

# 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.

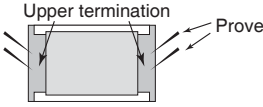
Item	Conditions	Specifications		
Rated power	<p>Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.</p> <p style="text-align: center;">Fig.1</p>	0.25W (1 / 4W) at 70°C		
Rated voltage	<p>The voltage rating is calculated by the following equation. 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>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

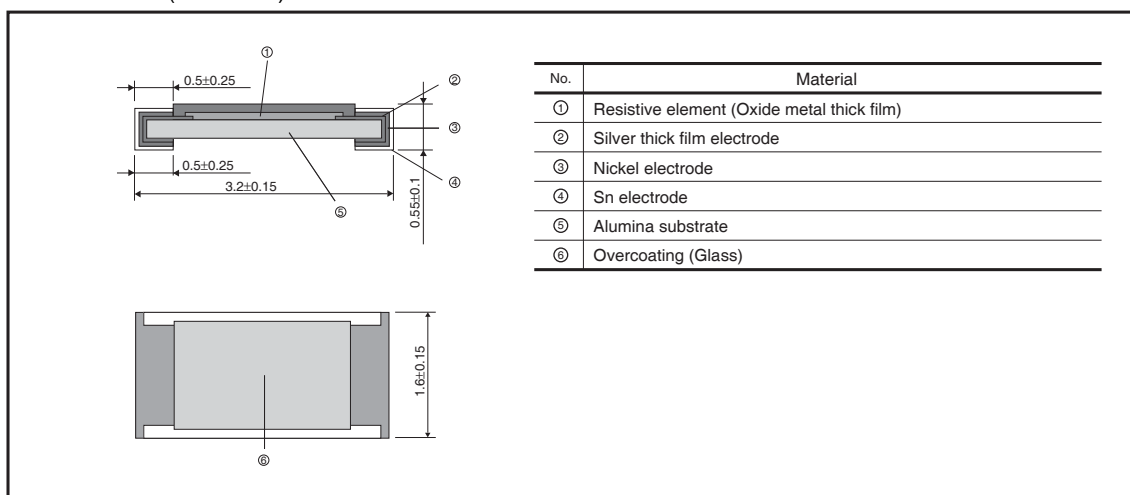
Resistance tolerance	Special specification	Resistance range (Ω)	Resistance temperature coefficient (ppm/°C)
F (±1%)	L	0.1 to 0.13 (E24)	400±200
	L	0.15 to 9.1 (E24)	±250
	S	0.047 to 0.091 (E24)	500±300
J (±5%)	L	0.1 to 0.13 (E24)	400±200
	L	0.15 to 0.91 (E24)	±250
	S	0.047 to 0.091 (E24)	500±300

●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.

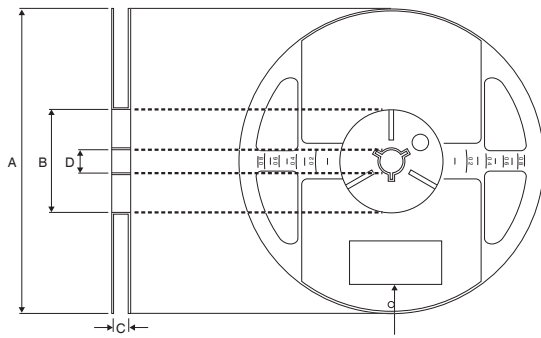
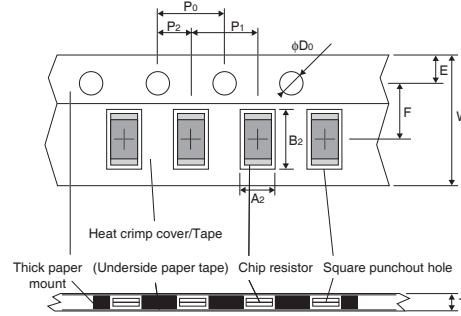
## ●Characteristics

Item	Guaranteed value	Test conditions (JIS C 5201-1)
	Resistor type	
Resistance	J : $\pm 5\%$ F : $\pm 1\%$	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	$\pm (2.0\%+0.005\Omega)$	JIS C 5201-1 4.13 Rated voltage (current) $\times 2.5, 2s.$
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 : $235\pm 5^\circ\text{C}$ Duration of immersion : $2.0\pm 0.5s.$
Resistance to soldering heat	$\pm (1.0\%+0.005\Omega)$ No remarkable abnormality on the appearance.	JIS C 5201-1 4.18 Soldering condition : $260\pm 5^\circ\text{C}$ Duration of immersion : $10\pm 1s.$
Rapid change of temperature	$\pm (1.0\%+0.005\Omega)$	JIS C 5201-1 4.19 Test temp. : $-55^\circ\text{C}$ to $+125^\circ\text{C}$ 5cyc
Damp heat, steady state	$\pm (3.0\%+0.005\Omega)$	JIS C 5201-1 4.24 $40^\circ\text{C}, 93\%\text{RH}$ Test time : 56days
Endurance at 70°C	$\pm (3.0\%+0.005\Omega)$	JIS C 5201-1 4.25.1 $70^\circ\text{C}$ , Rated voltage 1.5h : ON – 0.5h : OFF Test time : 1,000h
Endurance	$\pm (3.0\%+0.005\Omega)$	JIS C 5201-1 4.25.3 $155^\circ\text{C}$ Test time : 1,000h to 1,048h
Component solvent resistance	$\pm (0.5\%+0.005\Omega)$	JIS C 5201-1 4.29 $23^\circ\text{C}\pm 5^\circ\text{C}$ Solvent : 2-propanol
Bend strength of the end face plating	Without open.	JIS C 5201-1 4.33

## ●Dimensions (Unit : mm)



●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: 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

M	C	R	1	8	E	Z	H	J	L																					
<b>Part No.</b>					<b>Resistance tolerance</b>		<b>Special part number</b>			<b>Nominal resistance</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

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