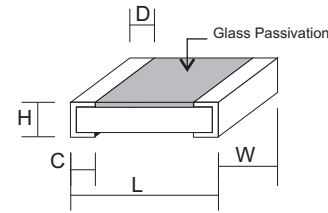


INTRODUCTION

RFE International, Inc. offers a wide range of chip resistors to meet your application requirements. They are made with metal glazed thick film on a high purity ceramic substrate which is overcoated for stability and protection. These resistors are lead free.

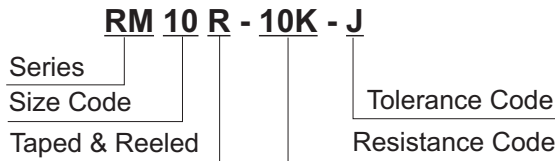
- For Lower & Higher values see additional RM Series pages
- For Thin Film Resistors see RMT Series
- For Higher Power Resistors see RMP Series
- For Fusible Resistors see RMF Series
- Wire Wound MELF and Metal Alloy SMD Resistors are also available

DIMENSIONS



Type	Dimensions (mm)				
	L	W	H	C	D
RM02 (0201)	0.6 ± 0.03	0.3 ± 0.03	0.23 ± 0.05	0.15 ± 0.05	0.15 ± 0.05
RM04 (0402)	1.0 ± 0.10	0.5 ± 0.05	0.30 ± 0.05	0.15 ± 0.10	0.15 ± 0.10
RM06 (0603)	1.6 ± 0.20	0.8 ± 0.15	0.40 ± 0.10	0.20 ± 0.20	0.20 ± 0.10
RM10 (0805)	2.0 ± 0.20	1.25 ± 0.15	0.55 ± 0.15	0.30 ± 0.15	0.40 ± 0.15
RM12 (1206)	3.05 ± 0.10	1.6 ± 0.12	0.65 ± 0.15	0.40 ± 0.20	0.50 ± 0.20
RM25 (1210)	3.05 ± 0.10	2.5 ± 0.20	0.65 ± 0.15	0.50 ± 0.20	0.50 ± 0.20
RM50 (2010)	5.0 ± 0.20	2.5 ± 0.20	0.65 ± 0.10	0.60 ± 0.20	0.60 ± 0.20
RM50S (1812)	4.5 ± 0.10	3.00 ± 0.10	0.85 ± 0.05	0.55 ± 0.20	0.70 ± 0.20
RM1W (2512)	6.3 ± 0.20	3.20 ± 0.20	0.65 ± 0.10	0.60 ± 0.20	0.60 ± 0.20
RM1WS (1218)	3.10 ± 0.10	4.6 ± 0.10	0.55 ± 0.05	0.40 ± 0.20	0.50 ± 0.20
RM2W (2030)	5.1 ± 0.10	7.6 ± 0.10	0.60 ± 0.05	0.80 ± 0.20	0.80 ± 0.20

PART NUMBER EXAMPLE



RESISTANCE CODE

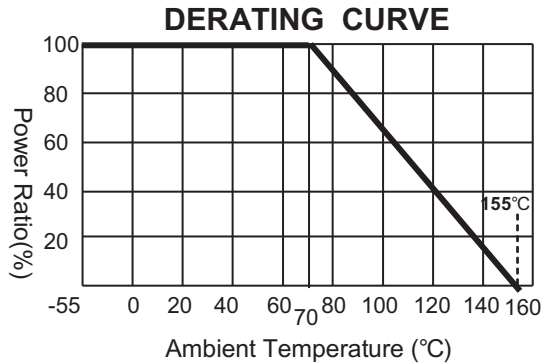
Ohms	0.0	1.0	100	1.5K	15K	1.5 Meg	10 Meg
Code	0R0	1R0	100R	1K5	15K	1M5	10M

SIZE CODE & RESISTANCE RANGE (Dimensions Max)

