

Horizontal Surface Mounting Devices

SANYO has succeeded in developing the chip-type **OS-CON**.
Ideal for use in products such as switching power supplies, VCRs,
etc. where a surface mounting design is necessary.



SM
Series

Case color : Purple
Marking : Polarity(⊕), Rated voltage,
Capacitance, Lot.No.

Specifications

Items	Characteristics		
1. Operating temperature range	-55°C to +105°C		
2. Capacitance tolerance (120Hz)	M : ±20%		
3. Tangent of loss angle(tanδ) (120Hz)	Value in Table 9 or less		
4. Leakage current (μA/2min.)(or less) *1	A, B size 0.03CV or 1 (whichever is the greater) C, D, E size 0.05CV		
5. ESR (100k to 300kHz)	Value in Table 9 or less		
6. Temperature characteristics Impedance ratio at 100kHz., +20°C	-55°C	Z / Z _{20°C}	1.0 to 2.0
	+105°C	Z / Z _{20°C}	0.6 to 1.0
7. High-temperature load 105°C, 2,000Hrs. Rated voltage applied	ΔC/C		Within ±20%
	tanδ		1.5 times of Item 3 or less
	Leakage current		Item 4 or less
8. Moisture resistance (60°C, 90 to 95%RH, 500Hrs. no voltage)	ΔC/C		Within ±20%
	tanδ		1.5 times of Item 3 or less
	Leakage current		Item 4 or less
9. Reverse voltage guarantee	Temporary:less than 20% of the rated voltage, Continuous:less than 10% of the rated voltage		
10.Solder heat resistance (VPS) *2 (230°C X 10sec.)	ΔC/C		Within ±10%
	tanδ		2 times of Item 3 or less
	Leakage current		Item 4 or less

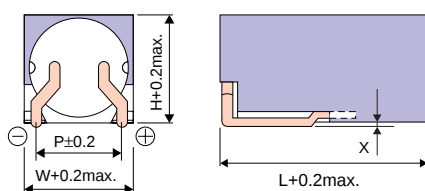
*1 If any doubt arises, measure the current after applying voltage (voltage treatment) for 120 minutes at 105°C.
The rated voltage should be applied for all vv.

*2 The electrostatic capacity of SM series products may be changed by soldering such as reflow.
Refer to page 40 for soldering specifications.

Dimensions

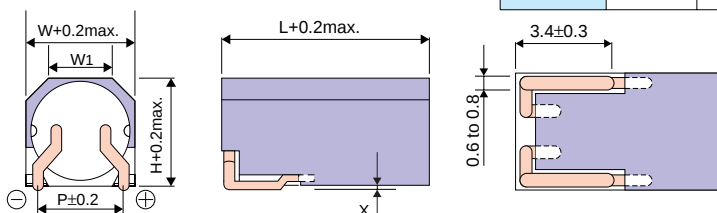
(unit : mm)

A, B, E
Size



Size Code	L	W	H	P	X	W ₁
A	7.3	4.6	4.6	3.6	0.2max.	-
B	7.3	5.6	5.6	4.4	0.2max.	-
C	9.0	7.0	7.0	5.5	0.3max.	5.6
D	12.0	7.0	7.0	5.5	0.3max.	5.6
E	13.0	8.8	8.8	7.0	0.3max.	-

C, D
Size

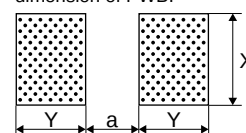


Size List

WV : Rated voltage
(SV) : Surge voltage(room temperature)

μF	WV (SV)	6.3 (7.2)	10 (11.5)	16 (18.4)	20 (23)
1.0					A
2.2				A	B
3.3				A	B
4.7			A	B	C
6.8	A		B	C	C
10			B	C	C
15	B		C	D	D
22			C	D	D
33	C		D	E	E
47	C		D	E	E
68			E		
100					
150	E				

Recommended land pattern
dimension of PWB.



(unit : mm)

Size	X	Y	a
A	4.7±0.1	2.0±0.1	1.6±0.1
B	4.7±0.1	2.2±0.1	2.2±0.1
C	4.7±0.1	2.5±0.1	3.0±0.1
D	4.7±0.1	2.5±0.1	3.0±0.1
E	4.7±0.1	2.8±0.1	4.2±0.1

Table 9 SM Series Characteristics List

Size Code	Part Number ^{*1}	Rated Voltage (V)	Nominal Capacitance (μF)	ESR (100kHz to 300kHz) (mΩ) (max.)	Maximum allowable ripple current (mA _{rms})*2	Tangent of loss angle (max.)	Leakage current (μA) (max.)*3
A	20SM1M	20	1	600	430	0.06	1.00
	16SM2R2M	16	2.2	500	450	0.07	1.06
	16SM3R3M	16	3.3	450	500	0.08	1.58
	10SM4R7M	10	4.7	400	540	0.09	1.41
	6SM6R8M	6.3	6.8	400	560	0.09	1.29
B	20SM2R2M	20	2.2	300	695	0.06	1.32
	20SM3R3M	20	3.3	300	700	0.06	1.98
	16SM4R7M	16	4.7	300	720	0.07	2.26
	16SM6R8M	16	6.8	250	745	0.07	3.26
	10SM10M	10	10	250	780	0.09	3.00
	6SM15M	6.3	15	250	815	0.09	2.84
C	20SM4R7M	20	4.7	150	790	0.07	4.70
	20SM6R8M	20	6.8	150	800	0.07	6.80
	20SM10M	20	10	150	890	0.07	10.0
	16SM15M	16	15	150	900	0.07	12.0
	10SM22M	10	22	150	1000	0.07	11.0
	6SM33M	6.3	33	150	1240	0.07	10.3
	6SM47M	6.3	47	150	1320	0.08	14.8
D	20SM15M	20	15	125	1140	0.07	15.0
	20SM22M	20	22	125	1450	0.07	22.0
	20SM33M	20	33	125	1580	0.07	33.0
	10SM47M	10	47	100	1630	0.08	23.5
	10SM68M	10	68	100	1650	0.08	34.0
E	20SM47M	20	47	80	1710	0.07	47.0
	20SM68M	20	68	80	2020	0.07	68.0
	10SM100M	10	100	80	2110	0.08	50.0
	6SM150M	6.3	150	80	2150	0.09	47.2

*1 Capacitance tolerance : M ; ±20%

*2 100kHz, +45°C

*3 After 2 minutes

Temperature coefficient for ripple current

Ambient Temp.(°C)	to +45	+65	+85	+95	+105
Coefficient	1.0	0.85	0.7	0.4	0.25