	Lead-Free Current Sensing Resistors LRA Series (Halogen-Free)	Document No	NLRA-25-003A
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苏州利昇达电子科技有限公司

SUZHOU NICETY ELECTRONIC TECHNOLOGY CO.,LTD.

<p style="font-size: 24px;">规格承认书</p> <p style="font-size: 24px;">Approval sheet</p>

产品名称:	金属电流感测器
Name of product:	Lead-Free Current Sensing Resistors
产品规格:	LRA2512 系列
Size of product:	LRA2512 Series

江苏省苏州市吴江区松陵镇友谊工业区花园路88号

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1. Scope:

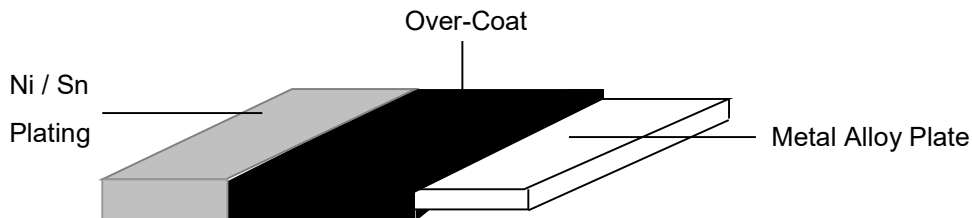
This specification applied to the products of Lead-Free current sensing resistor of metal foil for Lead-Free LRA series manufactured by SUZHOU NICETY ELECTRONIC TECHNOLOGY CO.,LTD..

2. Type Designation:

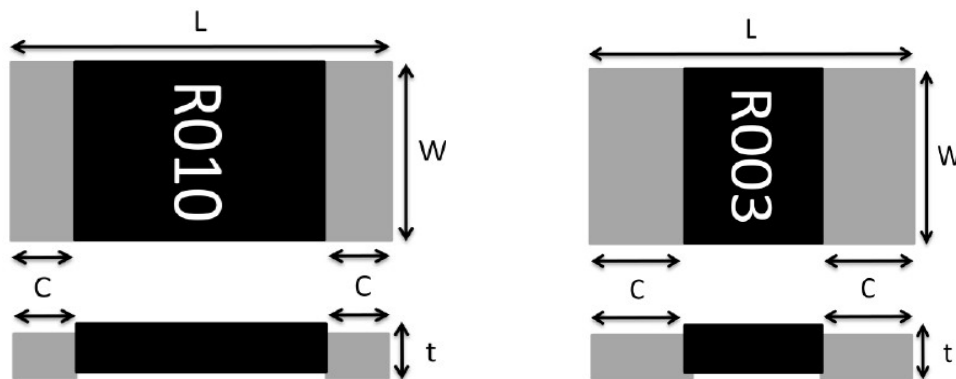
<u>LRA</u> Item	<u>2512</u> Series	<u>E</u> Power rating	<u>F</u> Resistance tolerance	<u>R005</u> Resistance
	2512	C=1W E=2W	D:±0.5% F:±1% J:±5%	e.g : R005=5mΩ R050=50mΩ

3. Construction and Dimension :

3.1 Construction:



3.2 Dimension:



UNIT: mm

Style	L	W	C	t	Material
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LRA2512	6.4±0.2	3.2±0.2	2.0±0.2(R<2mΩ)	0.6 ±0.20	Metal: Alloy Over Coating: molding Compound UL-94 grade
			0.9±0.2(R≥2mΩ)		

4. Features:

Type	LRA2512	
Power Rating	(1W:R=1mΩ~50mΩ) (2W:R≤10mΩ)	
Resistance Value	1mΩ~50mΩ	
Operation Temperature Range	-55°C~+170°C	
Temperature Coefficient of Resistance	±275ppm/ °C	R≤1mΩ
	±50ppm/°C	1mΩ<R≤50mΩ
Tolerance	±1%, ±5%	
Insulation Resistance	Over 100MΩ	
Maximum Working Voltage(V)	(P*R) ^{1/2}	

