

Anti-surge thick film chip resistor

ESR03 (0603 size : 1 / 5W)

●Features

- 1) Power rating of 1 / 5W (MCR03 1/10W)
- 2) Superior anti surge to MCR series
- 3) Highly reliable chip resistor
Ruthenium oxide dielectric offers superior resistance to the elements.
- 4) ROHM resistors have approved ISO-9001, ISO/TS 16949 certification.
Design and specifications are subject to change without notice. Carefully check the specification sheet before using or ordering it.

●Applications

Automotive, LCD Monitor, projector, power supply, charger, inverter and so on.

●Ratings

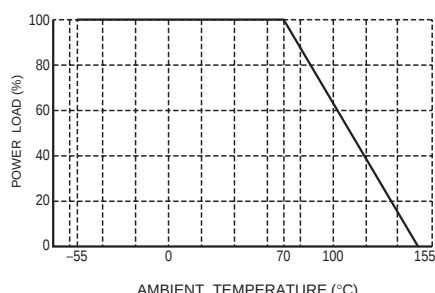
Item	Conditions	Specifications	
Rated power	Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  Fig.1	0.2W (1/5W) at 70°C	
Rated voltage	The voltage rating is calculated by the following equation. If the value obtained exceeds the limiting element 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)		
Nominal resistance	See Table 1.		
Operating temperature		-55°C to +155°C	

Table 1

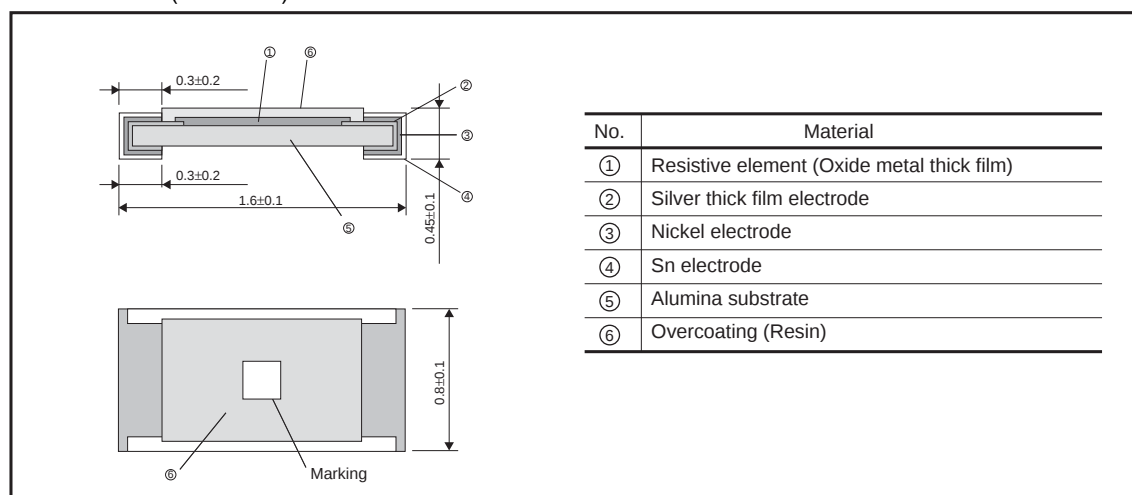
Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm/°C)
D (±0.5%)	10 ≤ R ≤ 1M (E24)	±100
F (±1%)	1 ≤ R ≤ 10M (E24)	±100
J (±5%)	1 ≤ R ≤ 10M (E24)	±200

- 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.

