

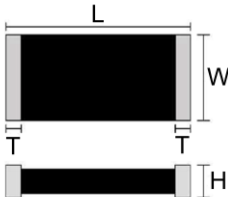
Features:

- High power current sense resistor
- TCR of ± 50 ppm/ $^{\circ}\text{C}$
- Resistances down to $0.2\text{m}\Omega$
- Non-standard resistance values available
- RoHS compliant, REACH compliant, lead free, and halogen free
- CSNL2512 is AEC-Q200 compliant



Electrical Specifications			
Type/Code	Power Rating (W)	TCR (ppm/ $^{\circ}\text{C}$)	Ohmic Range (Ω) and Tolerance
			1%, 5%
CSNL1206	1 @ 80°C	± 50	0.001 - 0.05
CSNL2010	1.5 @ 80°C	± 100	0.0005
		± 50	0.001 - 0.1
CSNL2512	3 @ 70°C	± 150	0.0002
		± 100	0.0003
		± 50	0.0005 - 0.2

Note: Not all values in the range may be available. Contact Stackpole.

Mechanical Specifications							
							
Type/Code	Resistance Range (Ω)	L Body Length	W Body Width	H Body Height	T Bottom Termination	Unit	
CSNL1206	0.001 - 0.05	0.126 $\pm$ 0.010 3.20 $\pm$ 0.25	0.063 $\pm$ 0.010 1.60 $\pm$ 0.25	0.025 $\pm$ 0.010 0.65 $\pm$ 0.25	0.020 $\pm$ 0.010 0.51 $\pm$ 0.25	inches mm	
CSNL2010	$\leq$ 0.003	0.200 $\pm$ 0.010 5.08 $\pm$ 0.25	0.100 $\pm$ 0.010 2.54 $\pm$ 0.25	0.031 $\pm$ 0.010 0.79 $\pm$ 0.25	0.051 $\pm$ 0.010 1.30 $\pm$ 0.25	inches mm	
	$\geq$ 0.0031			0.025 $\pm$ 0.010 0.65 $\pm$ 0.25	0.031 $\pm$ 0.010 0.79 $\pm$ 0.25	inches mm	
CSNL2512	0.0002	0.250 $\pm$ 0.010 6.35 $\pm$ 0.25	0.122 $\pm$ 0.010 3.10 $\pm$ 0.25	0.056 $\pm$ 0.010 1.42 $\pm$ 0.25	0.094 $\pm$ 0.010 2.40 $\pm$ 0.25	inches mm	
	0.0003			0.049 $\pm$ 0.010 1.25 $\pm$ 0.25	0.100 $\pm$ 0.010 2.55 $\pm$ 0.25	inches mm	
	0.0005			0.049 $\pm$ 0.008 1.25 $\pm$ 0.20	0.073 $\pm$ 0.015 1.85 $\pm$ 0.38	inches mm	
	0.00075			0.030 $\pm$ 0.008 0.75 $\pm$ 0.20	0.061 $\pm$ 0.015 1.55 $\pm$ 0.38	inches mm	
	0.001					0.026 $\pm$ 0.008 0.65 $\pm$ 0.20	inches mm
	0.0015					0.018 $\pm$ 0.008 0.45 $\pm$ 0.20	inches mm
	0.002					0.014 $\pm$ 0.008 0.35 $\pm$ 0.20	inches mm
	0.0025			0.026 $\pm$ 0.008 0.65 $\pm$ 0.20	0.055 $\pm$ 0.015 1.40 $\pm$ 0.38	inches mm	
	0.003					0.022 $\pm$ 0.008 0.55 $\pm$ 0.20	inches mm
	0.004					0.018 $\pm$ 0.008 0.45 $\pm$ 0.20	inches mm
	0.005					0.014 $\pm$ 0.008 0.35 $\pm$ 0.20	inches mm

Mechanical Specifications (cont.)

Type/Code	Resistance Range (Ω)	L Body Length	W Body Width	H Body Height	T Bottom Termination	Unit
CSNL2512	0.006	0.250 ± 0.010 6.35 ± 0.25	0.125 ± 0.010 3.18 ± 0.25	0.013 ± 0.008 0.32 ± 0.20	0.055 ± 0.015 1.40 ± 0.38	inches mm
	0.0065			0.012 ± 0.008 0.30 ± 0.20		inches mm
	0.007			0.011 ± 0.008 0.27 ± 0.20		inches mm
	0.01			0.010 ± 0.008 0.25 ± 0.20		inches mm
	0.012 - 0.2	0.252 ± 0.010 6.40 ± 0.25	0.126 ± 0.010 3.20 ± 0.25	0.028 ± 0.008 0.70 ± 0.20	0.035 ± 0.012 0.90 ± 0.30	inches mm

