

# Anti-surge thick film chip resistor

## ESR25 (1210 size : 1 / 2W)

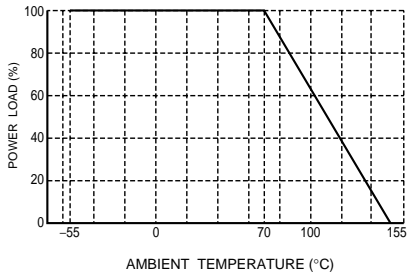
### ●Features

- 1) Power rating of 1/2W (MCR25 1/4W)
- 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.
- 5) This product is in compliance with the RoHS directive.

### ●Applications

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

### ●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>	0.5W (1/2W) 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>200V</td> </tr> </table>	Limiting element voltage	200V
Limiting element voltage	200V			
Nominal resistance	See Table 1.			
Operating temperature		-55°C to +155°C		

## Resistors

Table 1

Resistance tolerance	Resistance range ( $\Omega$ )	Resistance temperature coefficient (ppm/ $^{\circ}$ C)
D ( $\pm 0.5\%$ )	$10 \leq R \leq 1M$ (E24)	$\pm 100$
F ( $\pm 1\%$ )	$1 \leq R \leq 10M$ (E24)	$\pm 100$
J ( $\pm 5\%$ )	$1 \leq R \leq 10M$ (E24)	$\pm 200$

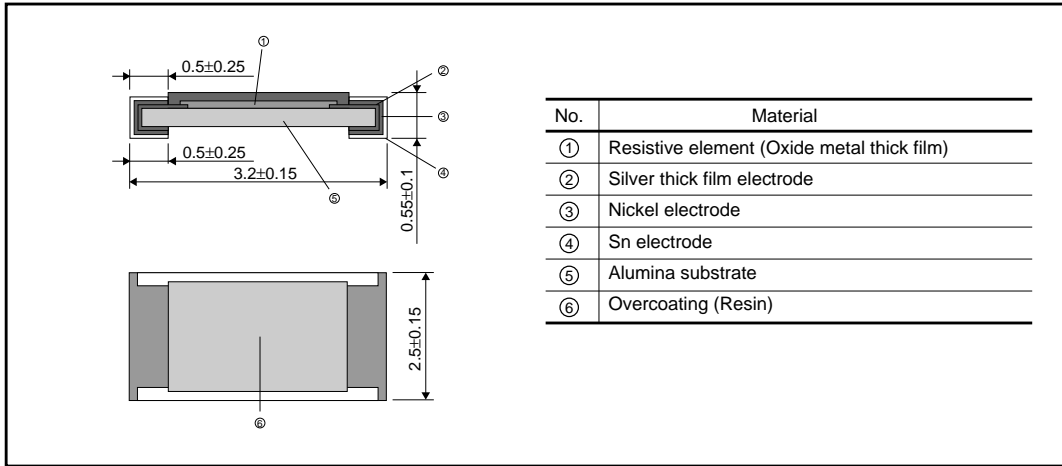
- Before using components in circuits where they will be exposed to transients such as pulse loads (short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady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

