

Resistors

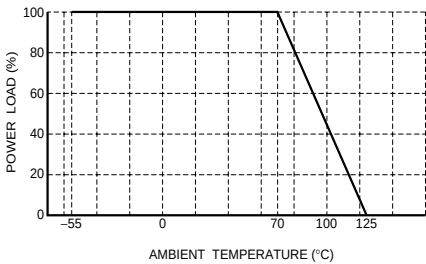
Chip resistor networks

MNR14 (0603×4 size)

●Features

- 1) Convex electrodes
Easy to check the fillet after soldering is finished.
- 2) Small, light, rectangular 4-chip network
Area ratio is 65% smaller than that of MNR34, while weight ratio has been cut 75%.
- 3) High-density mounting
Can be mounted even more densely than four 0603 chips (MCR03), and mounting costs are lower.
- 4) Compatible with a wide range of mounting equipment.
Squared coners make it excellent for mounting using image recognition machines.
- 5) 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	0.063W (1 / 16W) 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 50V
Nominal resistance	See Table 1.	
Operating temperature		-55°C to +125°C

Jumper type

Resistance	Max. 50mΩ
Rated current	1A
Operating temperature	-55°C to +125°C

Table 1

Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
J (±5%)	2.2≤R≤6.8 (E6)	±500
	10≤R≤1M (E24)	±200
F (±1%)	10≤R≤1M (E24)	±100

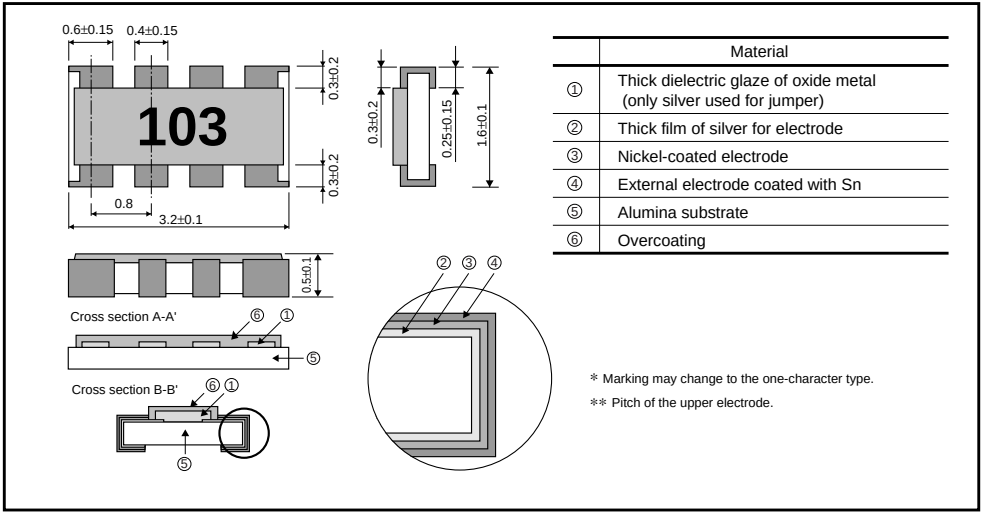
●Before using components in circuits where they will be exposed to transients such as pulse loads (short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady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

Resistors

●Characteristics

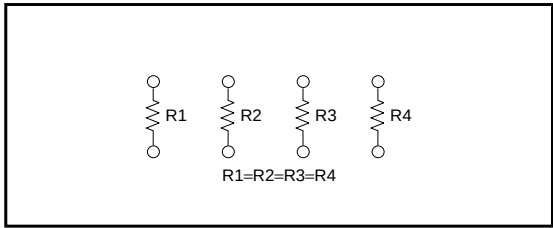
Item	Guaranteed value		Test conditions (JIS C 5201-1)
	Resistor type	Jumper type	
Resistance	J : $\pm 5\%$ F : $\pm 1\%$	Max. 50m Ω	JIS C 5201-1 4.5
Variation of resistance with temperature	See Table.1		JIS C 5201-1 4.8 Measurement : $-55 / +25 / +125^{\circ}\text{C}$
Overload	$\pm (2.0\%+0.1\Omega)$	Max. 50m Ω	JIS C 5201-1 4.13 Rated voltage (current) $\times 2.5$, 2s. Maximum Overload Voltage : 100V
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 : $235\pm 5^{\circ}\text{C}$ Duration of immersion : $2.0\pm 0.5\text{s}$.
Resistance to soldering heat	$\pm (1.0\%+0.05\Omega)$ No remarkable abnormality on the appearance.	Max. 50m Ω	JIS C 5201-1 4.18 Soldering condition : $260\pm 5^{\circ}\text{C}$ Duration of immersion : $10\pm 1\text{s}$.
Rapid change of temperature	$\pm (1.0\%+0.05\Omega)$	Max. 50m Ω	JIS C 5201-1 4.19 Test temp. : -55°C to $+125^{\circ}\text{C}$ 5cyc
Damp heat, steady state	$\pm (3.0\%+0.1\Omega)$	Max. 100m Ω	JIS C 5201-1 4.24 40°C , 93%RH Test time : 1,000h to 1,048h
Endurance at 70°C	$\pm (3.0\%+0.1\Omega)$	Max. 100m Ω	JIS C 5201-1 4.25.1 Rated voltage (current), 70°C 1.5h : ON – 0.5h : OFF Test time : 1,000h to 1,048h
Endurance	$\pm (3.0\%+0.1\Omega)$	Max. 100m Ω	JIS C 5201-1 4.25.3 125°C Test time : 1,000h to 1,048h
Resistance to solvent	$\pm (1.0\%+0.05\Omega)$	Max. 50m Ω	JIS C 5201-1 4.29 $23\pm 5^{\circ}\text{C}$, Immersion cleaning, $5\pm 0.5\text{min}$. Solvent : 2-propanol
Bend strength of the end face plating	$\pm (1.0\%+0.05\Omega)$ Without mechanical damage such as breaks.	Max. 50m Ω	JIS C 5201-1 4.33

