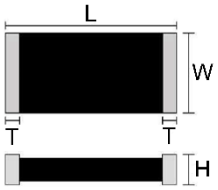
Features:

- High power current sense resistor
- Resistances down to 0.0002Ω
- “-3W” special 3W power rating
- 100% RoHS compliant and lead free without exemption
- Halogen free
- REACH compliant
- AEC-Q200 compliant

Electrical Specifications

Type/Code	Power Rating (W) @ 70ºC	Max. Rating Current (A)	Max. Overload Current (A)	TCR (ppm/ºC)	Ohmic Range (Ω) and Tolerance 1%, 5%
CSNL2512_-3W	3	122.47	273.86	± 175	0.0002
		100	223.6	± 150	0.0003
		77.46	173.20	± 75	0.0005
		54.77	122.47	± 50	0.001, 0.002

Mechanical Specifications



Type/Code	Ohmic Value (Ω)	L	W	H	T	Unit
CSNL2512_-3W	0.0002(*)	0.250 ± 0.010 6.35 ± 0.25	0.122 ± 0.010 3.10 ± 0.25	0.049 ± 0.010 1.25 ± 0.25	0.094 ± 0.010 2.40 ± 0.25	inches mm
	0.0003			0.049 ± 0.010 1.25 ± 0.25	0.100 ± 0.010 2.55 ± 0.25	inches mm
	0.0005			0.049 ± 0.010 1.25 ± 0.25	0.067 ± 0.010 1.70 ± 0.25	inches mm
	0.001			0.026 ± 0.010 0.65 ± 0.25	0.055 ± 0.010 1.40 ± 0.25	inches mm
	0.002			0.014 ± 0.010 0.35 ± 0.25	0.055 ± 0.010 1.40 ± 0.25	inches mm

(*) No marking.

Performance Characteristics

Test Item	Test Method	Procedure	Requirements
Temperature Coefficient of Resistance (TCR)	JIS-C-5201-1 4.8 IEC-60115-1 4.8	At 25ºC/+125ºC, 25ºC is the reference temperature	Refer to Electrical Specifications table
Short Time Overload	JIS-C-5201-1 4.13 IEC-60115-1 4.13	The number of rated power is 5 times of rated power for 5 seconds	Δ R/R1 ≤ ± 1%
High Temperature Exposure	JIS-C-5201-1 4.25 IEC 60068-2-2	At 170ºC for 1000 hours	Δ R/R1 ≤ ± 1%
Resistance to Soldering Heat	JIS-C-5201-1 4.18 IEC-60115-1 4.18	260ºC ± 5ºC for 10 seconds	Δ R/R1 ≤ ± 0.5%
Temperature Cycling	JESD22 Method JA-104	1000 cycles (-55ºC to +155ºC) Measurement at 24 ± 4 hours after test conclusion. 30 minutes maximum dwell time at each temperature extreme	Δ R/R1 ≤ ± 1%
Biased Humidity	MIL-STD-202 Method 103	1000 hours; 85ºC/85% RH, 10% of operating power. Measurement at 24 ± 4 hours after test conclusion.	Δ R/R1 ≤ ± 1%
Load Life (Endurance)	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1	70ºC ± 2ºC, RCWV or max. working voltage whichever is less for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"	Δ R/R1 ≤ ± 1%

