

# 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

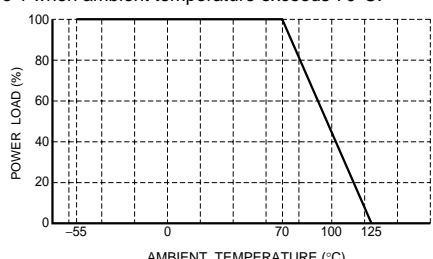
Item	Conditions	Specifications
Rated power	Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  Fig.1	0.031W (1 / 32W) at 70°C
Rated voltage	The voltage rating is calculated by the following equation. If the value obtained exceeds the limiting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

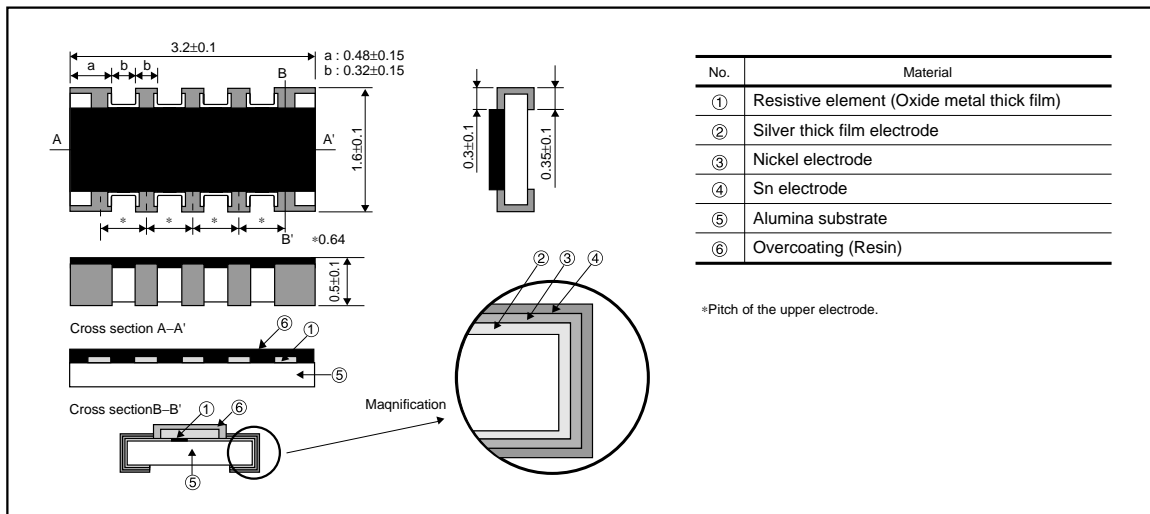
\*Before using components in circuits where they will be exposed to transients such as pulse loads (short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady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

Resistors

●Characteristics

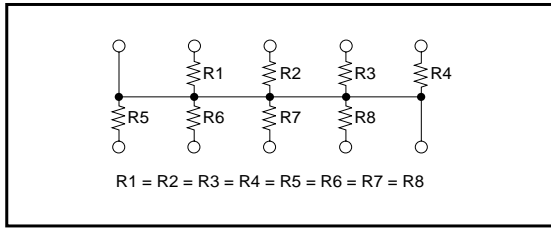
Item	Guaranteed value	Test conditions (JIS C 5201-1)
	Resistor type	
Resistance	J : $\pm 5\%$	JIS C 5201-1 4.5
Variation of resistance with temperature	See <u>Table.1</u>	JIS C 5201-1 4.8 Measurement : +25 / +125°C
Overload	$\pm (2.0\%+0.1\Omega)$	JIS C 5201-1 4.13 Rated voltage $\times 2.5$ , 2s. Maximum 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°C to +125°C 5cyc
Damp heat, steady state	$\pm (3.0\%+0.1\Omega)$	JIS C 5201-1 4.24 40°C, 93%RH Test time : 1,000h to 1,048h
Endurance at 70°C	$\pm (3.0\%+0.1\Omega)$	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	$\pm (3.0\%+0.1\Omega)$	JIS C 5201-1 4.25.3 125°C Test time : 1,000h to 1,048h
Resistance to solvent	$\pm (1.0\%+0.05\Omega)$	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

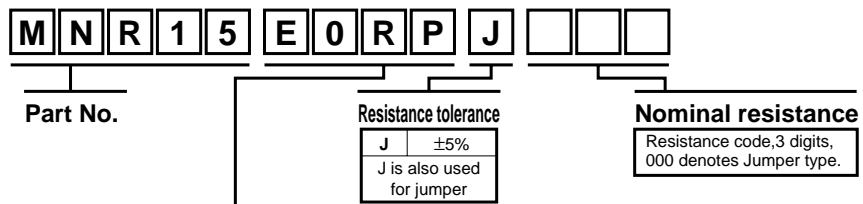
●Equivalent circuit



●Packaging

Reel	Taping																												
<p style="text-align: center;">EIAJ ET-7200B compliant (Unit: mm)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><math>\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}</math></td> <td style="text-align: center;"><math>\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}</math></td> <td style="text-align: center;"><math>9 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}</math></td> <td style="text-align: center;"><math>\phi 13 \pm 0.2</math></td> </tr> </tbody> </table>	A	B	C	D	$\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}$	$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$	$9 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$	$\phi 13 \pm 0.2$	<p style="text-align: right;">(Unit : mm)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>W</th> <th>F</th> <th>E</th> <th>A0</th> <th>B0</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><math>8.0 \pm 0.3</math></td> <td style="text-align: center;"><math>3.5 \pm 0.05</math></td> <td style="text-align: center;"><math>1.75 \pm 0.1</math></td> <td style="text-align: center;"><math>1.8 \pm 0.1</math></td> <td style="text-align: center;"><math>3.4 \pm 0.1</math></td> </tr> <tr> <th>D0</th> <th>P0</th> <th>P1</th> <th>P2</th> <th>T2</th> </tr> <tr> <td style="text-align: center;"><math>\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}</math></td> <td style="text-align: center;"><math>4.0 \pm 0.1</math></td> <td style="text-align: center;"><math>4.0 \pm 0.1</math></td> <td style="text-align: center;"><math>2.0 \pm 0.05</math></td> <td style="text-align: center;">Max. 1.1</td> </tr> </tbody> </table>	W	F	E	A0	B0	$8.0 \pm 0.3$	$3.5 \pm 0.05$	$1.75 \pm 0.1$	$1.8 \pm 0.1$	$3.4 \pm 0.1$	D0	P0	P1	P2	T2	$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	$4.0 \pm 0.1$	$4.0 \pm 0.1$	$2.0 \pm 0.05$	Max. 1.1
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●Part No.Explanation



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

### Notes

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