

Low Ohmic Thick Film Chip Resistors

MCR01 (1005 size (0402 size) : 1 / 16W)

●Features

- 1) Power rating of 1 / 16W
- 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/TS16949- certification.

●Ratings

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

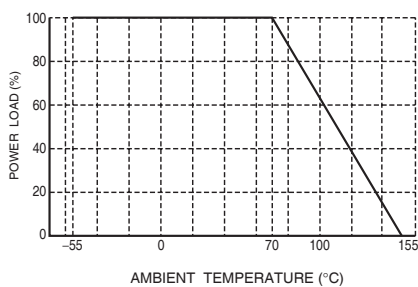
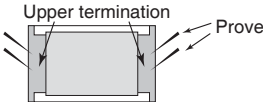
Item	Conditions	Specifications	
Rated power	Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  Fig.1	0.063W (1 / 16W) at 70°C	
Rated voltage	The voltage rating is calculated by the following equation. If the value obtained exceeds the limiting element voltage, the voltage rating is equal to the maximum operating voltage. $E = \sqrt{P \times R}$ <div style="margin-left: 100px;"> E: Rated voltage (V) P: Rated power (W) R: Nominal resistance (Ω) </div>	Limiting element voltage	0.76V (9.1Ω)
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	1.0 to 9.1 (E24)	±400

●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	F : $\pm 1\%$	JIS C 5201-1 4.5 Load voltage : A Measuring method : measure upper termination by 4 proves. 
Variation of resistance with temperature	See Table.1	JIS C 5201-1 4.8 Measurement : $+25 / -55 / +25 / +125^{\circ}\text{C}$
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 : $2.0\pm 0.5\text{s}$.
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 : $10\pm 1\text{s}$.
Rapid change of temperature	$\pm (1.0\%+0.005\Omega)$	JIS C 5201-1 4.19 Test temp. : -55°C to $+125^{\circ}\text{C}$ 5cyc
Damp heat, steady state	$\pm (3.0\%+0.005\Omega)$	JIS C 5201-1 4.24 40°C , 93%RH Test time : 56days
Endurance at 70°C	$\pm (3.0\%+0.005\Omega)$	JIS C 5201-1 4.25.1 70°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°C Test time : 1,000h to 1,048h
Resistance to solvent	$\pm (0.5\%+0.005\Omega)$	JIS C 5201-1 4.29 $23^{\circ}\text{C}\pm 5^{\circ}\text{C}$, Immersion cleaning, $5\pm 0.5\text{min}$. Solvent : 2-propanol
Bend strength of the end face plating	$\pm (1.0\%+0.005\Omega)$ Without mechanical damage such as breaks.	JIS C 5201-1 4.33

●Dimensions (Unit : mm)

The image displays two views of an MCR01 resistor. The top view is a cross-section showing the internal layers and their dimensions. The bottom view is a top-down perspective of the resistor's footprint.

Top View Dimensions:

- Overall length: 1.0 ± 0.05
- Length of the central resistive element: $0.25 + 0.05 - 0.1$
- Width of the central resistive element: 0.2 ± 0.1
- Width of the terminal pads: 0.35 ± 0.05

Bottom View Dimensions:

- Overall width: 0.5 ± 0.05

Layer Labels:

- ①: Resistive element (Oxide metal thick film)
- ②: Silver thick film electrode
- ③: Nickel electrode
- ④: Sn electrode
- ⑤: Alumina substrate
- ⑥: Overcoating (Resin)

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●Packaging

Reel

The diagram shows a top-down view of a reel. Dimension A is the total width. Dimension B is the width of the central hub area. Dimension C is the width of the outer flange. Dimension D is the width of the central hole. A label is shown on the central hub. The text 'EIAJ ET-7200B compliant' is written below the diagram.

EIAJ ET-7200B compliant

(Unit: mm)

A	B	C	D
$\phi 180^{+0.0}_{-1.5}$	$\phi 60^{+1.0}_{0}$	$13^{+1.0}_{0}$	$\phi 13 \pm 0.2$

Taping

The diagram shows a side view of a chip resistor on a paper tape. Dimension W is the total width. Dimension F is the height of the chip resistor. Dimension E is the height of the paper tape. Dimension A0 is the width of the chip resistor. Dimension B0 is the width of the paper tape. Dimension D0 is the diameter of the square punchout hole. Dimensions P0, P1, and P2 are the pitch dimensions between the chip resistors. The labels 'Heat crimp cover tape', 'Thick paper mount', '(Underside paper tape)', 'Chip resistor', and 'Square punchout hole' are written below the diagram.

(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
$\phi 1.5^{+0.1}_{0}$	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		F	L				
Part No.					Resistance tolerance		Special part number			Nominal resistance				
					F		L			Resistance code, 4 digits.				
					±1%		0.1 to 9.1Ω (class F)			Resistance tolerance code +Special P/N				
										FL : 4 digits				

Packaging Specifications Code

Part No.	Code	Resistance tolerance F(±1%)	Packaging specifications	Reel	Basic ordering unit(pcs)
MCR01	MZP	⊙	Paper tape (2mm Pitch)	φ180mm (7inch)	10,000

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

Notes

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