SMD RESISTOR ** ANTI-SULFUR

RMP Series: Higher Power, Thick Film

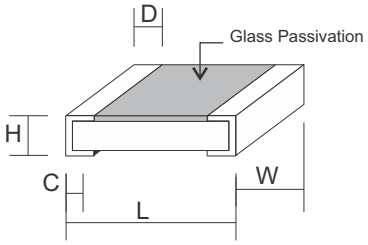
RoHS

INTRODUCTION

The RMP Series is a higher power (high wattage) version of the standard RM Series Thick Film SMD Resistor. The RMP Series SMD Resistor is made with a specially formulated substrate and with an advanced process used to deposit the film. As a result, power ratings surpass standard series, and they are ANTI-SULFUR. These resistors are AEC-Q200 qualified and are suitable for all applications (automotive, lighting, power, etc).

- Basic Thick Film Resistors see RM Series
- High Power Thick Film see RMH Series
- Anti-Sulfur Thick Film Resistors see RMS Series
- Thin Film Resistor see RMT series
- Fusible Resistors see RMF Series
- Thick Film Array Chip see RCN Series
- Metal Array Low-Resistance see LR Series

DIMENSIONS



Size Code	Max. Dimension (mm)				
	L	W	H	C	D
RMP06 (0603)	1.60±0.20	0.80±0.15	0.40±0.10	0.20±0.10	0.20±0.10
RMP10 (0805)	2.00±0.20	1.25±0.15	0.50±0.15	0.30±0.15	0.40±0.15
RMP12 (1206)	3.05±0.10	1.60±0.20	0.55±0.15	0.40±0.20	0.50±0.20
RMP25 (1210)	3.05±0.10	2.50±0.20	0.55±0.15	0.50±0.20	0.50±0.20
RMP50 (2010)	5.00±0.20	2.50±0.20	0.55±0.10	0.60±0.20	0.60±0.20
RMP50S (1812)	4.50±0.10	3.00±0.10	0.55±0.05	0.55±0.20	0.70±0.20
RMP2W (2512)	6.30±0.20	3.20±0.20	0.55±0.10	0.60±0.20	0.60±0.20
RMP2WS (1218)	3.10±0.10	4.60±0.10	0.55±0.05	0.40±0.20	0.50±0.20

PART NUMBER EXAMPLE

RMP 10 R - 10K - J

- RMP: Series
- 10: Size Code
- R: Taped & Reeled
- 10K: Resistance Code
- J: Tolerance Code

RESISTANCE CODE

Ohms	0.0	100	1.5K	15K	1.5 Meg
Code	0R0	100R	1K5	15K	1M5

SIZE CODE & RESISTANCE RANGE

Code	Size	Rated Power at 70°C	Max. Working Voltage	Max. Overload Voltage	T.C.R. (PPM/°C)	Resistance Range		
						B (±0.1%) D (±0.5%)	F (±1%)	J (±5%)
RMP06	(0603)	0.125W	50V	100V	±400	—	1Ω ~ 9.9Ω	1Ω ~ 9.9Ω
					±200	—	—	10Ω ~ 10MΩ
					±100	10Ω ~ 1MΩ	10Ω ~ 10MΩ	—
RMP10	(0805)	0.25W	150V	300V	±400	—	1Ω ~ 9.9Ω	1Ω ~ 9.9Ω
					±200	—	—	10Ω ~ 10MΩ
					±100	10Ω ~ 1MΩ	10Ω ~ 10MΩ	—
RMP12	(1206)	0.50W	200V	400V	±400	—	1Ω ~ 9.9Ω	1Ω ~ 9.9Ω
					±200	—	—	10Ω ~ 10MΩ
					±100	10Ω ~ 1MΩ	10Ω ~ 10MΩ	—
RMP25	(1210)	0.66W	200V	400V	±400	—	1Ω ~ 9.9Ω	1Ω ~ 9.9Ω
					±200	—	—	10Ω ~ 10MΩ
					±100	10Ω ~ 1MΩ	10Ω ~ 10MΩ	—
RMP50	(2010)	1.0W	200V	400V	±400	—	1Ω ~ 9.9Ω	1Ω ~ 9.9Ω
					±200	—	—	10Ω ~ 10MΩ
					±100	10Ω ~ 1MΩ	10Ω ~ 10MΩ	—
RMP50S	(1812)	1.0W	200V	400V	±400	—	1Ω ~ 9.9Ω	1Ω ~ 9.9Ω
					±200	—	—	10Ω ~ 10MΩ
					±100	10Ω ~ 1MΩ	10Ω ~ 10MΩ	—
RMP2W	(2512)	2.0W	250V	500V	±400	—	1Ω ~ 9.9Ω	1Ω ~ 9.9Ω
					±200	—	—	10Ω ~ 10MΩ
					±100	10Ω ~ 1MΩ	10Ω ~ 10MΩ	—
RMP2WS	(1218)	2.0W	250V	500V	±400	—	1Ω ~ 9.9Ω	1Ω ~ 9.9Ω
					±200	—	—	10Ω ~ 10MΩ
					±100	10Ω ~ 1MΩ	10Ω ~ 10MΩ	—

