Metal Strip Resistor
Low Ohmic

multicomp PRO

RoHS Compliant

Scope: This specification for approval relates to Metal Strip Chip Resistors

Type designation: The type designation shall be in the following form:

Type	Power Rating	Resistance tolerance	Nominal Resistance
MPR12 (2512)	2W	F, J	15mΩ

Ratings:

Type	MPR12 (2512)		
Power Rating	1W	2W	3W
Resistance Range	1mΩ ~ 100mΩ		2mΩ, 10mΩ~100mΩ
Temperature Range	-55°C to +170°C		
Ambient Temperature	70°C		

Voltage rating:
Resistors shall have a rated direct-current (DC) continuous working voltage or an approximate sine-wave root-mean-square (RMS) alternating-current (AC) continuous working voltage at commercialline frequency and waveform corresponding to the power rating , as determined from the following formula :

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

Note : Max. Working Voltage or $\sqrt{P \times R}$ whichever is lesser

Max. Overload Voltage or 2.5 $\sqrt{P \times R}$ whichever is lesser

Where : RCWV = Rated DC or RMS AC continuous working voltage at commercial-line frequency and waveform (volt)

P = Power Rating (watt)

R = Nominal Resistance (ohm)

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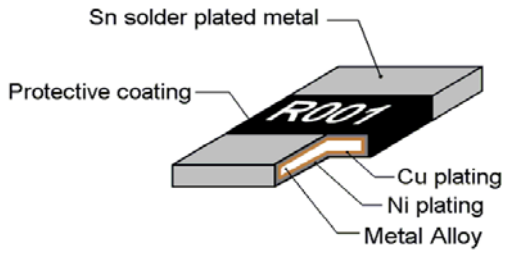
Construction

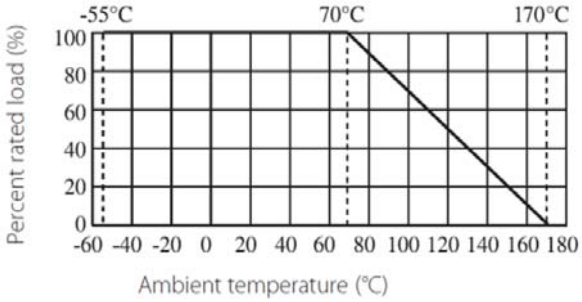


Power rating and dimensions

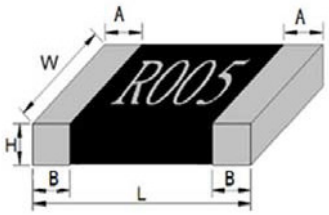
Power rating

Resistors shall have a power rating based on continuous load operation at an ambient temperature of 70°C. For temperature in excess of 70°C , The load shall be derate as shown in figure 1.

Figure 1

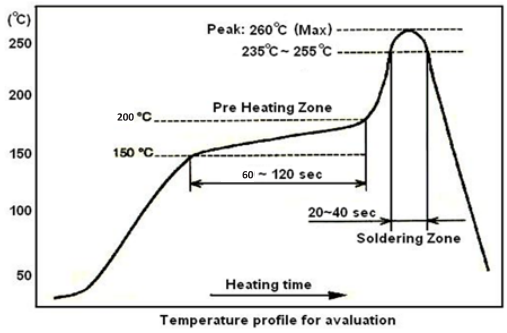
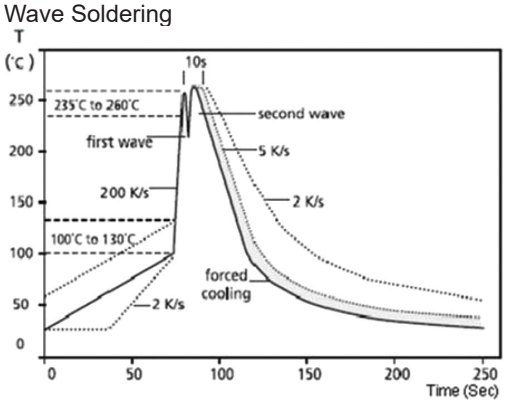


Type	Power Rating at 70°C	Tolerance %	TCR (PPM/°C)	Resistance value (mΩ)
MPR12 (2512)	1W	±1%, ±5%	±50ppm/°C	1 ~ 100
	2W			2
	3W			10 ~ 100



Type	Power Rating at 70°C	Resistance Value (mΩ)	Dimension				
			L	W	H	A	B
MPR12 (2512)	1W & 2W	1 , 2	6.35±0.25	3.18±0.25	0.7 ±0.2	1.8 ±0.2	1.8 ±0.2
		3 ~ 25				0.9 ±0.3	0.9 ±0.3
		26 ~ 100			0.7 ±0.3		
	3W	2			0.7 ±0.2	1.8 ±0.2	1.8 ±0.2
		10 ~ 100			0.7 ±0.3	0.9 ±0.3	0.9 ±0.3

