

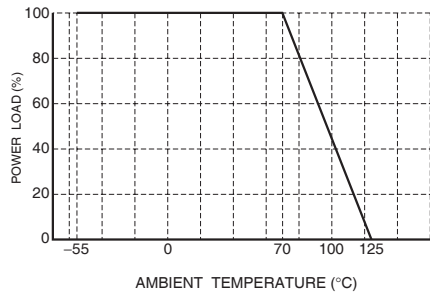
Compact Chip Resistor Networks

MNR12 (0603×2 size)

Features

- 1) Convex electrodes
Easy to check the fillet after soldering is finished.
- 2) Small, light, rectangular 2-chip network
Area ratio is 65% smaller than that of MNR32, while weight ratio has been cut 75%.
- 3) High-density mounting
Can be mounted even more densely than two 0603 chips (MCR03), and mounting costs are lower.
- 4) Compatible with a wide range of mounting equipment.
Squared corners make it excellent for mounting using image recognition devices.
- 5) ROHM resistors have approved ISO9001- / ISO/TS 16949- 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	<p>Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.</p>  <p style="text-align: center;">Fig.1</p>	0.063W (1 / 16W) at 70°C
Rated voltage	<p>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.</p> $E = \sqrt{P \times R}$ <p>E: Rated voltage (V) P: Rated power (W) R: Nominal resistance (Ω)</p>	Limiting element voltage 50V
Nominal resistance	See Table 1.	
Operating temperature		-55°C to +155°C

Jumper type

Resistance	Max. 50mΩ
Rated current	1A
Operating temperature	-55°C to +155°C

Table 1

Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
J (±5%)	10 to 1M (E24)	±200
F (±1%)	10 to 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.

●Characteristics

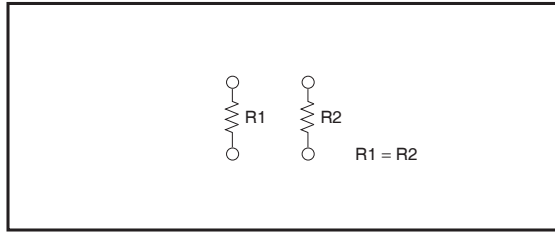
Item	Guaranteed value		Test conditions (JIS C 5201-1)
	Resistor type	Jumper type	
Resistance	J : ±5% F : ±1%	Max. 50mΩ	JIS C 5201-1 4.5
Variation of resistance □ with temperature	See Table.1		JIS C 5201-1 4.8□ Measurement : -55 / +25 / +125°C
Overload	± (2.0%+0.1Ω)	Max. 50mΩ	JIS C 5201-1 4.13□ Rated voltage (current) ×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±5°C□ Duration of immersion : 2.0±0.5s.
Resistance to □ soldering heat	± (1.0%+0.05Ω) No remarkable abnormality on the appearance.	Max. 50mΩ	JIS C 5201-1 4.18□ Soldering condition : 260±5°C□ Duration of immersion : 10±1s.
Rapid change of □ temperature	± (1.0%+0.05Ω)	Max. 50mΩ	JIS C 5201-1 4.19□ Test temp. : -55°C to +125°C 5cyc
Damp heat, steady state	± (3.0%+0.1Ω)	Max. 50mΩ	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)	Max. 50mΩ	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	± (3.0%+0.1Ω)	Max. 50mΩ	JIS C 5201-1 4.25.3□ 125°C□ Test time : 1,000h to 1,048h
Resistance to solvent	± (1.0%+0.05Ω)	Max. 50mΩ	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.	Max. 50mΩ	JIS C 5201-1 4.33

●Dimensions (Unit : mm)

No.	Material
①	Resistive element (Oxide metal thick film)
②	Silver thick film electrode
③	Nickel electrode
④	Sn electrode
⑤	Alumina substrate
⑥	Overcoating (Resin)

* Making may change to the one-character type.
** Pitch of the upper electrode.

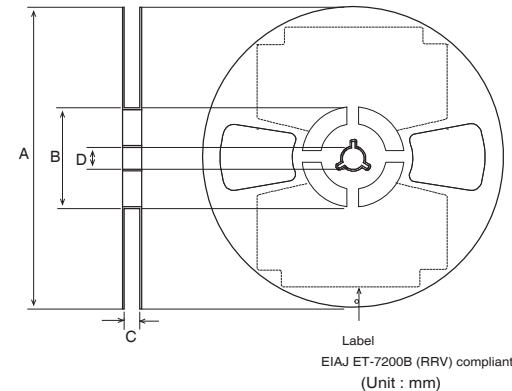
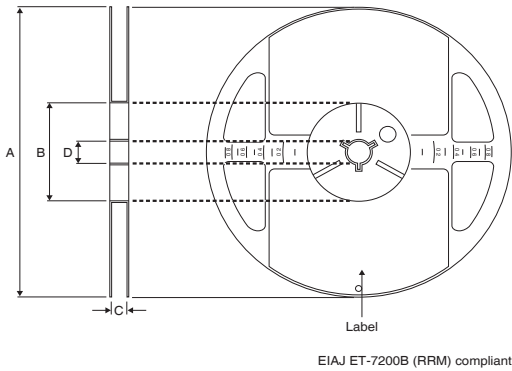
●Equivalent circuit



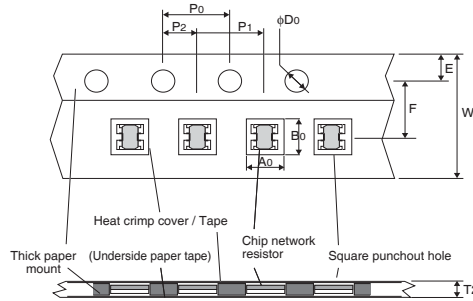
●Packaging

Reel

Taping



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



(Unit : mm)

W	F	E	A0	B0
8.0±0.3	3.5±0.05	1.75±0.1	1.8±0.1	1.8±0.1
D0	P0	P1	P2	T2
$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	4.0±0.1	4.0±0.1	2.0±0.05	Max. 1.1

●Part No. Explanation



Part No.

Resistance tolerance

Nominal resistance

F	±1%
J	±5%
J is also used for jumper	

Resistance code, 3 or 4 digits.
000 denotes jumper type.

Resistance tolerance	Resistance code
F	: 4 digits
J	: 3 digits

Packaging Specifications Code

Part No.	Code	Resistance tolerance		Packaging specifications	Reel	Basic ordering unit (pcs)
		J(±5%)	F(±1%)			
MNR12	E0AP	○	○	Paper tape (4mm Pitch)	φ180mm (7in.)	5,000

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

Notes

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