Size Code	Type	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%)
RM02	(0201)	0.05W	25V	50V	±200	—	10Ω~1MΩ	10Ω~1MΩ
RM04	(0402)	0.063W	50V	100V	0~+400	—	1Ω~9.9Ω	1Ω~9.9Ω
					±300	—	10Ω~990Ω	10Ω~990Ω
					±200	10Ω~1MΩ	1Ω~10MΩ	1Ω~10MΩ
RM06	(0603)	0.1W	50V	100V	±400	—	1Ω~9.9Ω	1Ω~9.9Ω
					±200	—	—	10Ω~10MΩ
					±100	10Ω~1MΩ	10Ω~10MΩ	—
RM10	(0805)	0.125W	150V	300V	±400	—	1Ω~9.9Ω	1Ω~9.9Ω
					±200	—	—	10Ω~10MΩ
					±100	10Ω~1MΩ	10Ω~10MΩ	—
RM12	(1206)	0.25W	200V	400V	±400	—	1Ω~9.9Ω	1Ω~9.9Ω
					±200	—	—	10Ω~10MΩ
					±100	10Ω~1MΩ	10Ω~10MΩ	—
RM25	(1210)	0.33W	200V	400V	±400	—	1Ω~9.9Ω	1Ω~9.9Ω
					±200	—	—	10Ω~10MΩ
					±100	10Ω~1MΩ	10Ω~10MΩ	—
RM50	(2010)	0.5W	200V	400V	±400	—	1Ω~9.9Ω	1Ω~9.9Ω
					±200	—	—	10Ω~10MΩ
					±100	10Ω~1MΩ	10Ω~10MΩ	—
RM50S	(1812)	0.5W	200V	400V	±400	—	1Ω~9.9Ω	1Ω~9.9Ω
					±200	—	—	10Ω~10MΩ
					±100	10Ω~1MΩ	10Ω~10MΩ	—
RM1W	(2512)	1W	250	500V	±400	—	1Ω~9.9Ω	1Ω~9.9Ω
					±200	—	—	10Ω~10MΩ
					±100	10Ω~1MΩ	10Ω~10MΩ	—
RM1WS	(1218)	1W	250	500V	±400	—	1Ω~9.9Ω	1Ω~9.9Ω
					±200	—	—	10Ω~10MΩ
					±100	10Ω~1MΩ	10Ω~10MΩ	—
RM2W	(2030)	2W	250	500V	±400	—	1Ω~9.9Ω	1Ω~9.9Ω
					±200	—	—	10Ω~10MΩ
					±100	10Ω~1MΩ	10Ω~10MΩ	—

■ Performance Characteristics

■ Power Derating Curve



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

■ Voltage Rating or Current Rating

Resistance Range: $\geq 1\Omega$

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 following:

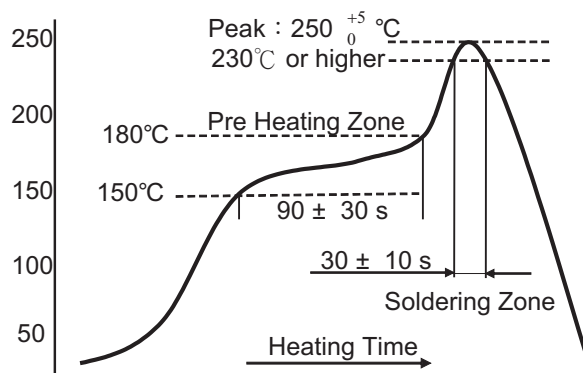
$$E = \sqrt{P \times R}$$

E=Rated voltage(V)
P=Power rating(W)
R=Nominal resistance(Ω)

