

Compact Chip Resistor Networks

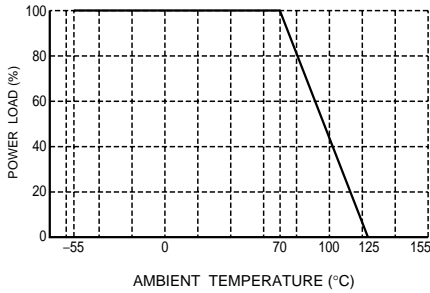
MNR02 (1005 × 2 size)

●Features

- 1) Extremely small and light
Area ratio is 60% smaller than that of chip 1616 (MNR12), while weight ratio has been cut 75%.
- 2) High-density mounting
Can be mounted even more densely than two 1005 chips (MCR01). Also, the cost of mounting has been reduced.
- 3) Compatible with a wide range of mounting equipment.
Squared corners make it excellent for mounting using image recognition devices.
- 4) Convex electrodes
Easy to check the fillet after soldering is finished.
- 5) ROHM resistors have obtained ISO9001- / ISO/TS 16949- certification.

●Ratings

Design and specifications are subject to change without notice. Carefully check the specification sheet before using or ordering it.

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 style="text-align: center;">E: Rated voltage (V) P: Rated power (W) R: Nominal resistance (Ω)</p>	<table border="1" style="width: 100%;"> <tr> <td>Limiting element voltage</td> <td>25V</td> </tr> </table>	Limiting element voltage	25V
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Nominal resistance	See Table 1.			
Operating temperature		-55°C to +125°C		

Resistors

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 to 1M (E24)	±300

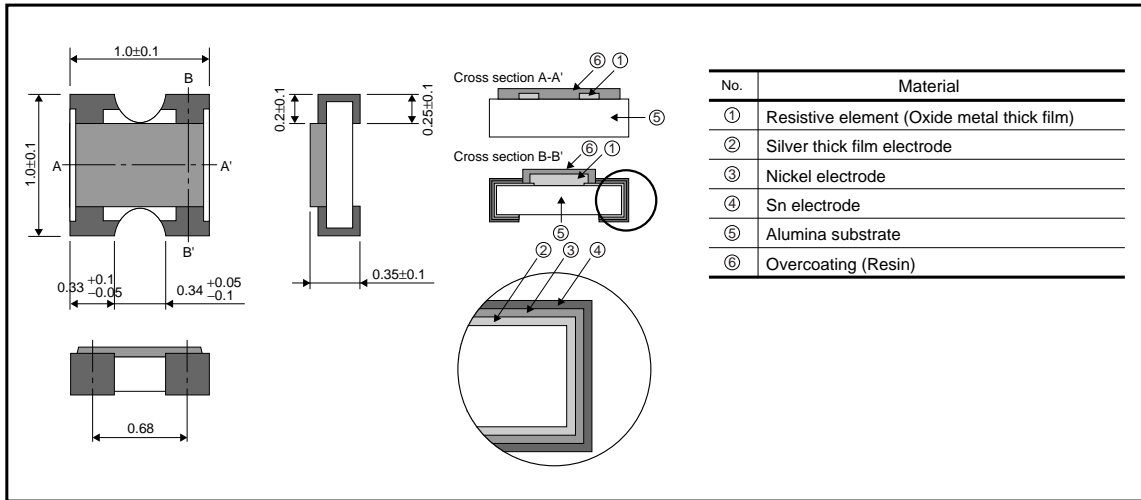
●Before using components in circuits where they will be exposed to transients such as pulse loads (short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady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

