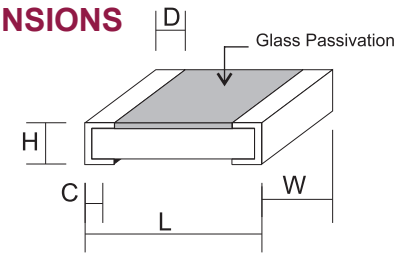
SMD Resistor - High Power
RMH Series: Thick Film

■ INTRODUCTION

The RMH Series is a higher power (high wattage) version of the basic RM Series thick film surface mount resistor. RMH Series is made with a specially formulated substrate and with an advanced process used to deposit the film. As a result, power ratings can surpass standard series.

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

■ DIMENSIONS



Type	Dimensions (mm)				
	L	W	H	C	D
RMH04 (0402)	1.00±0.10	0.50±0.05	0.30±0.05	0.15±0.10	0.15±0.10
RMH06 (0603)	1.60±0.20	0.80±0.15	0.40±0.10	0.20±0.10	0.20±0.10
RMH10 (0805)	2.00±0.20	1.25±0.15	0.50±0.15	0.30±0.15	0.40±0.15
RMH12 (1206)	3.05±0.10	1.60±0.20	0.55±0.15	0.40±0.20	0.50±0.20
RMH25 (1210)	3.05±0.10	2.50±0.20	0.55±0.15	0.50±0.20	0.50±0.20
RMH1W (2010)	5.00±0.20	2.50±0.20	0.55±0.10	0.60±0.20	0.60±0.20
RMH1WS (1812)	4.50±0.10	3.00±0.10	0.55±0.05	0.55±0.20	0.70±0.20
RMH2W (2512)	6.30±0.20	3.20±0.20	0.55±0.10	0.60±0.20	0.60±0.20
RMH2WS (1218)	3.10±0.10	4.60±0.10	0.55±0.05	0.40±0.20	0.50±0.20

■ PART NUMBER EXAMPLE

RMH 10 R - 10K0 - J

- RMH — Series
- 10 — Size Code
- R — Taped & Reeled
- 10K0 — Resistance Code
- J — Tolerance Code (Omit for Zero ohms)

■ RESISTANCE CODE

Ohms	0.0	100	1.5K	15K	1.5 Meg
Code	0R00	100R	1K50	15K0	1M50

■ ELECTRICAL CHARACTERISTICS & RESISTANCE RANGE (T =25℃ Unless otherwise specified)

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%)
RMH04	0402	0.1W	50V	100V	0~+400	10Ω ~ 1MΩ	1Ω~9.9Ω	1Ω~9.9Ω
					±100		10Ω~1MΩ	10Ω~10MΩ
RMH06	0603	0.125W	75V	150V	±400		1Ω~9.9Ω	1Ω~9.9Ω
					±100		10Ω~1MΩ	10Ω~10MΩ
RMH10	0805	0.25W	150V	300V	±400		1Ω~9.9Ω	1Ω~9.9Ω
					±100		10Ω~1MΩ	10Ω~10MΩ
RMH12	1206	0.50W	200V	400V	±400		1Ω~9.9Ω	1Ω~9.9Ω
					±100		10Ω~1MΩ	10Ω~10MΩ
RMH25	1210	0.66W	200V	400V	±400		1Ω~9.9Ω	1Ω~9.9Ω
					±100		10Ω~1MΩ	10Ω~10MΩ
RMH1W	2010	1.0W	200V	400V	±400		1Ω~9.9Ω	1Ω~9.9Ω
					±100		10Ω~1MΩ	10Ω~10MΩ
RMH1WS	1812	1.0W	200V	400V	±400		1Ω~9.9Ω	1Ω~9.9Ω
					±100		10Ω~1MΩ	10Ω~10MΩ
RMH2W	2512	2.0W	250V	500V	±400		1Ω~9.9Ω	1Ω~9.9Ω
					±100		10Ω~1MΩ	10Ω~10MΩ
RMH2WS	1218	2.0W	250V	500V	±400		1Ω~9.9Ω	1Ω~9.9Ω
					±100		10Ω~1MΩ	10Ω~10MΩ