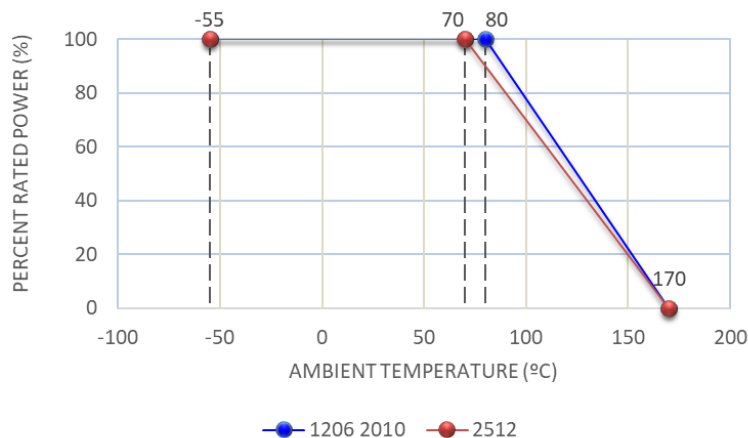
Performance Characteristics

Test	Test Method	Test Specification	Typical
Load Life	MIL-STD-502F-Method 108A RCWV at 70°C; 1.5 hour ON; 0.5 hour OFF Total 1024 $\pm$ 24 hours	$\pm 1\%$	$\leq 0.5\%$
Resistance to Soldering Heat	MIL-STD-202F-Method 210E 260 $\pm$ 5°C for 10 $\pm$ 1 seconds	$\pm 0.5\%$	$\leq 0.25\%$
Solderability	MIL-STD-202F-Method 208H 245 $\pm$ 5°C for 2 $\pm$ 0.5 seconds	minimum 95% coverage	> 95%
Thermal Shock	MIL-STD-202F-Method 107G -55 to 150°C, 100 cycles	$\pm 0.5\%$	$\leq 0.5\%$
Short Time Overload	JIS-C-5202-5.5 5x rated power for 5 seconds	All except CSNL2512-3W: $\pm 0.5\%$ CSNL2512-3W: $\pm 1\%$	$\leq 0.5\%$
Temperature Cycling	JIS-C-5202-7.4 -55°C: 30 minutes 25°C: 2 to 3 minutes 155°C: 30 minutes 25°C: 2 to 3 minutes	$\pm 0.5\%$	$\leq 0.5\%$
Moisture Resistance	MIL-STD-202F-Method 106G	$\pm 0.5\%$	$\leq 0.5\%$
Insulation Resistance	MIL-STD-202F-Method 302 Apply 100 Vdc for 1 minute	1M Ω minimum	$\geq 1M\Omega$
Leach Resistance	-	90 seconds minimum	≥ 90 seconds

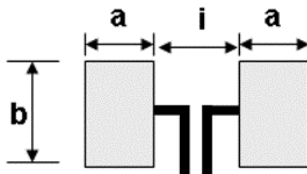
Operating temperature range is -55 to +170°C

Recommended storage temperature is 25 $\pm$ 5°C. Humidity: 60 $\pm$ 20%

Power Derating Curve:

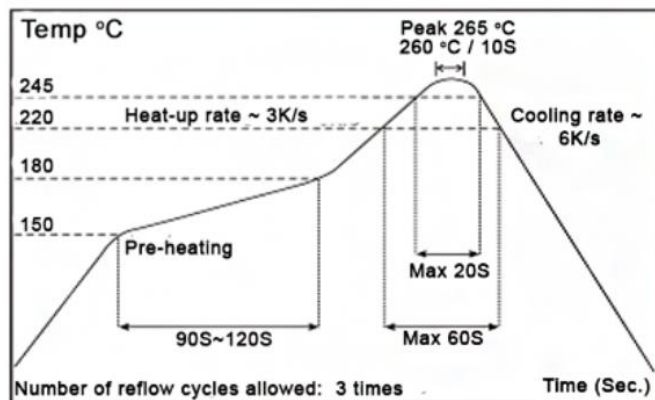


Recommended Pad Layout



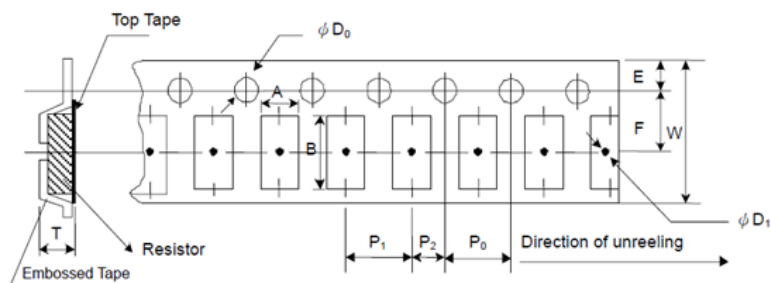
Type/Code	Resistance Range (Ω)	a	b	i	Unit
CSNL1206	0.001 - 0.05	0.063 1.60	0.086 2.18	0.039 1.00	inches mm
CSNL2010	≤ 0.003	0.114 2.89	0.115 2.92	0.048 1.22	inches mm
	≥ 0.0031	0.090 2.29		0.095 2.41	inches mm
CSNL2512	0.0002, 0.0003	0.110 2.80	0.140 3.55	0.079 2.00	inches mm
	0.0005	0.123 3.13	0.134 3.40	0.020 0.52	inches mm
	0.00075	0.115 2.93	0.134 3.40	0.037 0.94	inches mm
	0.001	0.094 2.38		0.080 2.04	inches mm
	0.0015	0.074 1.88		0.120 3.04	inches mm
	0.002, 0.0025, 0.003	0.064 1.63		0.139 3.54	inches mm
	0.004	0.104 2.63		0.061 1.54	inches mm
	0.005, 0.006	0.094 2.38		0.080 2.04	inches mm
	0.0065, 0.007	0.074 1.88		0.120 3.04	inches mm
	0.01	0.064 1.63		0.139 3.54	inches mm
	0.012 - 0.2	0.079 2.00	0.138 3.50	0.157 4.00	inches mm

Recommended Resistor Reflow Profile



Time of IR reflow soldering at maximum temperature point 260°C: 10 seconds.

Taping Specifications – Plastic Tape



Type/Code	Ohmic Value (Ω)	Quantity	A	B	W	F	E	P0	Unit
CSNL1206	0.001 - 0.05	4000	0.072 ± 0.004 1.83 ± 0.10	0.137 ± 0.004 3.48 ± 0.10	0.315 ± 0.006 8.00 ± 0.15	0.138 ± 0.004 3.50 ± 0.10	0.069 ± 0.004 1.75 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	inches mm
CSNL2010	0.0005 - 0.01	2000	0.114 ± 0.004 2.90 ± 0.10	0.215 ± 0.004 5.45 ± 0.10	0.472 ± 0.006 12.00 ± 0.15	0.217 ± 0.004 5.50 ± 0.10	0.069 ± 0.004 1.75 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	inches mm
CSNL2512	0.0002, 0.0003	2000	0.138 ± 0.004 3.50 ± 0.10	0.266 ± 0.004 6.75 ± 0.10	0.472 ± 0.012 12.00 ± 0.30	0.217 ± 0.004 5.50 ± 0.10	0.069 ± 0.004 1.75 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	inches mm
	0.0005 - 0.01	2000	0.134 ± 0.004 3.40 ± 0.10	0.266 ± 0.004 6.75 ± 0.10	0.472 ± 0.004 12.00 ± 0.10	0.217 ± 0.002 5.50 ± 0.05	0.069 ± 0.004 1.75 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	inches mm
	0.012 - 0.2	4000	0.138 ± 0.004 3.50 ± 0.10	0.264 ± 0.004 6.70 ± 0.10	0.472 ± 0.012 12.00 ± 0.30	0.217 ± 0.002 5.50 ± 0.05	0.069 ± 0.004 1.75 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	inches mm
Type/Code	Ohmic Value (Ω)	T	P1	P2	ØD0	ØD1	Unit		
CSNL1206	0.001 - 0.05	0.043 ± 0.004 1.10 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.059 ± 0.004 1.50 ± 0.10	-	inches mm		
CSNL2010	0.0005 - 0.01	0.052 ± 0.004 1.33 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.059 ± 0.004 1.50 ± 0.10	-	inches mm		
CSNL2512	0.0002, 0.0003	0.057 ± 0.008 1.45 ± 0.20	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.004 2.00 ± 0.10	0.059 + 0.004, -0 1.50 + 0.1, -0	0.061 ± 0.004 1.55 ± 0.10	inches mm		
	0.0005, 0.00075	0.057 ± 0.008 1.45 ± 0.20	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.061 ± 0.002 1.55 ± 0.05	0.055 min. 1.40 min.	inches mm		
	0.001 - 0.01	0.032 ± 0.004 0.81 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.061 ± 0.002 1.55 ± 0.05	0.055 min. 1.40 min.	inches mm		
	0.012 - 0.2	0.047 + 0.000 1.20 + 0.00	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004/-0 1.50 +0.1/-0	0.059 +0.01/-0 1.50 +0.25/-0	inches mm		