Performance Characteristics (cont.)			
Test Item	Test Method	Procedure	Requirements
Temperature Coefficient of Resistance (TCR)	JIS-C-5201-1 4.8 IEC-60115-1 4.8	At 25ºC/+125ºC, 25ºC is the reference temperature	Refer to Electrical Specifications table
Short Time Overload	JIS-C-5201-1 4.13 IEC-60115-1 4.13	The number of rated power is 5 times of rated power for 5 seconds	Δ R/R1 ≤ ± 1%
High Temperature Exposure	JIS-C-5201-1 4.25 IEC 60068-2-2	At 170ºC for 1000 hours	Δ R/R1 ≤ ± 1%
Resistance to Soldering Heat	JIS-C-5201-1 4.18 IEC-60115-1 4.18	260ºC ± 5ºC for 10 seconds	Δ R/R1 ≤ ± 0.5%
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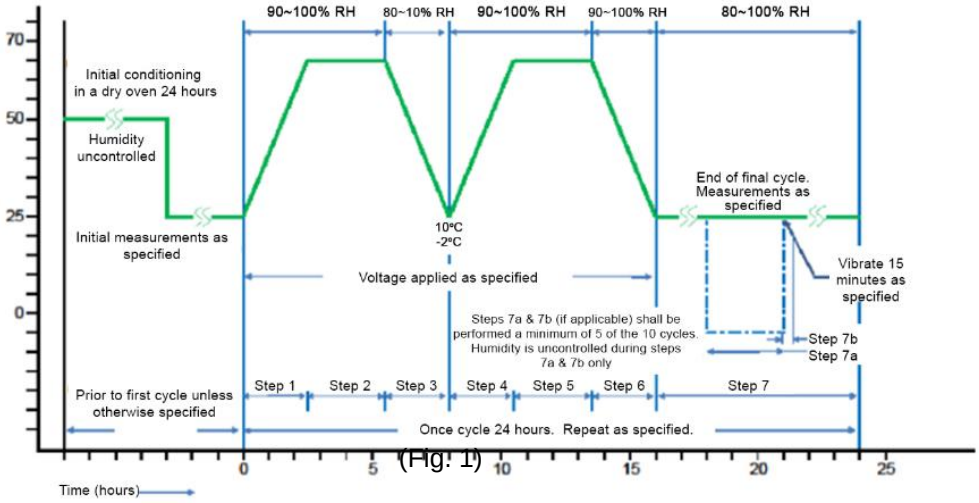
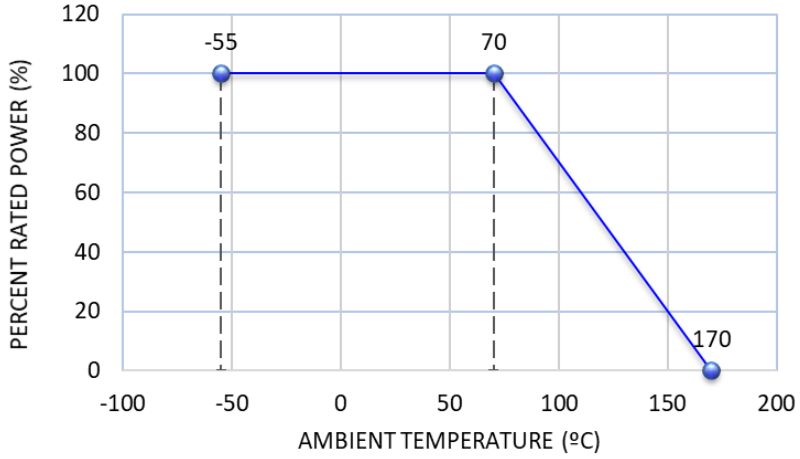
Biased Humidity	MIL-STD-202 Method 103	1000 hours; 85ºC/85% RH, 10% of operating power. Measurement at 24 ± 4 hours after test conclusion.	Δ R/R1 ≤ ± 1%
Load Life (Endurance)	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1	70ºC ± 2ºC, RCWV or max. working voltage whichever is less for 1000 hours with 1.5 hours "ON" and 0.5 hour "OFF"	Δ R/R1 ≤ ± 1%



(Fig. 1)

Power Derating Curve:



Rating Current:

The following equation may be used to determine the DC (Direct Current) or AC (Alternating Current) (RMS, root mean square value) of normal rated power. However, if the result value exceeds the highest current of regulated standards, the highest normal rated power is to be used.

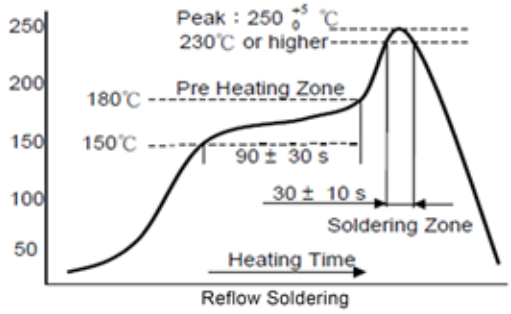
$I = \sqrt{P/R}$

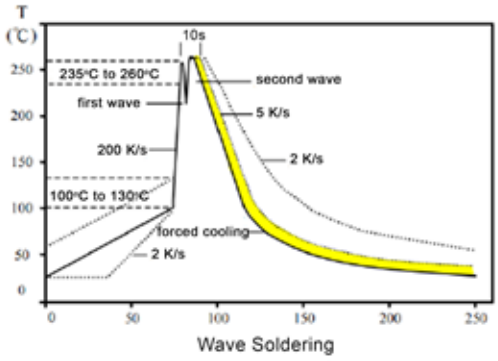
I = Rating current (A)
P = Rating power (W)
R = Resistance (Ω)

Marking Format:

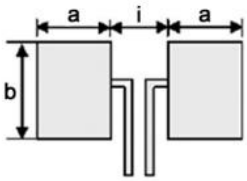
- 0.0003 no marking.
- Other ohmic ranges are marked with 4 digits.
- "R" designates de decimal location in ohms. E.g. 0.002 Ω, marking is R002.
- "m" designates de decimal location in milliohms. E.g. 0.0005 Ω, marking is 0m50.

