Ver 2.0

Low Resistance Metal Strip Current Sensing Chip Resistors

LS2512 Series

鼎声微电 GiantOhm

PRODUCTS DATASHEET

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FEATURE

- Halogen free and lead free, RoHS compliant
- Low Resistance / Low TCR/ Low Inductance
- Excellent reliability and stability
- High precision current sensing and voltage division
- Application:
  - Entertainment equipment
  - Power Supply
  - Measuring instrument
  - Industrial equipment
  - Battery management system
  - etc.

MANUFACTURER PART NO.

For example: LS2512F0R001T4250-LS2512 ±1% 0.001Ω T/R-4000 2W 50PPM/℃

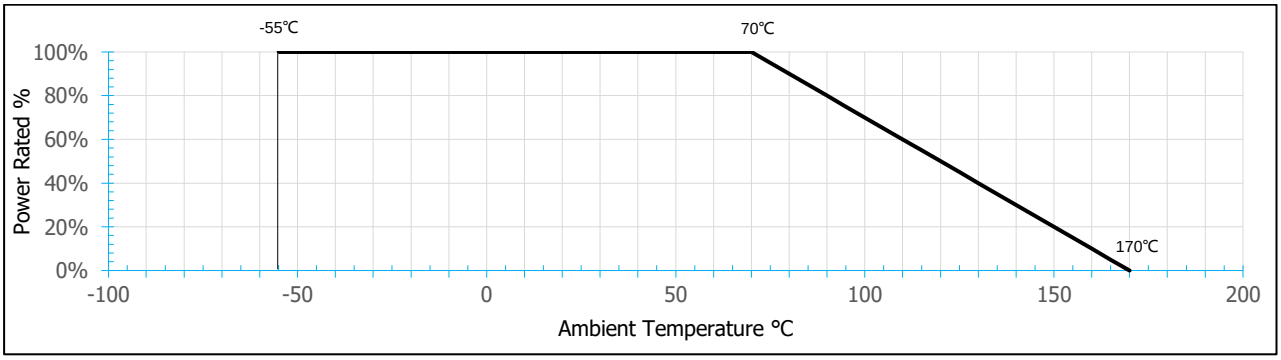
Series	Size	Tol.	Value	PKG	SPQ	Power	TCR
2 codes	4 codes	1 code	2~5 codes	1 code	1 code	1 code	2 codes
LS	2512	F	0R001	T	4	2	50
LS: Low Resistance Metal Strip Current Sensing Chip Resistors	2512	F=±1% G=±2% J=±5%	0R001①=0.001Ω, 1mΩ 0R04=0.04Ω, 40mΩ	T=T/R②	4=4000	1=1W Q=1.5W 2=2W 3=3W	05=5PPM/℃ 10=10PPM/℃ 25=25PPM/℃ 50=50PPM/℃ 00=Refer to table as below.

Note: ① R=Radix, 10^0 ② T/R=Taping in Reel Package type

CHARACTERISTIC

Type	Rated Power	Value Range ±1% / ±2% / ±5%	TCR PPM/℃	Working Temperature Range
LS2512	1W, 1.5W, 2W, 3W	1mΩ~100mΩ	±50	-55℃ ~ +170℃
	1W, 1.5W, 2W	100mΩ~500mΩ	±50	

POWER DERATING CURVE



RATED CURRENT

The resistor shall have a Rated Current which would be DC or AC corresponding to the Rated Power, and it can be calculated by formula as below.

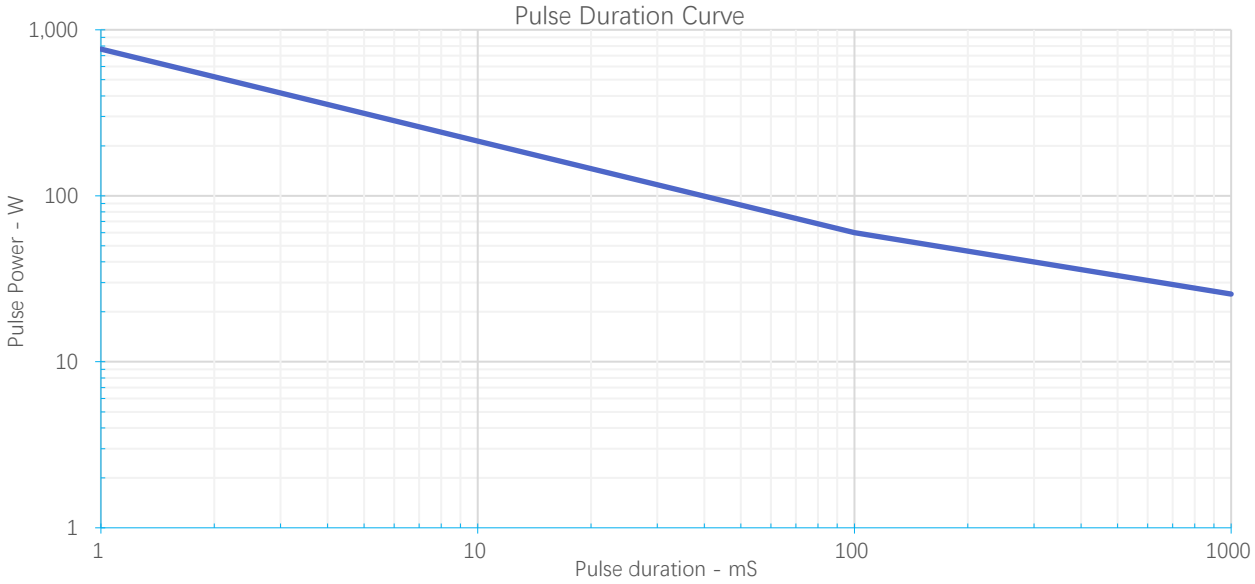
The Rated Current of certain resistance value should be the calculated result or Max. Working Current of product series whichever less.