●Characteristics

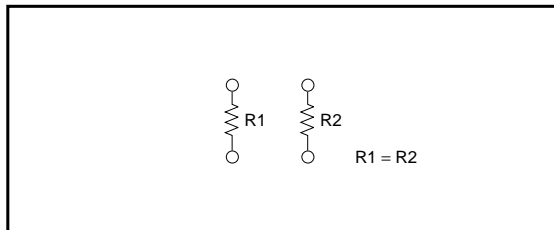
Items	Guaranteed value	Test conditions (JIS C 5201-1)
	Resistor type	
Resistance	J : ±5%	JIS C 5201-1 4.5
Variation of resistance with temperature	See Table.1	JIS C 5201-1 4.8 Measurement : -55 / +25 / +125°C
Overload	± (2.0%+0.1Ω)	JIS C 5201-1 4.13 Rated voltage (current) ×2.5, 2s. Limiting Element 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) 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)	JIS C 5201-1 4.19 Test temp. : -55°C to +125°C 5cyc
Damp heat, steady state	± (3.0%+0.1Ω)	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)	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)	JIS C 5201-1 4.25.3 125°C Test time : 1,000h to 1,048h
Resistance to solvent	± (1.0%+0.05Ω)	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.	JIS C 5201-1 4.33

Resistors

●Dimensions (Unit: mm)

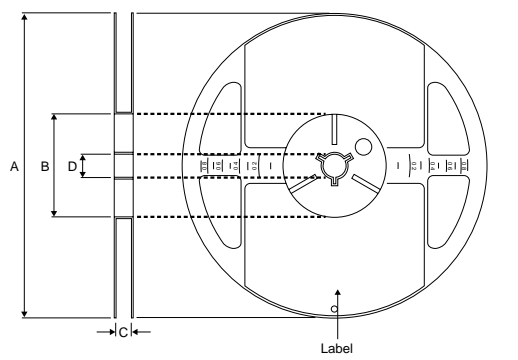
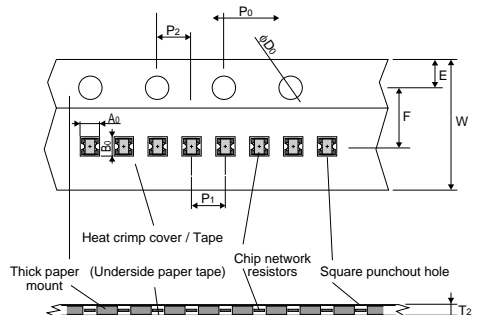


●Equivalent circuit



Resistors

●Packaging

Reel	Taping																												
 <p style="text-align: center;">EIAJ ET-7200B compliant</p> <p style="text-align: center;">(Unit: mm)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">B</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> </tr> <tr> <td style="text-align: center;">$\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}$</td> <td style="text-align: center;">$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$</td> <td style="text-align: center;">$9 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$</td> <td style="text-align: center;">$\phi 13 \pm 0.2$</td> </tr> </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;"> <tr> <td style="text-align: center;">W</td> <td style="text-align: center;">F</td> <td style="text-align: center;">E</td> <td style="text-align: center;">A₀</td> <td style="text-align: center;">B₀</td> </tr> <tr> <td style="text-align: center;">8.0 ± 0.3</td> <td style="text-align: center;">3.5 ± 0.05</td> <td style="text-align: center;">1.75 ± 0.1</td> <td style="text-align: center;">1.17 ± 0.1</td> <td style="text-align: center;">1.17 ± 0.1</td> </tr> <tr> <td style="text-align: center;">D₀</td> <td style="text-align: center;">P₀</td> <td style="text-align: center;">P₁</td> <td style="text-align: center;">P₂</td> <td style="text-align: center;">T₂</td> </tr> <tr> <td style="text-align: center;">$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$</td> <td style="text-align: center;">4.0 ± 0.1</td> <td style="text-align: center;">2.0 ± 0.1</td> <td style="text-align: center;">2.0 ± 0.05</td> <td style="text-align: center;">Max. 0.5</td> </tr> </table>	W	F	E	A ₀	B ₀	8.0 ± 0.3	3.5 ± 0.05	1.75 ± 0.1	1.17 ± 0.1	1.17 ± 0.1	D ₀	P ₀	P ₁	P ₂	T ₂	$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	4.0 ± 0.1	2.0 ± 0.1	2.0 ± 0.05	Max. 0.5
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●Part No. Explanation

M	N	R	0	2	M	0	A	P	J														
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Packaging Specifications Code

Part No.	Code	Resistance tolerance J(±5%)	Packaging specifications	Reel	Basic ordering unit (pcs)
MNR02	M0AP	◎	Paper tape (2mmPitch)	φ180mm	10,000

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

Notes

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