

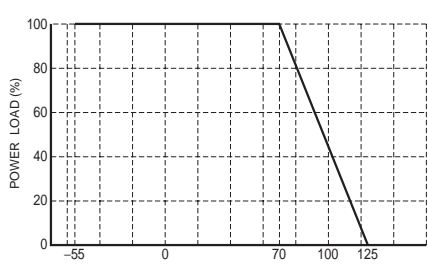
Compact Film Chip Resistors

MCR004 (0402 size : 1 / 32W)

●Features

- 1) Extremely small
Area ratio is 50% smaller than that of chip 0603.
- 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 voltage 15V
Nominal resistance	See Table 1.	
Operating temperature		-55°C to +125°C

Jumper type

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

Table 1

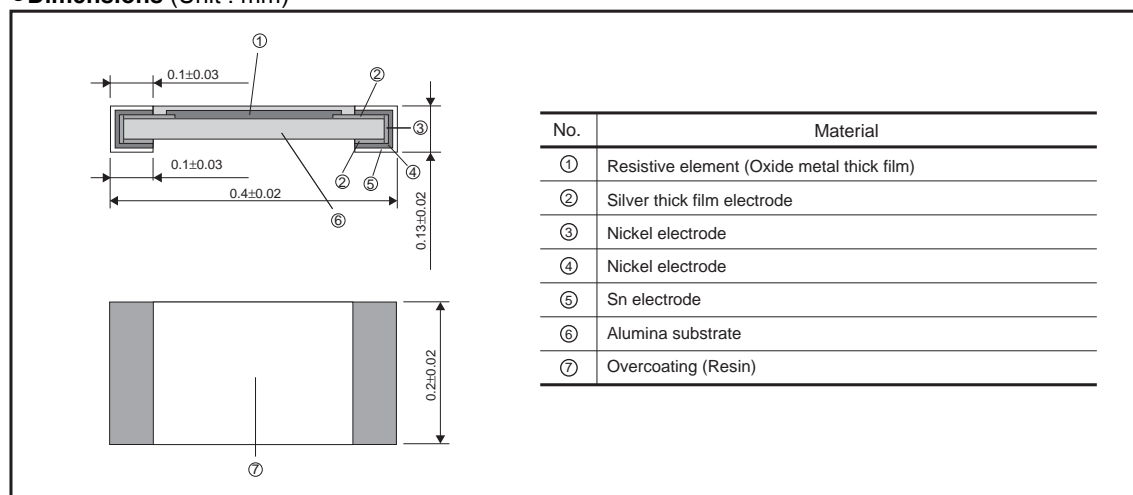
Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
J ($\pm 5\%$)	10 $\leq R \leq 3M$ (E24)	± 250
F ($\pm 1\%$)	10 $\leq R \leq 3M$ (E24)	± 250

- 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 / +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 : 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)



●Packaging

Reel

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

Thick paper

Heat crimp cover Tape

Chip resistor

Square press hole

Press carrier tape

(Unit : mm)

W	F	E	A0	B0
8.0 ± 0.2	3.5 ± 0.05	1.75 ± 0.1	0.24 ± 0.03	0.45 ± 0.03
D0	P0	P1	P2	T
$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	4.0 ± 0.1	2.0 ± 0.05	2.0 ± 0.05	Max. 0.50

●Part No. Explanation

M

C

R

0

0

4

Y

Z

P

J

Part No.

Resistance tolerance

Nominal resistance

F	±1%
J	±5%

J is also used for jumper

Resistance code, 3 or 4 digits.
000 denotes jumper type.

Resistance tolerance	Resistance code
F	: 4 digits
J	: 3 digits

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

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

Notes

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