

High Power Chip Resistors

<Wide Terminal type>

LTR10 (2012 size : 1 / 4W)

●Features

- 1) Improved welding strength
The structure of longer electrodes provides the wider welding area than the chip resistors with normal electrodes, and this enhanced the solder welding strength.
- 2) Increased surge-resistance
This is achieved by Rohm's original trimming technology plus resistive element patterning.
- 3) High-power tolerance
Two times of the rated power is guaranteed than the normal-electrode resistors.
- 4) ROHM resistors are ISO-9001 & ISO/TS16949 certified.
Design and specifications are subject to change without notice. Carefully check the specification sheet before using or ordering it.

●Applications

Automotive, industrial and power supply.

●Ratings

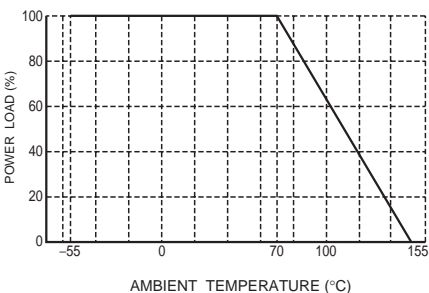
| Item | Conditions | Specifications |
|-----------------------|---|---------------------------------|
| Rated power | Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.  Fig.1 | 0.25W (1 / 4W) at 70°C |
| Rated voltage | The voltage rating 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. $E = \sqrt{P \times R}$ E: Rated voltage (V) P: Rated power (W) R: Nominal resistance (Ω) | Limiting element voltage 150V |
| 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 to 1M | ±100 |
| F (±1%) | 1 to 1M (E24) | ±100 |
| J (±5%) | | ±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 : 200V |
| 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 C : 100pF R : $1.5\text{k}\Omega$ Apply cycle : 1 time |

●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 (Resin) |

| Size code | L | W | t | a | b |
|------------|-----------|-----------|------------|-----------|------------|
| 2012(0805) | 1.2 ± 0.1 | 2.0 ± 0.1 | 0.55 ± 0.1 | 0.2 ± 0.1 | 0.35 ± 0.2 |

●Packaging

Reel

EIAJ ET-7200B compliant

(Unit: mm)

| A | B | C | D |
|--|---|---|-------------------|
| $\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}$ | $\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$ | $9 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$ | $\phi 13 \pm 0.2$ |

Taping

(Unit: mm)

| W | F | E | A0 | B0 |
|--|----------|----------|---|--|
| 8.0±0.3 | 3.5±0.05 | 1.75±0.1 | 1.65 $\begin{smallmatrix} +0.2 \\ -0.1 \end{smallmatrix}$ | 2.4 $\begin{smallmatrix} +0.2 \\ -0.1 \end{smallmatrix}$ |
| D0 | P0 | P1 | P2 | T2 |
| $\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$ | 4.0±0.1 | 4.0±0.1 | 2.0±0.05 | Max. 1.1 |

●Part designation

| L | T | R | 1 | 0 | E | Z | P | | J | | | | | | | | | | | | | | | | | | | |
|---------------------------------|-----------------|---|---|---|---|---|---|---|---|--|--------------------|-----|---|-----|---|-------|--|--|---------------------------------|--|----------------------|-----------------|---|------------|---|------------|---|------------|
| Part No. | | | | | | | | Resistance tolerance | | | Nominal resistance | | | | | | | | | | | | | | | | | |
| | | | | | | | | <table border="1" style="width: 100%; text-align: center;"> <tr> <td>J</td> <td>±5%</td> </tr> <tr> <td>F</td> <td>±1%</td> </tr> <tr> <td>D</td> <td>±0.5%</td> </tr> </table> | | | J | ±5% | F | ±1% | D | ±0.5% | <table border="1" style="width: 100%; text-align: center;"> <tr> <th colspan="2">Resistance code, 3 or 4 digits.</th> </tr> <tr> <th>Resistance tolerance</th> <th>Resistance code</th> </tr> <tr> <td>J</td> <td>: 3 digits</td> </tr> <tr> <td>F</td> <td>: 4 digits</td> </tr> <tr> <td>D</td> <td>: 4 digits</td> </tr> </table> | | Resistance code, 3 or 4 digits. | | Resistance tolerance | Resistance code | J | : 3 digits | F | : 4 digits | D | : 4 digits |
| J | ±5% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | ±1% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | ±0.5% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Resistance code, 3 or 4 digits. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Resistance tolerance | Resistance code | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| J | : 3 digits | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | : 4 digits | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D | : 4 digits | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Packaging Specifications Code

| Part No. | Code | Resistance tolerance | | | Packaging specifications | Reel | Basic ordering unit (pcs) |
|----------|------|----------------------|--------|--------|--------------------------|----------------|---------------------------|
| | | D(±0.5%) | F(±1%) | J(±5%) | | | |
| LTR10 | EZP | ⊙ | ⊙ | ⊙ | Paper tape (4mm Pitch) | φ180mm (7inch) | 5,000 |

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

Notes

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