

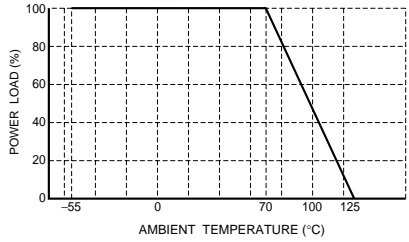
Thick Film Chip Resistors

MCR50 (2010 size : 1 / 2W)

●Features

- 1) Made of same material as the general purpose chip resistors (MCR10 / 18).
- 2) Highly reliable chip resistor
Ruthenium oxide dielectric offers superior resistance to the elements.
- 3) Electrodes not corroded by soldering
Suitable for re-flow soldering.
- 4) 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.  <p style="text-align: center;">Fig.1</p>	0.5W (1 / 2W) 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 200V
Nominal resistance	See Table 1.	
Operating temperature		-55°C to +125°C

Jumper type

Resistance	Max. 50mΩ
Rated current	3A
Operating temperature	-55°C to +125°C

Table 1

Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
F (±1%)	10≤R≤180k (E24,96)	±100
J (±5%)	1.0≤R<2.0 (E24)	500±350
	2.2≤R<9.1 (E24)	±500
	10≤R≤330k (E24)	±200
	360k<R≤560k (E24)	±350

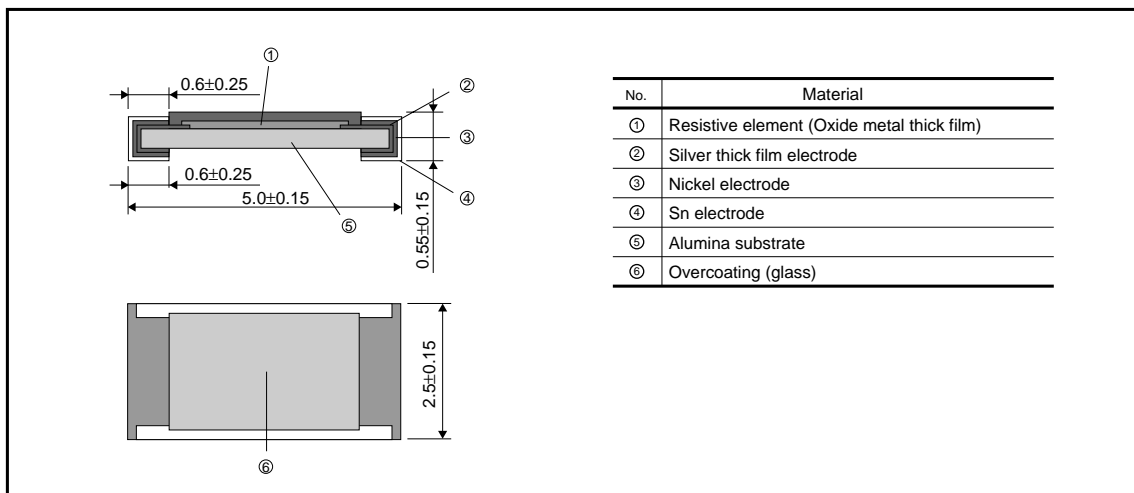
●Before using components in circuits where they will be exposed to transients such as pulse loads (short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady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

