

THICK FILM CHIP RESISTOR GREEN (LEAD FREE)

(RMG SERIES)

Application

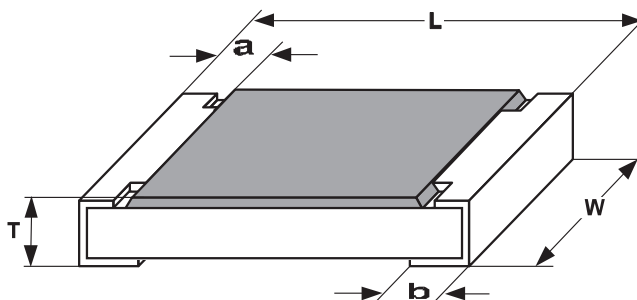
- * Entertainment: Stereo, TV tuners, Tape recorder
- * Appliance: Air Conditioner, Refrigerator
- * Computer & relative products: Main board, PDA
- * Communication equipment: Cell phone, Fax machine
- * Power equipment: Power supply, Illumination equipment
- * Measuring instrument: Electric meter, Navigation equipment



Features

- * Small size and light weight.
- * Reduction of assembly costs and matching with placement machines
- * Reliability, high quality and fast delivery
- * Total lead free
- * RoHS Exemption Free

Dimensional Specifications



Style	Dimensions : mm				
	L	w	T	a	b
RMG-04 0402	1.00 ±0.10	0.50 ±0.05	0.30 ±0.05	0.15 ±0.10	0.20 ±0.10
RMG-06 0603	1.60 ±0.20	0.80 ±0.15	0.40 ±0.10	0.30 ±0.20	0.30 ±0.10
RMG-10 0805	2.00 ±0.10	1.25 ±0.10	0.50 ±0.15	0.30 ±0.15	0.40 ±0.15
RMG-18 1206	3.05 ±0.10	1.60±0.20	0.55 ±0.15	0.40 ±0.20	0.50±0.20
RMG-20 1210	3.05 ±0.10	2.50 ±0.20	0.55 ±0.15	0.50 ±0.20	0.50±0.20
RMG-22 2010	5.00 ±0.20	2.50 ±0.15	0.55 ±0.10	0.60 ±0.20	0.60±0.20
RMG-24 2512	6.30 ±0.10	3.20 ±0.15	0.55 ±0.10	0.60 ±0.20	0.60±0.20
RMG-26 1812	4.50 ±0.10	3.10 ±0.15	0.55 ±0.05	0.55 ±0.20	0.70 ±0.20



Standard Electrical Specifications for Normal Ohm Chip Resistor

Item Type	Rate Power at 70℃	Max working Voltage	Max Overload voltage	T.C.R. (PPM/ ℃)	Reistance Range		
					B (±0.1%) C(±0.25%)	D (±0.5%) F (±1%)	G (±2%) J (±5%)
RMG-04 0402	1/16W	50V	100V	±400	---	1Ω ≤ R < 10Ω	
				±100	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 10MΩ	
RMG-06 0603	1/10W	75V	150V	±100	---	1Ω ≤ R ≤ 10Ω	
				±100	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 10MΩ	
RMG-10 0805	1/8W	150V	300V	±100	---	1Ω ≤ R ≤ 10Ω	
				±100	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 10MΩ	
RMG-18 1206	1/4W	200V	400V	±100	---	1Ω ≤ R ≤ 10Ω	
				±100	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 10MΩ	
RMG-20 1210	1/2W			±100	---	1Ω ≤ R ≤ 10Ω	
				±100	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 10MΩ	
RMG-22 2010	3/4W			±100	---	1Ω ≤ R ≤ 10Ω	
				±100	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 10MΩ	
RMG-24 2512	1W			±100	---	1Ω ≤ R ≤ 10Ω	
				±100	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 10MΩ	
RMG-26 1812	3/4W			±100	---	1Ω ≤ R ≤ 10Ω	
				±100	10Ω ≤ R ≤ 1MΩ	10Ω ≤ R ≤ 10MΩ	

- For non standard parts, please contact our sales dept.

- Operating Temperature Range: -55°C ~ +155°C

Type	0402	0603	0805	1206	1210	1812	2010	2512
Jumper Resistance Value	50mΩ Max							
Jumper Rated Current	1A			2A				
Max. Over Load Current <1 second and 1 times	3A			10A				

Standard Electrical Specifications for High Ohm Chip Resistor

TYPE	Rate Power at 70℃	Max working Voltage	Max Overload voltage	T.C.R. (PPM/ ℃)	Reistance Range	
					F (±1%)	J (±5%)
RMG-04	1/16W	50V	100V	±100	10.1MΩ ~ 30MΩ	10.1MΩ ~ 30MΩ
RMG-06	1/10W	75V	150V			
RMG-10	1/8W	150V	300V			
RMG-18	1/4W	200V	400V			
RMG-20	1/2W					
RMG-22	3/4W					
RMG-24	1W					

- For non standard parts, please contact our sales dept.

