

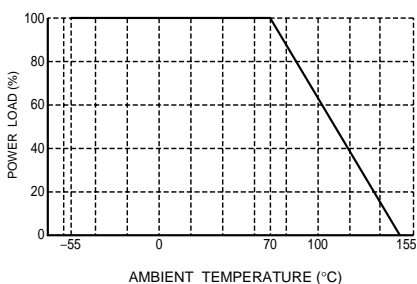
Thick film rectangular Low resistance series

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

●Ratings

Item	Conditions	Specifications		
Rated power	<p>Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.</p>  <p style="text-align: center;">Fig.1</p>	0.25W (1 / 4W) at 70°C		
Rated voltage	<p>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.</p> $E = \sqrt{P \times R}$ <p style="text-align: center;">E: Rated voltage (V) P: Rated power (W) R: Nominal resistance (Ω)</p>	<table border="1" style="width: 100%;"> <tr> <td>Limiting element voltage</td> <td>1.58V(10Ω)</td> </tr> </table>	Limiting element voltage	1.58V(10Ω)
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Nominal resistance	See Table 1.			
Operating temperature		-55°C to + 155°C		

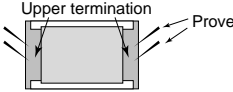
Resistors

Table 1

Resistance tolerance	Special specification	Resistance range (Ω)	Resistance temperature coefficient (ppm/ $^{\circ}$ C)
F ($\pm 1\%$)	L	$0.15 \leq R \leq 9.1$ (E24)	± 250
	L	$0.1 \leq R \leq 0.13$ (E24)	400 ± 200
	S	$0.047 \leq R \leq 0.091$ (E24)	500 ± 300
J ($\pm 5\%$)	L	$0.15 \leq R \leq 0.91$ (E24)	± 250
	L	$0.1 \leq R \leq 0.13$ (E24)	400 ± 200
	S	$0.047 \leq R \leq 0.091$ (E24)	500 ± 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 ± 0.5 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 : $260 \pm 5^{\circ}$ C Duration of immersion : 10 ± 1 s.
Rapid change of temperature	$\pm (1.0\% + 0.005\Omega)$	JIS C 5201-1 4.19 Test temp. : -55° C to $+125^{\circ}$ 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° C $\pm 5^{\circ}$ C, Immersion cleaning, 5 ± 0.5 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

Resistors

●Dimensions (Unit : mm)

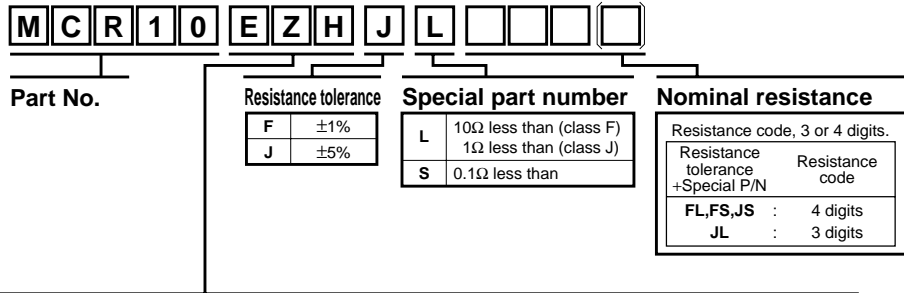
No.	Material
①	Resistive element
②	Silver thick film electrode
③	Nickel electrode
④	Sn electrode
⑤	Alumina substrate
⑥	Overcoating

●Packaging

Reel	Taping																												
<p>EIAJ ET-7200B compliant</p> <p>(Unit: mm)</p> <table border="1"> <thead> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>$\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}$</td> <td>$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$</td> <td>$13 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$</td> <td>$\phi 13 \pm 0.2$</td> </tr> </tbody> </table>	A	B	C	D	$\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}$	$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$	$13 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$	$\phi 13 \pm 0.2$	<p>(Unit: mm)</p> <table border="1"> <thead> <tr> <th>W</th> <th>F</th> <th>E</th> <th>A₀</th> <th>B₀</th> </tr> </thead> <tbody> <tr> <td>8.0 ± 0.3</td> <td>3.5 ± 0.05</td> <td>1.75 ± 0.1</td> <td>$1.65 \begin{smallmatrix} +0.2 \\ -0.1 \end{smallmatrix}$</td> <td>$2.4 \begin{smallmatrix} +0.2 \\ -0.1 \end{smallmatrix}$</td> </tr> <tr> <th>D₀</th> <th>P₀</th> <th>P₁</th> <th>P₂</th> <th>T₂</th> </tr> <tr> <td>$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$</td> <td>$4.0 \pm 0.1$</td> <td>$4.0 \pm 0.1$</td> <td>$2.0 \pm 0.05$</td> <td>Max. 1.1</td> </tr> </tbody> </table>	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
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Resistors

●Part No. Explanation



Packaging Specifications Code

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

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

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