## ● Characteristics

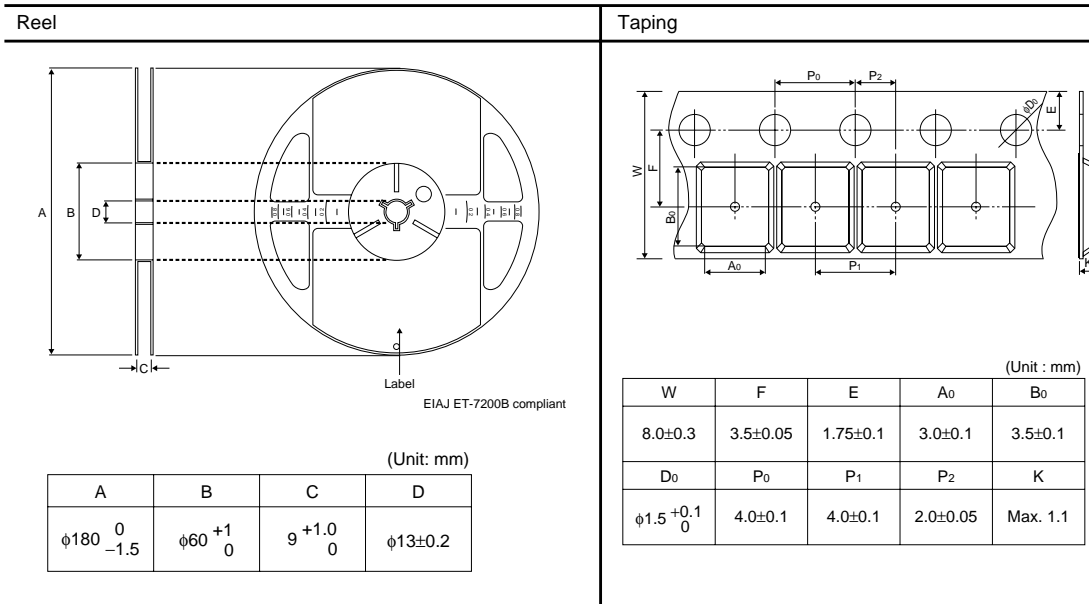
Item	Guaranteed value	Test conditions (JIS C 5201-1)
	Resistor type	
Resistance	J : $\pm 5\%$ F : $\pm 1\%$ D : $\pm 0.5\%$	JIS C 5201-1 4.5
Variation of resistance with temperature	See Table.1	JIS C 5201-1 4.8 Measurement : $-55 / +25 / +125^{\circ}$ C
Overload	$\pm (2.0\%+0.1\Omega)$	JIS C 5201-1 4.13 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 : $235 \pm 5^{\circ}$ 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.	JIS C 5201-1 4.18 Soldering condition : $260 \pm 5^{\circ}$ C Duration of immersion : $10 \pm 1$ s.
Rapid change of temperature	$\pm (1.0\%+0.05\Omega)$	JIS C 5201-1 4.19 Test temp. : $-55^{\circ}$ C to $+125^{\circ}$ C 5cyc
Damp heat, steady state	$\pm (3.0\%+0.1\Omega)$	JIS C 5201-1 4.24 $40^{\circ}$ C, 93%RH Test time : 1,000h to 1,048h
Endurance at $70^{\circ}$ C	$\pm (3.0\%+0.1\Omega)$	JIS C 5201-1 4.25.1 Rated voltage (current), $70^{\circ}$ 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 $155^{\circ}$ C Test time : 1,000h to 1,048h
Resistance to solvent	$\pm (1.0\%+0.05\Omega)$	JIS C 5201-1 4.29 $23 \pm 5^{\circ}$ 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.	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 : $1.5k\Omega$ C : 100pF Apply cycle : 1 time

Resistors

●Dimensions (Unit : mm)

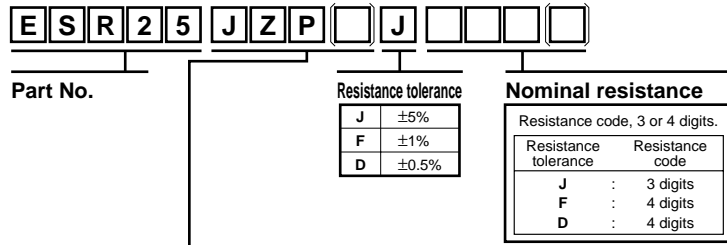


●Packaging



Resistors

●Part No. Explanation



**Packaging Specifications Code**

Part No.	Code	Resistance tolerance			Packaging specifications	Reel	Basic ordering unit(pcs)
		J(±5%)	F(±1%)	D(±0.5%)			
ESR25	JZP	◎	◎	◎	Embossed tape (4mm Pitch)	φ180mm (7inch)	4,000

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

### Notes

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