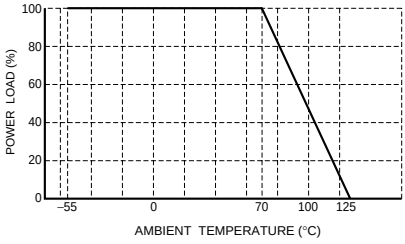
Thick film rectangular

MCR50 (2010 size : 1 / 2W)

●Features

1) Made of same material as the general purpose chip resistors (MCR10 / 18).
2) Highly reliable chip resistor
   Ruthenium oxide dielectric offers superior resistance to the elements.
3) Electrodes not corroded by soldering
   Suitable for re-flow soldering.
4) ROHM resistors have approved ISO-9001 certification. Design and specifications are subject to change without notice. Carefully check the specification sheet supplied with the product 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.  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 200V
Nominal resistance	See Table 1.	
Operating temperature		–55°C to +125°C

Jumper type

Resistance	Max. 50mΩ
Rated current	3A
Operating temperature	–55°C to +125°C

Table 1

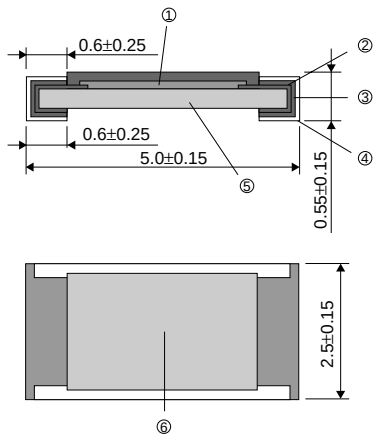
Resistance tolerance	Resistance range (Ω)		Resistance temperature coefficient (ppm / °C)
F (±1%)	10≤R≤180k	(E24,96)	±100
J (±5%)	1.0≤R<2.0	(E24)	500±350
	2.2≤R<9.1	(E24)	±500
	10≤R≤330k	(E24)	±200
	360k<R≤560k	(E24)	±350

●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%	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 : 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±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 4.25.3 125°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

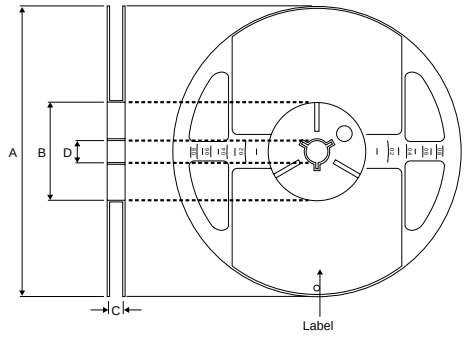
●External dimensions (Unit : mm)



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

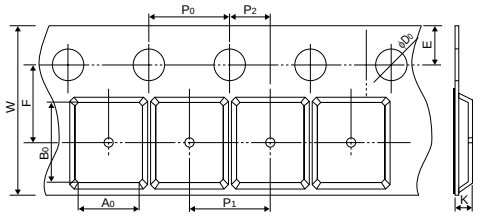


EIAJ ET-7200B compliant

(Unit : mm)

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

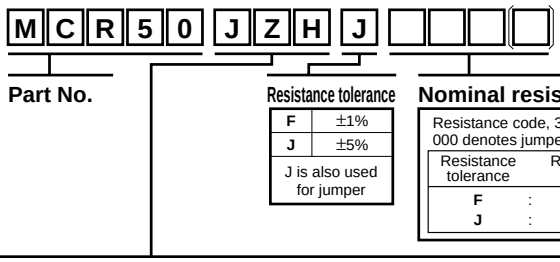
Taping



(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
$\phi 1.5^{\ +0.1}_{\ 0}$	4.0±0.1	4.0±0.1	2.0±0.05	Max. 1.1

●Makeup of the part number



Part No.

Resistance tolerance

F	±1%
J	±5%

J is also used for jumper

Nominal resistance

Resistance code, 3 or 4 digits.
000 denotes jumper type.

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%)			
MCR50	JZH	◎	◎	Embossed tape (4mm Pitch)	φ180mm (7in.)	4,000

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

●Dimensions

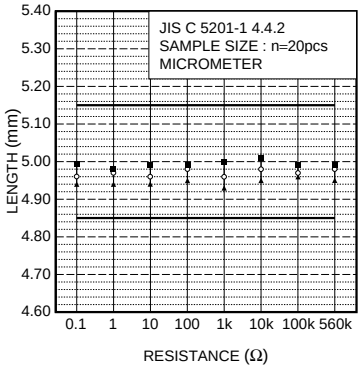


Fig.2 Dimensions (length)

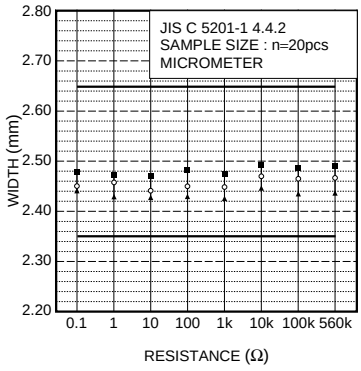


Fig.3 Dimensions (width)

