Chip resistor networks

MNR15 (0603×5 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 0402chips (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

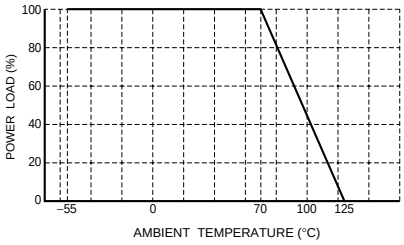
Item	Conditions	Specifications
Rated power	Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  Fig.1	0.031W (1 / 32W) at 70°C
Rated voltage	The voltage rating is calculated by the following equation. If the value obtained exceeds the limiting 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 to +125°C

Table 1

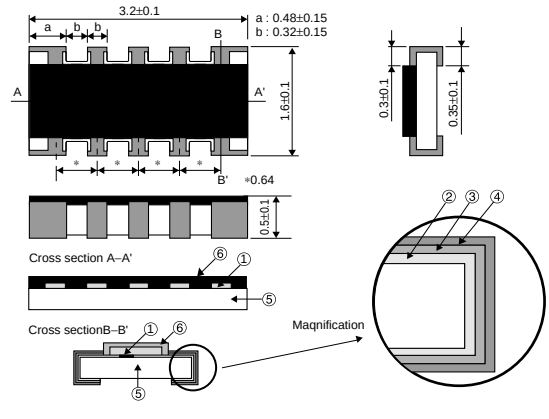
Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
J (±5%)	56≤R≤100k (E24)	±200

※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 : +25 / +125°C
Overload	± (2.0%+0.1Ω)	JIS C 5201-1 4.13 Rated voltage×2.5, 2s. Maximum Overload Voltage : 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 to +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 to 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 to 1,048h
Endurance	± (3.0%+0.1Ω)	JIS C 5201-1 4.25.3 125°C Test time : 1,000h to 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

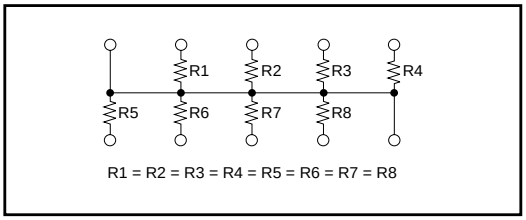
●External dimensions (Unit : mm)



No.	Material
①	Thick dielectric glaze of oxide metal
②	Thick film of silver for electrode
③	Nickel-coated electrode
④	External electrode coated with Sn
⑤	Alumina substrate
⑥	Overcoating (Resin)

∗Pitch of the upper electrode.

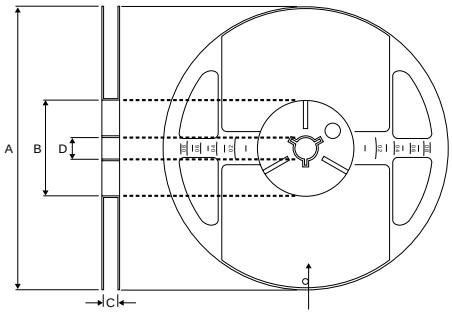
●Equivalent circuit



R1 = R2 = R3 = R4 = R5 = R6 = R7 = R8

●Packaging

Reel

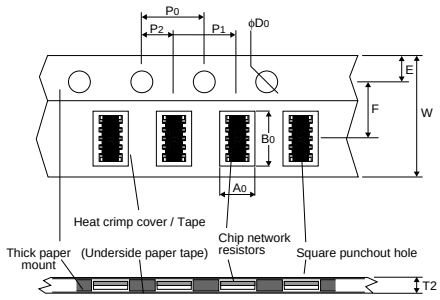


EIAJ ET-7200B compliant

(Unit: mm)

A	B	C	D
$\phi 180^{\ 0}_{-1.5}$	$\phi 60^{+1}_{\ 0}$	$9^{+1.0}_{\ 0}$	$\phi 13 \pm 0.2$

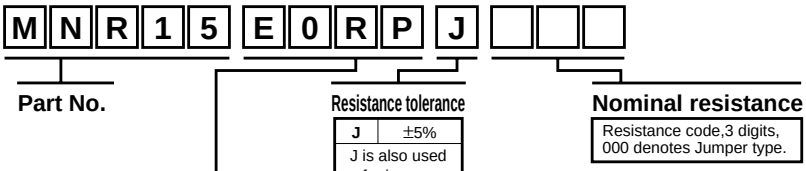
Taping



(Unit : 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.

