

SMC Series

Commercial Surface Mount Chip Resistor



The Ohmite SMC series is designed to accommodate a multitude of uses. This chip series is available in common sizes and multiple tolerances. This wide range assures the end customer will find an SMC that is right for their application. All SMC resistors are laser trimmed and covered with an protective epoxy coating.

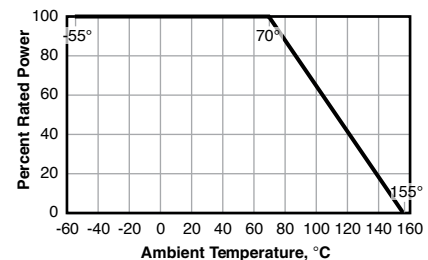
SERIES SPECIFICATIONS

Series	Power	Max. Working Voltage	Max. Overload Voltage	Dielec. Withst. Voltage	Resistance Range (by tolerance)		
					5.00%	1.00%	0.1% / 0.5%
SMC0075	1/50 W	10V	25V	25V	10-1MΩ		
SMC0100	1/32 W	15V	30V	30V	1-22MΩ	1-10MΩ	33-470KΩ
SMC0201	1/20 W	25V	50V	50V	1-10MΩ		
SMC0402	1/16 W	50V	100V	100V	1-22MΩ	1-10MΩ	10-1MΩ
SMC0603	1/10 W	75V	150V	150V	1-22MΩ	1-10MΩ	
SMC0805	1/8 W	150V	300V	300V	1-100MΩ	1-1MΩ	
SMC1206	1/4 W	200V	400V	500V	1-100MΩ	1-10MΩ	
SMC1210	1/2 W	200V	500V	500V	1-22MΩ	1-10MΩ	
SMC2010	3/4 W	200V	500V	500V	1-22MΩ	1-10MΩ	
SMC2512	1 W	200V	500V	500V	1-22MΩ	1-10MΩ	

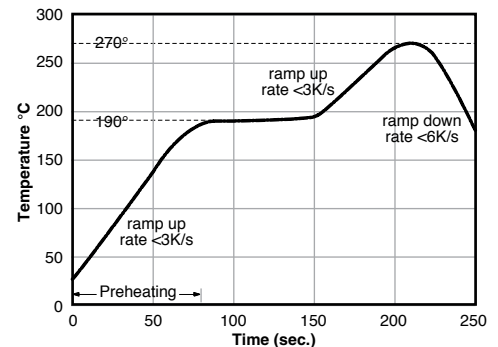
CHARACTERISTICS

Operating Temp. Range	-55°C to +155°C		
Rated Voltage	The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula: $V = \sqrt{P \times R}$ or max. working voltage whichever is less, where: V = Cont. rated DC or AC (rms) working voltage (V) P = Rated power (W) R = Resistance value (Ω)		
Temperature Coeff. of Resistance	0075	0100	0201
	1Ω-10Ω	-200~+600ppm	100~+350ppm
	10Ω-100Ω	-200~+600ppm	±300ppm ±200ppm
	100Ω-1MΩ	±200ppm	±200ppm ±200ppm
	1M-10M	±200ppm	±200ppm ±200ppm
	10MΩ-22MΩ	±250ppm	
	0402-2512		
	1Ω-10Ω	±200ppm	
	10Ω-10MΩ	±100ppm	
	10MΩ-22MΩ	±200ppm	
	24MΩ-100MΩ	±300ppm	

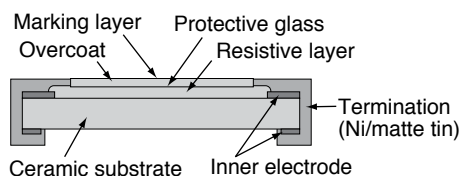
Derating



Soldering Conditions



Construction



SMC Series

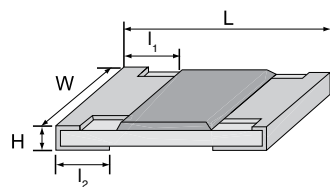
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PERFORMANCE DATA

