

# High Power Low Ohmic Chip Resistors

## <Wide Terminal type>

### LTR10 (2012 size : 1 / 2W)

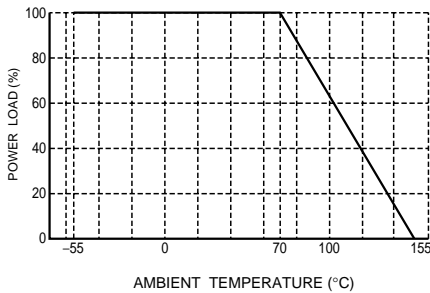
#### ●Features

- 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	<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 Rated current	<p>The voltage rating is calculated by the following equation.</p> $E = \sqrt{P \times R}$ $I = \sqrt{P / R}$ <p>           E : Rated voltage (V)            I : Rated current (A)            P : Rated power (W)            R : Nominal resistance (<math>\Omega</math>)         </p>	
Nominal resistance	See Table 1.	
Operating temperature		-55°C to + 155°C

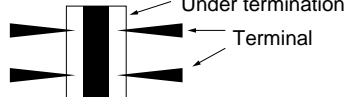
## Resistors

Table 1

Resistance range ( $\Omega$ )	Resistance tolerance	Special part number	Resistance temperature coefficient (ppm/ $^{\circ}$ C)
0.047 to 9.1	F ( $\pm 1\%$ )	S	$\pm 150$
	J ( $\pm 5\%$ )	L	

- 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	F : $\pm 1\%$ J : $\pm 5\%$	JIS C 5201-1 4.5 Voltage : A Measuring method : Measure under termination by 4 probes 
Variation of resistance with temperature	See <a href="#">Table.1</a>	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.
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	$\pm (1.0\%+0.005\Omega)$ 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	$\pm (1.0\%+0.005\Omega)$	JIS C 5201-1 4.19 Test temp. : $-55^{\circ}$ C to $+125^{\circ}$ C 5cyc
Damp heat, steady state	$\pm (3.0\%+0.005\Omega)$	JIS C 5201-1 4.24 $40^{\circ}$ C, 93%RH Test time : 1,000h to 1,048h
Endurance at $70^{\circ}$ C	$\pm (3.0\%+0.005\Omega)$	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	$\pm (3.0\%+0.005\Omega)$	JIS C 5201-1 4.25.3 $155^{\circ}$ C Test time : 1,000h to 1,048h
Resistance to solvent	$\pm (0.5\%+0.005\Omega)$	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	Without open.	JIS C 5201-1 4.33

Resistors

●Dimensions (Unit : mm)

Size code	L	W	t	a	b
2012(0805)	1.2 ± 0.1	2.0 ± 0.1	0.55 ± 0.1	0.3 ± 0.2	0.35 ± 0.2

No.	Material
①	Resistive element
②	Silver thick film electrode
③	Silver thick film side electrode
④	Nickel electrode
⑤	Sn electrode
⑥	Overcoating
⑦	Alumina substrate

●Packaging

Reel	Taping
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EIAJ ET-7200B compliant

Heat crimp cover/Tape  
Thick paper mount (Underside paper tape) Chip resistor Square punchout hole

(Unit: mm)

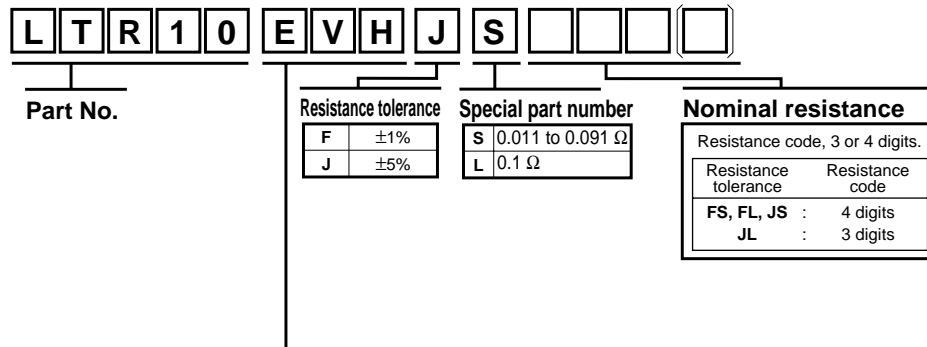
A	B	C	D
$\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}$	$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$	$9 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$	$\phi 13 \pm 0.2$

(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

Resistors

●Part No. Explanation



**Packaging Specifications Code**

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

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

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