

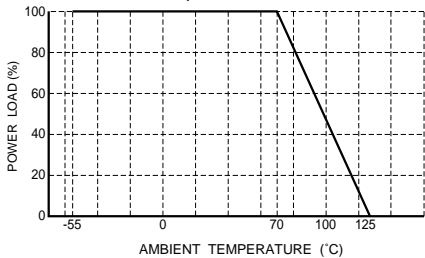
# Thick Film Chip Resistors

## MCR25 (1210 size: 1 / 4W)

### ●Features

- 1) Made of same material as the general purpose chip resistors (MCR10 / 18).
- 2) Highly reliable chip resistor  
Ruthenium oxide resistive material offers superior resistance to the elements.
- 3) Electrodes not corroded by soldering  
Suitable for re-flow soldering.
- 4) ROHM resistors have approved ISO9001-/ ISO/TS 16949- certification.  
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	Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  <p style="text-align: center;">Fig.1</p>	0.25W (1 / 4W) 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. $E = \sqrt{P \times R}$ <div style="display: flex; justify-content: space-between;"> <div> <p>E: Rated voltage (V)</p> <p>P: Rated power (W)</p> <p>R: Nominal resistance (Ω)</p> </div> <div> <p>Limiting element voltage</p> <p>200V</p> </div> </div>	
Nominal resistance	See Table 1.	
Operating temperature		-55°C to +125°C

#### Jumper type

Resistance	Max. 50mΩ
Rated current	2A
Operating temperature	-55°C to +125°C

Table 1

Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm/°C)
F (±1%)	10 ≤ R ≤ 1M (E24,96)	±100
J (±5%)	1.0 ≤ R ≤ 2.0 (E24)	500±350
	2.2 ≤ R ≤ 5.1 (E24)	±500
	5.6 ≤ R ≤ 3.3M (E24)	±200

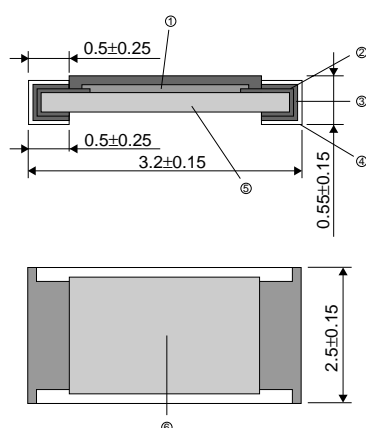
●Before using components in circuits where they will be exposed to transients such as pulse loads (short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady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

## Resistors

## ●Characteristics

Item	Guaranteed value		Test conditions (JIS C 5201-1)
	Resistor type	Jumper type	
Resistance	J : $\pm 5\%$ F : $\pm 1\%$	Max. 50m $\Omega$	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	$\pm (2.0\%+0.1\Omega)$	Max. 50m $\Omega$	JIS C 5201-1 4.13 Rated voltage (current) $\times 2.5$ , 2s. Maximum overload voltage : 400V
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 $\pm 0.5$ s.
Resistance to soldering heat	$\pm (1.0\%+0.05\Omega)$ No remarkable abnormality on the appearance.	Max. 50m $\Omega$	JIS C 5201-1 4.18 Soldering condition : 260 $\pm 5^\circ\text{C}$ Duration of immersion : 10 $\pm 1$ s.
Rapid change of temperature	$\pm (1.0\%+0.05\Omega)$	Max. 50m $\Omega$	JIS C 5201-1 4.19 Test temp. : -55°C to +125°C 5cyc
Damp heat, steady state	$\pm (3.0\%+0.1\Omega)$	Max. 100m $\Omega$	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 $\Omega$	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	$\pm (3.0\%+0.1\Omega)$	Max. 100m $\Omega$	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 $\Omega$	JIS C 5201-1 4.29 23 $\pm 5^\circ\text{C}$ , Immersion cleaning, 5 $\pm 0.5$ 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 $\Omega$	JIS C 5201-1 4.33

## ●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)

## Resistors

## ●Packaging

Reel

Diagram of a reel showing dimensions A, B, D, C, and a label. The label is EIAJ ET-7200B compliant.

EIAJ ET-7200B compliant

(Unit : mm)

A	B	C	D
$\phi 180 \begin{smallmatrix} 0 \\ -3 \end{smallmatrix}$	$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$	$9 \begin{smallmatrix} +1.0 \\ -0 \end{smallmatrix}$	$\phi 13 \pm 0.2$

Taping

Diagram of a resistor tape showing dimensions W, F, E, A<sub>0</sub>, B<sub>0</sub>, P<sub>0</sub>, P<sub>1</sub>, P<sub>2</sub>, D<sub>0</sub>, and K.

(Unit : mm)

W	F	E	A <sub>0</sub>	B <sub>0</sub>
8.0±0.3	3.5±0.05	1.75±0.1	3.0±0.1	3.5±0.1
D <sub>0</sub>	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	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	2	5	J	Z	H	J													
Part No.					Resistance tolerance				Nominal resistance												
					F	±1%			Resistance code, 3 or 4 digits. 000 denotes jumper type.												
					J	±5%															
					J is also used for jumper				<table><tr><th>Resistance tolerance</th><th></th><th>Resistance code</th></tr><tr><td>F</td><td>:</td><td>4 digits</td></tr><tr><td>J</td><td>:</td><td>3 digits</td></tr></table>				Resistance tolerance		Resistance code	F	:	4 digits	J	:	3 digits
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%)			
<b>MCR25</b>	JZH	⊙	⊙	Embossed tape (4mm Pitch)	φ180mm (7in.)	4,000

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

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