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 Alloy Current Sensing Chip Resistor	SMD	YES	100% Matte Sn over Ni	May-04	04/18

Mouser Electronics

Authorized Distributor

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<u>CSNL1206FT2L00</u>	<u>CSNL2512FT3L00</u>	<u>CSNL2512FTL500</u>	<u>CSNL1206FT1L00</u>	<u>CSNL2512FT1L00</u>	
<u>CSNL1206FT33L0</u>	<u>CSNL1206JT16L0</u>	<u>CSNL1206JT18L0</u>	<u>CSNL1206JT50L0</u>	<u>CSNL2010FT60L0</u>	<u>CSNL2010JT9L00</u>
<u>CSNL2512JT6L00</u>	<u>CSNL2010FT5L00</u>	<u>CSNL2512FT5L00</u>	<u>CSNL1206FT12L0</u>	<u>CSNL1206FT22L0</u>	<u>CSNL1206JT6L00</u>
<u>CSNL2010FT13L0</u>	<u>CSNL2010FT47L0</u>	<u>CSNL2010JT30L0</u>	<u>CSNL2010JT56L0</u>	<u>CSNL1206FT16L0</u>	<u>CSNL1206FT7L00</u>
<u>CSNL1206JT27L0</u>	<u>CSNL2010JT27L0</u>	<u>CSNL2010JT60L0</u>	<u>CSNL2512FT2L00</u>	<u>CSNL1206JT13L0</u>	<u>CSNL2010FT24L0</u>
<u>CSNL2010FT51L0</u>	<u>CSNL2010JT16L0</u>	<u>CSNL2010JT91L0</u>	<u>CSNL1206FT27L0</u>	<u>CSNL1206FT40L0</u>	<u>CSNL1206JT33L0</u>
<u>CSNL2512JT7L00</u>	<u>CSNL1206FT10L0</u>	<u>CSNL2010JT40L0</u>	<u>CSNL2010JT43L0</u>	<u>CSNL2010JTR100</u>	<u>CSNL1206FT11L0</u>
<u>CSNL1206JT11L0</u>	<u>CSNL2010JT10L0</u>	<u>CSNL2512FT10L0</u>	<u>CSNL2512FT2L50</u>	<u>CSNL2512FT7L00</u>	<u>CSNL1206FT3L00</u>
<u>CSNL2512FT4L00</u>	<u>CSNL1206FT30L0</u>	<u>CSNL1206FT39L0</u>	<u>CSNL1206JT15L0</u>	<u>CSNL1206JT47L0</u>	<u>CSNL1206JT4L00</u>
<u>CSNL2010FT1L00</u>	<u>CSNL2010FT56L0</u>	<u>CSNL2010JT3L00</u>	<u>CSNL2010JT4L00</u>	<u>CSNL2512JT5L00</u>	<u>CSNL1206FT43L0</u>
<u>CSNL1206JT36L0</u>	<u>CSNL1206JT8L00</u>	<u>CSNL2010FT16L0</u>	<u>CSNL2010FT75L0</u>	<u>CSNL2010JT36L0</u>	<u>CSNL2010JT50L0</u>
<u>CSNL2512JT10L0</u>	<u>CSNL1206FT15L0</u>	<u>CSNL1206FT25L0</u>	<u>CSNL1206JT12L0</u>	<u>CSNL1206JT22L0</u>	<u>CSNL2010FT27L0</u>
<u>CSNL2010FT50L0</u>	<u>CSNL2010JT22L0</u>	<u>CSNL2010JT82L0</u>	<u>CSNL2512FT1L50</u>	<u>CSNL1206FT5L00</u>	<u>CSNL1206JT30L0</u>
<u>CSNL2010FT39L0</u>	<u>CSNL2010FT40L0</u>	<u>CSNL2010FT8L00</u>	<u>CSNL2512FT9L00</u>	<u>CSNL1206FT6L00</u>	<u>CSNL1206JT25L0</u>
<u>CSNL1206JT2L00</u>	<u>CSNL2010FT11L0</u>	<u>CSNL2010FT3L00</u>	<u>CSNL2010FT82L0</u>	<u>CSNL2010FT91L0</u>	<u>CSNL2010JT62L0</u>
<u>CSNL2010JT6L00</u>	<u>CSNL2512JTL750</u>	<u>CSNL2010JT15L0</u>	<u>CSNL2010JT47L0</u>	<u>CSNL2010JT8L00</u>	<u>CSNL2512JT4L00</u>
<u>CSNL1206FT1L50</u>	<u>CSNL2010FT10L0</u>	<u>CSNL2010FT12L0</u>	<u>CSNL2010FT80L0</u>	<u>CSNL2010FT9L00</u>	