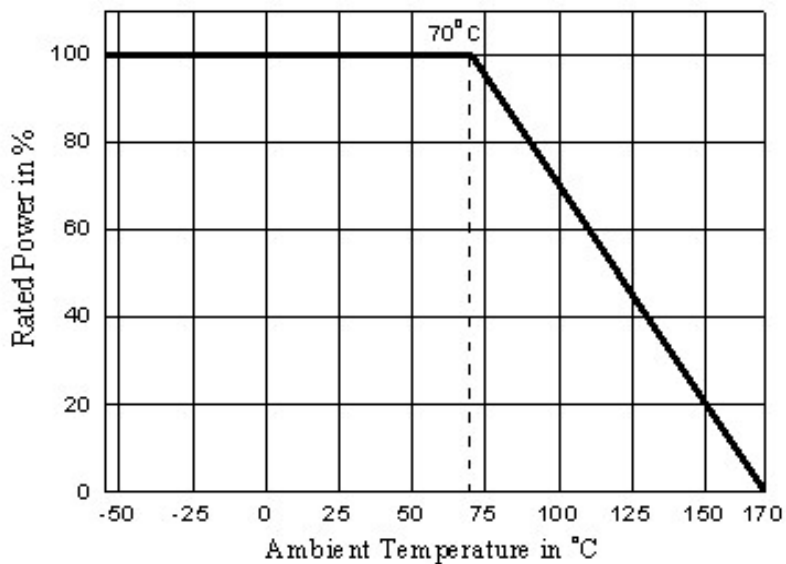
5. Reliability Tests :

Test Items	Condition of Test	Test Limits
Thermal shock	1000Cycle (-55 °C to 125), Measurement at 24hrs after test conclusion.	< ±0.5%
Short time overload	5 X rated power for 5s	< ±0.5%
Low temperature operation	-55 °C for 45 min	< ±0.5%
High Temperature Exposure(Storage)	T=125°C, 1000hrs, Measurement at 24hrs after test conclusion.	< ±1%
Mechanical Shock	100g's , Normal duration is 6ms , half sine shock pluse	< ±0.5%
Biased Humidity	10% Rated voltage at 85 °C, RH:85% , 1000Hrs, Measurement at 24hrs after test conclusion.	< ±0.5%
Load life	1000 h at +70 °C, 1.5 h "ON", 0.5 h "OFF"	< ±1%
Board Flex	Min 2mm deflection , 60sec.	< ±0.5%

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Resistance to Soldering Heat	T=260+/-5°C solder, 10+/-1 sec dwell	< ±0.5%
Resistance to vibration	5g's for 20min. 12cycles, 10-2000Hz	<±0.5%
Flammability	V-0 or V-1 are acceptable, Electrical test not required	

5.1 Derating Curve



5.2 Rated Current

The rated voltage is calculated by the following formula:

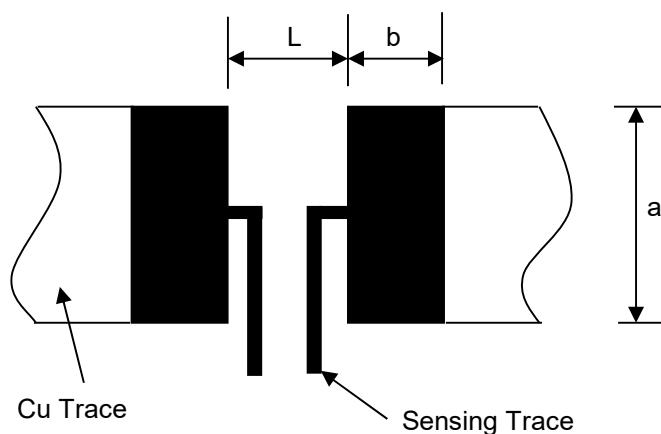
$$I = \sqrt{P \div R}$$

I: Rated Current(A)

