

ESR18

Resistors

Endured surge thick film chip resistor

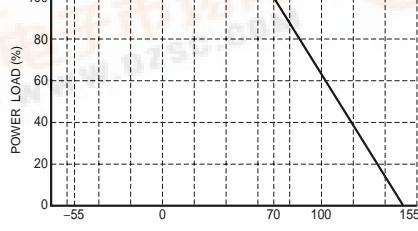
ESR18 (1206 size: 1/3W)

●Features

- 1) Power rating of 1/3W (MCR18 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 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.	0.33W (1/3W) at 70°C		
	 <p>Fig.1</p>			
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> <p>E: Rated voltage (V) $E = \sqrt{P \times R}$ P: Rated power (W) R: Nominal resistance (Ω)</p>	<table border="1"> <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		

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Table 1

Resistance tolerance	Resistance range (Ω)	Resistance temperature coefficient (ppm / °C)
D ($\pm 0.5\%$)	$10 \leq R \leq 1M$ (E24,96)	± 100
J ($\pm 5\%$)	$1 \leq R \leq 10M$ (E24)	± 200

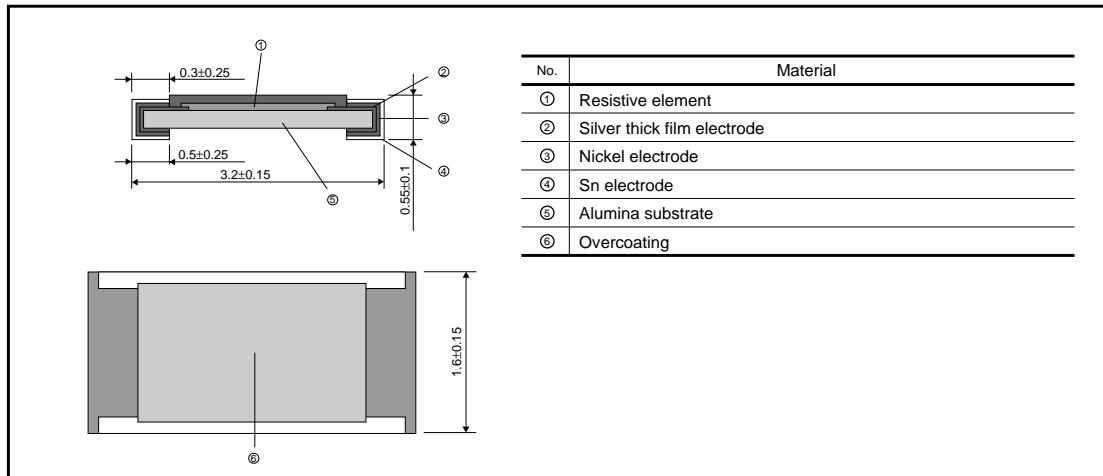
- Before using components in circuits where they will be exposed to transients such as pulse loads (short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady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

●Characteristics

Item	Guaranteed value	Test conditions (JIS C 5201-1)
	Resistor type	
Resistance	J : $\pm 5\%$ 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°C
Overload	$\pm (2.0\% + 0.1\Omega)$	JIS C 5201-1 4.13 Rated voltage (current) $\times 2.5$, 2s. Limiting Element Voltage $\times 2$: 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 : $2.0 \pm 0.5\text{s}$.
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-4701/300 Test method 304 Voltage : 3kv R : $1.5\text{k}\Omega$ C : 100pF Apply cycle : 1 time

Resistors

●External dimensions (Unit : mm)

