Chip resistor networks

MNR15 (1608×5 size)

●Features

1) Suitable for pull-up and pull-down resistors.
2) No direction to be mounted by placing common electrode with symmetry.
3) Convex electrodes
   Easy to check the fillet after soldering is finished.
4) High-density mounting
   Can be mounted even densely than eight 1005 chips (MCR01), and mounting costs are lower.
5) Compatible with a wide range of mounting machines.
   Squared corners make it excellent for mounting using image recognition machines.
6) ROHM resistors have approved ISO-9001 certification.
   Design and specifications are subject to change without notice. Carefully check the specification sheet supplied with the product before using or ordering it.

●Ratings

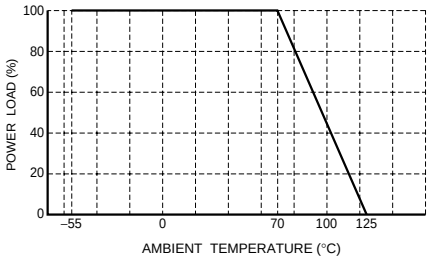
Item	Conditions	Specifications	
Rated power	Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  Fig.1	0.031W (1 / 32W) at 70°C	
Rated voltage	The voltage rating is calculated by the following equation. If the value obtained exceeds the limiting element voltage, the voltage rating is equal to the maximum operating voltage. $E = \sqrt{P \times R}$ E : Rated voltage (V) P : Rated power (W) R : Nominal resistance (Ω)	Limiting element voltage	12.5V
Nominal resistance	See Table 1.		
Operating temperature		−55°C~+125°C	

Table 1

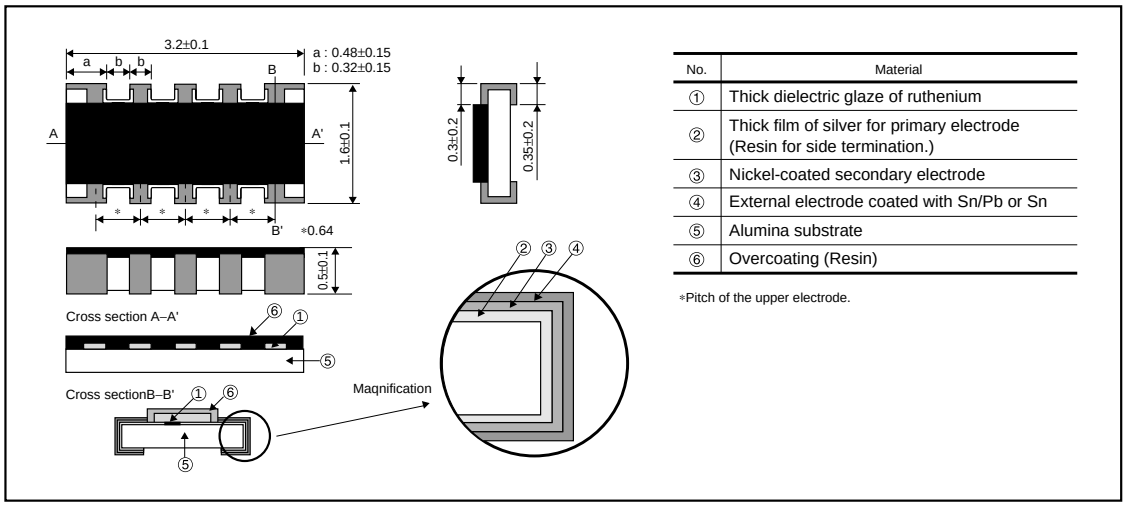
Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
J (±5%)	56≤R≤100k (E24)	±200

*Before using components in circuits where they will be exposed to transients such as pulse loads(short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady state voltage that is greater than its rated voltage.

