

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

(超合金超低阻值晶片電阻)

Features

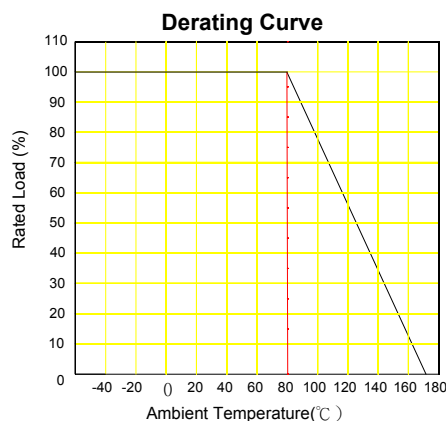
- High Wattage Rating Up to 3W
- Low TCR $\pm 50, \pm 100$ PPM/ $^{\circ}\text{C}$
- Resistance Values from 0.5 to 20 m ohms
- Without Laser Trimmed with Very Low Inductance
- Customized Resistance Available
- Products with Pb-free Terminations Meet RoHS Requirements



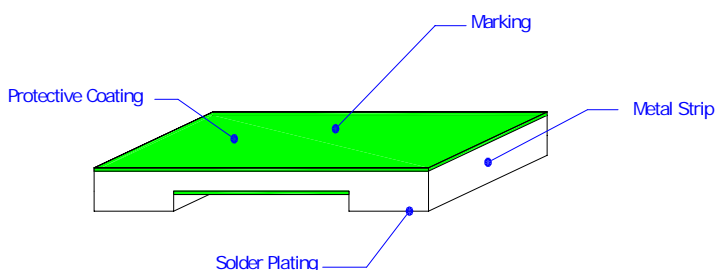
Applications

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

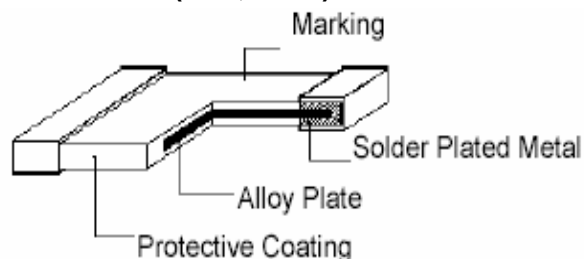
Construction



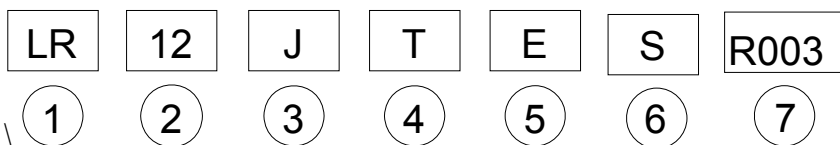
(3 W)



(1W, 2 W)



Part Numbering



① Product Type

Product Type	Type
LR	Ultra Low Ohm Metal Strip Chip Resistor

② Dimensions (LxW)

Codes	Dimensions (LxW)	EIA
LR12	6.3x3.1mm	2512

③ Resistance Tolerance

Codes	Resistance Tolerance
J	$\pm 5\%$
H	$\pm 3\%$
G	$\pm 2\%$
F	$\pm 1\%$

④ Packaging

Code	Type
T	Taping Reel

⑤ TCR

Codes	Type
D	± 50 PPM/ $^{\circ}\text{C}$
E	± 100 PPM/ $^{\circ}\text{C}$
H	± 400 PPM/ $^{\circ}\text{C}$

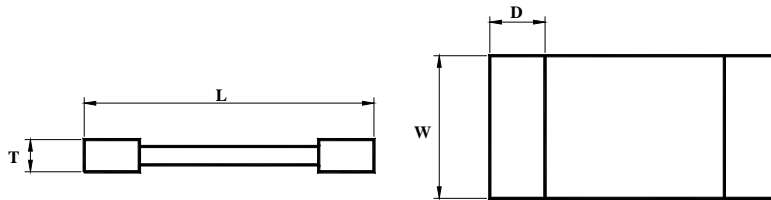
⑥ Power Rating

Codes	Type
	Standard (1W)
S	(2W)
R	(3W)

⑦ Resistance

Codes	Type
0M50	0.00050 Ω
0M75	0.00075 Ω
1M50	0.0015 Ω
R002	0.0020 Ω
R020	0.0200 Ω

Dimensions



Unit: mm

Size	Resistance (m Ω)	Power Rating at 80°C	L	W	T	D
2512	0.50~20	3W	6.35±0.25	3.18±0.35	0.60±0.20	1.93±0.75
2512	0.50	1W,2W	6.35±0.25	3.18±0.25	1.40±0.20	1.30±0.30
2512	0.75	1W,2W	6.35±0.25	3.18±0.25	1.00±0.20	1.30±0.30
2512	1.00	1W,2W	6.35±0.25	3.18±0.25	0.80±0.20	1.30±0.30
2512	1.50	1W,2W	6.35±0.25	3.18±0.25	0.65±0.20	1.30±0.30
2512	2.00	1W,2W	6.35±0.25	3.18±0.25	0.50±0.20	1.30±0.30
2512	2.50	1W	6.35±0.25	3.18±0.25	1.00±0.20	1.30±0.30
2512	3.00	1W	6.35±0.25	3.18±0.25	0.70±0.20	1.30±0.30
2512	3.50	1W	6.35±0.25	3.18±0.25	0.71±0.20	1.30±0.30
2512	4.00	1W	6.35±0.25	3.18±0.25	0.60±0.20	1.30±0.30
2512	4.50	1W	6.35±0.25	3.18±0.25	0.58±0.20	1.30±0.30
2512	5.00	1W	6.35±0.25	3.18±0.25	0.50±0.20	1.30±0.30
2512	5.50	1W	6.35±0.25	3.18±0.25	0.47±0.20	1.30±0.30
2512	6.00	1W	6.35±0.25	3.18±0.25	0.50±0.20	1.30±0.30
2512	6.50	1W	6.35±0.25	3.18±0.25	0.47±0.20	1.30±0.30
2512	7.00	1W	6.35±0.25	3.18±0.25	0.45±0.20	1.30±0.30
2512	10.0	1W	6.50±0.35	3.20±0.25	0.80±0.15	1.90±0.15

