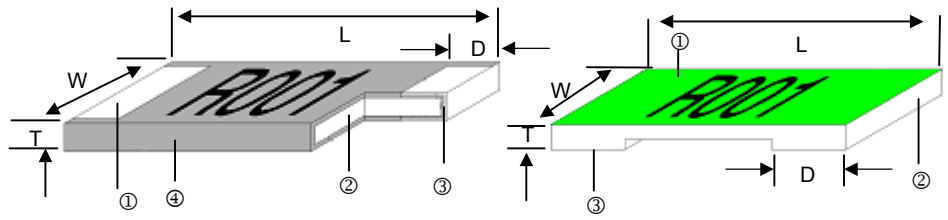


# Ultra Low Ohm (Metal Strip) Chip Resistor – LR Series

## Construction



Black – Wave or IR reflow soldering

Green – IR reflow soldering only

① Solder Plating (Sn)	③ Barrier Layer (Ni)
② Alloy Plate	④ Overcoat

① Overcoat	③ Solder Plating
② Alloy Plate	

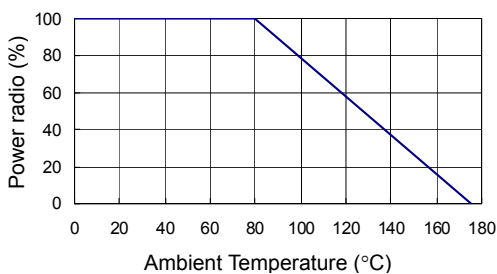
## Features

- High power rating up to 3 Watts
- Low TCR down to  $\pm 50$  PPM/ $^{\circ}$ C
- Resistance values from 0.5 to 15m ohm
- Customized resistance available
- Wide range package sizes 1206 / 2010 / 2512

## Applications

- NB (for Power Management)
- MB (for Power Management)
- SWPS (DC-DC Converter, Charger, Adaptor)
- Monitor (for Power Management)

## Derating Curve



## Dimensions

Unit: mm

Part No.	Resistance (m $\Omega$ )	L	W	T	D	Weight (g) (1000pcs)
LR06□T□□□□□	1.0, 4.0, 5.0, 6.0	3.20±0.25	1.60±0.10	0.60±0.20	1.10±0.25	22.6
LR06□T□□□□□	2.0, 3.0, 10	3.20±0.25	1.60±0.10	0.60±0.20	0.60±0.25	22.6
LR06□T□□□□□	7.0, 8.0, 9.0	3.20±0.25	1.60±0.10	0.60±0.20	0.90±0.25	22.6
LR10□TDAR001	1.0	5.08±0.25	2.54±0.15	0.60±0.20	1.84±0.25	42.3
LR10□TDA□□□□	2.0, 6.0, 7.0, 8.0	5.08±0.25	2.54±0.15	0.60±0.20	1.54±0.25	42.3
LR10□TDAR003	3.0	5.08±0.25	2.54±0.15	0.60±0.20	1.04±0.25	42.3
LR10□TDA□□□□	4.0, 5.0	5.08±0.25	2.54±0.15	0.60±0.20	1.84±0.25	42.3
LR10□T□□□□□	1.0 – 10	5.08±0.254	2.54±0.15	0.60±0.20	1.665±0.625	42.3
LR12□T□0M50G	0.5	6.35±0.25	3.00±0.20	0.60±0.20	2.68±0.25	59.13
LR12□T□0M75G	0.75	6.35±0.25	3.00±0.20	0.60±0.20	2.48±0.25	59.13
LR12□T□□□□□G	1.0, 6.0	6.35±0.25	3.00±0.20	0.60±0.20	1.93±0.25	59.13
LR12□T□□□□□G	1.5, 6.5, 7.0	6.35±0.25	3.00±0.20	0.60±0.20	1.43±0.25	59.13
LR12□T□□□□□G	2.0, 3.0	6.35±0.25	3.00±0.20	0.60±0.20	1.18±0.25	59.13
LR12□T□□□□□G	4.0, 4.5	6.35±0.25	3.00±0.20	0.60±0.20	2.18±0.25	59.13
LR12□T□□□□□G	5.0, 6.0	6.35±0.25	3.00±0.20	0.60±0.20	1.93±0.25	59.13
LR12□T□□□□□G	8.0 - 15	6.35±0.25	3.00±0.20	0.60±0.20	1.18±0.25	59.13
LR12□T□0M50	0.5	6.35±0.254	3.18±0.254	1.25±0.20	1.30±0.38	61.03
LR12□T□0M75	0.75	6.35±0.254	3.18±0.254	0.75±0.20	1.30±0.38	61.03
LR12□T□R001	1.0	6.35±0.254	3.18±0.254	0.65±0.20	1.30±0.38	61.03
LR12□T□1M50	1.5	6.35±0.254	3.18±0.254	0.45±0.20	1.30±0.38	61.03
LR12□T□R002	2.0	6.35±0.254	3.18±0.254	0.35±0.20	1.30±0.38	61.03
LR12□T□2M50	2.5	6.35±0.254	3.18±0.254	0.65±0.20	1.30±0.38	61.03
LR12□T□R003	3.0	6.35±0.254	3.18±0.254	0.55±0.20	1.30±0.38	61.03
LR12□T□R004	4.0	6.35±0.254	3.18±0.254	0.45±0.20	1.30±0.38	61.03
LR12□T□R005	5.0	6.35±0.254	3.18±0.254	0.35±0.20	1.30±0.38	61.03
LR12□T□R006	6.0	6.35±0.254	3.18±0.254	0.32±0.20	1.30±0.38	61.03
LR12□T□6M50	6.5	6.35±0.254	3.18±0.254	0.30±0.20	1.30±0.38	61.03
LR12□T□R007	7.0	6.35±0.254	3.18±0.254	0.27±0.20	1.30±0.38	61.03
LR12□T□R010	10	6.35±0.254	3.18±0.254	0.25±0.20	1.30±0.38	61.03