P: Rated Power(W)

R: Resistance Value(Ω)

6. Recommended Solder Pad Dimension



Resistance Range (Ω)	a	b	L
0.001-0.002	4.0	3.1	1.3
0.002-0.050	4.0	2.1	4.1

Unit: mm



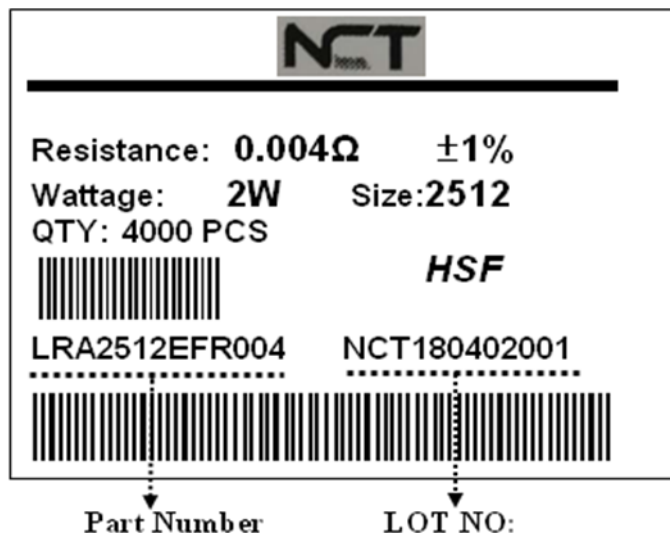
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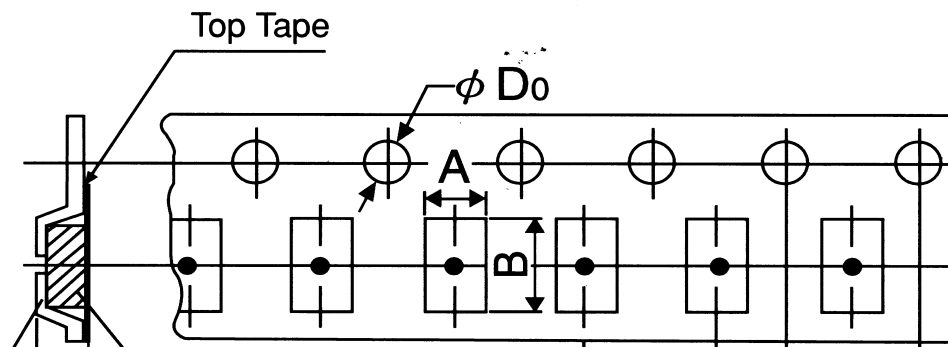
7. Number of Package:

4000 Pieces / package

8. Label:

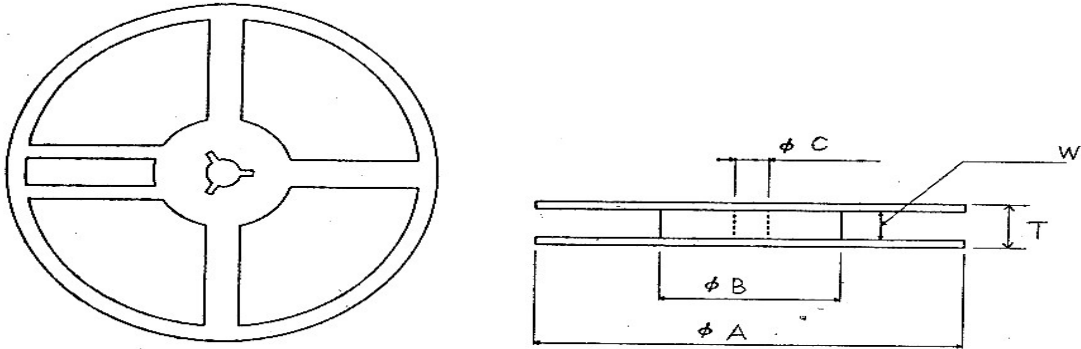


9. Taping



Packing	Type	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	T
Emboss	LRA2512	3.6 ^{+0.2} -0.18	6.9±0.2	12.±0.2	5.5±0.05	1.75±0.1	4.0±0.1	2.0±0.05	4.0±0.05	ψ1.5 (+0.1/-0)	0.85±0.15