■ ELECTRICAL CHARACTERISTICS & RESISTANCE RANGE (continued)

Zero ohms Current

Series	Size	Rated Current	Max. Overload Current <1sec.,1time
RMH04	0402	2A	6
RMH06	0603	2.5A	9
RMH10	0805	3.5A	13
RMH12	1206	5A	16
RMH25	1210	6A	19A
RMH1W	1210	7A	22A
RMH1WS	1812	7A	22A
RMH2W	2512	10A	30A

RATINGS FOR LOW RESISTANCE <1Ω

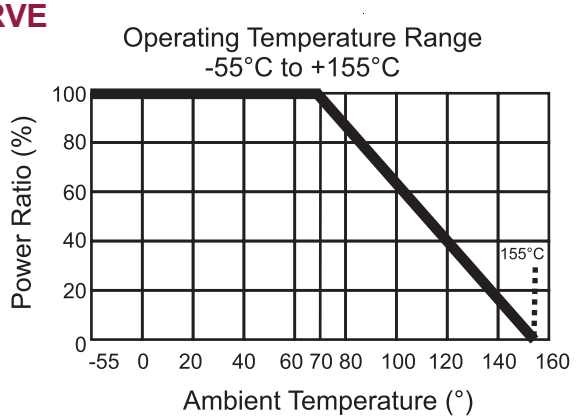
Type	Rated Power at 70℃	Max Working Voltage	Max Overload Voltage	T.C.R. (PPM/℃)	Resistance Range (mΩ) F(±1%), J(±5%)
RMH06 (0603)	0.125W	0.352V	0.879V	±1000	50 ~ 91
				± 800	100 ~ 330
				± 600	331 ~ 510
				± 400	511 ~ 990
RMH10 (0805)	0.25W	0.497V	1.244V	±1000	10 ~ 50
				± 800	51 ~ 100
				± 600	101 ~ 330
				± 400	331 ~ 990
RMH12 (1206)	0.5W	0.704V	1.759V	± 800	10 ~ 50
				± 600	51 ~ 100
				± 500	101 ~ 330
				± 400	331 ~ 990
RMH25 (1210)	0.66W	0.808V	2.021V	± 800	10 ~ 50
				± 600	51 ~ 100
				± 500	101 ~ 330
				± 400	331 ~ 990
RMH1W (2010)	1W	0.995V	2.487V	± 800	10 ~ 50
				± 600	51 ~ 100
				± 500	101 ~ 330
				± 400	331 ~ 990
RMH1WS (1812)	1W	0.995V	2.487V	± 800	10 ~ 50
				± 600	51 ~ 100
				± 500	101 ~ 330
				± 400	331 ~ 990
RMH2W (2512)	2W	1.407V	3.518V	± 800	10 ~ 50
				± 400	51 ~ 990
RMH2WS (1218)	2W	1.407V	3.518V	± 800	10 ~ 50
				± 600	51 ~ 100
				± 500	101 ~ 330
				± 400	331 ~ 990

RATINGS FOR HIGH RESISTANCE >10Meg Ω

Type	Rated Power at 70℃	Max Working Voltage	Max Overload Voltage	T.C.R. (PPM/℃)	Resistance Range (Ω)	
					F(±1%)	J(±5%)
RMH06 (0603)	0.125W	50V	100V	± 200	10.1MΩ ~ 54MΩ	10.1MΩ ~ 100MΩ
RMH10 (0805)	0.25W	150V	300V			
RMH12 (1206)	0.50W	200V	400V			
RMH25 (1210)	0.66W	200V	400V			
RMH1W (2010)	1W	200V	400V			
RMH1WS (1812)	1W	200V	400V			
RMH2W (2512)	2W	250V	500V			
RMH2WS (1218)	2W	250V	500V			

■ CHARACTERISTICS (TYPICAL)

■ 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: ≥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:

