

# Compact 8-element 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 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

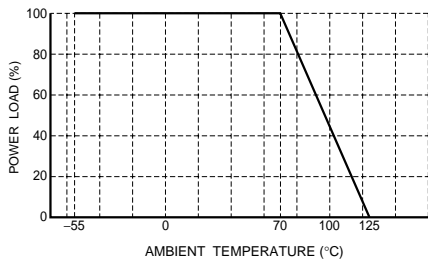
Item	Conditions	Specifications
Rated power	Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  <p style="text-align: center;">Fig.1</p>	0.031W (1 / 32W) at 70°C
Rated voltage	The voltage rating is calculated by the following equation. If the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

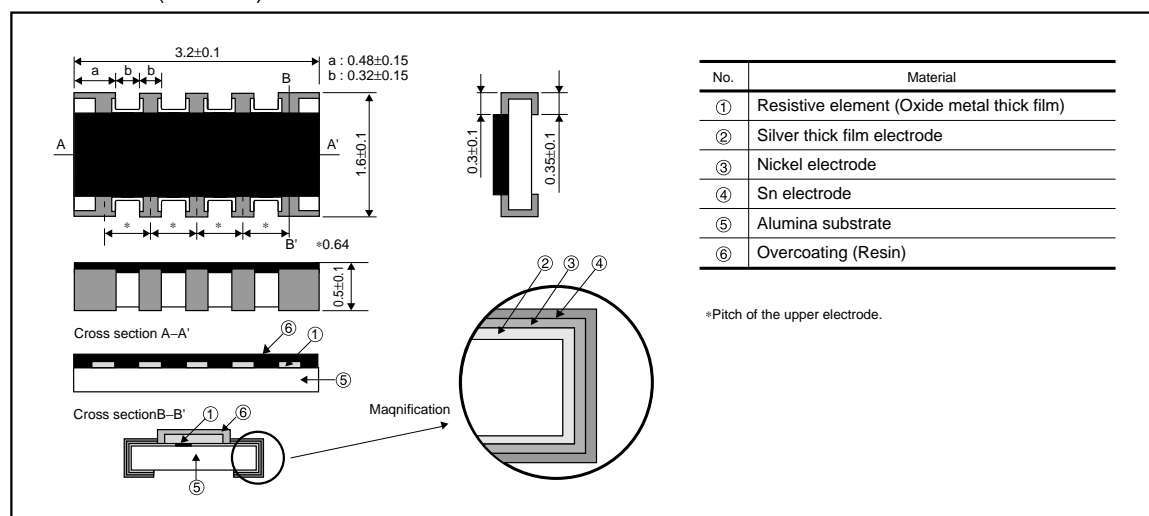
\*Before using components in circuits where they will be exposed to transients such as pulse loads(short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady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

## Resistors

## ●Characteristics

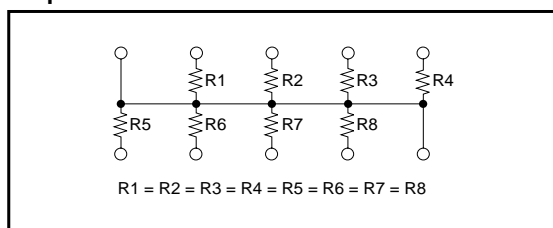
Item	Guaranteed value	Test conditions (JIS C 5201-1)
	Resistor type	
Resistance	J : $\pm 5\%$	JIS C 5201-1 4.5
Variation of resistance with temperature	See Table.1	JIS C 5201-1 4.8 Measurement : $+25 / +125^{\circ}\text{C}$
Overload	$\pm (2.0\%+0.1\Omega)$	JIS C 5201-1 4.13 Rated voltage $\times 2.5$ , 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 : $235\pm 5^{\circ}\text{C}$ 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.	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	$\pm (1.0\%+0.05\Omega)$	JIS C 5201-1 4.19 Test temp. : $-55^{\circ}\text{C}$ to $+125^{\circ}\text{C}$ 5cyc
Damp heat, steady state	$\pm (3.0\%+0.1\Omega)$	JIS C 5201-1 4.24 $40^{\circ}\text{C}$ , 93%RH Test time : 1,000h to 1,048h
Endurance at $70^{\circ}\text{C}$	$\pm (3.0\%+0.1\Omega)$	JIS C 5201-1 4.25.1 Rated voltage, $70^{\circ}\text{C}$ 1.5h : ON – 0.5h : OFF Test time : 1,000h to 1,048h
Endurance	$\pm (3.0\%+0.1\Omega)$	JIS C 5201-1 4.25.3 $125^{\circ}\text{C}$ Test time : 1,000h to 1,048h
Resistance to solvent	$\pm (1.0\%+0.05\Omega)$	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.	JIS C 5201-1 4.33

## ●Dimensions (Unit : mm)



## Resistors

## ●Equivalent circuit



## ●Packaging

Reel

Diagram of a reel showing dimensions A, B, C, and D. A label is indicated on the reel. The diagram is EIAJ ET-7200B compliant.

EIAJ ET-7200B compliant

(Unit: mm)

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

Taping

Diagram of a resistor tape showing dimensions W, F, E, A<sub>0</sub>, B<sub>0</sub>, D<sub>0</sub>, P<sub>0</sub>, P<sub>1</sub>, P<sub>2</sub>, and T<sub>2</sub>. Labels include Heat crimp cover / Tape, Thick paper mount, (Underside paper tape), Chip network resistors, and Square punchout hole.

(Unit : mm)

W	F	E	A <sub>0</sub>	B <sub>0</sub>
8.0±0.3	3.5±0.05	1.75±0.1	1.8±0.1	3.4±0.1
D <sub>0</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	T <sub>2</sub>
$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	4.0±0.1	4.0±0.1	2.0±0.05	Max. 1.1

## ●Part No.Explanation

M	N	R	1	5	E	0	R	P	J										
Part No.					Resistance tolerance					Nominal resistance									
					<table><tr><td>J</td><td>±5%</td></tr><tr><td colspan="2">J is also used for jumper</td></tr></table>					J	±5%	J is also used for jumper		<table><tr><td colspan="3">Resistance code,3 digits, 000 denotes Jumper type.</td></tr></table>			Resistance code,3 digits, 000 denotes Jumper type.		
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## Packaging Specifications Code

Part No.	Code	Resistance tolerance J(±5%)	Packaging specifications	Reel	Basic ordering unit (pcs)
<b>MNR15</b>	E0RP	⊙	Paper tape (4mm Pitch)	$\phi 180\text{mm}$ (7in.)	5,000

Reel ( $\phi 180$ ) : JEITA ET-7200B  
 ⊙ : Standard product

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