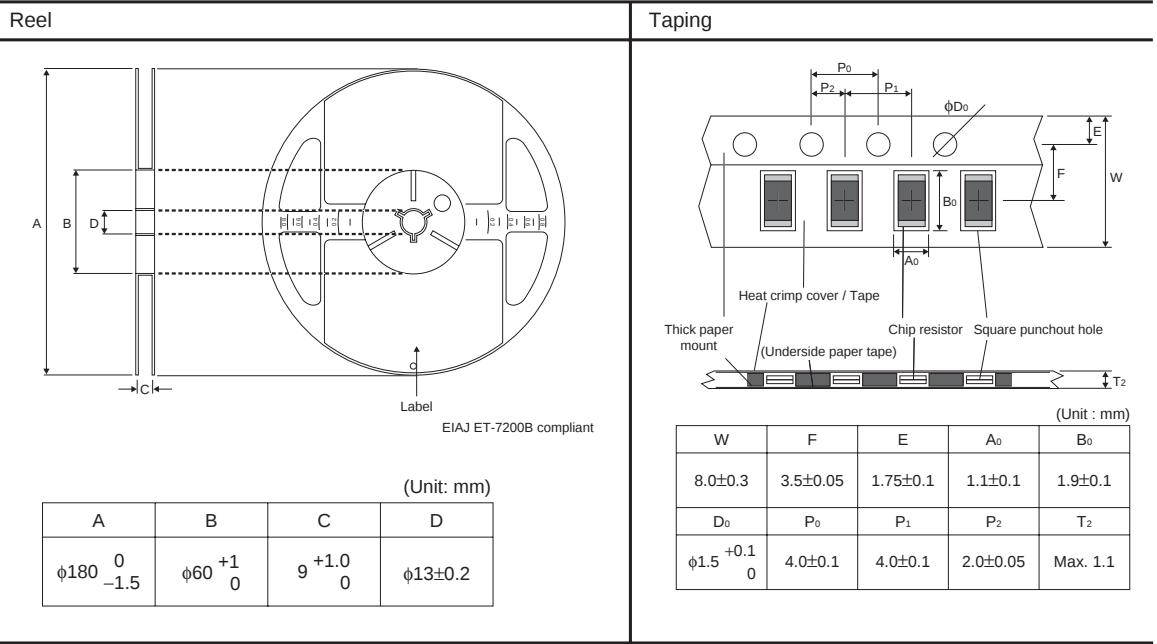
●Characteristics

Item	Guaranteed value	Test conditions (JIS C 5201-1)
	Resistor type	
Resistance	J : $\pm 5\%$ F : $\pm 1\%$ D : $\pm 0.5\%$	JIS C 5201-1 4.5
Variation of resistance with temperature	See Table.1	JIS C 5201-1 4.8 Measurement : $-55 / +25 / +125^{\circ}\text{C}$
Overload	$\pm (2.0\%+0.1\Omega)$	JIS C 5201-1 4.13 Rated voltage (current) $\times 2.5$, 2s. Maximum overload voltage : 100V
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	$\pm (1.0\%+0.05\Omega)$ 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	$\pm (1.0\%+0.05\Omega)$	JIS C 5201-1 4.19 Test temp. : -55°C to $+125^{\circ}\text{C}$ 5cyc
Damp heat, steady state	$\pm (3.0\%+0.1\Omega)$	JIS C 5201-1 4.24 40°C , 93%RH Test time : 1,000h to 1,048h
Endurance at 70°C	$\pm (3.0\%+0.1\Omega)$	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	$\pm (3.0\%+0.1\Omega)$	JIS C 5201-1 4.25.3 155°C Test time : 1,000h to 1,048h
Resistance to solvent	$\pm (1.0\%+0.05\Omega)$	JIS C 5201-1 4.29 $23\pm 5^{\circ}\text{C}$, Immersion cleaning, $5\pm 0.5\text{min}$. Solvent : 2-propanol
Bend strength of the end face plating	$\pm (1.0\%+0.05\Omega)$ Without mechanical damage such as breaks.	JIS C 5201-1 4.33
Static electric characteristics	$\pm (5.0\%+0.05\Omega)$	EIAJ ED-4701 1300 Test method 304 Voltage : 3kv R : $1.5\text{k}\Omega$ C : 100pF Apply cycle : 1 time

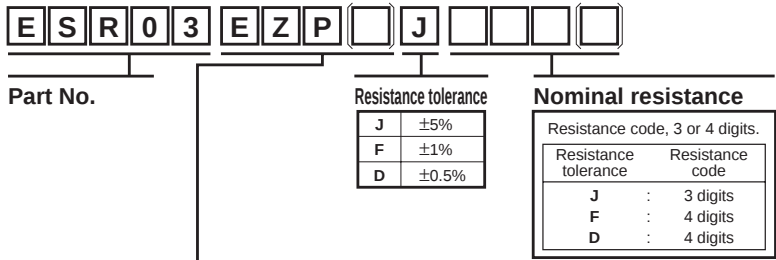
●Dimensions (Unit : mm)



●Packaging



●Part No. Explanation



Packaging Specifications Code						
Part No.	Code	Resistance tolerance			Packaging specifications	Reel
		J(±5%)	F(±1%)	D(±0.5%)		
ESR03	EZP	◎	◎	◎	Paper tape (4mm Pitch)	φ180mm (7inch)
						Basic ordering unit(pcs)
						5,000

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

Notes

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