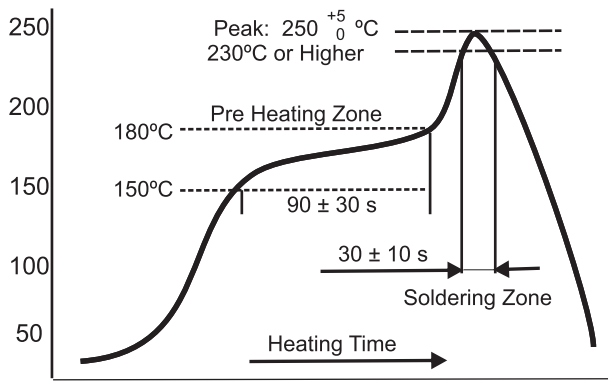
$$E = \sqrt{P \times R}$$

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

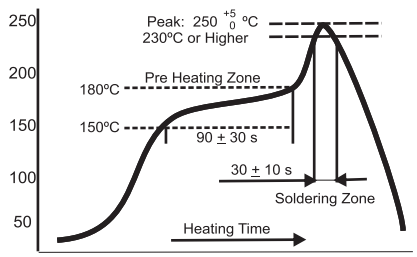
■ OPERATION AND STORAGE TEMPERATURE

Type	Min	Max
Operation Temperature	-55℃	155℃, derating over 70℃
Recommended Storage Temperature	15℃	30℃
Storage Humidity MSL1		<80%

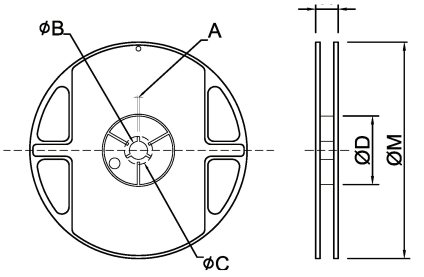
■ SOLDERING PROFILE



■ 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: RMH Series 0402 ' 0603 ' 0805 = 5mm RMH Series 1206 ' 1210 ' 1812 = 3mm RMH Series 1218 ' 2010 ' 2512 = 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

■ PACKAGE & DIMENSION (mm)

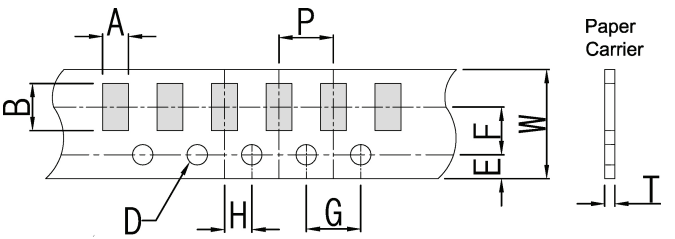


Unit: mm

Type	Size	A	B	C	D	W	M
RMH04(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
RMH06 (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
RMH10 (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
RMH12 (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
RMH25 (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
RMH1W (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
RMH1WS (1812)							
RMH2W (2512)							
RMH2WS (1218)							

■ TAPING SPECIFICATION

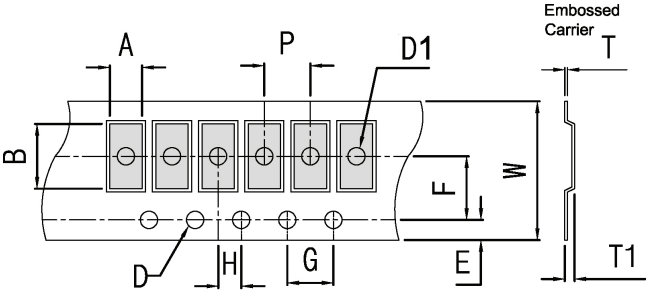
Paper Type
(P= 2.0 ± 0.1)



Unit:mm

Type	A	B	W	E	F	G	H	T	D
RMH04(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
RMH06 (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
RMH10 (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
RMH12 (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
RMH25 (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
RMH1W (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
RMH1WS (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
RMH2W (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
RMH2WS (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