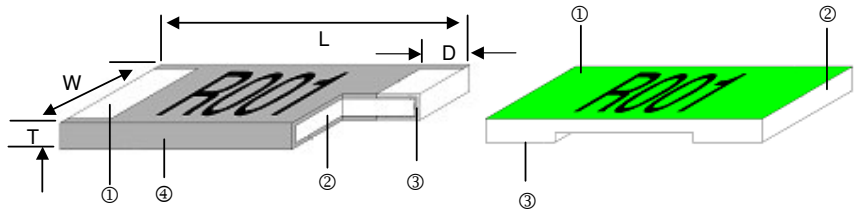
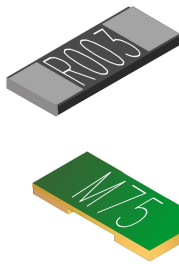


Ultra Low Ohm (Metal Strip) Chip Resistor – LR Series

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	

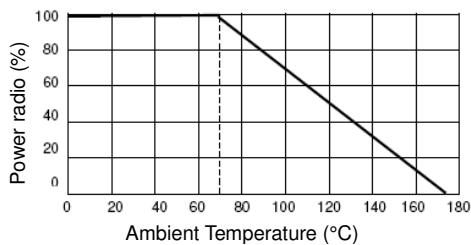
Features

- High power rating up to 3 Watts
- Low TCR down to ± 50 PPM/ $^{\circ}\text{C}$
- 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 Ω)	L	W	T	D	Weight (g) (1000pcs)
LR06□T□□□□□	1.0 - 10	3.20 \pm 0.254	1.60 \pm 0.104	0.60 \pm 0.20	0.980 \pm 0.380	22.6
LR10□T□□□□□	1.0 - 10	5.08 \pm 0.254	2.54 \pm 0.15	0.60 \pm 0.20	1.665 \pm 0.625	42.3
LR12□T□0M50G	0.50	6.35 \pm 0.254	3.00 \pm 0.20	0.60 \pm 0.20	2.675 \pm 0.254	59.13
LR12□T□0M75G	0.75	6.35 \pm 0.254	3.00 \pm 0.20	0.60 \pm 0.20	2.475 \pm 0.254	59.13
LR12□T□R001G	1.0	6.35 \pm 0.254	3.00 \pm 0.20	0.60 \pm 0.20	1.925 \pm 0.254	59.13
LR12□T□1M50G	1.5	6.35 \pm 0.254	3.00 \pm 0.20	0.60 \pm 0.20	1.425 \pm 0.254	59.13
LR12□T□□□□□G	2.0 - 3.0	6.35 \pm 0.254	3.00 \pm 0.20	0.60 \pm 0.20	1.175 \pm 0.254	59.13
LR12□T□R004G	4.00	6.35 \pm 0.254	3.00 \pm 0.20	0.60 \pm 0.20	2.175 \pm 0.254	59.13
LR12□T□□□□□G	5.0 - 6.0	6.35 \pm 0.254	3.00 \pm 0.20	0.60 \pm 0.20	1.925 \pm 0.254	59.13
LR12□T□R007G	7.00	6.35 \pm 0.254	3.00 \pm 0.20	0.60 \pm 0.20	1.425 \pm 0.254	59.13
LR12□T□□□□□G	8.0 - 15	6.35 \pm 0.254	3.00 \pm 0.20	0.60 \pm 0.20	1.175 \pm 0.254	59.13
LR12□T□0M50	0.50	6.35 \pm 0.254	3.18 \pm 0.254	1.40 \pm 0.20	1.425 \pm 0.377	61.03
LR12□T□0M75	0.75	6.35 \pm 0.254	3.18 \pm 0.254	1.00 \pm 0.20	1.425 \pm 0.377	61.03
LR12□T□R001	1.00	6.35 \pm 0.254	3.18 \pm 0.254	0.80 \pm 0.20	1.425 \pm 0.377	61.03
LR12□T□1M50	1.50	6.35 \pm 0.254	3.18 \pm 0.254	0.65 \pm 0.20	1.425 \pm 0.377	61.03
LR12□T□R002	2.00	6.35 \pm 0.254	3.18 \pm 0.254	0.50 \pm 0.20	1.425 \pm 0.377	61.03
LR12□T□2M50	2.50	6.35 \pm 0.254	3.18 \pm 0.254	1.00 \pm 0.20	1.425 \pm 0.377	61.03
LR12□T□R003	3.00	6.35 \pm 0.254	3.18 \pm 0.254	0.70 \pm 0.20	1.425 \pm 0.377	61.03
LR12□T□R004	4.00	6.35 \pm 0.254	3.18 \pm 0.254	0.60 \pm 0.20	1.425 \pm 0.377	61.03
LR12□T□R005	5.00	6.35 \pm 0.254	3.18 \pm 0.254	0.50 \pm 0.20	1.425 \pm 0.377	61.03
LR12□T□R006	6.00	6.35 \pm 0.254	3.18 \pm 0.254	0.50 \pm 0.20	1.425 \pm 0.377	61.03
LR12□T□6M50	6.50	6.35 \pm 0.254	3.18 \pm 0.254	0.45 \pm 0.20	1.425 \pm 0.377	61.03
LR12□T□R007	7.00	6.35 \pm 0.254	3.18 \pm 0.254	0.45 \pm 0.20	1.425 \pm 0.377	61.03

