

Low Ohmic Thick Film Chip Resistors

MCR50 (5025 size (2010 size) : 1 / 2W)

●Features

- 1) Highly reliable chip resistor
Ruthenium oxide dielectric offers superior resistance to the elements.
 - 2) Electrodes not corroded by soldering
Suitable for re-flow soldering.
- ROHM resistors have approved ISO9001 / ISO/TS 16949- certification.

●Ratings

Design and specifications are subject to change without notice.

Carefully check the specification sheet supplied with the product before using or ordering it.

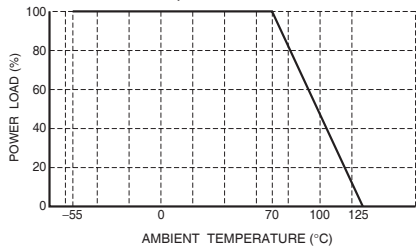
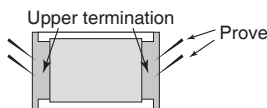
Item	Conditions	Specifications	
Rated power	Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  Fig.1	0.5W (1 / 2W) at 70°C	
Rated voltage	The voltage rating is calculated by the following equation. If the value obtained exceeds the limiting 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	2.13V (9.1Ω)
Nominal resistance	See Table 1.		
Operating temperature		-55°C to +155°C	

Table 1

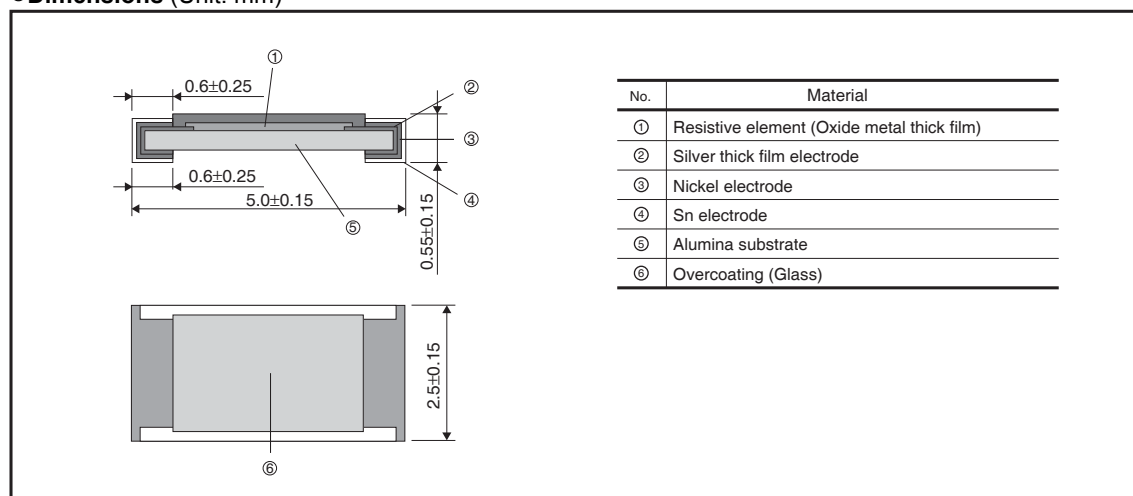
Resistance tolerance	Special code	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
F (±1%)	L	0.1 to 0.13 (E24)	400±200
	L	0.15 to 9.1 (E24)	±250
	S	0.047 to 0.091 (E24)	500±300
J (±5%)	L	0.1 to 0.13 (E24)	400±200
	L	0.15 to 0.91 (E24)	±250
	S	0.047 to 0.091 (E24)	500±300

- 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 proves. 
Variation of resistance with temperature	See Table.1	JIS C 5201-1 4.8 Measurement : $+25 / -55 / +25 / +125^{\circ}\text{C}$
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 : $235\pm 5^{\circ}\text{C}$ Duration of immersion : $2.0\pm 0.5\text{s}$.
Resistance to soldering heat	$\pm (1.0\%+0.005\Omega)$ No remarkable abnormality on the appearance.	JIS C 5201-1 4.18 Soldering condition : $260\pm 5^{\circ}\text{C}$ Duration of immersion : $10\pm 1\text{s}$.
Rapid change of temperature	$\pm (1.0\%+0.005\Omega)$	JIS C 5201-1 4.19 Test temp. : -55°C to $+125^{\circ}\text{C}$ 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 4.25.3 125°C Test time : 1,000h to 1,048h
Resistance to solvent	$\pm (0.5\%+0.005\Omega)$	JIS C 5201-1 4.29 $23^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Solvent : 2-propanol
Bend strength of the end face plating	Without mechanical damage such as breaks.	JIS C 5201-1 4.33

●Dimensions (Unit: mm)



●Packaging

Reel

Diagram of a reel of resistors showing dimensions A, B, C, D, and a label. The reel is circular with a central hub and four spokes. The dimensions are defined as follows: A is the outer diameter, B is the inner diameter, C is the width of the reel, D is the diameter of the central hub, and Label is the diameter of the central hole.

EIAJ ET-7200B compliant

(Unit : mm)

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

Taping

Diagram of a resistor tape showing dimensions W, F, B₀, A₀, P₀, P₁, P₂, D₀, K, and w. The tape is rectangular with a central hub and four spokes. The dimensions are defined as follows: W is the width of the tape, F is the height of the tape, B₀ is the height of the central hub, A₀ is the width of the central hub, P₀ is the pitch between the central hub and the first spoke, P₁ is the pitch between the first and second spokes, P₂ is the pitch between the second and third spokes, D₀ is the diameter of the central hole, K is the thickness of the tape, and w is the width of the tape.

(Unit : mm)

W	F	E	A ₀	B ₀
12.0±0.3	5.5±0.05	1.75±0.1	3.4±0.2	5.6±0.2
D ₀	P ₀	P ₁	P ₂	K
$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	4.0±0.1	4.0±0.1	2.0±0.05	Max. 1.1

●Part No. Explanation

M	C	R	5	0	J	Z	H		J	L				
Part No.					Resistance tolerance		Special part number				Nominal resistance			
					F	±1%	L	0.1 to 9.1Ω (class F) 0.1 to 0.91Ω (class J)			Resistance code, 3 or 4 digits.			
					J	±5%	S	0.047 to 0.091Ω			Resistance tolerance +Special P/N			
											Resistance code			
											FL,FS,JS : 4 digits			
											JL : 3 digits			

Packaging Specifications Code

Part No.	Code	Resistance tolerance		Packaging specifications	Reel	Basic ordering unit(pcs)
		J(±5%)	F(±1%)			
MCR50	JZH	◎	◎	Embossed tape (4mm Pitch)	φ180mm (7inch)	4,000

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

Notes

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