

SINLOON®

超合金低阻值貼片電阻
Power : 3W

LR Series
Ultra Low Ohm Chip Resistor

Feature

- ◆ Stable high frequency characteristic with reduced lead inductance and excellent frequency response.
- ◆ Excellent frequency response.
- ◆ Low thermal EMF (<1μV/°C).
- ◆ High-temperature performance (up to +170°C).
- ◆ Very low inductance 0.5nH to 5nH
- ◆ Ideal for all types of current sensing, voltage division and pulse applications including switching and linear power supplies, instruments, power amplifiers.
- ◆ Pure tin plating provides compatibility with lead (Pb) and lead containing soldering processes.
- ◆ Excellent stability ($I\Delta R/RI \leq \pm 0.5\%$ for 1000h at 100°C) different environmental conditions.

Figure



Application

- ◆ Power supply ◆ Battery pack ◆ DIY tools
- ◆ Inverter / Converter (AC/DC, DC/DC, DC/AC.)
- ◆ Measurable instrument ◆ Consumer electronics
- ◆ Note book ◆ PC power pack ◆ LED driver
- ◆ Others (Auto tronics ... etc)

CONSTRUCTION



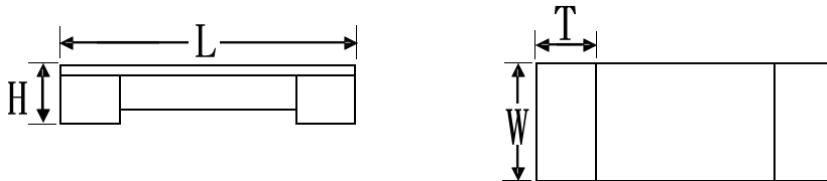
ORDERING INFORMATION

Example: N-LR12FER0005G (3W 2512 ±1% 100ppm m5 coating Green)

Power	Case	Type	Tolerance	TCR(°C)	Resistance	Coating	Packing
3W	2512	N-LR12	F = ±1% J = ±5%	E=±100ppm	m5=R0005 m75=R00075	G=Green	2K Reel

DIMENSION

Power	Case	Type	L	W	T	H	Resistance
3W	2512	N-LR12	6.35±0.254	3.0±0.2	2.68 ±0.25	0.6 ±0.20	m5. m75



MARKING

Power	Case	Type	Resistance	Marking
3W	2512	N-LR12	m50	M50
			m75	M75



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GENERAL ELECTRICAL SPECIFICATION

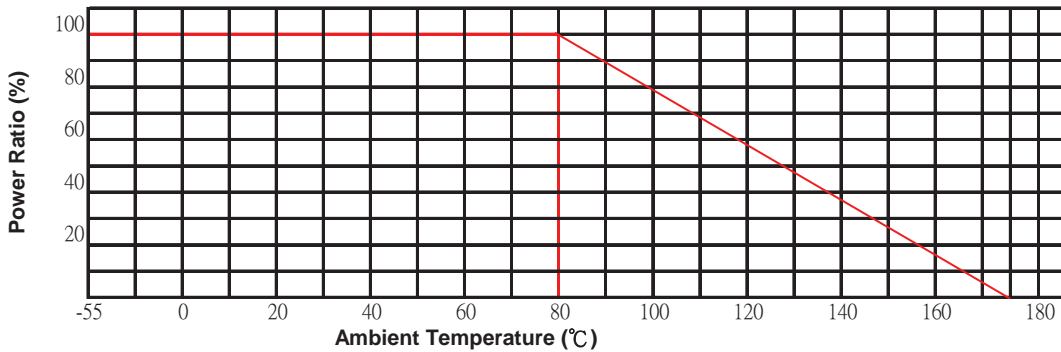
Power at 100°C	Case	Type	Resistance Range Tolerance		TCR (ppm/°C)	Working Current Max.	Overload Current Max.	Point of Solder Plating	Plant front side coating
			F: ±1%	J: ±5%					
3W	2512	N-LR12	m50 Ω	m50 Ω	±100	77.5A	173.2A	Metal Strip	Green
3W	2512	N-LR12	m75 Ω	m75 Ω	±100	63.3A	141.4A	Metal Strip	Green
Operating Temperature Range.					-55~+170°C				

The direct or alternating voltage for the rated power can be calculated from the following formula but must not exceed the maximum voltage.