Resistance tolerance

J	±5%

J is also used for jumper

Nominal resistance

Resistance code,3 digits, 000 denotes Jumper type.

Packaging Specifications Code

Part No.	Code	Resistance tolerance J(±5%)	Packaging specifications	Reel	Basic ordering unit (pcs)
MNR15	E0RP	◎	Paper tape (4mm Pitch)	φ180mm (7in.)	5,000

Reel (φ180) : JEITA ET-7200B
◎ : Standard product

●Electrical characteristics

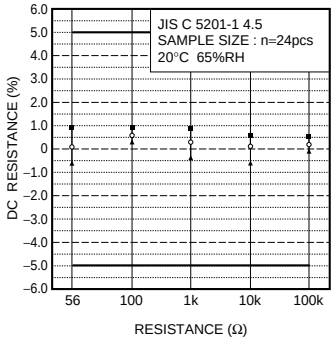


Fig.2 Resistance

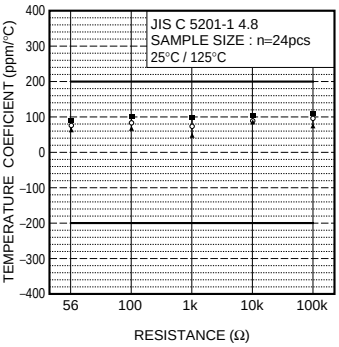


Fig.3 Vatiation resistance with temperature

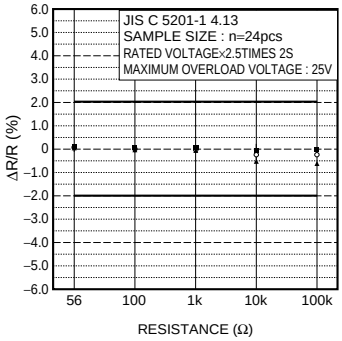


Fig.4 Overload

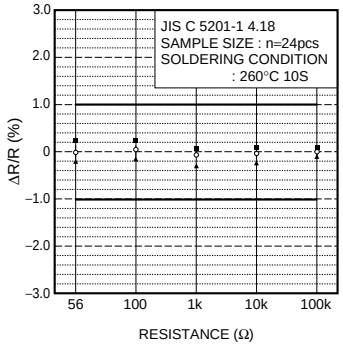


Fig.5 Resistance to soldering heat

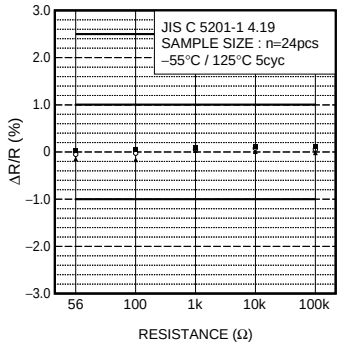


Fig.6 Rapid change of temperature

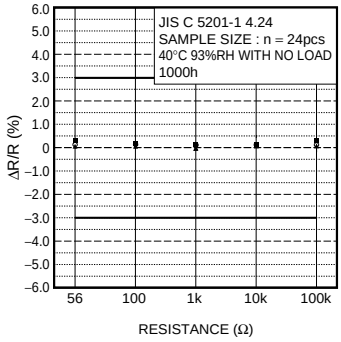


Fig.7 Damp heat, steady state

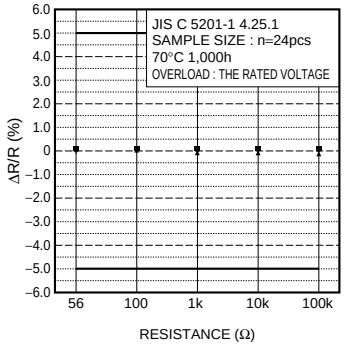


Fig.8 Endurance at 70°C

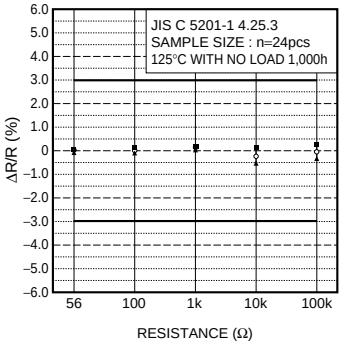


Fig.9 Endurance

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