- Operating Temperature Range: -55°C ~ +155°C

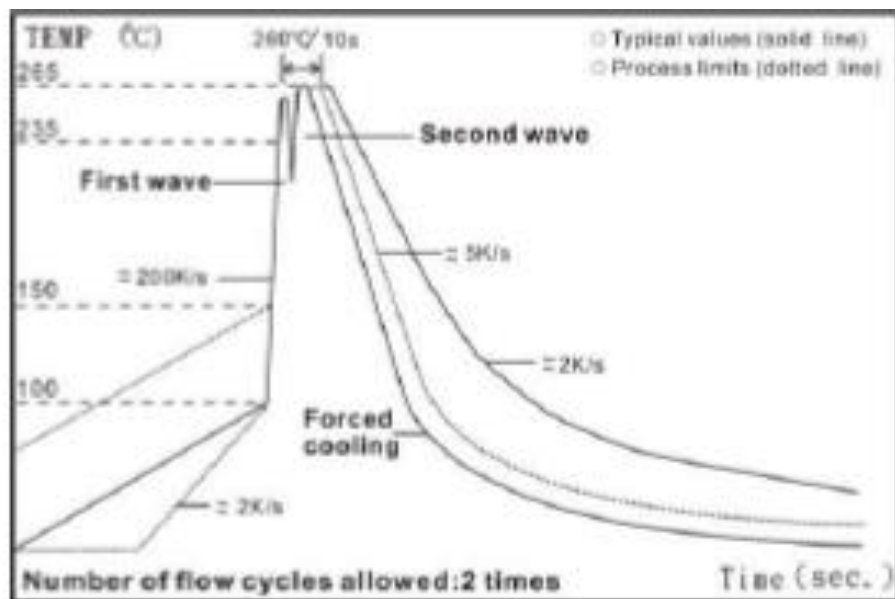


Reliability Test and Requirement

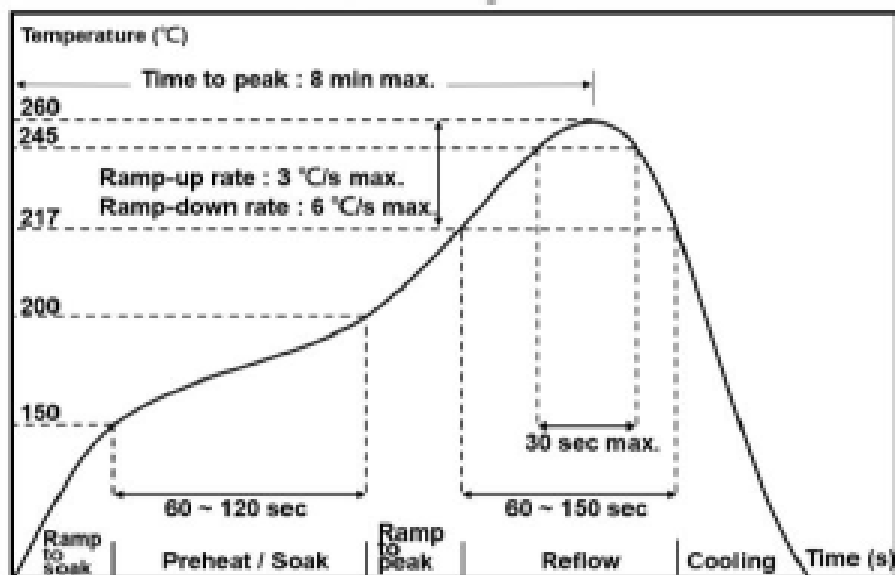
Test Item	Test Method	Procedure	Requirements
Temperature Coefficient of Resistance (T.C.R.)	JIS C 5201-1 4.8 IEC-60115-1 4.8	At 25/-55°C and 25°C / +155°C, 25°C is the reference temperature	As Spec.
Short Time Overload	JIS C 5201-1 4.13 IEC-60115-1 4.13	2.5 times RCWV or Max. Overload voltage whichever is less for 5 seconds. Jumper: Over Load Current for 5 seconds 0402/0603=2.5A 0805/1206/1210/2010//2512/1812=5A	1% and below : $\pm(1.0\%+0.05\Omega)$ 2%, 5% : $\pm(2.0\%+0.10\Omega)$ Jumper: Max 0.05 Ω after test
Leaching	JIS-C-5201-1 4.18 IEC-60068-2-58 8.2.1	260 $\pm$ 5°C for 30 seconds	Individual Leaching area $\leq$ 5% Total Leaching area $\leq$ 10%
Resistance to Soldering Heat	JIS C 5201-1 4.18 IEC-60115-1 4.18	260 $\pm$ 5°C for 10 seconds	1% and below : $\pm(0.5\%+0.05\Omega)$ 2%, 5% : $\pm(1.0\%+0.05\Omega)$
Rapid Change of Temperature	JIS C 5201-1 4.19 IEC-60115-1 4.19	-55°C to +155°C, 5 cycles	1% and below : $\pm(0.5\%+0.05\Omega)$ 2%, 5% : $\pm(1.0\%+0.10\Omega)$
Resistance to Solvent	JIS C 5201-1 4.29	The tested resistor be immersed into isopropyl alcohol of 20-25°C for 60 secs. Then the resistor is left in the room for 48 hrs.	1% and below : $\pm(0.5\%+0.05\Omega)$ 2%, 5% : $\pm(0.5\%+0.05\Omega)$ Jumper: Max 0.05 Ω after test
Damp Heat with Load	JIS C 5201-1 4.24 IEC-60115-1 4.24	40 $\pm$ 2°C, 90~95% R.H. RCWV or Max. working voltage whichever is less for 1000hrs with 1.5hrs "ON" and 0.5hr "OFF"	1% and below : $\pm(1.0\%+0.05\Omega)$ 2%, 5% : $\pm(2.0\%+0.05\Omega)$ Jumper: Max 0.1 Ω after test
