

Low Ohmic Thick Film Chip Resistors

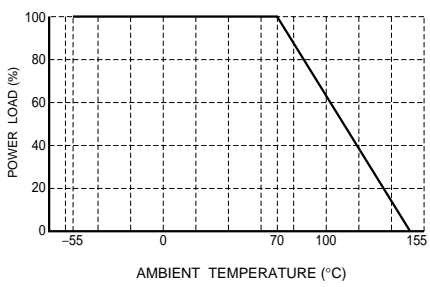
MCR18 (3216 size (1206 size) : 1 / 4W)

●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.</p> $E = \sqrt{P \times R}$ <p style="margin-left: 40px;">E: Rated voltage (V) P: Rated power (W) R: Nominal resistance (Ω)</p>	
Nominal resistance	See Table 1.	
Operating temperature		-55°C to +155°C

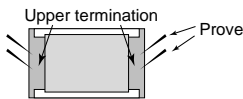
Resistors

Table 1

Resistance tolerance	Special specification	Resistance range (Ω)	Resistance temperature coefficient (ppm/ $^{\circ}$ C)
F ($\pm 1\%$)	L	0.1 to 0.13 (E24)	400 \pm 200
	L	0.15 to 9.1 (E24)	\pm 250
	S	0.047 to 0.091 (E24)	500 \pm 300
J ($\pm 5\%$)	L	0.1 to 0.13 (E24)	400 \pm 200
	L	0.15 to 0.91 (E24)	\pm 250
	S	0.047 to 0.091 (E24)	500 \pm 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 $^{\circ}$ 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 $^{\circ}$ 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 $^{\circ}$ 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 $^{\circ}$ C to +125 $^{\circ}$ C 5cyc
Damp heat, steady state	$\pm (3.0\%+0.005\Omega)$	JIS C 5201-1 4.24 40 $^{\circ}$ C, 93%RH Test time : 56days
Endurance at 70 $^{\circ}$ C	$\pm (3.0\%+0.005\Omega)$	JIS C 5201-1 4.25.1 70 $^{\circ}$ 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 $^{\circ}$ C Test time : 1,000h to 1,048h
Component solvent resistance	$\pm (0.5\%+0.005\Omega)$	JIS C 5201-1 4.29 23 $^{\circ}$ C \pm 5 $^{\circ}$ C Solvent : 2-propanol
Bend strength of the end face plating	Without open.	JIS C 5201-1 4.33

Resistors

●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>EIAJ ET-7200B compliant</p> <p>(Unit: mm)</p> <table border="1"> <thead> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>$\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}$</td> <td>$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$</td> <td>$9 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$</td> <td>$\phi 13 \pm 0.2$</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>(Unit: mm)</p> <table border="1"> <thead> <tr> <th>W</th> <th>F</th> <th>E</th> <th>A₂</th> <th>B₂</th> </tr> </thead> <tbody> <tr> <td>8.0 ± 0.3</td> <td>3.5 ± 0.05</td> <td>1.75 ± 0.1</td> <td>$1.95 \begin{smallmatrix} +0.1 \\ -0.05 \end{smallmatrix}$</td> <td>$3.5 \begin{smallmatrix} +0.15 \\ -0.05 \end{smallmatrix}$</td> </tr> <tr> <th>D₀</th> <th>P₀</th> <th>P₁</th> <th>P₂</th> <th>T₂</th> </tr> <tr> <td>$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$</td> <td>$4.0 \pm 0.1$</td> <td>$4.0 \pm 0.1$</td> <td>$2.0 \pm 0.05$</td> <td>Max. 1.1</td> </tr> </tbody> </table>	W	F	E	A ₂	B ₂	8.0 ± 0.3	3.5 ± 0.05	1.75 ± 0.1	$1.95 \begin{smallmatrix} +0.1 \\ -0.05 \end{smallmatrix}$	$3.5 \begin{smallmatrix} +0.15 \\ -0.05 \end{smallmatrix}$	D ₀	P ₀	P ₁	P ₂	T ₂	$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	4.0 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	Max. 1.1
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Resistors

●Part No. Explanation

M C R 1 8 E Z H J L

Part No.

Resistance tolerance

F	±1%
J	±5%

Special part number

L	0.1 to 9.1Ω (class F) 0.1 to 0.91Ω (class J)
S	0.047 to 0.091Ω

Nominal resistance

Resistance code, 3 or 4 digits.	
Resistance tolerance +Special P/N	Resistance code
FL,FS,JS	: 4 digits
JL	: 3 digits

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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