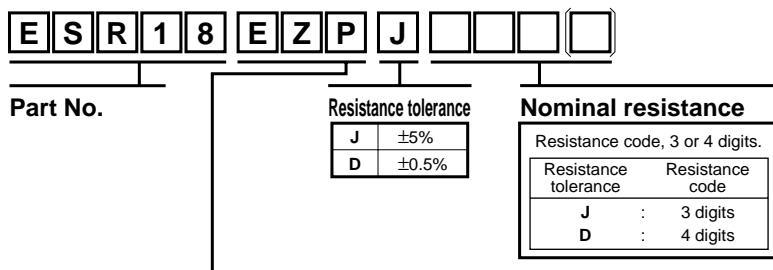


●Packaging

Reel	Taping																												
<p>EIAJ ET-7200B compliant</p> <p>(Unit : mm)</p> <table border="1"> <thead> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>$\phi 180$ -1.5</td> <td>0 0</td> <td>9 0</td> <td>$+1.0$ $\phi 13\pm 0.2$</td> </tr> </tbody> </table>	A	B	C	D	$\phi 180$ -1.5	0 0	9 0	$+1.0$ $\phi 13\pm 0.2$	<p>(Unit : mm)</p> <table border="1"> <thead> <tr> <th>W</th> <th>F</th> <th>E</th> <th>A2</th> <th>B2</th> </tr> </thead> <tbody> <tr> <td>8.0 ± 0.3</td> <td>3.5 ± 0.05</td> <td>1.75 ± 0.1</td> <td>1.95 +0.1 -0.05</td> <td>3.5 +0.15 -0.05</td> </tr> <tr> <th>D2</th> <th>P2</th> <th>P2</th> <th>P2</th> <th>T2</th> </tr> <tr> <td>$\phi 1.5$ 0</td> <td>4.0 ± 0.1</td> <td>4.0 ± 0.1</td> <td>2.0 ± 0.05</td> <td>Max. 1.1</td> </tr> </tbody> </table>	W	F	E	A2	B2	8.0 ± 0.3	3.5 ± 0.05	1.75 ± 0.1	1.95 +0.1 -0.05	3.5 +0.15 -0.05	D2	P2	P2	P2	T2	$\phi 1.5$ 0	4.0 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	Max. 1.1
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Resistors

● Makeup of the part number



Packaging Specifications Code

Part No.	Code	Resistance tolerance J(±5%) F(±1%)	Packaging specifications	Reel	Basic ordering unit(pcs)
ESR18	EZP	◎ ◎	Paper tape (4mm Pitch)	φ180mm (7in.)	5.000

Reel (φ180) : JEITA ET-7200B

◎ : Standard product

● Dimensions

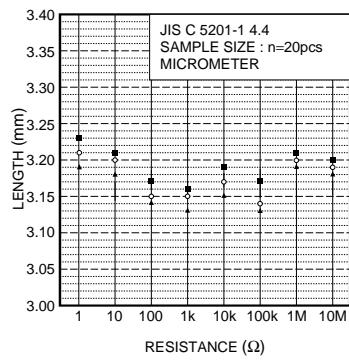


Fig.2 Dimensions (length)

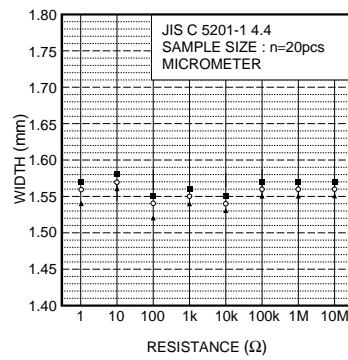


Fig.3 Dimensions (width)

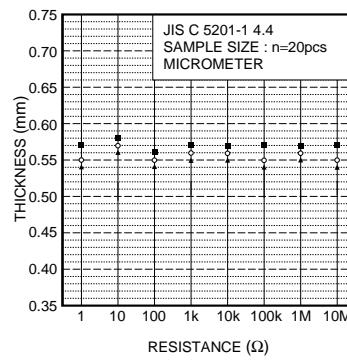


Fig.4 Dimensions (thickness)

● Electrical characteristics

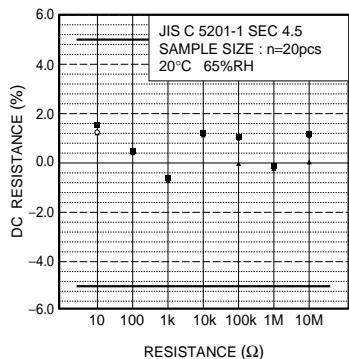


Fig.5 Resistance (J class)

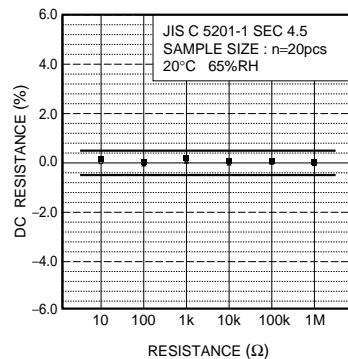


Fig.6 Resistance (D class)

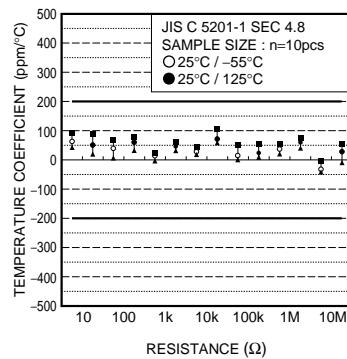


Fig.7 Variation of resistance with temperature (J class)

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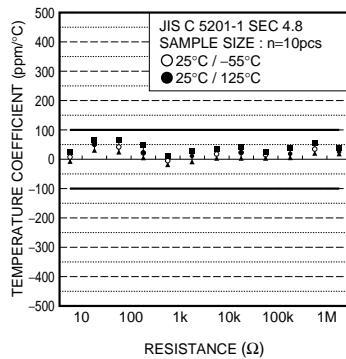