Formula:

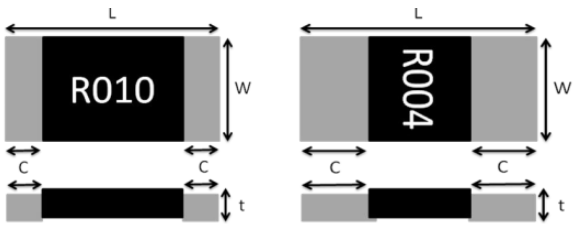
$$I = \sqrt{P/R}$$

I=Rated current (A)
P=Rated power (W)
R=Nominal resistance (Ω)

PULSE DURATION CURVE



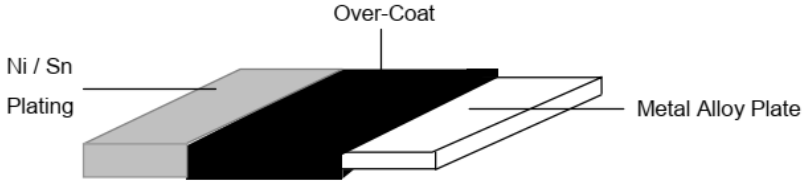
DIMENSION



Unit: mm

Type	L	W	C	t	Material
LS2512	6.4±0.20	3.2±0.20	2.2±0.2 (R≤4mΩ) 0.9±0.2 (R > 4mΩ)	0.9±0.20	Strip: Alloy Over Coating: Polymer Compound UL-94V-0 grade

STRUCTURE

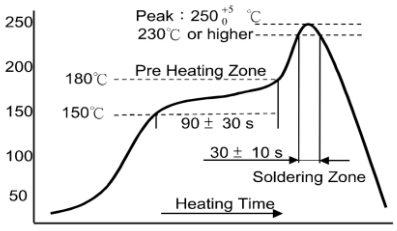


RELIABILITY

Item	Test Conditions	Specifications
Temperature Coefficient of Resistance	+25 ~ 125℃ **Reference Evidence: IEC60115-1 4.8&JIS C 5201-1- 4.8**	±50ppm/℃
High Temperature Exposure (Storage)	T=125℃,1000hrs., Measurement at 24hrs. after test conclusion.	±1%
Low temperature operation	-55 °C for 45 min **Reference Evidence: IEC60115-1 4.23.4**	±0.5%
Temperature Cycling	1000 Cycles (-55℃ to 125℃), measurement at 24hrs. after test conclusion. **Reference Evidence: JESD22 Method JA-104**	±0.5%
Short time overload	5 X rated power for 5 sec. **Reference Evidence: IEC60115-1 4.13**	±0.5%
Biased Humidity	10% Rated voltage at 85℃, 85%RH ,1000Hrs, Measurement at 24hrs after test conclusion. **Reference Evidence: MIL-STD-202 Method103**	±0.5%
Operation life	1000 h at +70 °C, 1.5hrs. "ON", 0.5hr. "OFF" **Reference Evidence: MIL-STD-202 Method 108**	±1%
Resistance to Soldering Heat	T=260+/-5℃ solder,10+/-1 sec dwell **Reference Evidence: IEC60115-1 4.18**	±0.5%
Mechanical Shock	100g's, Normal duration is 6ms, half sine shock pulse **Reference Evidence: MIL-STD-202 Method 213**	±0.5%
Resistance to vibration	5g's for 20min.12cycles, 10-2000Hz **Reference Evidence: MIL-STD-202 Method 204**	±0.5%
Board Flex	Min 2mm deflection, 60sec. **Reference Evidence: AEC-Q200-005**	±0.5%
Flammability	V-0 or V-1are acceptable, Electrical test not required **Reference Evidence: UL-94**	/

SOLDERING

SOLDERING TEMPERATURE

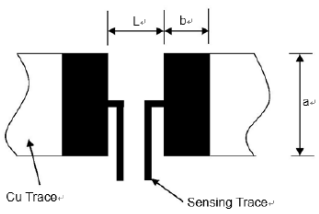


Reflow Soldering

- Recommendation only. Please adjust it according to the actual application.
- Lead Free IR Reflow Soldering Profile according to J-STD-020D.
- Note: 350±10℃ within 3 sec by soldering iron.

SOLDERING PAD

Resistance value would be lower than nominal value because of joint with soldering material, so designing circuit should adjust the pad size.



Type	Resistance	A	B	L
LS2512	R > 0.004Ω	4.0	2.1	4.1
	R≤0.004Ω	4.0	3.1	1.3

WORKING ENVIRONMENT

If user intends to use products in special environments or states (including but not limited to the following), it is necessary to approve special characteristics and reliability for the following or other application environments.

A. High temperature, high moisture.
B. Near the sea, or corrosive gas, such as Cl_2、 H_2S、 NH_3、 SO_2 and NO_2, etc.
C. Unverified liquids, such as water, oil, chemical or organic solvent.
D. Unverified resin or paint to cover products.
E. Products should be washed with water soluble cleaner even if non cleaning flux.

STORAGE / CARRY CONDITION

A. Temperature: 20±15℃
B. Humidity: 60±15%RH
C. Storage life: 1 year

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