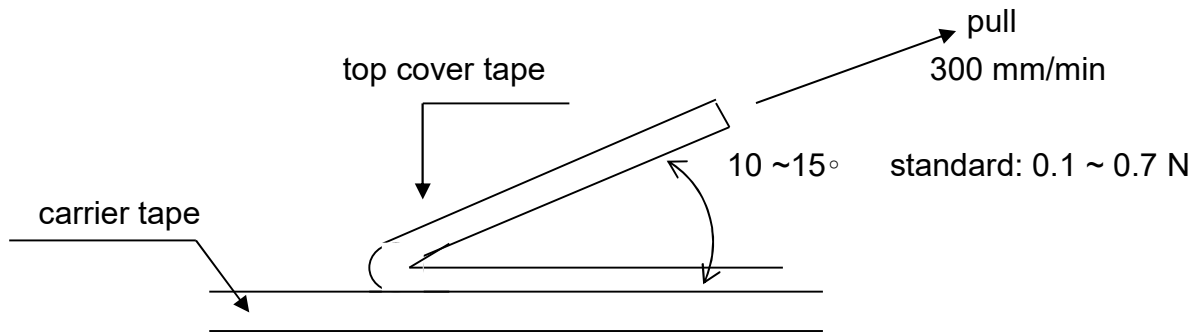
10. Reel Specification



Series	ψA	ψB	ψC	W	T
LRA 2512	180 ⁺⁰ ₋₃	60 ±1.0	13.0±1.0	13.0±1.0	15.4±2.0

11. Peeling Strength of Top Cover Tape

Test Condition: 0.1 to 0.7 N at a peel-off speed of 300 mm / min.



12. Storage Conditions:

Temperature: 5°C~35°C, Humidity: 40%~75%

13. Shelf Life:

2 years from manufacturing date.

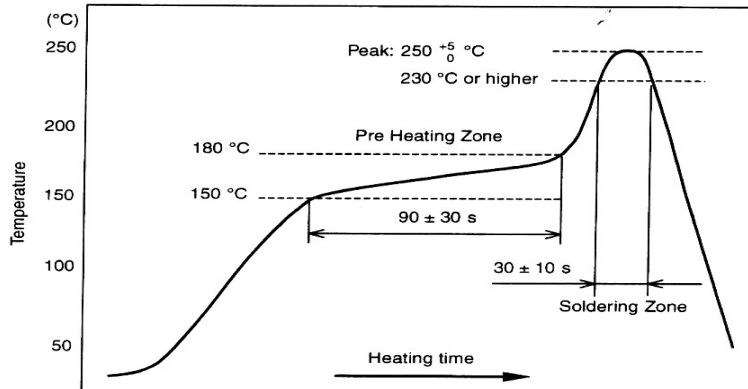


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14. Recommend IR – Reflow profile : (solder : Sn96.5 / Ag3 / Cu0.5)



Peak : $260 \begin{matrix} +5 \\ -0 \end{matrix}$ °C , 5 sec

Pre – heat Zone : 150 to 180 °C, 90 ± 30 sec

Soldering Zone : 230°C or higher , 30 ± 10 sec

Iron Solder: 350 ± 10 °C , $3 \pm 1 / -0$ sec

15. ECN

Engineering Change Notice: The customer will be informed with ECN if there is significant modification on the characteristics and materials described in Approval Sheet.

16. Manufacturing Country & City :

SUZHOU NICETY ELECTRONIC TECHNOLOGY CO.,LTD. (China – Su Zhou)

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