

Compact Thick Film Chip Resistors

MCR01 (0402 size : 1 / 16W)

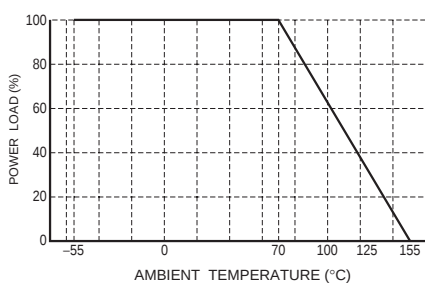
●Features

- 1) Extremely small light
- 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) Flat surface further facilitates mounting
Mounting can also be automated.

ROHM resistors have approved ISO9001- / ISO/TS 16949- certification.

●Ratings

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

Item	Conditions	Specifications
Rated power	Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  Fig.1	0.063W (1 / 16W) 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 50V
Nominal resistance	See Table 1.	
Operating temperature		-55°C to +155°C

Jumper type

Resistance	Max. 50mΩ
Rated current	1A
Operating temperature	-55°C to +155°C

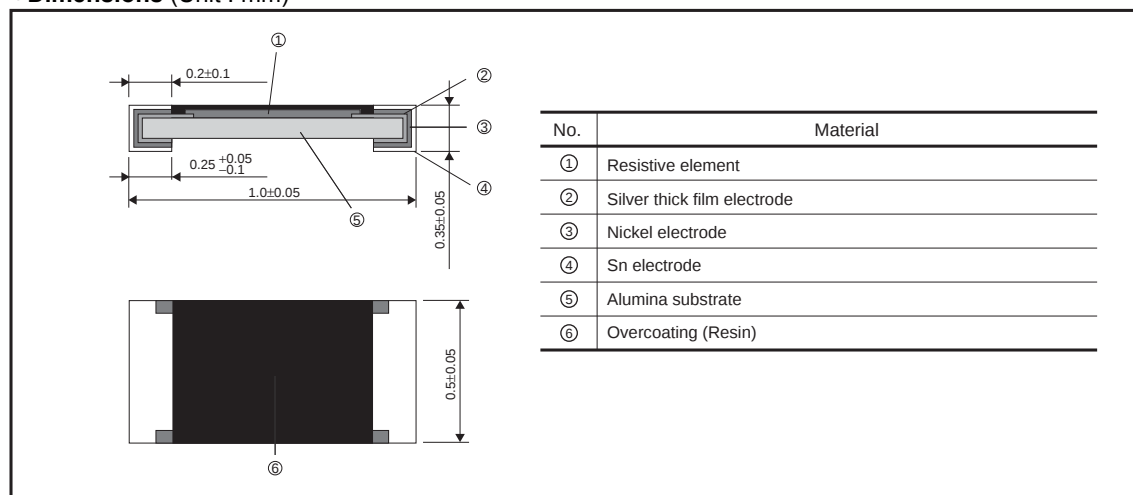
Table 1

Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
J (±5%)	1.0 to 9.1 (E24)	+500 / -250
	10 to 10M (E24)	±200
F (±1%)	10 to 2.2M (E24, E96)	±100
D (±0.5%)	10 to 91 (E24)	±100
	100 to 1M (E24)	±50

●Characteristics

Item	Guaranteed value		Test conditions (JIS C 5201-1)
	Resistor type	Jumper type	
Resistance	J : $\pm 5\%$ F : $\pm 1\%$ D : $\pm 0.5\%$	Max. 50m Ω	JIS C 5201-1 4.5
Variation of resistance with temperature	See Table.1		JIS C 5201-1 4.8 Measurement : +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. Limiting element voltage $\times 2$: 100V
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 ± 0.5 s.
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 $\pm 5^\circ\text{C}$ Duration of immersion : 10 ± 1 s.
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 1000cyc
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 4.25.3 155°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 $\pm 5^\circ\text{C}$, Immersion cleaning, 5 ± 0.5 min. 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)



●Packaging

Reel

The diagram shows a top view of a reel. Dimension A is the total width. Dimension B is the width of the central hub area. Dimension D is the width of the central hole. Dimension C is the width of the outer flange. A label is shown on the central hub.

EIAJ ET-7200B compliant

(Unit : mm)

A	B	C	D
$\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}$	$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$	$9 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$	$\phi 13 \pm 0.2$

Bulk case

The diagram shows a side view of a bulk case. Dimension 110±0.7 is the length. Dimension 12.0±0.1 is the height. Dimension 36 is the width. Dimension 0 -0.2 is the thickness of the case.

EIAJ ET-7200B compliant (Unit : mm)

Taping

The diagram shows a top view of a paper tape. Dimension W is the total width. Dimension F is the width of the central hole. Dimension E is the width of the outer flange. Dimension A0 is the width of the central hole. Dimension B0 is the width of the outer flange. Dimension P0 is the pitch between holes. Dimension P1 is the pitch between holes. Dimension P2 is the pitch between holes. Dimension D0 is the diameter of the central hole. Dimension T2 is the thickness of the tape.

Thick paper mount

Heat crimp cover tape

(Underside paper tape)

Chip resistor

Square punchout hole

(Unit : mm)

W	F	E	A0	B0
8.0±0.3	3.5±0.05	1.75±0.1	0.7±0.1	1.2±0.1
D0	P0	P1	P2	T2
$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	4.0±0.1	2.0±0.05	2.0±0.05	Max. 1.1

●Part No. Explanation

M	C	R	0	1	M	Z	P		J																				
Part No.					Resistance tolerance				Nominal resistance																				
					<table><tr><td>D</td><td>±0.5%</td></tr><tr><td>F</td><td>±1%</td></tr><tr><td>J</td><td>±5%</td></tr><tr><td colspan="2">J is also used for jumper</td></tr></table>				D	±0.5%	F	±1%	J	±5%	J is also used for jumper		<table><tr><td colspan="2">Resistance code, 3 or 4 digits. 000 denotes jumper type.</td></tr><tr><td>Resistance tolerance</td><td>Resistance code</td></tr><tr><td>F, D</td><td>: 4 digits</td></tr><tr><td>J</td><td>: 3 digits</td></tr></table>					Resistance code, 3 or 4 digits. 000 denotes jumper type.		Resistance tolerance	Resistance code	F, D	: 4 digits	J	: 3 digits
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Packaging Specifications Code

Part No.	Code	Resistance tolerance			Packaging specifications	Reel	Basic ordering unit (pcs)	Remarks
		J(±5%)	F(±1%)	D(±0.5%)				
MCR01	MZP	⊙	⊙	⊙	Paper tape (2mm Pitch)	φ180mm(7inch)	10,000	—
MCR01	PZPI	⊙	⊙	—	Bulkcase	—	50,000	—

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

Notes

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