Soldering Profile



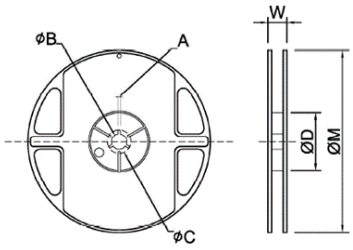


Recommended Pad Layout



Type/Code	Ohmic Value (Ω)	a	b	i
CSNL2512_-3W	0.0002	0.110 2.80	0.140 3.55	0.079 2.00
	0.0003	0.110 2.80	0.140 3.55	0.079 2.00
	0.0005	0.110 2.80	0.140 3.55	0.079 2.00
	0.001	0.106 2.70	0.140 3.55	0.114 2.90
	0.002	0.094 2.40	0.140 3.55	0.079 2.00

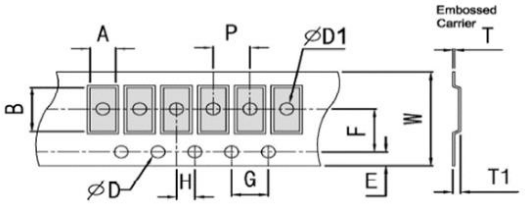
Packaging Specifications



Type/Code	A	B	C	D	W	M	Unit
CSNL2512_-3W	0.098 ± 0.020 2.50 ± 0.50	0.531 ± 0.020 13.50 ± 0.50	0.697 ± 0.020 17.70 ± 0.50	2.362 ± 0.020 60.00 ± 0.50	0.638 ± 0.020 16.20 ± 0.50	7.008 ± 0.039 178.00 ± 1.00	inches mm

7" reel, 12 mm embossed

Taping Specifications



Type/Code	Ohmic Value (Ω)	W	P	E	F	ØD	ØD1	Unit
CSNL2512_-3W	0.0002 - 0.0005	0.472 ± 0.012 12.00 ± 0.30	0.157 ± 0.004 4.00 ± 0.10	0.069 ± 0.004 1.75 ± 0.10	0.217 ± 0.004 5.50 ± 0.10	0.059 +0.004/-0 1.50 +0.1/-0	0.061 ± 0.004 1.55 ± 0.10	inches mm
	0.001 - 0.002							
	Ohmic Value (Ω)	G	H	A	B	T1	T	Unit
	0.0002 - 0.0005	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.138 ± 0.004 3.50 ± 0.10	0.266 ± 0.004 6.75 ± 0.10	0.057 ± 0.008 1.45 ± 0.20	0.008 ± 0.004 0.20 ± 0.10	inches mm
	0.001 - 0.002					0.035 ± 0.008 0.90 ± 0.20		

RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

RoHS Compliance Status

Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
CSNL	Metal Plate Current Sensing Surface Mount Chip Resistor	SMD	YES	100% Matte Sn over Ni	May-04	04/18

"Conflict Metals" Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the "conflict region" of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

Compliance to "REACH"

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, "The Registration, Evaluation, Authorization and Restriction of Chemicals", otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

Environmental Policy

It is the policy of Stackpole Electronics, Inc. to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

How to Order

C	S	N	L	2	5	1	2	F	T	1	L	0	0	-	3	W

Product Series	
Code	Description
CSNL	Metal Foil

Power Rating	
Size	(W)
2512	3

Tolerance	
Code	Tol
F	1%
J	5%

Packaging			
Code	Description	Ohmic Value	Quantity
T	7" Reel	0.0002 - 0.0005	2000
	Plastic Tape	0.001 - 0.002	4000

Resistance Value
Four characters with the multiplier used as the decimal holder. "L" used as multiplier of 10^{-3} for any value under 0.1 ohm.
0.0005 Ohm = L500 0.001 Ohm = 1L00

Special	
Code	Power
-3W	3W

Note: Add "-3W" to the end of the part number to specify 3W part.