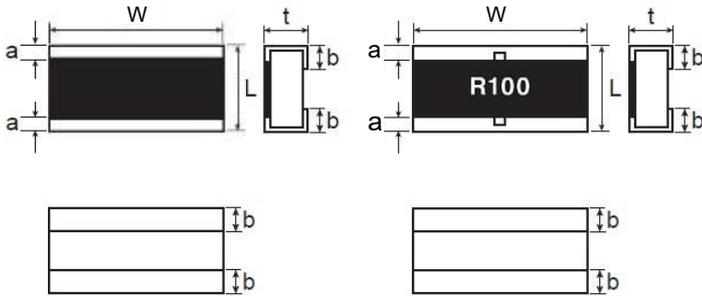


●Chip resistor dimensions and markings

■ LTR10L
 LTR18
 LTR100L
 LTR100

■ LTR50

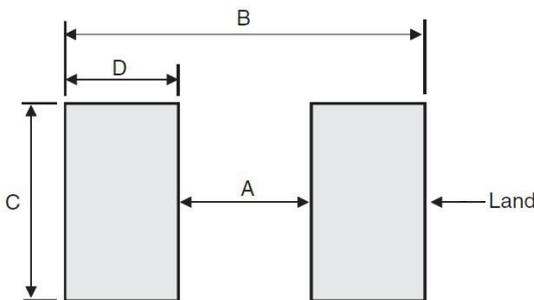
<Marking method>
 There are four digits used for the calculation number. "L" means decimal point of mΩ unit in case resistance value is 0.01Ω or less. "R" means decimal point of Ω unit in case resistance value is above 0.01Ω.
 Example :
 4digits.....10mΩ=10L0, 100mΩ=R100
 3digits.....100mΩ=R10,



(Unit : mm)

Part No.	mm	(inch)	L	W	t	a	b	Marking existence
LTR10L	1220	0508	1.2±0.15	2.0±0.15	0.55±0.10	0.25±0.15	0.35±0.20	No
LTR18	1632	0612	1.6±0.10	3.2±0.10	0.58±0.10	0.50±0.20	0.50±0.20	No
LTR50	2550	1020	2.5±0.15	5.0±0.15	0.58±0.15	0.38±0.20	0.90±0.20	Yes
LTR100L	3264	1225	3.1±0.15	6.4±0.15	0.58±0.15	0.50±0.25	1.00±0.25	No
LTR100	3264	1225	3.2±0.15	6.4±0.15	0.55±0.15	0.40±0.25	1.13±0.25	No

●Land pattern example



(Unit : mm)

Dimensions Part No.	A	B	C	D
LTR10L	0.50	1.98	2.20	0.74
LTR18	0.55	2.91	3.20	1.18
LTR50	0.80	3.36	5.00	1.28
LTR100L LTR100	0.89	5.01	6.40	2.06

●Derating curve

■ LTR10L/18/100L

When the ambient temperature exceeds 70°C, power dissipation must be adjusted according to the derating curve below Fig.1.

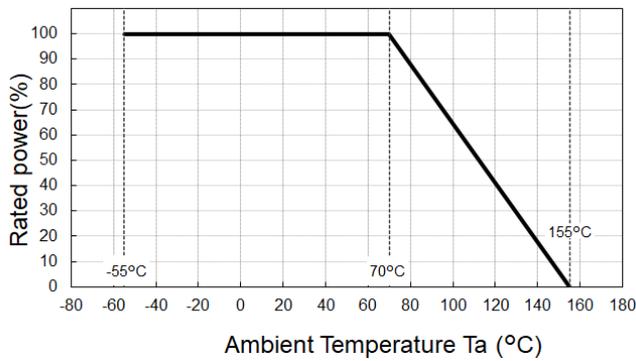
When the terminal temperature exceeds rated terminal temperature, power dissipation must be adjusted according to the derating curve below Fig.2.

(The measurement part of terminal temperature is fillet's surface with load.)

