

# CSRL Series

Power Metal Element Current Sense Chip Resistor



- Resistances from 0.5 mOhm to 200 mOhm
- Power Rating up to 3 Watts
- Resistance Tolerances to  $\pm 0.5\%$
- TCR's to  $\pm 25$  ppm/ $^{\circ}\text{C}$
- Sizes: 1206 & 2512
- Non-Inductive Metal Element ( $< 5\text{nH}$ )

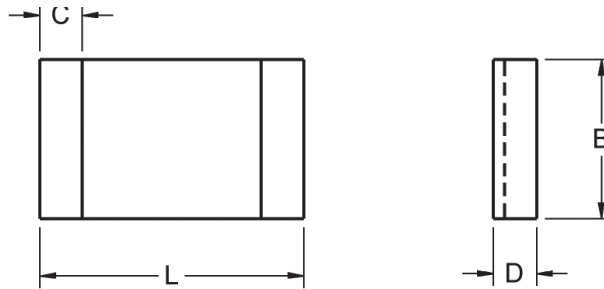
Electrical Specifications				
Type	Power Rating ( W ) at 70°C	Resistances ( m $\Omega$ ) *	TCR (ppm/ $^{\circ}\text{C}$ )	Available Tolerances
CSRL1 (1206)	1	8, 10, 12, 15, 20, 25, 30, 33, 40	$\pm 50$	0.5%, 1%, 5%
		3, 4, 5, 7, 8, 10, 12, 15, 20, 25, 30, 33, 40	$\pm 75, \pm 100$	
CSRL3 (2512)	3	0.5, 0.75, 1, 1.5, 2	$\pm 50$	1%, 5%
		3, 4, 5, 6, 7, 18, 20, 22, 25, 30, 33, 35, 39, 40, 47, 50, 60, 68, 70, 75, 80, 82, 90, 91, 100, 120, 150, 180, 200	$\pm 25$	0.5%, 1%, 5%
		3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 18, 20, 22, 25, 30, 33, 35, 39, 40, 47, 50, 60, 68, 70, 75, 80, 82, 90, 91, 100, 120, 150, 180, 200	$\pm 50, \pm 75$	

\* Other resistance values may be available, please consult factory | Maximum Operating Voltage =SQRT(P\*R)

Environmental Specifications		
Operating Temperature Range	-55°C to +170°C	
Terminal Finish	Nickel / Tin	
Test	$\Delta R$	Test Method
TCR	As Specified	+25°C ~125°C, 25°C is the reference temperature
Short Time Overload	$\pm 1.0\%$	5 times rated power for 5 seconds
Load Life	$\pm 1.0\%$	70 $\pm 2^{\circ}\text{C}$ , rated power for 1000 hrs with 1.5 hrs "ON" and 0.5 hr "OFF"
Dry Heat	$\pm 1.0\%$	+170°C for 1000 hrs
Solderability	95% min	245 $\pm 5^{\circ}\text{C}$ for 3 seconds
Resistance to Soldering Heat	$\pm 0.5\%$	260 $\pm 5^{\circ}\text{C}$ for 10 seconds
Thermal Shock	$\pm 1.0\%$	-55°C to +155°C, 5 cycles
Insulation Resistance	$\geq 10\text{G}$	100V DC for 1 minute
Biased Humidity	$\pm 1.0\%$	1000 hrs 85°C / 85%RH 10% of operating power
Dry Heat	$\pm 1.0\%$	+170°C for 1000 hrs
Bending Strength	$\pm 1.0\%$	Bending width 2mm once for 60 seconds
Low temperature Storage	$\pm 1.0\%$	-55°C for 2 hrs

# CSRL Series

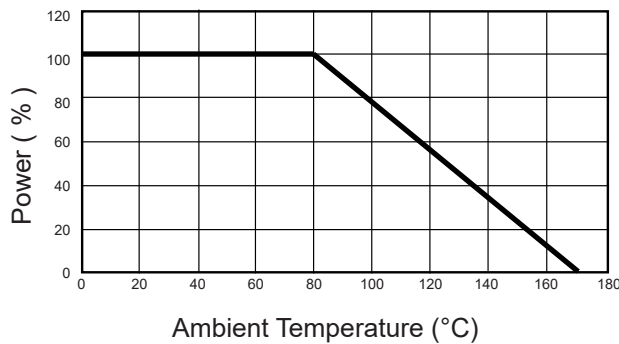
Power Metal Element Current Sense Chip Resistor



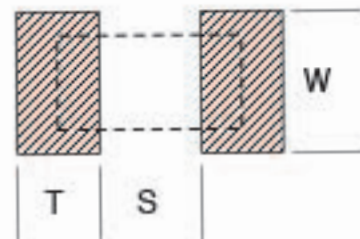
Dimensions									
Type	Resistance ( mΩ )	Resistor Body				Suggested Land Pattern			Mass * (g/1000)
		L (mm)	B (mm)	C (mm)	D (mm)	S (mm)	T (mm)	W (mm)	
CSRL1	3 - 40	3.15±0.10	1.45±0.10	0.55±0.15	0.55±0.10	1.50	1.40	1.70	10.5
CSRL3	0.5	6.35±0.25	3.18±0.25	1.30±0.38	1.25±0.20	2.95	2.70	3.60	184.11
	0.75	6.35±0.25	3.18±0.25	1.30±0.38	0.75±0.20	2.95	2.70	3.60	131.11
	1	6.35±0.25	3.18±0.25	1.30±0.38	0.65±0.20	2.95	2.70	3.60	110.85
	1.5	6.35±0.25	3.18±0.25	1.30±0.38	0.45±0.20	2.95	2.70	3.60	67.16
	2	6.35±0.25	3.18±0.25	1.30±0.38	0.35±0.20	2.95	2.70	3.60	49.30
	3 - 200	6.40±0.25	3.20±0.25	0.90±0.30	0.70±0.20	4.00	2.00	3.50	40.20

\*CSRL1, 5000 per reel | CSRL3 ≤ 0.003Ω, 2000 per reel, all other values, 4000 per reel

Power Derating Curve



Suggested Landing Pattern  
FR4 copper board, 100µm of copper pad thickness



## Ordering Information

Example: **CSRL3 0.01 OHM 1% 50PPM**