Performance specification

Characteristics	Limits	Test Methods (JIS C 5201-1)
Temperature coefficient	Refer to item 5.	Natural resistance change per temp. degree centigrade. $\frac{R2-R1}{R1(t2-t1)} \times 10^6$ (PPM/°C) R1: Resistance value at room temperature (t1) R2: Resistance at test temperature (Upper limit temperature or Lower limit temperature) t1: +25°C or specified room temperature t2: Upper limit temperature or Lower limit temperature test temperature
Short Time Overload	ΔR ≤ ± 0.5%	The number of rated power are as follows : MPR12-1W: 5 times of rated power MPR12-2W: 5 times of rated power MPR12-3W: 4 times of rated power
Soldering Heat	ΔR/R1 ≤ ± 0.5%	Dip the resistor into a solder bath having a temperature of 260°C ±5°C and hold it for 10 seconds
Solderability	> 95 % coverage	Test temperature of solder : 245 ± 3°C Dipping them solder : 2-3 seconds Reflow  Temperature profile for avaluation Wave Soldering 

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Characteristics	Limits	Test Methods (JIS C 5201-1)
High Temperature Exposure	ΔR ≤ ±1%	Exposed to a temperature of 170±2°C for 1000 hours MIL-STD-202 108A
Biased Humidity	ΔR ≤ ±0.5%	1000 hours 85°C/85%RH. Note: Specified conditions:10% of operating power. Measurement at 24±4 hours after test conclusion. MIL-STD-202 Method 103
Dielectric Withstanding Voltage	No short or burned on the appearance	Applied 500V AC for 1 minute, and Limit surge current 50 mA(max)
Resistance to Solder Heat	ΔR ≤ ±0.5%	Dip the resister into a temperature of 260±5°C and hold it for a 10±1 seconds.
Terminal Strength	No broken	5N, 10 seconds
Load Life	ΔR≤±1%	Permanent Resistance change after 1000 hours operating at rated working current or Max .Working Current whichever less with working current or Max .Working Current whichever less with duty cycle of 1.5hours “ON”, 0.5 hour 4 “OFF” at 70±2°C ambient.
Terminal bending	ΔR ≤ ±0.5%	2mm, 10Sec
Rapid Change of Temperature	ΔR ≤ ±0.5%	30 min at -55°C and 30 min at 155°C; 100 cycles

Part Number Table

Description	Part Number
Resistor, 1W, 1%, 0.003R	MPR121WF300NT4E
Resistor, 1W, 1%, 0.01R	MPR121WF100MT4E
Resistor, 1W, 1%, 0.02R	MPR121WF200MT4E
Resistor, 2W, 1%, 0.001R	MPR122WF100NT4E
Resistor, 2W, 1%, 0.002R	MPR122WF200NT4E
Resistor, 2W, 1%, 0.003R	MPR122WF300NT4E
Resistor, 2W, 1%, 0.004R	MPR122WF400NT4E
Resistor, 2W, 1%, 0.005R	MPR122WF500NT4E
Resistor, 2W, 1%, 0.008R	MPR122WF800NT4E
Resistor, 2W, 1%, 0.012R	MPR122WF120MT4E
Resistor, 2W, 1%, 0.015R	MPR122WF150MT4E
Resistor, 2W, 1%, 0.01R	MPR122WF100MT4E
Resistor, 2W, 1%, 0.03R	MPR122WF300MT4E
Resistor, 2W, 1%, 0.033R	MPR122WF330MT4E
Resistor, 2W, 1%, 0.04R	MPR122WF400MT4E

Description	Part Number
Resistor, 2W, 1%, 0.06R	MPR122WF600MT4E
Resistor, 2W, 1%, 0.075R	MPR122WF750MT4E
Resistor, 2W, 1%, 0.08R	MPR122WF800MT4E
Resistor, 2W, 1%, 0.1R	MPR122WF100LT4E
Resistor, 2W, 1%, 0.12R	MPR122WF120LT4E
Resistor, 2W, 1%, 0.15R	MPR122WF150LT4E
Resistor, 2W, 5%, 0.005R	MPR122WJ050MT4E
Resistor, 2W, 5%, 0.02R	MPR122WJ020LT4E
Resistor, 2W, 5%, 0.04R	MPR122WJ040LT4E
Resistor, 2W, 5%, 0.05R	MPR122WJ050LT4E
Resistor, 2W, 5%, 0.1R	MPR122WJ010KT4E
Resistor, 3W, 1%, 0.002R	MPR123WF200NT4E
Resistor, 3W, 1%, 0.005R	MPR123WF500NT4E
Resistor, 3W, 1%, 0.01R	MPR123WF100MT4E
Resistor, 3W, 1%, 0.02R	MPR123WF200MT4E
Resistor, 3W, 1%, 0.1R	MPR123WF100LT4E