●Dimensions (Unit : mm)

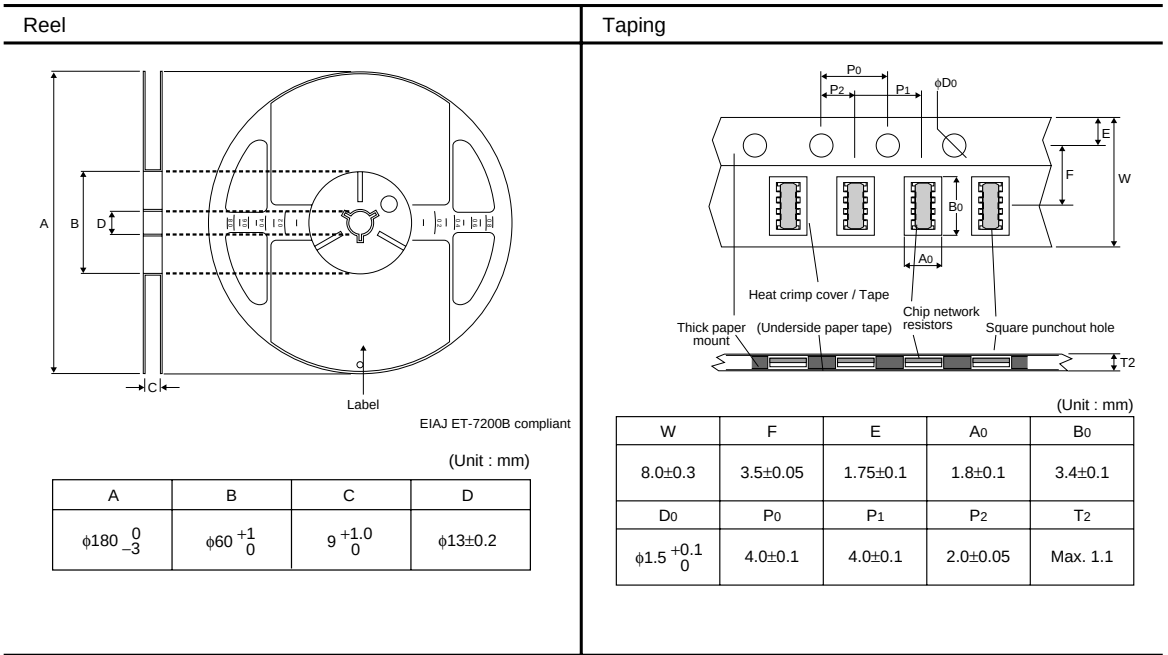


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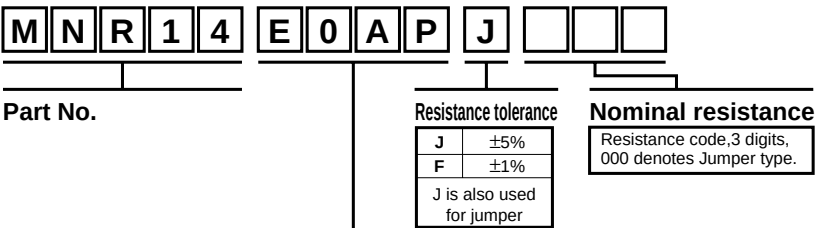
●Equivalent circuit



●Packaging



●Part No. Explanation



Packaging Specifications Code

Part No.	Code	Resistance tolerance		Packaging specifications	Reel	Basic ordering unit (pcs)
		J($\pm 5\%$)	J($\pm 5\%$)			
MNR14	E0AP	⊙	⊙	Paper tape (4mm Pitch)	φ180mm (7in.)	5,000