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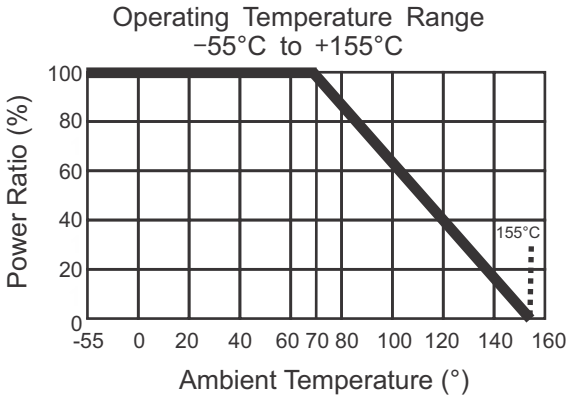
PERORMANCE CHARACTERISTICS

Power Derating Curve



Power rating or current rating is in the case based on continuous full-load at ambient temperature of 70ºC. For operation at ambient temperature in excess of 70ºC, the load should be derated in accordance with figure of derating Curve.

Voltage Rating or Current Rating

Resistance Range: ≥1Ω
Rated Voltage: The resistor shall have a DC continuous working voltage or a RMS AC continuous working voltage at commercial-line frequency and wave form corresponding to the power rating, as determined formula as follows:

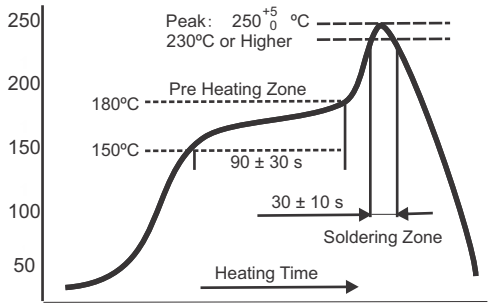
$$E = \sqrt{P \times R}$$

E = Rated Voltage (V)
P = Power Rating (W)
R = Nominal Resistance (Ω)

Operation and Storage Temperature

	MIN	MAX
Operation temperature	-55ºC	70ºC
Storage temperature	20ºC	30ºC
Storage humidity	30%	70ºC

Soldering Profile



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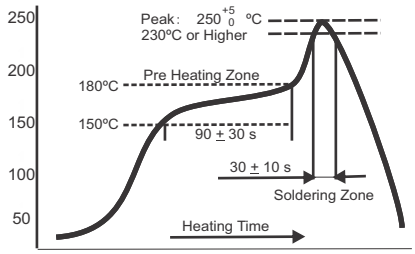
TEST PROCEDURES & REQUIREMENTS

