

# Low Ohmic Thick Film Chip Resistors

**MCR18 (3216 size (1206 size) : 1 / 4W)**

**●Features**

- 1) Power rating of 1 / 4W
- 2) Highly reliable chip resistor Ruthenium oxide dielectric offers superior resistance to the elements.
- 3) Electrodes not corroded by soldering  
Thick film makes the electrodes very strong.
- 4) ROHM resistors have approved ISO9001- / ISO/TS 19649- certification.

**●Ratings**

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

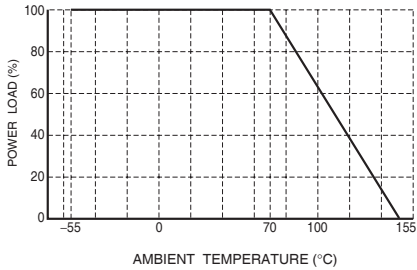
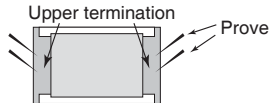
Item	Conditions	Specifications		
Rated power	<p>Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.</p>  <p style="text-align: center;">Fig.1</p>	<p>0.25W (1 / 4W) at 70°C</p>		
Rated voltage	<p>The voltage rating is calculated by the following 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>	<table border="1" style="width: 100%;"> <tr> <td>Limiting element voltage</td> <td>1.51(9.1Ω)</td> </tr> </table>	Limiting element voltage	1.51(9.1Ω)
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Nominal resistance	See Table 1.			
Operating temperature		-55°C to +155°C		

Table 1

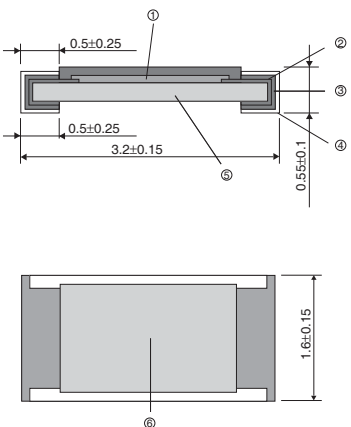
Resistance tolerance	Special specification	Resistance range (Ω)	Resistance temperature coefficient (ppm/°C)
F (±1%)	L	0.1 to 0.13 (E24)	400±200
	L	0.15 to 9.1 (E24)	±250
	S	0.047 to 0.091 (E24)	500±300
J (±5%)	L	0.1 to 0.13 (E24)	400±200
	L	0.15 to 0.91 (E24)	±250
	S	0.047 to 0.091 (E24)	500±300

●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

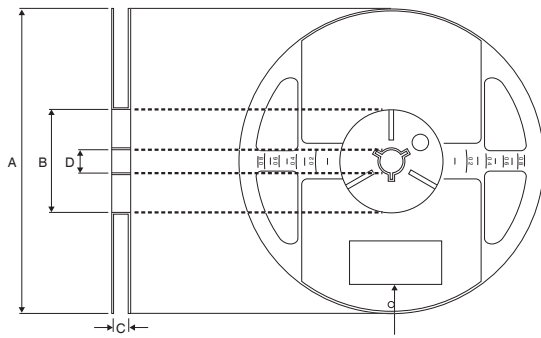
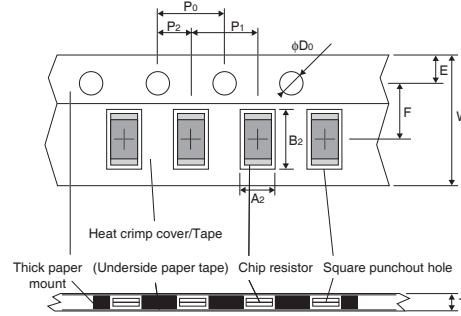
Item	Guaranteed value	Test conditions (JIS C 5201-1)
	Resistor type	
Resistance	J : ±5% F : ±1%	JIS C 5201-1 4.5 Load voltage : A Measuring method : measure upper termination by 4 probes. 
Variation of resistance with temperature	See Table.1	JIS C 5201-1 4.8 Measurement : +25 / -55 / +25 / +125°C
Overload	± (2.0%+0.005Ω)	JIS C 5201-1 4.13 Rated voltage (current) ×2.5, 2s.
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%+0.005Ω) 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%+0.005Ω)	JIS C 5201-1 4.19 Test temp. : -55°C to +125°C 5cyc
Damp heat, steady state	± (3.0%+0.005Ω)	JIS C 5201-1 4.24 40°C, 93%RH Test time : 56days
Endurance at 70°C	± (3.0%+0.005Ω)	JIS C 5201-1 4.25.1 70°C, Rated voltage 1.5h : ON – 0.5h : OFF Test time : 1,000h
Endurance	± (3.0%+0.005Ω)	JIS C 5201-1 4.25.3 155°C Test time : 1,000h to 1,048h
Component solvent resistance	± (0.5%+0.005Ω)	JIS C 5201-1 4.29 23°C±5°C Solvent : 2-propanol
Bend strength of the end face plating	Without open.	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 (Glass)

●Packaging

Reel	Taping																												
 <p style="text-align: center;">Label EIAJ ET-7200B compliant</p> <p style="text-align: right;">(Unit: mm)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> <tr> <td><math>\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}</math></td> <td><math>\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}</math></td> <td><math>9 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}</math></td> <td><math>\phi 13 \pm 0.2</math></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: center;">Heat crimp cover/Tape Thick paper mount (Underside paper tape) Chip resistor Square punchout hole</p> <p style="text-align: right;">(Unit: mm)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>W</th> <th>F</th> <th>E</th> <th>A<sub>2</sub></th> <th>B<sub>2</sub></th> </tr> <tr> <td><math>8.0 \pm 0.3</math></td> <td><math>3.5 \pm 0.05</math></td> <td><math>1.75 \pm 0.1</math></td> <td><math>1.95 \begin{smallmatrix} +0.1 \\ -0.05 \end{smallmatrix}</math></td> <td><math>3.5 \begin{smallmatrix} +0.15 \\ -0.05 \end{smallmatrix}</math></td> </tr> <tr> <th>D<sub>0</sub></th> <th>P<sub>0</sub></th> <th>P<sub>1</sub></th> <th>P<sub>2</sub></th> <th>T<sub>2</sub></th> </tr> <tr> <td><math>\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}</math></td> <td><math>4.0 \pm 0.1</math></td> <td><math>4.0 \pm 0.1</math></td> <td><math>2.0 \pm 0.05</math></td> <td>Max. 1.1</td> </tr> </table>	W	F	E	A <sub>2</sub>	B <sub>2</sub>	$8.0 \pm 0.3$	$3.5 \pm 0.05$	$1.75 \pm 0.1$	$1.95 \begin{smallmatrix} +0.1 \\ -0.05 \end{smallmatrix}$	$3.5 \begin{smallmatrix} +0.15 \\ -0.05 \end{smallmatrix}$	D <sub>0</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	T <sub>2</sub>	$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	$4.0 \pm 0.1$	$4.0 \pm 0.1$	$2.0 \pm 0.05$	Max. 1.1
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●Part No. Explanation

<b>M</b>	<b>C</b>	<b>R</b>	<b>1</b>	<b>8</b>	<b>E</b>	<b>Z</b>	<b>H</b>	<b>J</b>	<b>L</b>																				
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Packaging Specifications Code

Part No.	Code	Resistance tolerance		Packaging specifications	Reel	Basic ordering unit(pcs)
		J(±5%)	F(±1%)			
MCR18	EZH	⊙	⊙	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000

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

## Notes

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