## Part Numbering

LR	12	J	T	E	S	R002	G
Product Type	Dimensions	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance	Marking
	06: 1206 10: 2010 12: 2512	F: ±1% H: ±3% J: ±5%	T: Taping Reel	D: ±50 W: ±75 E: ±100 K: ±150	: Standard A: 1.5W S: 2W B: 2.5W R: 3W	R002: 0.002Ω R020: 0.02Ω 0M50: 0.0005Ω 1M50: 0.0015Ω	: Black Coating G: Green Coating  **2010/1206 No coating / marking

## Standard Electrical Specifications

Part No.	Item	Power Rating at 80°C	Operating Temp. Range	Resistance Range (mΩ)			TCR (PPM/°C)
				±1%	±3%	±5%	
LR06□TD□□□□		1W	-55°C ~ +170°C	1 - 10			±50
LR12□TD□□□□		1W		0.5, 0.75, 1, 1.5, 2			±50
LR12□TK□□□□		1W		2.5, 3, 10			±150
LR12□TE□□□□		1W		4, 5			±100
LR12□TW□□□□		1W		6, 6.5, 7			±75
LR12□TD□□□□G		1W		11, 12, 13, 14, 15			±50

Operating Current= $\sqrt{P/R}$ , Operating Voltage= $\sqrt{P \cdot R}$

## High Power Rating Electrical Specifications

Part No.	Item	Power Rating at 80°C	Operating Temp. Range	Resistance Range (mΩ)			TCR (PPM/°C)
				±1%	±3%	±5%	
LR10□TDA□□□□		1.5W	-55°C ~ +170°C	1 - 10			±50
LR12□TDS□□□□		2W		0.5, 0.75, 1, 1.5, 2			±50
LR12□TKS□□□□		2W		10			±150
LR12□TDS□□□□G		2W		6.5, 7, 8, 9, 10			±50
LR12□TDB□□□□G		2.5W		4, 4.5, 5, 6			±50
LR12□TDR□□□□G		3W		1, 1.5, 2, 3			±50
LR12□TER□□□□G		3W		0.5, 0.75			±100

Operating Current = $\sqrt{P/R}$ , Operating Voltage= $\sqrt{P \cdot R}$

■ TOPQUALIT has the ability of manufacture following options based on customer's requirement.

## Environmental Characteristics

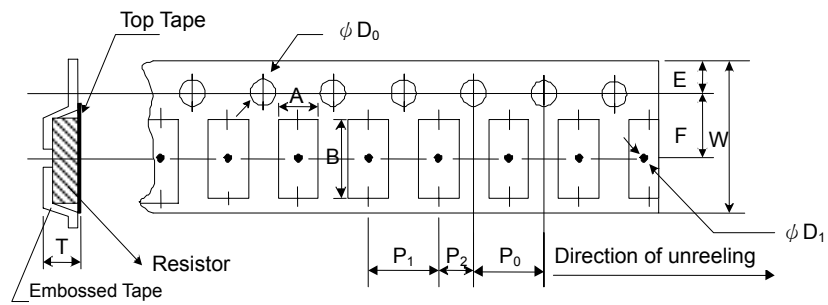
Item	Requirement		Test Method
	Black coating	Green coating	
Temperature Coefficient of Resistance (T.C.R.)	As Spec.		+25/-55/+25/+125/+25°C
Short Time Overload	±0.5%	±1%	5*rated power for 5 seconds
Endurance	±1%	±1%	70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat	±1%	±1%	at +170°C for 1000 hrs
Solderability	95% min. coverage		245±5°C for 3 seconds
Resistance to Soldering Heat	±0.5%	±1%	260±5°C for 10 seconds
Thermal Shock	±0.5%	±1%	-55°C ~ 150°C, 100 cycles

\*\*Green coating can't be work with wave soldering bath.

- Reference Standards: MIL-STD-202, JIS-C 5201-1
- Storage Temperature: 25±3°C; Humidity < 80%RH

## ■ Packaging

### Embossed Plastic Tape Specifications



Unit: mm

Type	Resistance (m $\Omega$ )	A	B	W	E	F	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	$\Phi D_0$	$\Phi D_1$	T	Quantity (EA)
LR06	1 - 10	1.90±0.1	3.60±0.1	8.0±0.2	1.75±0.1	3.5±0.05	4.0±0.1	4.00±0.1	2.0±0.05	1.55±0.05	1.0min.	0.87±0.1	2000
LR10	1 - 10	2.85±0.1	5.55±0.1	12.0±0.2	1.75±0.1	5.5±0.05	4.0±0.1	4.00±0.1	2.0±0.05	1.55±0.05	1.4min.	0.85±0.1	2000
LR12	0.50	3.40±0.1	6.73±0.1	12.0±0.1	1.75±0.1	5.5±0.05	4.0±0.1	4.00±0.1	2.0±0.05	1.55±0.05	1.4min.	1.45±0.2	2000
	0.50 - 15	3.40±0.1	6.75±0.1	12.0±0.1	1.75±0.1	5.5±0.05	4.0±0.1	4.00±0.1	2.0±0.05	1.55±0.05	1.4min.	0.80±0.1	2000

1. The cumulative tolerance of 10 sprockets hole pitch is  $\pm 0.2$ mm.
2. Carrier camber shall be not more than 1mm per 100mm through a length of 250mm.
3. A & B measured 0.3mm from the bottom of the packet
4. T measured at a point on the inside bottom of the packet to the top surface of the carrier.
5. Pocket position relative to sprocket hole is measured as the true position of the pocket and not the pocket hole.