Test Item	Test Method	Procedure	Requirements
Temperature Coefficient of Resistance (T.C.R.)	JIS C 5201-1 Clause 4.8	-55°C ~ +155°C, 20°C is the reference temperature	Refer to Ratings
Short Time Overload	JIS C 5201-1 Clause 4.13	General: 2.5 times RCWV or Max. Overload voltage for 5 seconds High Power: 2.5 times RCWV or Max. Overload voltage for 2 seconds	±1: ±(1.0%+0.05Ω) ±5: ±(2.0%+0.1Ω)
IR Reflow	Sony SS-00254		±1: ±(1.0%+0.05Ω) ±5: ±(2.0%+0.1Ω)
Leaching	Sony SS-00254-9	260 ±5°C for 30 seconds	> 95% Coverage
Soldering Heat	JIS C 5201-1 Clause 4.18	260 ±5°C for 10 seconds	±1: ±(0.5%+0.05Ω) ±5: ±(1.0%+0.05Ω)
Temperature Cycling	JIS C 5201-1 Clause 4.19	-55°C ~ +155°C, 5 cycles	0.1% ' 0.5% ' 1% ±(0.5%+0.05Ω) 2% ' 5% ±(1.0%+0.1Ω)
Electric Iron	Sony SS-00254-5	Preheating termperature: 350 ± 5°C Electric Iron preheating time: 3 +1/-0 sec.	±1: ±(0.5%+0.05Ω) ±5: ±(1.0%+0.05Ω)
Resistance to Solvent	JIS C 5201-1 Clause 4.29	The tested resistor be immersed into isopropyl alcoho of 20~25°C for 60 seconds. Then the resistor is left in the room for 48 hours.	±1: ±(0.5%+0.05Ω) ±5: ±(1.0%+0.05Ω)
Load Life in Humidity	JIS C 5201-1 Clause 4.24	40 ± 2°C, 90~95% R.H. or Max. working voltage for 1000 hours with 1.5 hrs “ON” and 0.5hr “OFF”.	0.1% ' 0.5% ' 1% ±(0.5%+0.05Ω) 2% ' 5% ±(3.0%+0.1Ω)
Load Life (Endurance)	JIS C 5201-1 Clause 4.25	70 ± 2°C, or Max. working voltage for 1000 hours with 1.5 hrs “ON” and 0.5hr “OFF”.	0.1% ' 0.5% ' 1% ±(1.0%+0.05Ω) 2% ' 5% ±(3.0%+0.1Ω)
Terminal Bending Strength	JIS C 5201-1 Clause 4.33	Bending once for 5 seconds D: RMP Series 0402 ' 0603 ' 0805 = 5mm RMP Series 1206 ' 1210 ' 1812 = 3mm RMP Series 1218 ' 2010 ' 2512 ' 2030 = 2mm	±1: ±(1.0%+0.05Ω) ±5: ±(1.0%+0.05Ω)
Insulation Resistance	JIS C 5201-1 Clause 4.6	Max Overload Voltage for 1 min.	≥ 10G

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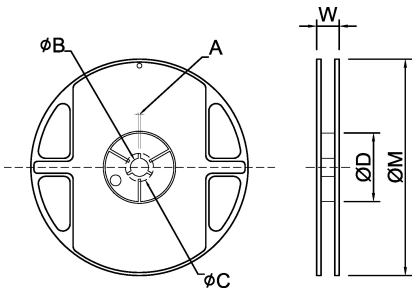
PACKAGE & DIMENSION (mm)

