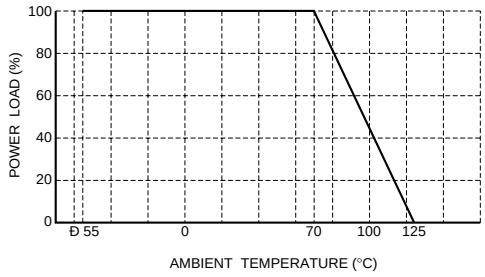
Compact Chip Resistor Networks

MNR04 (1005 × 4 size)

●**Features**

1) Extremely small and light
   Area ratio is 60% smaller than that of chip 3216 (MNR14), while weight ratio has been cut 75%.
2) High-density mounting
   Can be mounted even more densely than four 1005 chips (MCR01), and mounting costs are lower.
3) Can be mounted on a wide variety of devices
   Squared corners make it excellent for mounting on image recognition devices.
4) Convex electrodes
   Easy to check the fillet after soldering is finished.
5) ROHM resistors have approved ISO9001- / ISO/TS 16949- certification.
   Furthermore, changes to the design and specifications of products may occur without notice. Therefore, before ordering or using this product, please make sure to reconfirm the specification sheet before ordering or using this product.

●**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 maximum operating voltage. $E = \sqrt{P \times R}$ E : Voltage rating (V) P : Power rating (W) R : Nominal resistance (Ω)	Limiting element voltage: 25V
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

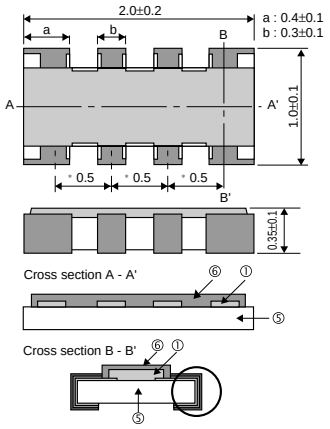
Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
J (±5%)	10≤R≤1M (E24)	±200

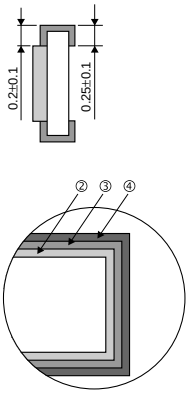
•Before using components in circuits where they will be exposed to transients such as pulse loads (short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady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

●Characteristics

Item	Guaranteed value		Test conditions (JIS C 5201-1)
	Resistor type	Jumper type	
Resistance	J : ±5%	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. Limiting Element Voltage×2 : 50V
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)	Max. 50mΩ 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)	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)	Max. 50mΩ Without mechanical damage such as breaks.	JIS C 5201-1 4.33

●**Dimensions** (Unit : mm)

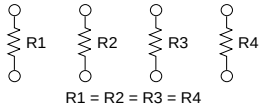




No.	Material
①	Resistive element (Oxide metal thick film)
②	Silver thick film electrode
③	Nickel electrode
④	Sn electrode
⑤	Alumina substrate
⑥	Overcoating (Resin)

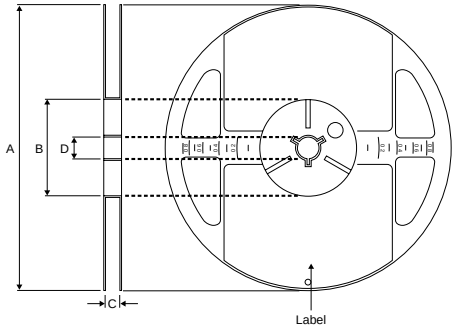
∗ The pitch between electrodes.

●**Equivalent circuit**



●Packaging

Reel

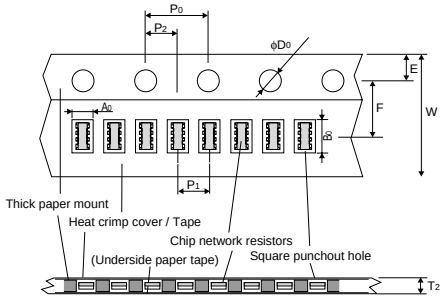


EIAJ ET-7200B compliant

(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	1.2±0.1	2.2±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

●Part No. Explanation

M	N	R	0	4	M	0	A	P	□	J	□	□	□

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)
MNR04	M0AP	◎	Paper tape (2mm Pitch)	φ180mm (7inch)	10,000

Reel (φ180mm) : Compatible with JEITA standard "EIAJ ET-7200B"
◎ : Standard product

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