Test Method	Procedure	Requirements
Temp. Coeff. of Res. MIL-STD-202 Method 304	At +25/-55°C and +25/+125°C	
Life/Endurance MIL-STD-202 Method 108A IEC 60115-1 4.25.1	At 70 ±2°C for 1,000 hours; SMCWV applied for 1.5 hours on and 0.5 hour off, still air required	±(1%+50mΩ) for B/D/F tol ±(3%+50mΩ) for J tol
High Temp. Exposure MIL-STD-202 Method 108A IEC 60068-2-2	1,000 hours at maximum operating temperature depending on specification, unpowered.	±(1%+50mΩ) for B/D/F tol ±(2%+50mΩ) for J tol
Moisture Resistance MIL-STD-202 Method 106G	Each temperature / humidity cycle is defined at 8 hours (method 106F), 3 cycles / 24 hours for 10d with 25°C / 65°C 95% R.H, without steps 7a & 7b, unpowered. Parts mounted on test-boards, without condensation on parts	±(0.5%+50mΩ) for B/ D/F tol ±(2%+50mΩ) for J tol
Humidity IEC 60115-1 4.24.2	Steady state for 1000 hours at 40°C / 95% R.H. SMCWV applied for 1.5 hours on and 0.5 hour off	±(1%+50mΩ) for B/D/F tol ±(2%+50mΩ) for J tol
Thermal Shock MIL-STD-202 Method 107G	-55/+125°C; Note Number of cycles required is 300. Devices mounted; Maximum transfer time is 20 seconds. Dwell time is 15 minutes. Air - Air	±(0.5%+50mΩ) for B/D/F tol ±(1%+50mΩ) for J tol
Short Time Overload IEC 60115-1 4.13	2.5 times SMCWV or maximum overload voltage which is less for 5 seconds at room temperature	±(1%+50mΩ) for B/D/F tol ±(2%+50mΩ) for J tol No visible damage
Board Flex/Bending IEC 60115-1 4.33	Device mounted or as described only 1 board bending required bending time: 60 ±5 seconds 0402:5mm; 0603/0805:3mm; 1206 and above:2mm	±(1%+50mΩ) for B/D/F/J Tol No visible damage
Solderability Wetting J-STD-002 test B	Electrical Test not required Magnification 50X SMD conditions: 1st step: method B, aging 4 hours at 155°C dry heat; 2nd step: leadfree solder bath at 245 ±3°C Dipping time: 3 ±0.5 seconds	Well tinned (>95% covered) No visible damage
Leaching J-STD-002 test D	Leadfree solder ,260°C, 30 seconds immersion time	No visible damage
Resistance to Soldering Heat MIL-STD-202 Method 210F IEC 60115-1 4.18	Condition B, no pre-heat of samples Leadfree solder, 260°C ±5°C, 10 ±1 seconds immersion time; Procedure 2 for SMD: devices fluxed and cleaned with isopropanol	±(0.5% +50mΩ) for B/D/F tol. ±(1% +50mΩ) for J tol.; No visible damage

DIMENSIONS

(mm)



Size	L	W	H	I1	I2
0075	0.30 ±0.01	0.15 ±0.01	0.10 ±0.01	0.08 ±0.03	0.08 ±0.03
0100	0.40 ±0.02	0.20 ±0.02	0.13 ±0.02	0.10 ±0.03	0.10 ±0.03
0201	0.60 ±0.03	0.30 ±0.03	0.23 ±0.03	0.10 ±0.05	0.15 ±0.05
0402	1.00 ±0.05	0.50 ±0.05	0.35 ±0.05	0.20 ±0.10	0.25 ±0.10
0603	1.60 ±0.10	0.80 ±0.10	0.45 ±0.10	0.25 ±0.15	0.25 ±0.15
0805	2.00 ±0.10	1.25 ±0.10	0.50 ±0.10	0.35 ±0.20	0.35 ±0.20
1206	3.10 ±0.10	1.60 ±0.10	0.55 ±0.10	0.45 ±0.20	0.40 ±0.20
1210	3.10 ±0.10	2.60 ±0.15	0.50 ±0.10	0.45 ±0.15	0.50 ±0.20
2010	5.00 ±0.10	2.50 ±0.15	0.55 ±0.10	0.45 ±0.15	0.50 ±0.20
2512	6.35 ±0.10	3.10 ±0.15	0.55 ±0.10	0.60 ±0.20	0.50 ±0.20

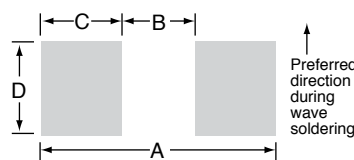
Reflow soldering footprint

Size	A	B	C	D
0075	0.34	0.14	0.1	0.15
0100	0.48	0.12	0.18	0.18~0.23
0201	1.0	0.3	0.35	0.4
0402	1.5	0.5	0.5	0.6
0603	2.6	0.8	0.9	0.8
0805	3.0	1.2	0.9	1.2
1206	4.2	2.2	1.0	1.5
1210	4.2	2.2	1.0	2.4
2010	6.1	3.3	1.4	2.4
2512	8.0	4.4	1.8	3.0

Wave soldering footprint

Size	A	B	C	D
0603	2.70	0.90	0.90	0.80
0805	3.30	1.30	1.00	1.30
1206	4.70	2.50	1.10	1.70
1210	4.70	2.50	1.10	2.50
2010	6.40	4.20	1.10	2.50
2512	8.20	5.50	1.35	3.20

Note: Wave soldering not recommended for parts smaller than 0603.