Part Numbering

LR	12	J	T	E	S	R002	G
Product Type	Dimensions (L×W)	Resistance Tolerance	Packaging Code	TCR (PPM/ $^{\circ}\text{C}$)	Power Rating	Resistance	Marking
	06: 1206 10: 2010 12: 2512	F: $\pm 1\%$ H: $\pm 3\%$ J: $\pm 5\%$	T: Taping Reel	D: ± 50 E: ± 100 K: ± 150 W: ± 75	: Standard A: 1.5W B: 2.5W R: 3W S: 2W	R002: 0.002 Ω R020: 0.02 Ω 0M50: 0.0005 Ω 1M50: 0.0015 Ω	: 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	1.0 - 10.0			±50
LR12□TD□□□□		1W		0.5 - 2.0			±50
LR12□TK□□□□		1W		2.5 - 3.5			±150
LR12□TE□□□□		1W		4.0 - 5.5			±100
LR12□TW□□□□		1W		6.0 - 7.0			±75
LR12□TD□□□□G		1W		11.0 - 15.0			±50

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

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	1.0 - 10.0			±50
LR12□TDS□□□□		2W		0.5 - 2.0			±50
LR12□TDS□□□□G		2W		3.5			±50
LR12□TDS□□□□G		2W		6.5 - 10.0			±50
LR12□TDB□□□□G		2.5W		4.0 - 6.0			±50
LR12□TDR□□□□G		3W		1.0 - 3.0			±50
LR12□TER□□□□G		3W		0.5 - 0.75			±100

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

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

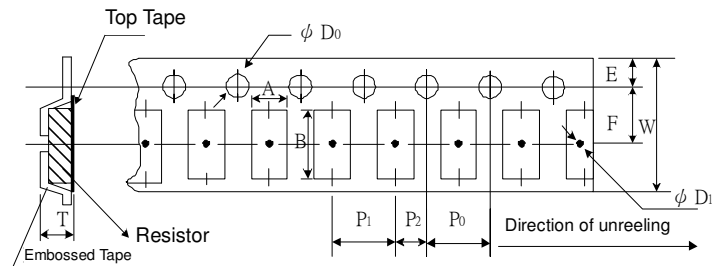
**Green coating can't be work with wave soldering bath.

■ 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 (mΩ)	A	B	W	E	F	P ₀	P ₁	P ₂	ΦD ₀	ΦD 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 - 7	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	1.50±0.10	1.4min.	0.81±0.1	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

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