■ LTR50/100

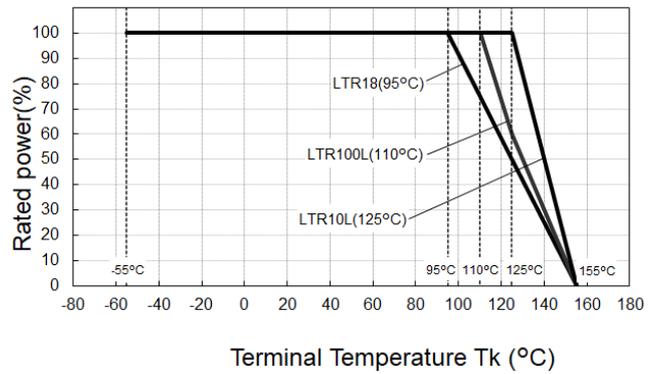
When the ambient temperature exceeds 70°C, power dissipation must be adjusted according to the derating curve below Fig.1.

Fig.1 <Ambient temperature>



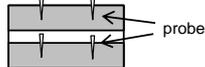
*LTR100L: -65°C~+155°C

Fig.2 <Terminal temperature>



* () : Rated terminal temperature

●Characteristics

Test items	Guaranteed value	Test conditions
Resistance	See P.1	20°C Measuring method : Measuring under termination by 4 probes. Under terminations 
Variation of resistance with temperature	See P.1	■LTR10L/18/50 : +25°C/-55°C/+155°C ■LTR100L : +25°C/-65°C/+155°C ■LTR100 : +25°C/-55°C/+125°C
Overload	■LTR10L/18/50/100 : ±2.0% ■LTR100L : ±1.0%	■ LTR10L/100 : Rated voltage(current)×2.5, 2s ■LTR18 : Rated voltage(current)×2.0, 5s ■LTR50 : Rated power × 5.0, 5s ■LTR100L : Rated power×4.0, 5s
Solderability	A new uniform coating of minimum of 95% of the surface being immersed and no soldering damage.	Rosin-ethanol solution(25% mass) Soldering condition : 245±5°C Duration of immersion : 2.0±0.5s
Resistance to soldering heat	±1.0% No remarkable abnormality on the appearance.	Soldering condition : 260±5°C Duration of immersion : 10±1s
Rapid change of temperature	±1.0%	Test temp : -55°C~ +125°C 1,000cycles
Damp heat, steadystate	±3.0%	85°C, 85%(Relative humidity) Test time : 1,000h
Endurance at 70°C	■LTR10L/18/100L : ±1.0% ■LTR50/100 : ±3.0%	Test condition : see table 1
Endurance	■LTR10L/18/100L : ±1.0% ■LTR50/100 : ±3.0%	155°C Test time : 1,000h
Resistance to solvent	±1.0%	23±5°C, Immersion cleaning, 5±0.5min Solvent: 2-propanol
Bend strength of the end face plating	±1.0% Without mechanical damage such as breaks.	Endurance with 90mm width Deflection : 3mm

Compliance Standard(s) : IEC 60115-1 / IEC 60115-8
JIS C 5201-1 / JIS C 5201-8

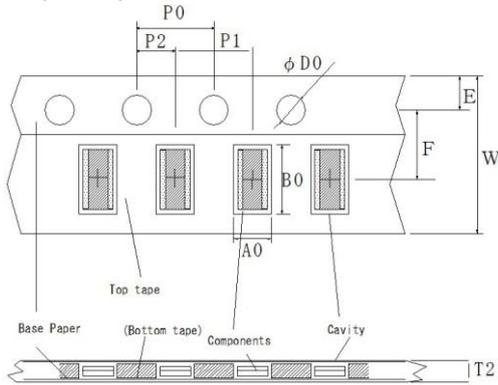
Table 1. Test condition of endurance at 70°C

Part No.	Test condition
LTR10L	Ambient temperature : 70°C Terminal temperature : 125°C Rated power 1.5h ON, 0.5h OFF Test time : 1,000h
LTR18	Ambient temperature : 70°C Terminal temperature : 95°C Rated power 1.5h ON, 0.5h OFF Test time : 1,000h
LTR50	Ambient temperature : 70°C Rated power 1.5h ON-0.5h OFF Test time : 1,000h
LTR100L	Ambient temperature : 70°C Terminal temperature : 110°C Rated power 1.5h ON, 0.5h OFF Test time : 1,000h
LTR100	Ambient temperature : 70°C Rated power 1.5h ON-0.5h OFF Test time : 1,000h