Operating Current $I = \sqrt{P/R}$; Operating Voltage: $V = \sqrt{P \cdot R}$

$E = \text{Rated voltage (V)}$ $E = \sqrt{R \cdot P}$ $P = \text{Power rating (W)}$ $R = \text{Nominal resistance (Ω)}$

POWER DERATING CURVE



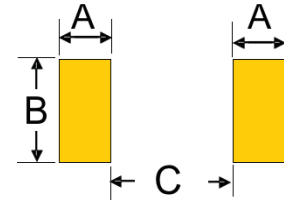
In case resistors operating ambient temperature in excess of the temperature range -55°C ~+170°C power ratio will be derated in accordance with the figure as shown on the right.

Power ratings are based on continuous full load operation at rated ambient temperature of 80°C,

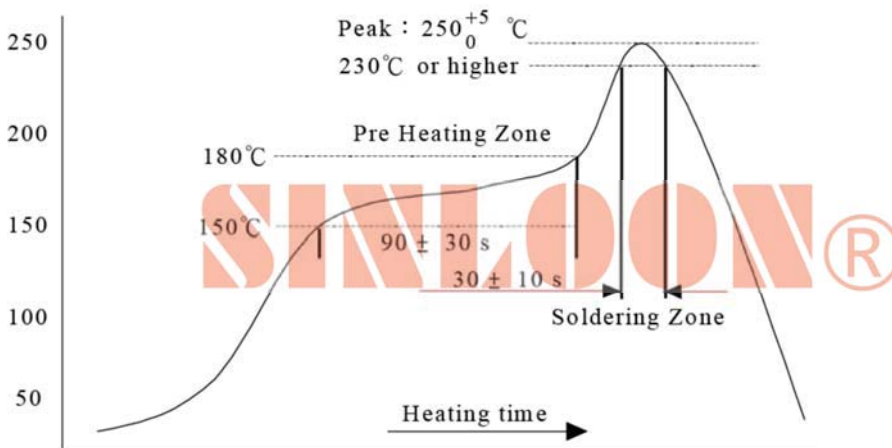
For resistor operated at ambient temperature in excess of 80°C, the maximum load shall be derated in accordance with the following curve.

Recommend Land Pattern Design (For Reflow Soldering) Unit mm

Power	Case	Type	Resistance	A	B	C
3W	2512	N-LR12	m50	1.80	3.60	4.75
3W	2512	N-LR12	m75	1.80	3.60	4.75