Fig.8 Variation of resistance with temperature (D class)

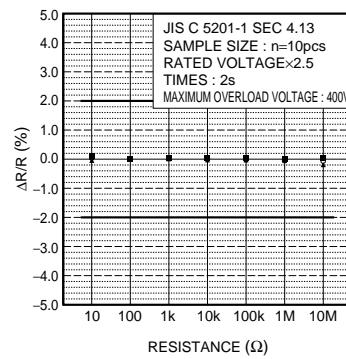


Fig.9 Overload

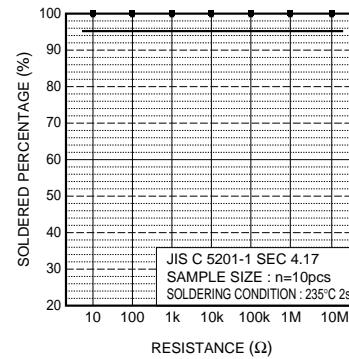


Fig.10 Solderability

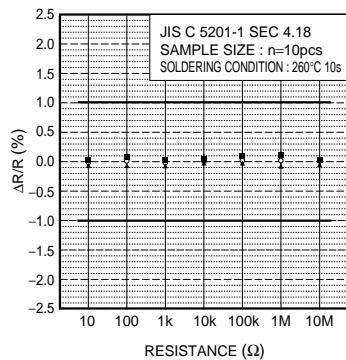


Fig.11 Resistance to soldering heat

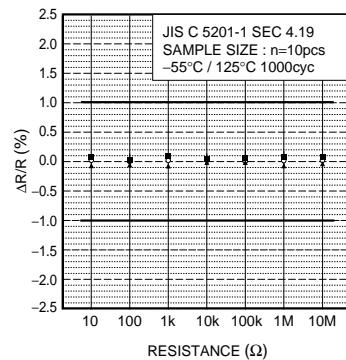


Fig.12 Rapid change of temperature

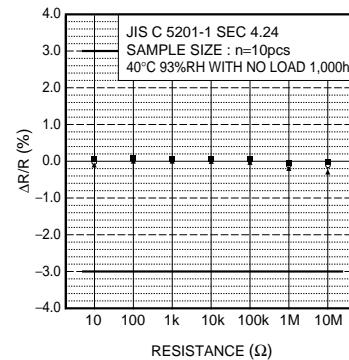


Fig.13 Damp heat, steady state

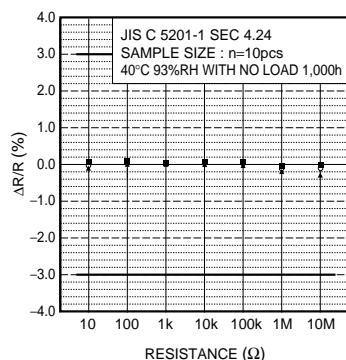


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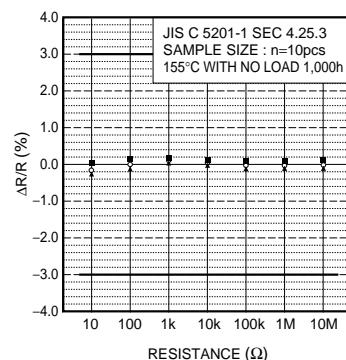


Fig.15 Endurance

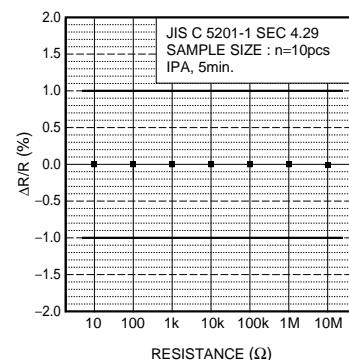


Fig.16 Component solvent resistance

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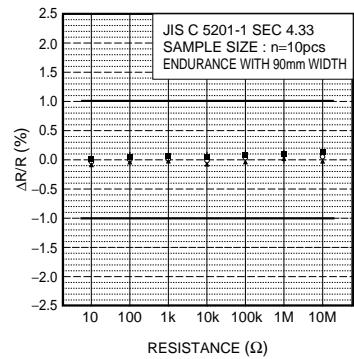


Fig.17 Bend strength of the end face plating

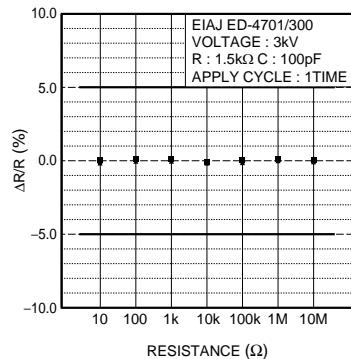


Fig.18 Static electric characteristics

Appendix

Notes

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