●Characteristics

Item	Guaranteed value Resistor type	Test conditions (JIS C 5201-1)
Resistance	J : ±5%	JIS C 5201-1 4.5
Variation of resistance with temperature	See Table.1	JIS C 5201-1 4.8 Measurement : –55 / +25 / +125°C
Overload	± (2.0%+0.1Ω)	JIS C 5201-1 4.13 Rated voltage×2.5, 2s. Limiting element voltage×2 : 25V
Solderability	A new uniform coating of minimum of 95% of the surface being immersed and no soldering damage.	JIS C 5201-1 4.17 Rosin·Ethanol (25%WT) Soldering condition : 235±5°C Duration of immersion : 2.0±0.5s.
Resistance to soldering heat	± (1.0%+0.05Ω) No remarkable abnormality on the appearance.	JIS C 5201-1 4.18 Soldering condition : 260±5°C Duration of immersion : 10±1s.
Rapid change of temperature	± (1.0%+0.05Ω)	JIS C 5201-1 4.19 Test temp. : –55°C~+125°C 5cyc
Damp heat, steady state	± (3.0%+0.1Ω)	JIS C 5201-1 4.24 40°C, 93%RH Test time : 1,000h~1,048h
Endurance at 70°C	± (3.0%+0.1Ω)	JIS C 5201-1 4.25.1 Rated voltage, 70°C 1.5h : ON – 0.5h : OFF Test time : 1,000h~1,048h
Endurance	± (3.0%+0.1Ω)	JIS C 5201-1 4.25.3 125°C Test time : 1,000h~1,048h
Resistance to solvent	± (1.0%+0.05Ω)	JIS C 5201-1 4.29 23±5°C, Immersion cleaning, 5±0.5min. Solvent : 2-propanol
Bend strength of the end face plating	± (1.0%+0.05Ω) Without mechanical damage such as breaks.	JIS C 5201-1 4.33

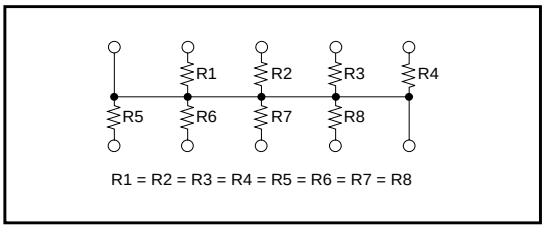
●External dimensions (Units : mm)



No.	Material
①	Thick dielectric glaze of ruthenium
②	Thick film of silver for primary electrode (Resin for side termination.)
③	Nickel-coated secondary electrode
④	External electrode coated with Sn/Pb or Sn
⑤	Alumina substrate
⑥	Overcoating (Resin)

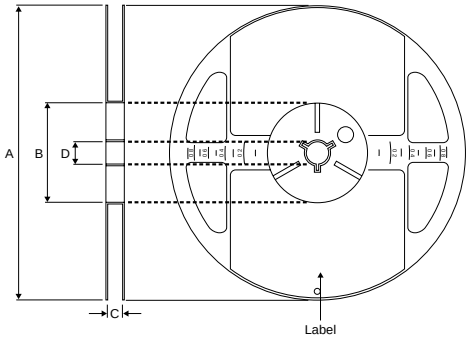
*Pitch of the upper electrode.

●Equivalent circuit



●Packaging

Reel

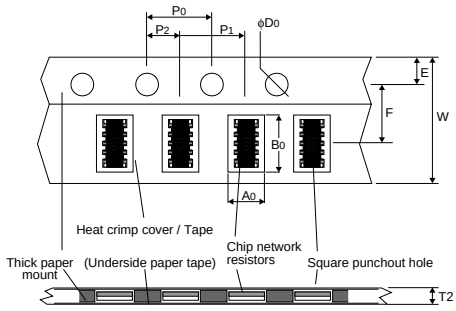


EIAJ ET-7200A compliant

(Units: mm)

A	B	C	D
$\phi 180^{\ 0}_{-3}$	$\phi 60^{+1}_{\ 0}$	$9^{+1.0}_{\ 0}$	$\phi 13 \pm 0.2$

Taping



(Units: mm)

W	F	E	A_0	B_0
8.0±0.3	3.5±0.05	1.75±0.1	1.8±0.1	3.4±0.1
D_0	P_0	P_1	P_2	T_2
$\phi 1.5^{+0.1}_{\ 0}$	4.0±0.1	4.0±0.1	2.0±0.05	Max. 1.1

●Product designation

Part No.