SOLDERING PROFILE



Test Procedures and Requirements

Test Item	Procedure	Test Method	Requirements
Temperature Coefficient of Resistance (TCR)	$TCR (ppm/^{\circ}C) = \frac{R_2 - R_1}{R_1 (T_2 - T_1)} \times 10^6$ <p>R₁ : Resistance of room temperature (T₁) R₂ : Resistance at -55°C of + 125°C (T₂)</p>	JIS 5201 clause 4.8	Refer to Ratings
Short Time Overload	5 times the rated power is applied to the resistor for 5 seconds and the change in resistance is measured after 30 mins.	JIS 5201 clause 4.13	$\Delta R < \pm 1\%$ LR12 (2512) $\Delta R < \pm (0.5\% + 0.5m\Omega)$
Resistance to Solder Heat	The resistor is immersed solder bath at 260±5°C for 10±1secs and the resistance is measured 1hr after the test.	JIS 5201 clause 4.18	$\Delta R < \pm 1\%$ LR12 (2512) $\Delta R < \pm (0.5\% + 0.5m\Omega)$
Solderability Test	The resistor is immersed in solder bath at 260±5°C for 2±0.5secs.	JIS 5201 clause 4.17	95% coverage
Thermal Shock	The resistor is kept at a temperature of -55°C for 15mins and the temperature is then raised to 150°C and the resistor is held in this state for another 15mins, This is repeated for 1000 cycles. The change in resistance is then measure 2hrs after the completion of 1000 cycles.	JIS 5201 clause 4.21	$\Delta R < \pm (0.5\% + 0.5m\Omega)$
Thermal Shock	The resistor is kept at a temperature of -55°C for 5mins and the temperature us then raised to 125°C and the resistor is held in this state for another 5mins. The time taken for switching between temperatures does not exceed 10secs and this is repeated for 5 cycles, The change in resistance is measured 2hrs after the completion of 5 cycles.	JIS 5201 clause 4.21	LR12 (2512): $\Delta R < \pm (0.5\% + 0.5m\Omega)$
Low Temperature Exposure (Storage)	The resistor is placed in a chamber at -65±2°C and the rated voltage is applied to the resistor for 24hrs. The change in resistance is measured 60mins after removal from test chamber.	JIS 5201 clause 4.23-4	$\Delta R < \pm 1\%$ LR12 (2512) Not this experiment
High Temperature Exposure (Strage)	The resistor is placed in a constant temperature-humidity chamber at 170±2°C for 1000hrs and the resistance is measured 60mins after the end of the cycles.	JIS 5201 clause 4.23-2	$\Delta R < \pm 1\%$ LR12 (2512) $\Delta R < \pm (1.0\% + 0.5m\Omega)$
Moisture Resistance (Climatic Sequence)	The resistor placed in a chamber at 80-100% RH and the temperature is raised from 25°C to in 2.5hrs where it is kept for 3hrs after which the temperature is brought down to 25°C in 2.5hrs. This 23hrs loop is repeated again and at the end of the second loop the resistor is held at 25°C for the remaining 8hrs. The change in resistance is then measured 2hrs after the completion of 10 cycles.	JIS 5201 clause 4.23	$\Delta R < \pm 1\%$ LR12 (2512) Not this experiment
Load Life	The resistor is placed in a chamber for 1000hrs at 70±2°C, The rated voltage is applied to the resistor (duty cycles: 90mins ON, 30mins OFF), The change in resistance is measure 60mins after removal from test chamber.	JIS 5201 clause 4.25-1	$\Delta R < \pm 1\%$ LR12 (2512) Not this experiment

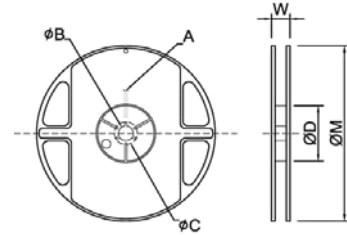
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PACKAGE PLASTIC REEL

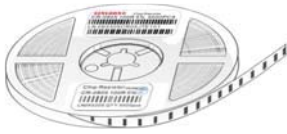
Type	Plastic Reel Dimension				Unit mm
	A	ΦB	ΦC	ΦD	W
N-LR12	2±0.5	13.5±0.5	21±0.5	60±0.2	15±1



Paper Reel Tape Packing:

Power	Case	Type	Reel	In Box	Carton
3W	2512	N-LR12	2000 pcs	20K pcs	120K pcs

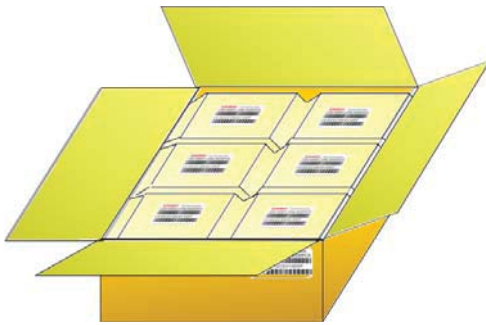
Note: Components are packed in accordance with EIA standard 481-1 and 481-2
Shipping quantity given is for minimum packing quantity only, For minimum order quantity, please consult the sales department.



Paper Reel Tape



Reel Tape Label



Carton Pack



In Box

SINLOON®

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※ Mayloon characteristic parameters of electronic product specification changes or updates without prior notice。