●Tape dimensions

■Paper tape

(Unit : mm)

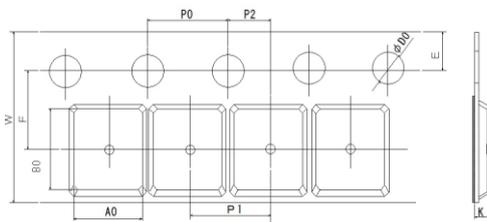


Part No	W	F	E	A0	B0
LTR10L	8.0±0.3	3.5±0.05	1.75±0.1	1.45±0.1	2.3±0.1
LTR18	8.0±0.3	3.5±0.05	1.75±0.1	1.95±0.1 -0.05	3.5±0.15 -0.05

Part No	D0	P0	P1	P2	T2
LTR10L	Φ1.5+0.1 0	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1
LTR18	Φ1.5+0.1 0	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1

■Embossed tape

(Unit : mm)

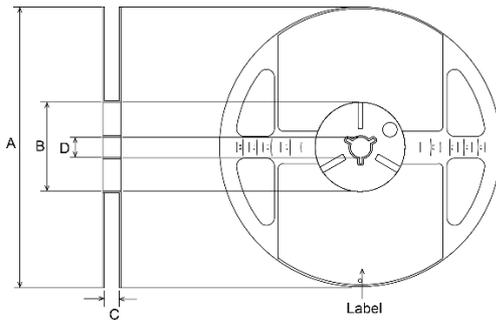


Part No	W	F	E	A0	B0
LTR50	12.0±0.3	5.5±0.05	1.75±0.1	3.4±0.2	5.6±0.2
LTR100L LTR100	12.0±0.3	5.5±0.05	1.75±0.1	3.5±0.2	6.7±0.2

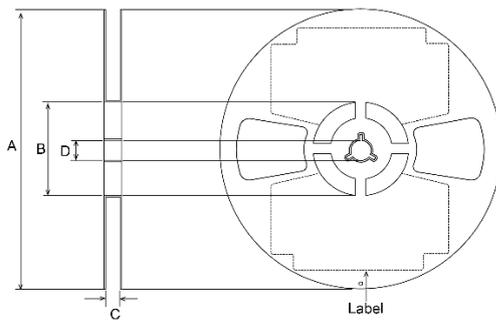
Part No	D0	P0	P1	P2	K
LTR50	Φ1.5+0.1 0	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1
LTR100L LTR100	Φ1.5+0.1 0	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1

●Reel dimensions

Using two kinds of reels for taping.



According to EIAJ ET-7200B (RRM)



According to EIAJ ET-7200B (RRV)

(Unit : mm)

Part No.	A	B	C	D
LTR10L	Φ180 0 -1.5	Φ60 +1.0 0	9 +1.0 0	Φ13±0.2
LTR18			13 +1.0 0	
LTR50				
LTR100L LTR100				

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(Note1) Medical Equipment Classification of the Specific Applications

JAPAN	USA	EU	CHINA
CLASS III	CLASS III	CLASS II b	CLASS III
CLASS IV		CLASS III	

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 - Installation of redundant circuits to reduce the impact of single or multiple circuit failure
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 - Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
 - Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
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 - Use of our Products without cleaning residue of flux (Exclude cases where no-clean type fluxes is used. However, recommend sufficiently about the residue.) ; or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
 - Use of the Products in places subject to dew condensation
- The Products are not subject to radiation-proof design.
- Please verify and confirm characteristics of the final or mounted products in using the Products.
- In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse, is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
- De-rate Power Dissipation depending on ambient temperature. When used in sealed area, confirm that it is the use in the range that does not exceed the maximum junction temperature.
- Confirm that operation temperature is within the specified range described in the product specification.
- ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

Precaution for Mounting / Circuit board design

- When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
- In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

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Precaution for Electrostatic

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of Ionizer, friction prevention and temperature / humidity control).

Precaution for Storage / Transportation

1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
 - [a] the Products are exposed to sea winds or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [b] the temperature or humidity exceeds those recommended by ROHM
 - [c] the Products are exposed to direct sunshine or condensation
 - [d] the Products are exposed to high Electrostatic
2. Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.
3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

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