Resistors

●Characteristics

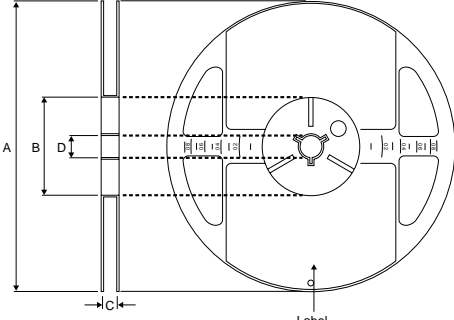
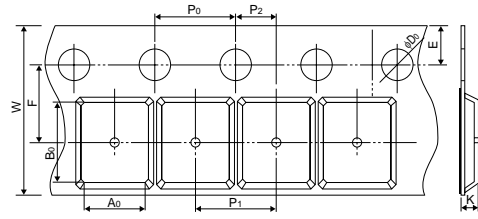
Item	Guaranteed value		Test conditions (JIS C 5201-1)
	Resistor type	Jumper type	
Resistance	J : $\pm 5\%$ F : $\pm 1\%$	Max. 50m Ω	JIS C 5201-1 4.5
Variation of resistance with temperature	See Table.1		JIS C 5201-1 4.8 Measurement : -55 / +25 / +125°C
Overload	$\pm (2.0\%+0.1\Omega)$	Max. 50m Ω	JIS C 5201-1 4.13 Rated voltage (current) $\times 2.5$, 2s. Maximum Overload Voltage : 400V
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°C Duration of immersion : 2.0 \pm 0.5s.
Resistance to soldering heat	$\pm (1.0\%+0.05\Omega)$ No remarkable abnormality on the appearance.	Max. 50m Ω	JIS C 5201-1 4.18 Soldering condition : 260 \pm 5°C Duration of immersion : 10 \pm 1s.
Rapid change of temperature	$\pm (1.0\%+0.05\Omega)$	Max. 50m Ω	JIS C 5201-1 4.19 Test temp. : -55°C to +125°C 5cyc
Damp heat, steady state	$\pm (3.0\%+0.1\Omega)$	Max. 100m Ω	JIS C 5201-1 4.24 40°C, 93%RH Test time : 1,000h to 1,048h
Endurance at 70°C	$\pm (3.0\%+0.1\Omega)$	Max. 100m Ω	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	$\pm (3.0\%+0.1\Omega)$	Max. 100m Ω	JIS C 5201-1 4.25.3 125°C Test time : 1,000h to 1,048h
Resistance to solvent	$\pm (1.0\%+0.05\Omega)$	Max. 50m Ω	JIS C 5201-1 4.29 23 \pm 5°C, Immersion cleaning, 5 \pm 0.5min. Solvent : 2-propanol
Bend strength of the end face plating	$\pm (1.0\%+0.05\Omega)$ Without mechanical damage such as breaks.	Max. 50m Ω	JIS C 5201-1 4.33

●Dimensions (Unit : mm)



Resistors

●Packaging

Reel	Taping																												
 <p style="text-align: center;">(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;">$\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}$</td> <td style="text-align: center;">$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$</td> <td style="text-align: center;">$13 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$</td> <td style="text-align: center;">$\phi 13 \pm 0.2$</td> </tr> </tbody> </table>	A	B	C	D	$\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}$	$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$	$13 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$	$\phi 13 \pm 0.2$	 <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;">12.0 ± 0.3</td> <td style="text-align: center;">5.5 ± 0.05</td> <td style="text-align: center;">1.75 ± 0.1</td> <td style="text-align: center;">3.4 ± 0.2</td> <td style="text-align: center;">5.6 ± 0.2</td> </tr> <tr> <th>D₀</th> <th>P₀</th> <th>P₁</th> <th>P₂</th> <th>K</th> </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;">4.0 ± 0.1</td> <td style="text-align: center;">2.0 ± 0.05</td> <td style="text-align: center;">Max. 1.1</td> </tr> </tbody> </table>	W	F	E	A ₀	B ₀	12.0 ± 0.3	5.5 ± 0.05	1.75 ± 0.1	3.4 ± 0.2	5.6 ± 0.2	D ₀	P ₀	P ₁	P ₂	K	$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	4.0 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	Max. 1.1
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●Part No. Explanation

M	C	R	5	0	J	Z	H	J										
Part No.					Resistance tolerance		Nominal resistance											
					F	$\pm 1\%$	Resistance code, 3 or 4 digits. 000 denotes jumper type. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Resistance tolerance</th> <th>Resistance code</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">F</td> <td style="text-align: center;">: 4 digits</td> </tr> <tr> <td style="text-align: center;">J</td> <td style="text-align: center;">: 3 digits</td> </tr> </tbody> </table>						Resistance tolerance	Resistance code	F	: 4 digits	J	: 3 digits
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F	: 4 digits																	
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					J	$\pm 5\%$												
					J is also used for jumper													

Packaging Specifications Code

Part No.	Code	Resistance tolerance		Packaging specifications	Reel	Basic ordering unit (pcs)
		J($\pm 5\%$)	F($\pm 1\%$)			
MCR50	JZH	◎	◎	Embossed tape (4mm Pitch)	$\phi 180\text{mm}$ (7in.)	4,000

Reel ($\phi 180$) : JEITA ET-7200B
 ◎ : Standard product

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