

Compact Thick Film Chip Resistors

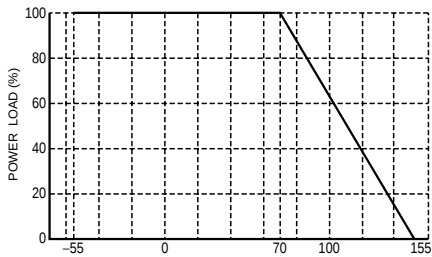
MCR10 (2012 size : 1 / 8W)

●Features

- 1) Power rating of 1 / 8W
- 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) Leading the world in development and mass production.
Since start of production in 1982 (first in the world), this component has established a solid reputation as a general-purpose chip resistor.
- 5) ROHM resistors have approved ISO9001- / ISO/TS 16949- 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.	J, F	0.125W (1 / 8W) at 70°C
		D	0.1W (1 / 10W) at 70°C
	 Fig.1		
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 150V	
Nominal resistance	See Table 1.		
Operating temperature		-55°C to + 155°C	

Resistors

Jumper type

Resistance	Max. 50mΩ
Rated current	2A
Operating temperature	-55°C to +155°C

Table 1

Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm/°C)
D (±0.5%)	10 to 91 (E24)	±100
	100 to 1M (E24)	±50
F (±1%)	10 to 2.2M (E24,96)	±100
J (±5%)	1.0 to 9.1 (E24)	±400
	10 to 10M (E24)	±200

●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 : ±5% F : ±1% D : ±0.5%	Max. 50mΩ	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	± (2.0%+0.1Ω)	Max. 50mΩ	JIS C 5201-1 4.13 Rated voltage (current) ×2.5, 2s. Maximum overload voltage : 200V
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±5°C Duration of immersion : 2.0±0.5s.
Resistance to soldering heat	± (1.0%+0.05Ω) No remarkable abnormality on the appearance.	Max. 50mΩ	JIS C 5201-1 4.18 Soldering condition : 260±5°C Duration of immersion : 10±1s.
Rapid change of temperature	± (1.0%+0.05Ω)	Max. 50mΩ	JIS C 5201-1 4.19 Test temp. : -55°C to +125°C 5cyc
Damp heat, steady state	± (3.0%+0.1Ω)	Max. 100mΩ	JIS C 5201-1 4.24 40°C, 93%RH Test time : 1,000h to 1,048h
Endurance at 70°C	± (3.0%+0.1Ω)	Max. 100mΩ	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	± (3.0%+0.1Ω)	Max. 100mΩ	JIS C 5201-1 4.25.3 155°C Test time : 1,000h to 1,048h
Resistance to solvent	± (1.0%+0.05Ω)	Max. 50mΩ	JIS C 5201-1 4.29 23±5°C, Immersion cleaning, 5±0.5min. Solvent : 2-propanol
Bend strength of the end face plating	± (1.0%+0.05Ω) Without mechanical damage such as breaks.	Max. 50mΩ	JIS C 5201-1 4.33

Technical drawing of a rectangular component, showing two views: a side view (top) and a front view (bottom).

Side View (Top):

- Dimension 1: 0.4 ± 0.2 (width of the top flange)
- Dimension 2: 0.4 ± 0.2 (width of the bottom flange)
- Dimension 3: 2.0 ± 0.1 (total length)
- Dimension 4: 0.55 ± 0.1 (height of the component)
- Label 1: Points to the top flange.
- Label 2: Points to the top edge of the top flange.
- Label 3: Points to the bottom edge of the bottom flange.
- Label 4: Points to the bottom edge of the component.
- Label 5: Points to the bottom flange.

Front View (Bottom):

- Dimension 6: 1.25 ± 0.1 (height of the central body)
- Label 6: Points to the central body.

No.	Material
①	Resistive element (Oxide metal thick film)
②	Silver thick film electrode
③	Nickel electrode
④	Sn electrode
⑤	Alumina substrate
⑥	Overcoating (Resin)

Technical drawings of the EIAJ ET-7200B compliant reel. The top drawing is a plan view showing dimensions A, B, C, D, and a central hub with a label. The bottom drawing is a cross-section showing the reel's profile with dimensions W, E, F, A₀, B₀, P₀, P₁, P₂, and D₀. Labels include 'Thick paper mount', 'Heat crimp cover tape', 'Chip resistor', 'Square punchout hole', and 'Underside paper tape'.

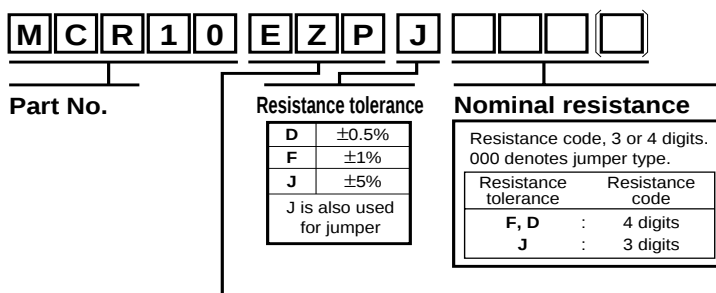
EIAJ ET-7200B compliant

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

(Unit: mm)				
W	F	E	A ₀	B ₀
8.0±0.3	3.5±0.05	1.75±0.1	1.65 $\begin{smallmatrix} +0.2 \\ -0.1 \end{smallmatrix}$	2.4 $\begin{smallmatrix} +0.2 \\ -0.1 \end{smallmatrix}$
D ₀	P ₀	P ₁	P ₂	T ₂
$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	4.0±0.1	4.0±0.1	2.0±0.05	Max. 1.1

Resistors

●Part No. Explanation



Packaging Specifications Code

Part No.	Code	Resistance tolerance			Packaging specifications	Reel	Basic ordering unit (pcs)
		J(±5%)	F(±1%)	D(±0.5%)			
MCR10	EZP	◎	◎	◎	Paper tape (4mm Pitch)	φ180mm (7in.)	5,000

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

◎ : Standard product

Notes

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