Standard Electrical Specifications

Type	Item	Power Rating at 80°C	Operating Temp. Range	Resistance Tolerance (±%)	Resistance (mΩ)	TCR (PPM/°C)
LR12		1W	-55°C ~ +170°C	1,3,5	0.5~2.0	50
LR12		1W	-55°C ~ +170°C	1,3,5	2.5~7.0	100
LR12		1W	-55°C ~ +170°C	1,3,5	10	100

Operating Current $I=\sqrt{(P/R)}$; Operating Voltage $V=\sqrt{(P*R)}$

High Power Rating Electrical Specifications

Type	Item	Power Rating at 80°C	Operating Temp. Range	Resistance Tolerance (±%)	Resistance (mΩ)	TCR (PPM/°C)
LR12		2W	-55°C ~ +170°C	1,3,5	0.5~2.0	50
LR12		3W	-55°C ~ +170°C	1,3,5	0.50	400
LR12		3W	-55°C ~ +170°C	1,3,5	0.75	100
LR12		3W	-55°C ~ +170°C	1,3,5	1.0~20	50

Operating Current $I=\sqrt{(P/R)}$; Operating Voltage $V=\sqrt{(P*R)}$

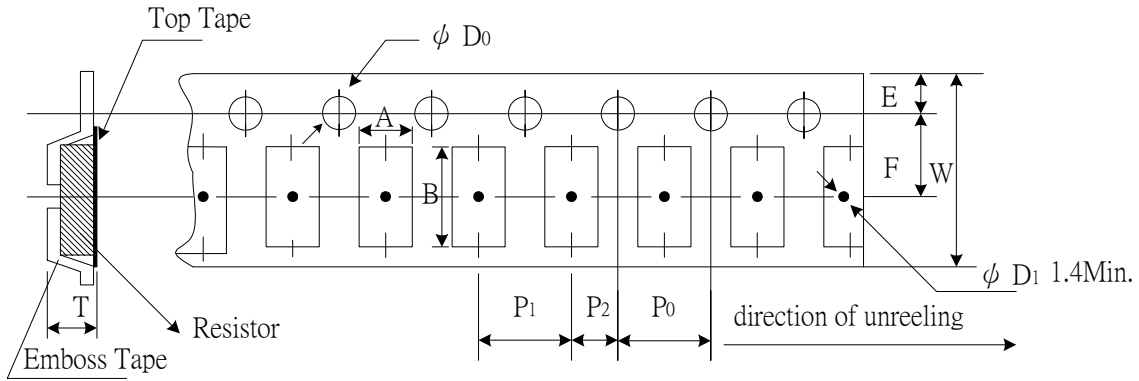
Packaging

Packaging Quantity

Unit: EA

Series	Packaging	Emboss Plastic Tape
LR12		2,000

Emboss Plastic Tape Specifications



Unit: mm

Resistance (mΩ)	A	B	W	E	F	P ₀	P ₁	P ₂	ψD_0	T
0.50	3.40±0.1	6.70±0.1	12.0±0.1	1.75±0.1	5.5±0.05	4.0±0.05	4.00±0.1	2.0±0.05	1.50+0.1	1.40±0.1
0.75	3.50±0.1	6.80±0.2	12.0±0.1	1.75±0.1	5.5±0.05	4.0±0.05	4.00±0.1	2.0±0.05	1.50+0.1	1.35±0.1
1~20	3.40±0.1	6.70±0.1	12.0±0.1	1.75±0.1	5.5±0.05	4.0±0.05	4.00±0.1	2.0±0.05	1.50+0.1	0.80±0.1

Notice:

1. The cumulative tolerance of 10 sprocket hole pitch is ±0.2mm.
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.

Environmental Characteristics

Item	Specification	Test Method
1	Temperature Coefficient of Resistance	As Spec. MIL-STD-202F- Method 304 +25/-30/+25/+130/+25°C
2	Thermal Shock	±(0.5%+0.5mΩ) MIL-STD-202F- Method 107G -55°C~150°C, 100 cycles
3	Short Time Overload	±(0.5%+0.5mΩ) JIS-C-5202-5.5 RCWV*2.5 or Max Overloading Voltage · 5 seconds
4	Resistance to Dry Heat	±(1%+0.5mΩ) JIS-C-5202-7.2 96 hours @ +155°C without load
5	Load Life	±(1%+0.5mΩ) MIL-STD-202F-Method 108A RCWV,70°C ,1.5 hours on, 0.5 hours off, total 1000~1048 hours
6	Resistance to Soldering Heat	±(0.5%+0.5mΩ) MIL-STD-202F-Method 210E 260±5°C, 10±1seconds
7	Solder ability	95% min coverage MIL-STD-202F-Method 208H 260±5°C, 2±0.5seconds

* Storage Temperature :25±3°C; Humidity <80%RH