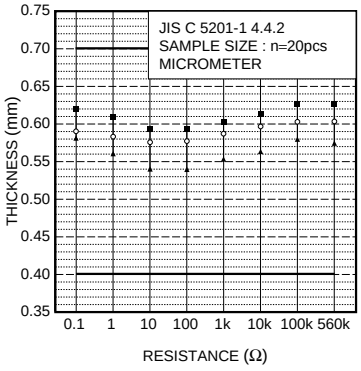


Fig.4 Dimensions (thickness)

●**Electrical characteristics**

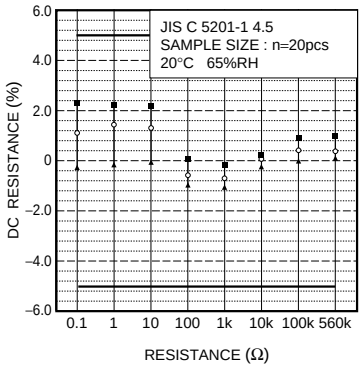


Fig.5 Resistance

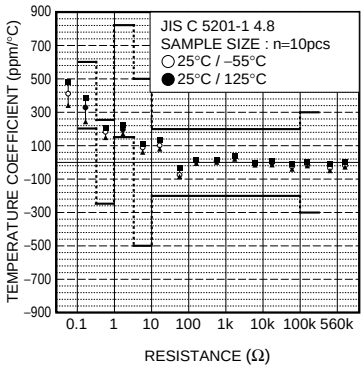


Fig.6 Variation resistance with temperature

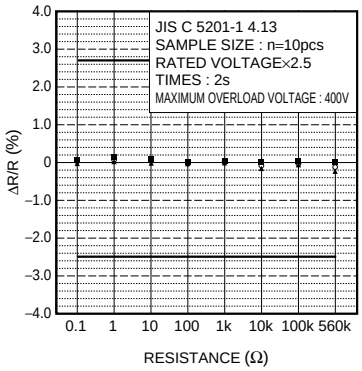


Fig.7 Overload

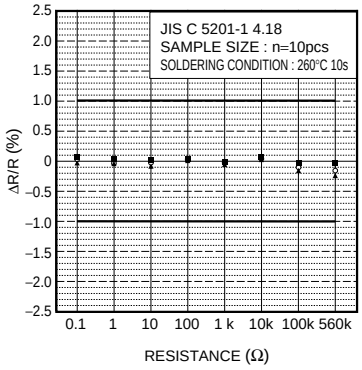


Fig.8 Resistance to soldering heat

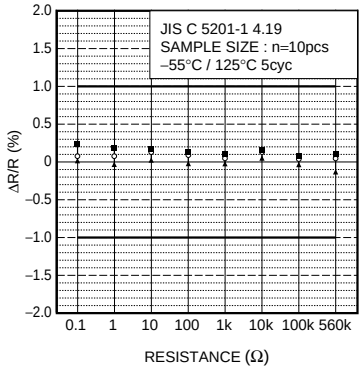


Fig.9 Rapid change of temperature

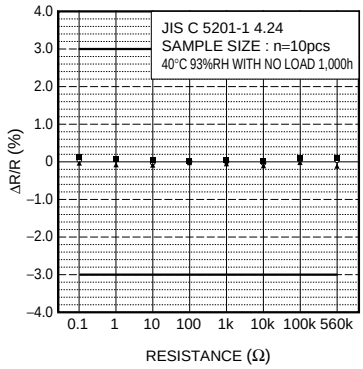


Fig.10 Damp heat, steady state

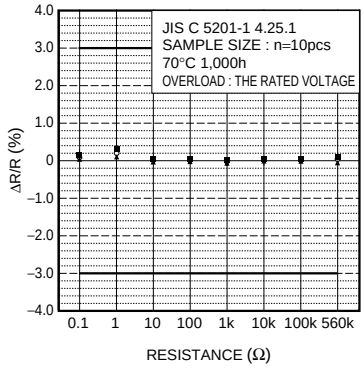


Fig.11 Endurance at 70°C

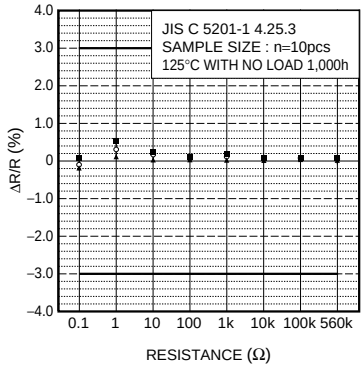


Fig.12 Endurance

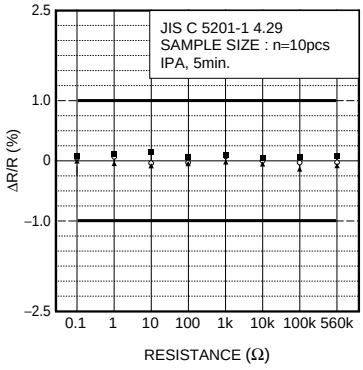


Fig.13 Resistance to solvents

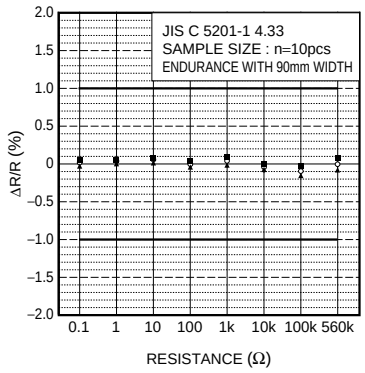


Fig.14 Bend strength of the end face plating

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