

Low Ohmic Thick Film Chip Resistors

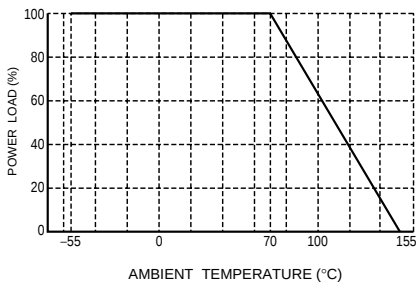
MCR10 (2012 size (0805 size) : 1 / 4W)

●Features

- 1) Power rating of 1 / 4W
- 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	0.25W (1 / 4W) at 70°C
Rated voltage	The voltage rating is calculated by the following equation. $E = \sqrt{P \times R}$ E: Rated voltage (V) P: Rated power (W) R: Nominal resistance (Ω)	
Nominal resistance	See Table 1.	
Operating temperature		-55°C to + 155°C

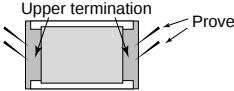
Resistors

Table 1

Resistance tolerance	Special specification	Resistance range (Ω)	Resistance temperature coefficient (ppm/ $^{\circ}$ C)
F ($\pm 1\%$)	L	0.1 to 0.13 (E24)	400 $\pm$ 200
	L	0.15 to 9.1 (E24)	$\pm$ 250
	S	0.047 to 0.091 (E24)	500 $\pm$ 300
J ($\pm 5\%$)	L	0.1 to 0.13 (E24)	400 $\pm$ 200
	L	0.15 to 0.91 (E24)	$\pm$ 250
	S	0.047 to 0.091 (E24)	500 $\pm$ 300

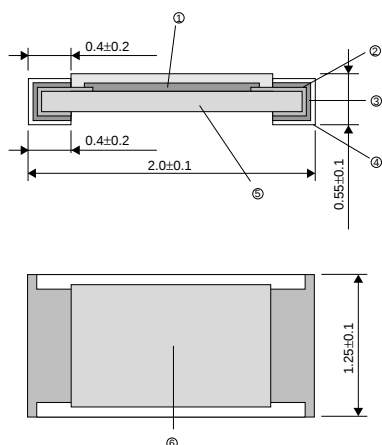
- Before using components in circuits where they will be exposed to transients such as pulse loads (short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady state voltage that is greater than its rated voltage.

● Characteristics

Item	Guaranteed value	Test conditions (JIS C 5201-1)
	Resistor type	
Resistance	J : $\pm 5\%$ F : $\pm 1\%$	JIS C 5201-1 4.5 Load voltage : A Measuring method : measure upper termination by 4 probes. 
Variation of resistance with temperature	See Table.1	JIS C 5201-1 4.8 Measurement : +25 / -55 / +25 / +125 $^{\circ}$ 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 $\pm 5^{\circ}$ C Duration of immersion : 2.0 $\pm$ 0.5s.
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 $\pm 5^{\circ}$ C Duration of immersion : 10 $\pm$ 1s.
Rapid change of temperature	$\pm (1.0\% + 0.005\Omega)$	JIS C 5201-1 4.19 Test temp. : -55 $^{\circ}$ C to +125 $^{\circ}$ C 5cyc
Damp heat, steady state	$\pm (3.0\% + 0.005\Omega)$	JIS C 5201-1 4.24 40 $^{\circ}$ C, 93%RH Test time : 56days
Endurance at 70 $^{\circ}$ C	$\pm (3.0\% + 0.005\Omega)$	JIS C 5201-1 4.25.1 70 $^{\circ}$ 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 $^{\circ}$ C Test time : 1,000h to 1,048h
Resistance to solvent	$\pm (0.5\% + 0.005\Omega)$	JIS C 5201-1 4.29 23 $^{\circ}$ C $\pm 5^{\circ}$ C, Immersion cleaning, 5 $\pm$ 0.5min. 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

Resistors

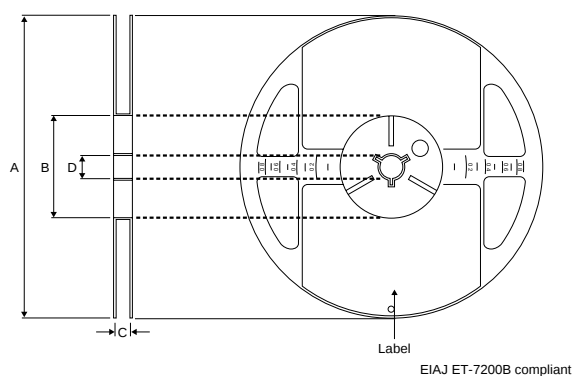
●Dimensions (Unit : mm)



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 (Glass)

●Packaging

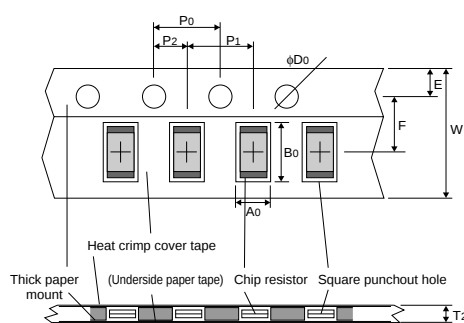
Reel



(Unit: mm)

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

Taping

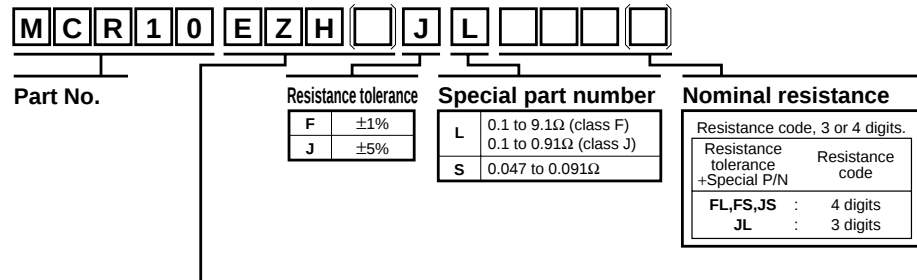


(Unit: mm)

W	F	E	A0	B0
8.0 ± 0.3	3.5 ± 0.05	1.75 ± 0.1	$1.65 \begin{smallmatrix} +0.2 \\ -0.1 \end{smallmatrix}$	$2.4 \begin{smallmatrix} +0.2 \\ -0.1 \end{smallmatrix}$
D0	P0	P1	P2	T2
$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	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($\pm 5\%$)	F($\pm 1\%$)			
MCR10	EZH	◎	◎	Paper tape (4mm Pitch)	φ180mm (7inch)	5,000

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

◎ : Standard product

Notes

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