.79	25.4×25 1.79			22×35 1.78	25.4×30 1.80	30×25 1.80	
560	22×35 1.95	25.4×25 1.95			22×40 2.00	25.4×30 1.96	30×25 1.99		22×40 2.00	25.4×35 2.03	30×25 2.00	
680	22×40 2.21	25.4×30 2.16	30×25 2.19		22×45 2.27	25.4×35 2.23	30×25 2.25		22×50 2.33	25.4×40 2.30	30×30 2.28	35×25 2.31
820	22×45 2.49	25.4×35 2.45	30×30 2.50	35×25 2.50	22×50 2.55	25.4×40 2.53	30×30 2.70	35×25 2.53		25.4×45 2.60	30×35 2.59	35×25 2.60
1,000	22×50 2.82	25.4×40 2.79	30×30 2.80	35×25 2.80		25.4×45 2.87	30×35 2.86	35×30 2.99		25.4×50 2.95	30×40 2.95	35×30 2.95
1,200		25.4×45 3.15	30×35 3.13	35×30 3.27		25.4×50 3.30	30×40 3.23	35×35 3.31			30×45 3.31	35×35 3.31
1,500		25.4×50 3.72	30×45 3.73	35×35 3.69			30×50 3.83	35×40 3.82			30×50 3.82	35×40 3.82
1,800			30×50 4.20	35×40 4.18				35×45 4.32				35×45 4.32
2,200				35×45 4.78				35×50 4.92				35×50 4.92
2,700				35×50 5.45	← Upper : Case size φD×L (mm) ← Lower : Rated ripple current (Arms) at 85℃, 120Hz							

SMH Series

◆STANDARD RATINGS

μF \ Vdc / φD	250				315				350			
	22	25.4	30	35	22	25.4	30	35	22	25.4	30	35
82												
100									22×25 0.86			
120					22×25 0.94				22×30 0.99	25.4×25 0.99		
150					22×30 1.11	25.4×25 1.10			22×35 1.14	25.4×25 1.10		
180	22×25 1.04				22×35 1.20	25.4×25 1.20			22×40 1.28	25.4×30 1.24	30×25 1.27	
220	22×25 1.15				22×40 1.41	25.4×30 1.38	30×25 1.40		22×45 1.44	25.4×35 1.44	30×30 1.44	35×25 1.44
270	22×30 1.31	25.4×25 1.32			22×45 1.60	25.4×35 1.59	30×30 1.59	35×25 1.59	22×50 1.64	25.4×40 1.63	30×35 1.66	35×25 1.63
330	22×35 1.49	25.4×30 1.51	30×25 1.52		22×50 1.82	25.4×40 1.80	30×30 1.80	35×25 1.80		25.4×50 1.88	30×35 1.83	35×30 1.87
390	22×40 1.67	25.4×30 1.66	30×25 1.66			25.4×45 2.01	30×35 1.99	35×30 2.00			30×40 2.06	35×30 2.03
470	22×45 1.88	25.4×35 1.86	30×30 1.89	35×25 1.88		25.4×45 2.20	30×40 2.27	35×30 2.23			30×50 2.40	35×35 2.33
560	22×50 2.10	25.4×40 2.09	30×35 2.14	35×25 2.06			30×45 2.56	35×35 2.49				35×40 2.60
680		25.4×50 2.44	30×40 2.43	35×30 2.46			30×50 2.88	35×40 2.87				35×45 2.96
820			30×45 2.75	35×35 2.77				35×45 3.25				35×50 3.04
1,000			30×50 3.31	35×40 3.32				35×50 3.69				
1,200				35×45 3.53	← Upper : Case size φD×L (mm) ← Lower : Rated ripple current (Arms) at 85℃, 120Hz							
1,500				35×50 4.04								

μF \ Vdc / φD	400				450			
	22	25.4	30	35	22	25.4	30	35
56					22×25 0.65			
68					22×25 0.71			
82	22×25 0.78				22×30 0.82	25.4×25 0.82		
100	22×30 0.90	25.4×25 0.90			22×35 0.93	25.4×25 0.90		
120	22×35 1.02	25.4×25 0.98			22×40 1.04	25.4×30 1.02	30×25 1.03	
150	22×40 1.16	25.4×30 1.14	30×25 1.16		22×45 1.19	25.4×35 1.19	30×30 1.19	35×25 1.19
180	22×45 1.31	25.4×35 1.30	30×30 1.44	35×25 1.32	22×50 1.34	25.4×40 1.33	30×35 1.35	35×25 1.33
220	22×45 1.49	25.4×40 1.47	30×30 1.47	35×25 1.47		25.4×50 1.54	30×40 1.55	35×30 1.53
270	22×50 1.64	25.4×45 1.67	30×35 1.66	35×30 1.69			30×45 1.78	35×35 1.73
330		25.4×50 1.88	30×40 1.90	35×30 1.87			30×50 2.01	35×40 2.00
390			30×45 2.13	35×35 2.08				35×45 2.24
470			30×50 2.40	35×40 2.39				35×50 2.53
560				35×45 2.69	← Upper : Case size φD×L (mm) ← Lower : Rated ripple current (Arms) at 85℃, 120Hz			
680				35×50 3.04				