Load Life (Endurance)	JIS C 5201-1 4.25 IEC-60115-4 4.25.1	70 $\pm$ 2°C, RCWV or Max. working voltage whichever is less for 1000hrs with 1.5hrs "ON" and 0.5hr "OFF"	1% and below : $\pm(1.0\%+0.05\Omega)$ 2%, 5% : $\pm(3.0\%+0.1\Omega)$ Value <1 Ω : $\pm(3.0\%+0.1\Omega)$ Jumper: Max 0.1 Ω after test
Insulation Resistance	JIS-C-5201-1 4.6 IEC-60115-1 4.6	Apply 100VDC for 1 minute	$\geq$ 10G Ω
Bending Strength	JIS C 5201-1 4.33 IEC-60115-1 4.33	Bending once for 5 seconds D: 0402、0603、0805=5mm 1206、1210、1812=3mm 2010、2512=2mm	1% and below : $\pm(1.0\%+0.05\Omega)$ 2%, 5% : $\pm(1.0\%+0.05\Omega)$

Recommended Customer Soldering Parameters

※ Wave solder Temperature condition



※ Solder reflow Temperature condition



* Rework temperature (Solder Iron): 350°C , 3~5 seconds

* Recommended reflow methods

IR, vapor phase oven, hot air oven.

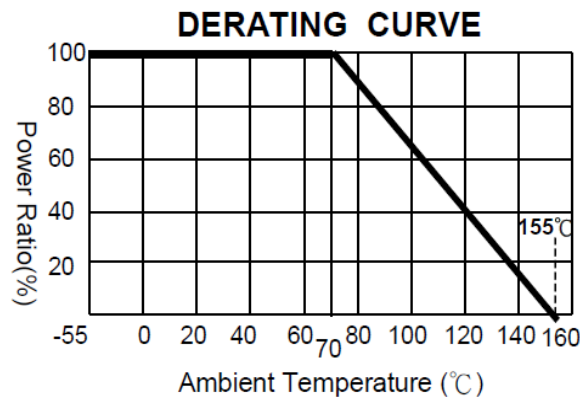
If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements



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:

$$E(RCWV) = \sqrt{P \times R}$$

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

Parts Number System

RMG -	10 -	1002	F	R
Type RMG series: Thick Film chip resistors Green (Lead Free)	Size 04=0402 06=0603 10=0805 18=1206 20=1210 22=2010 24=2512 26=1812	Resistance Please refer to marking explanation. 000=Jumper 0 ohm	Tolerance B = $\pm 0.1\%$ D = $\pm 0.5\%$ F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$	Standard Packing R=Paper tape reel 10Kpcs/Reel size: 0402 5Kpcs/Reel size: 0603~1210 K=Embossed plastic tape reel 4Kpcs/Reel size: 2010~2512

- 5% tolerance: 3 digits, first 2 digits are significant figure, Third digit is number of zeros, Letter R is decimal point.
- 1% tolerance: 4 digits, first three digits are significant figure, Forth digit is number of zeros, Letter R is decimal point.