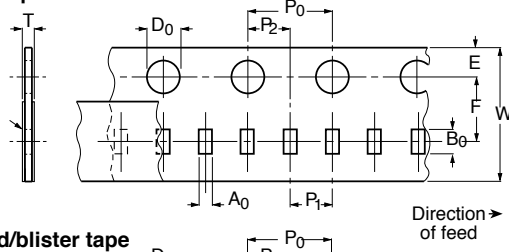
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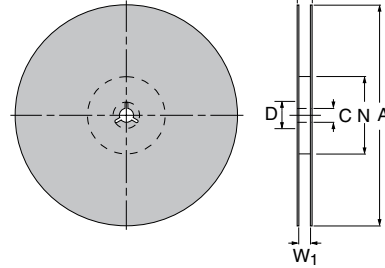
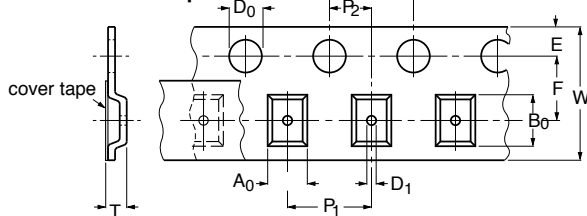
TAPE AND REEL

(mm)

Paper/PE tape



Embossed/blister tape



Paper/PE tape

Size	A0	B0	W	E	F	P0	P1	P2	ØD0	T	Qty. per reel (178mm)
0075	0.17±0.02	0.32±0.02	4.0±0.05	0.90±0.05	1.80±0.02	2.0±0.04	1.0±0.02	1.0±0.02	0.8±0.04	0.14±0.02	20,000
0100	0.24 ±0.03	0.45 ±0.03	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	2.0 ±0.05	2.0 ±0.05	1.5+0.1/-0	0.33 ±0.10	20,000
0201	0.35 ±0.10	0.65 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	2.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.35 ±0.10*	10000
0402	0.65 ±0.10	1.15 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	2.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.53 ±0.10	10000
0603	1.10 ±0.10	1.90 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.70 ±0.10	5000
0805	1.65 ±0.10	2.40 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10	5000
1206	1.90 ±0.10	3.50 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10	5000
1210	2.80 ±0.10	3.50 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10	5000

*For size 0201, the typical value of thickness (excluding cover tape) is 0.42 mm for paper tape and 0.33 mm for PE tape.

Embossed/blister tape

Size	A0	B0	W	E	F	P0	P1	P2	ØD0	ØD1	T	Qty/reel
2010	2.80 ±0.20	5.40 ±0.20	12 ±0.20	1.75 ±0.10	5.5 ±0.05	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	1.5 +0.1/-0	1.50 +0.25/-0	1.0 ±0.10	4000
2512	3.50 ±0.20	6.70 ±0.20	12 ±0.20	1.75 ±0.10	5.5 ±0.05	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	1.5 +0.1/-0	1.50 +0.25/-0	1.0 ±0.10	4000
1210	2.80 ±0.10	3.50 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10		5000

Reel dimensions

Size	Qty./reel	8mm tape	12mm tape	A	N	C	D	W1	W2 max.
0075	20,000	7" (Ø178mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2	21.0 ±0.8	9.0 ±0.2	12.0 ±0.2
0100	20,000	7" (Ø178mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2	21.0 ±0.8	9.0 ±0.2	12.0 ±0.2
0201	10,000	7" (Ø178mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2	21.0 ±0.8	9.0 ±0.2	12.0 ±0.2
0402	10,000	7" (Ø178mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2	21.0 ±0.8	9.0 ±0.2	12.0 ±0.2
0603/0805/1206	5,000	7" (Ø178mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2	21.0 ±0.8	9.0 ±0.2	12.0 ±0.2
1210	5,000	7" (Ø178mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2	21.0 ±0.8	9.0 ±0.2	12.0 ±0.2
2010	4,000	---	7" (Ø178mm)	180 +0/-3	60 +1/-0	13.5 ±0.5	21.0 ±0.8	13.6 ±0.5	16.5 ±0.5
2512	4,000	---	7" (Ø178mm)	180 +0/-3	60 +1/-0	13.5 ±0.5	21.0 ±0.8	13.6 ±0.5	16.5 ±0.5

ORDERING INFORMATION

RoHS Compliant

S M C 0 6 0 3 J 1 K 0 0 E T

Part series Surface mount chip	Size	Tolerance K = 10% J = 5% F = 1% D = 0.5% B = 0.1%	Ohms 5% in E24 values, 1% and lower tolerances available in E24 and E96 values	Tape & reel
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