

Compact Film Chip Resistors

MCR004 (01005 size : 1 / 32W)

●Features

- 1) Extremely small
Area ratio is 50% smaller than that of chip 0201.
- 2) High dimensional precision
Novel semiconductor process technology guarantees an external dimensional tolerance of $\pm 20\mu\text{m}$.
- 3) Pressed carrier tape applications
Using a pressed carrier tape reduces mounting errors compared with conventional carrier tapes.
- 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

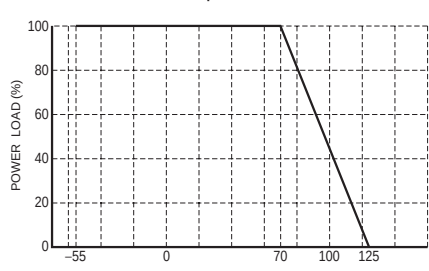
Item	Conditions	Specifications
Rated power	Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  Fig.1	0.031W (1 / 32W) at 70°C
Rated voltage	The voltage rating is calculated by the following equation. If the value obtained exceeds the limiting 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 voltage15V
Nominal resistance	See Table 1.	
Operating temperature		-55°C to +125°C

Table 1

Jumper type

Resistance	Max. 50m Ω
Rated current	0.5A
Operating temperature	-55°C to +125°C

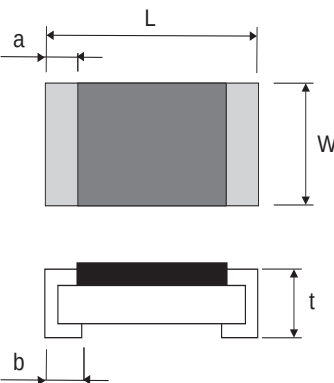
Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
J ($\pm 5\%$)	$10 \leq R < 100$ (E24)	± 300
	$100 \leq R \leq 3\text{M}$ (E24)	± 250
F ($\pm 1\%$)	$10 \leq R < 100$ (E24)	± 300
	$100 \leq R \leq 3\text{M}$ (E24)	± 250

- 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	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	Max. 50m Ω	JIS C 5201-1 4.8 Measurement : +20 / -55 / +20 / +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 $\times 2$: 30V
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 100cyc
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 $\pm 3^\circ\text{C}$ 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 $\pm 5^\circ\text{C}$, 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)

						
Part No.	Size code mm (inch)	L	W	t	a	b
MCR004	0402(01005)	0.4 $\pm$ 0.02	0.2 $\pm$ 0.02	0.13 $\pm$ 0.02	0.1 $\pm$ 0.03	0.1 $\pm$ 0.03

●Packaging
• Paper tape(2mm Pitch)

Reel

Diagram of a reel for paper tape packaging. The reel is shown in a cross-sectional view. The dimensions are labeled as follows: A is the total width of the reel; B is the width of the central hub; D is the width of the outer rim; C is the width of the central hub; and Label is the width of the label. The reel is shown in a cross-sectional view, with the central hub and outer rim clearly visible. The dimensions are labeled with arrows indicating the measurement direction.

EIAJ ET-7200B compliant

(Unit : mm)

A	B	C	D
$\phi 180 \begin{smallmatrix} 0 \\ -15 \end{smallmatrix}$	$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$	$9 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$	$\phi 13 \pm 0.2$

Taping

Diagram of a paper tape showing dimensions W, F, E, A₀, B₀, P₀, P₁, P₂, D₀, and T₂. The diagram shows a cross-section of the tape with a central hub and outer rim. The dimensions are labeled with arrows indicating the measurement direction. The labels include: Heat crimp cover Tape, Thick paper, Chip resistor, Square press hole, and Press carrier tape.

(Unit : mm)

W	F	E	A ₀	B ₀
8.0 ± 0.2	3.5 ± 0.05	1.75 ± 0.1	0.24 ± 0.03	0.45 ± 0.03
D ₀	P ₀	P ₁	P ₂	T ₂
$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	4.0 ± 0.1	2.0 ± 0.05	2.0 ± 0.05	Max. 0.50

• Embossed tape(1mm Pitch)

Reel

The diagram shows a side view of a reel with a central hub and a large outer flange. Dimension A is the total width of the reel. Dimension B is the width of the central hub. Dimension D is the thickness of the hub. Dimension C is the width of the central hole. A label is shown on the inner surface of the flange.

(Unit : mm)

A	B	C	D
$\phi 178 \pm 1.0$	$\phi 60 \pm 1.0$	$5 \begin{smallmatrix} +1.0 \\ -0.6 \end{smallmatrix}$	$\phi 13 \pm 0.2$

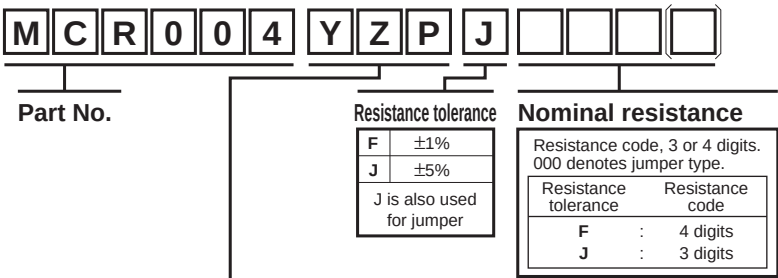
Taping

The diagram shows a cross-section of an embossed tape. Dimension W is the total width of the tape. Dimension F is the height of the top tape. Dimension E is the height of the embossed part. Dimension A0 is the width of the top tape. Dimension B0 is the width of the embossed part. Dimension P0 is the pitch of the embossed part. Dimension P1 is the pitch of the components. Dimension P2 is the pitch of the pockets. Dimension D0 is the diameter of the embossed part. Dimension T2 is the thickness of the base embossed part. Labels include Top tape, Components, Pocket, and Base Embossed.

(Unit : mm)

W	F	E	A ₀	B ₀
4.0 ± 0.05	1.8 ± 0.02	0.9 ± 0.05	0.23 ± 0.02	0.43 ± 0.02
D ₀	P ₀	P ₁	P ₂	T ₂
0.8 ± 0.04	2.0 ± 0.04	1.0 ± 0.02	1.0 ± 0.02	0.2 ± 0.02

●Part No. Explanation



Packaging Specifications Code

Part No.	Code	Resistance tolerance		Packaging specifications	Reel	Basic ordering unit (pcs)
		J(±5%)	F(±1%)			
MCR004	YZP	◎	◎	Paper tape (2mm Pitch)	φ180mm	15,000
	RZP	◎	◎	Embossed tape (1mm Pitch)	φ180mm	40,000

Reel (φ180) : JEITA ET-7200B
◎ : Standard product

Notes

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