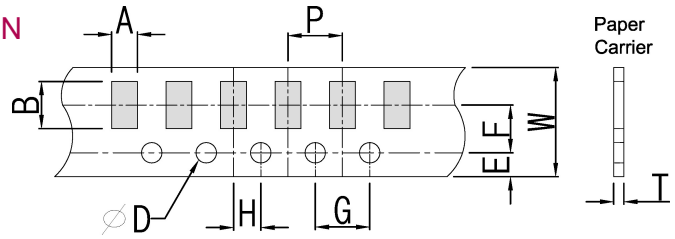


Unit: mm

Type	Size	A	ΦB	ΦC	ΦD	W	ΦM
RMP06 (0603)	7" 5K / Reel	2.0 ± 0.5	13.5 ± 1.0	21 ± 1.0	60 ± 1.0	11.5 ± 2.0	178 ± 2.0
RMP10 (0805)	10" 10K / Reel	2.0 ± 0.5	13.5 ± 1.0	21 ± 1.0	100 ± 1.0	11.5 ± 2.0	254 ± 2.0
RMP12 (1206)	13" 20K / Reel	2.0 ± 0.5	13.5 ± 1.0	21 ± 1.0	100 ± 1.0	11.5 ± 2.0	330 ± 2.0
RMP25 (1210)	7" 5K / Reel	2.0 ± 0.5	13.5 ± 1.0	21 ± 1.0	60 ± 1.0	11.5 ± 2.0	178 ± 2.0
RMP50 (2010)	7" 4K / Reel	2.0 + 0.5	13.5 + 1.0	21 ± 1.0	60 ± 1.0	16.0 ± 2.0	178 ± 2.0
RMP50S (1812)							
RMP2W (2512)							
RMP2WS (1218)							

TAPING SPECIFICATION

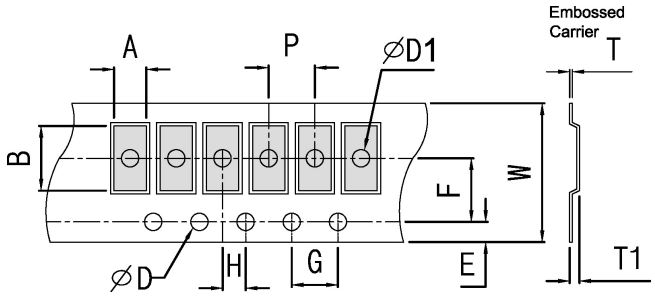
Paper Type
(P= 2.0 ± 0.1)



Unit : mm

Type	A	B	W	E	F	G	H	T	ΦD
RMP06 (0603)	1.05 ± 0.20	1.80 ± 0.20	8.0 ± 0.20	1.75 ± 0.10	3.5 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	0.60 ± 0.10	1.50 ± 0.10
RMP10 (0805)	1.55 ± 0.20	2.30 ± 0.20	8.0 ± 0.20	1.75 ± 0.10	3.5 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	0.60 ± 0.10	1.50 ± 0.10
RMP12 (1206)	1.90 ± 0.20	3.50 ± 0.20	8.0 ± 0.20	1.75 ± 0.10	3.5 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	0.60 ± 0.10	1.50 ± 0.10
RMP25 (1210)	2.85 ± 0.20	3.50 ± 0.20	8.0 ± 0.20	1.75 ± 0.10	3.5 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	0.60 ± 0.10	1.50 ± 0.10

Embossed Type
(P= 4.0 ± 0.1)



Unit : mm

Type	A	B	W	E	F	G	H	T	ΦD	ΦD1	T1
RMP50 (2010)	2.8 ± 0.20	5.60 ± 0.20	12 ± 0.10	1.75 ± 0.10	5.5 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	0.23 ± 0.10	1.50 ± 0.10	1.50 ± 0.10	0.85 ± 0.15
RMP50S (1812)	3.40 ± 0.20	6.70 ± 0.20	12 ± 0.10	1.75 ± 0.10	5.5 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	0.23 ± 0.10	1.50 ± 0.10	1.50 ± 0.10	0.85 ± 0.15
RMP2W (2512)	3.30 ± 0.20	4.60 ± 0.20	12 ± 0.10	1.75 ± 0.10	5.5 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	0.23 ± 0.10	1.50 ± 0.10	1.50 ± 0.10	0.85 ± 0.15
RMP2WS (1218)	3.30 ± 0.20	4.60 ± 0.20	12 ± 0.10	1.75 ± 0.10	5.5 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	0.23 ± 0.10	1.50 ± 0.10	1.50 ± 0.10	0.85 ± 0.15

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