M	N	R	1	5	E	0	R	P	J			

Packaging / Processing specifications

Circuit configuration code

Resistance tolerance

Nominal resistance

Code	Part No.	Packaging	Package style
E0	MNR15	Taping	Paper tape with reel (5,000)

RP	MNR15

J	±5%

3-digit IEC coding system

●Electrical characteristics

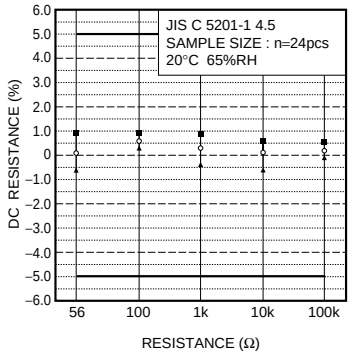


Fig.2 Resistance

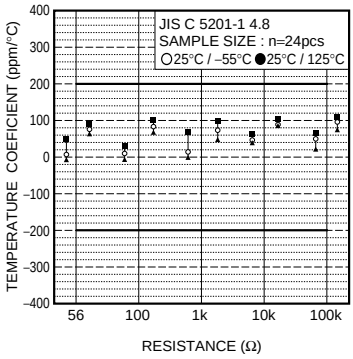


Fig.3 Vatiation resistance with temperature

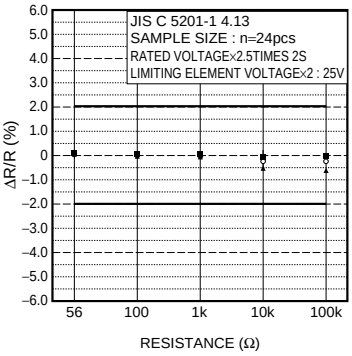


Fig.4 Overload

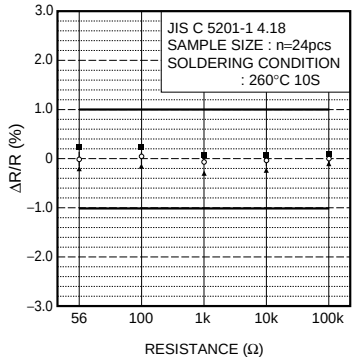


Fig.5 Resistance to soldering heat

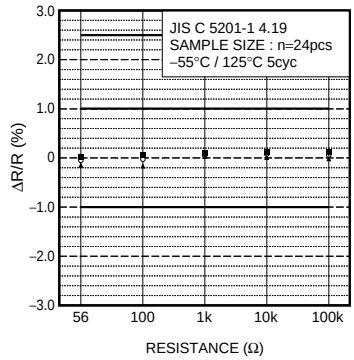


Fig.6 Rapid change of temperature

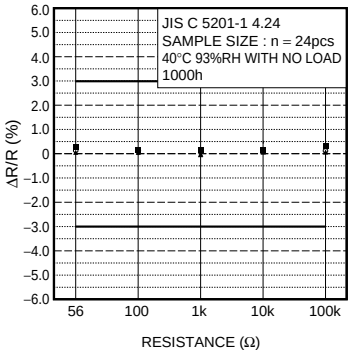


Fig.7 Damp heat, steady state

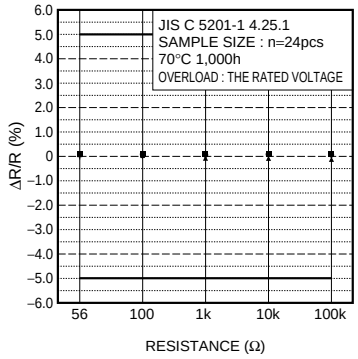


Fig.8 Endurance at 70°C

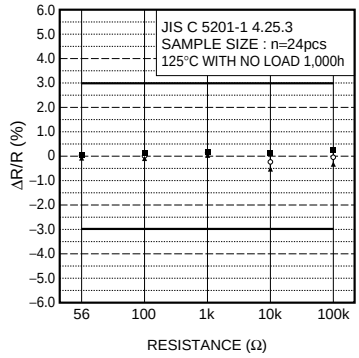


Fig.9 Endurance