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

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●Electrical characteristics

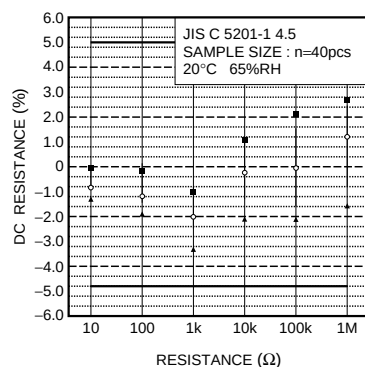


Fig.2 Resistance

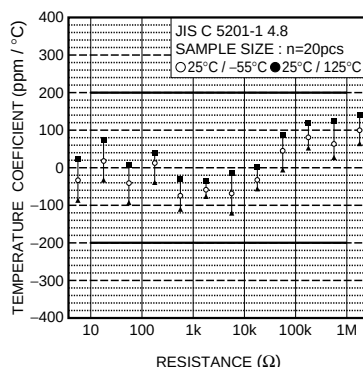


Fig.3 Variation resistance with temperature

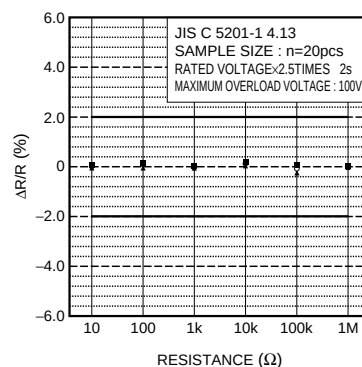


Fig.4 Overload

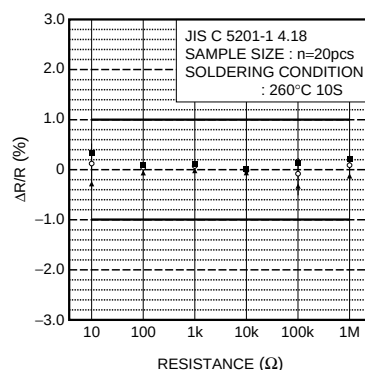


Fig.5 Resistance to soldering heat

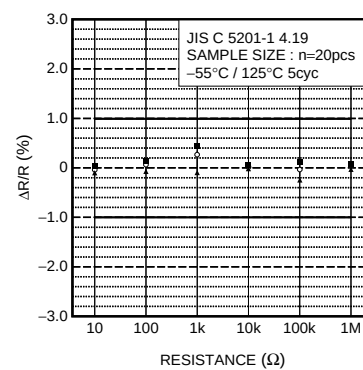


Fig.6 Rapid change of temperature

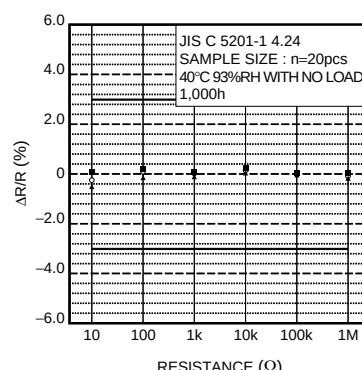


Fig.7 Damp heat, steady state

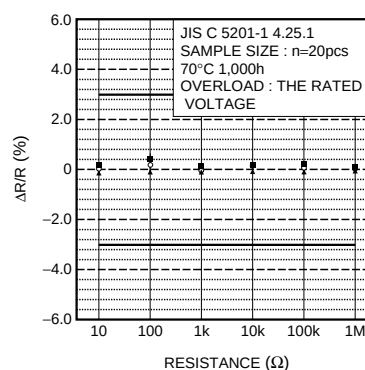


Fig.8 Endurance at 70°C

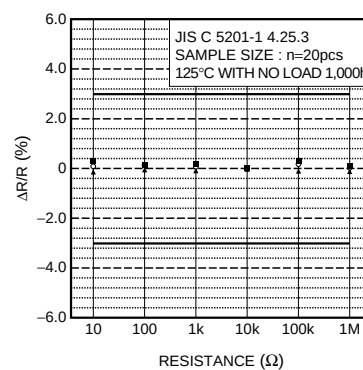


Fig.9 Endurance

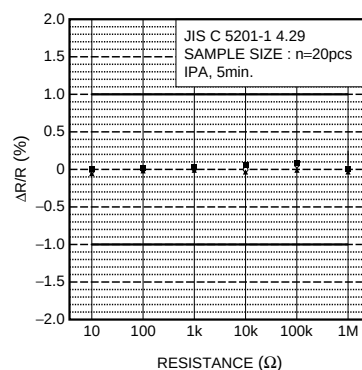


Fig.10 Resistance to solvents

Appendix

Notes

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