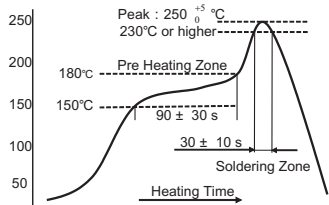
■ Operation and Storage Temperature

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

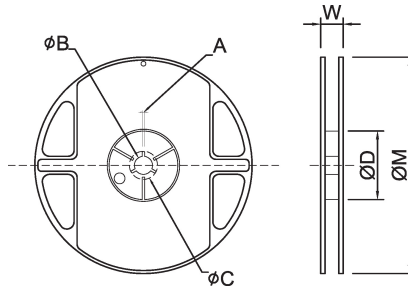
■ Soldering Profile



■ Test Procedures and 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	 <p>The graph shows a temperature profile for IR reflow. The y-axis is temperature in °C (50 to 250) and the x-axis is Heating Time. Key points include: Peak at 250 ± 5 °C (230°C or higher), Pre Heating Zone at 180°C, and Soldering Zone at 150°C. Time intervals are marked as 90 ± 30 s for the pre-heating phase and 30 ± 10 s for the soldering phase.</p>	±1: ± (1.0%+0.05Ω) ±5: ± (1.0%+0.05Ω)
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%+0.10Ω)
Electric Iron	Sony SS-00254-5	Preheating temperature: 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 alcohol of 20~25°C for 60secs. Then the resistor is left in the room for 48 hrs.	±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 hrs with 1.5hrs "ON" and 0.5hr "OFF"	0.1%、0.5%、1% ± (0.5%+0.05Ω) 2%、5% ± (3.0%+0.10Ω)
Load Life (Endurance)	JIS C 5201-1 clause 4.25	70 ± 2°C, or Max. working voltage for 1000 hrs with 1.5hrs "ON" and 0.5hr "OFF"	0.1%、0.5%、1% ± (1.0%+0.05Ω) 2%、5% ± (3.0%+0.10Ω)
Terminal Bending Strength	JIS C 5201-1 clause 4.33	Bending once for 5 seconds D: CR Series 0402、0603、0805=5mm CR Series 1206、1210、1812=3mm CR 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. Ovrload voltage for 1 minute	≥ 10GΩ

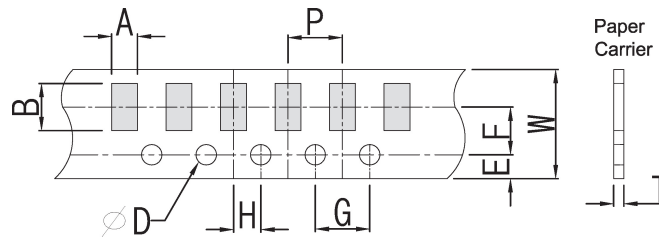
■ Packaging



■ Dimension

Type	Size		A	∅B	∅C	∅D	W	∅M
RM02(0201) RM04(0402)	7"	10K/Reel	2.0 ± 0.5	13.5 ± 1.0	21 ± 1.0	60 ± 1.0	11.5 ± 2.0	178 ± 2.0
RM06(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
RM10(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
RM12(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
RM25(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
RM50(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
RM50S(1812)								
RM1W(2512)								
RM1WS(1218)								
RM2W(2030)	7"	1K/Reel	2.0 ± 0.5	13.5 ± 1.0	21 ± 1.0	60 ± 1.0	19.0 ± 2.0	178 ± 2.0

■ Tapping Specification



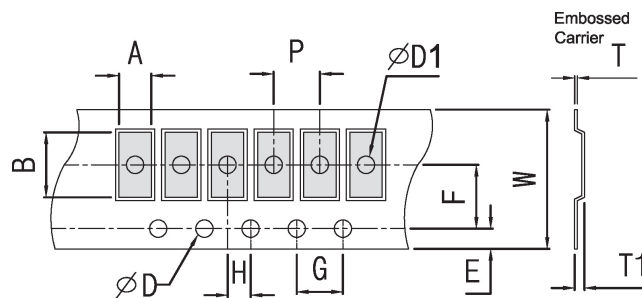
■ Dimension

Unit:mm

Packaging	Type	A	B	W	E	F	G	H	T	∅D	P
Paper Type	RM02(0201)	0.45 ± 0.10	0.75 ± 0.10	8.0 ± 0.20	1.75 ± 0.10	3.5 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	0.35 ± 0.10	1.50 ± 0.10	2.0 ± 0.1
	RM04(0402)	0.70 ± 0.10	1.20 ± 0.10	8.0 ± 0.20	1.75 ± 0.10	3.5 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	0.45 ± 0.10	1.50 ± 0.10	
	RM06(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	
	RM10(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	0.75 ± 0.10	1.50 ± 0.10	
	RM12(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	0.75 ± 0.10	1.50 ± 0.10	
	RM25(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	0.75 ± 0.10	1.50 ± 0.10	

■ Dimension

Unit:mm



Packaging	Type	A	B	W	E	F	G	H	T	∅D	∅D1	T1	P
Embossed Type	RM50(2010)	2.80 ± 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	4.0 ± 0.1
	RM50S(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	
	RM1W(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	
	RM1WS(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	
	RM2W(2030)	5.50 ± 0.20	7.90 ± 0.20	16 ± 0.10	1.75 ± 0.10	7.5 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	0.25 ± 0.10	1.50 ± 0.10	1.50 ± 0.10	0.85 ± 0.15	