

CSR/CSRN Series — Thick Film Current Sensing Resistors

Features

- 0402 to 2512 & 1225 sizes available
- Power ratings to 3W
- Low inductance – less than 0.2nH typically
- RoHS compliant / lead-free (CSF)
- Non-standard resistance values available
- 2010 and 2512 sizes available with narrow terminations (CSRN)



Electrical Specifications

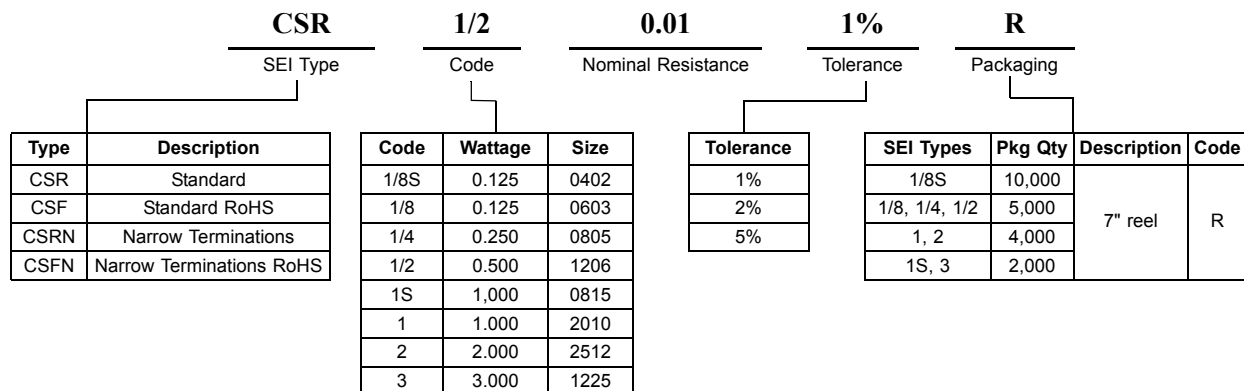
| Type / Code | Package Type | Power Rating (Watts) @ 70°C | Dielectric Withstanding Voltage | Resistance Temperature Coefficient | Ohmic Range and Tolerance | |
|-------------|--------------|-----------------------------|---------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | | | | | 1% | 5% |
| CSR 1/8S | 0402 | 0.125W | 200V | ±200 ppm/°C | 0.051Ω – 1.000Ω | 0.051Ω – 1.000Ω |
| CSR 1/8 | 0603 | 0.125W | 200V | ±300 ppm/°C | 0.021Ω – 1.000Ω | 0.021Ω – 1.000Ω |
| CSR 1/4 | 0805 | 0.250W | 200V | ±200 ppm/°C | 0.010Ω – 1.000Ω | 0.021Ω – 1.000Ω |
| CSR 1/2 | 1206 | 0.500W | 200V | ±100 ppm/°C * | 0.010Ω – 1.000Ω | 0.010Ω – 1.000Ω |
| CSRN 1S | 0815 | 1.000W | 200V | ±300 ppm/°C ±150 ppm/°C | 0.010Ω – 0.019Ω 0.020Ω – 0.500Ω | 0.010Ω – 0.019Ω 0.020Ω – 0.500Ω |
| CSR 1 | 2010 | 1.000W | 200V | ±100 ppm/°C * | 0.010Ω – 1.000Ω | 0.010Ω – 1.000Ω |
| CSRN 1 | 2010 | 1.000W | 200V | ±250 ppm/°C | 0.010Ω – 1.000Ω | 0.010Ω – 1.000Ω |
| CSR 2 | 2512 | 2.000W | 200V | ±200 ppm/°C | 0.010Ω – 1.000Ω | 0.010Ω – 1.000Ω |
| CSRN 2 | 2512 | 2.000W | 200V | ±200 ppm/°C | 0.010Ω – 1.000Ω | 0.010Ω – 1.000Ω |
| CSR 3 | 1225 | 3.000W | 200V | ±200 ppm/°C ±100 ppm/°C | 0.005Ω – 0.020Ω 0.021Ω – 3.000Ω | 0.005Ω – 0.020Ω 0.021Ω – 3.000Ω |

* Contact factory for TCR on values below 0.05Ω

Performance Characteristics

| Test | Test Specification | Typical |
|------------------------------|--------------------|-------------|
| Moisture Resistance | ±0.5% | ≤0.5% |
| Load Life | ±0.5% | ≤0.5% |
| Leach Resistance | 90 seconds min | >90 seconds |
| Resistance to Soldering Heat | ±0.5% | ≤0.25% |
| Solderability | min 95% coverage | ≥95% |
| Temperature Cycling | ±0.5% | ≤0.5% |
| Thermal Shock | ±0.5% | ≤0.5% |
| Short Time Overload | ±0.5% | ≤0.5% |
| Insulation Resistance | 1MΩ minimum | ≥1MΩ |

How to Order



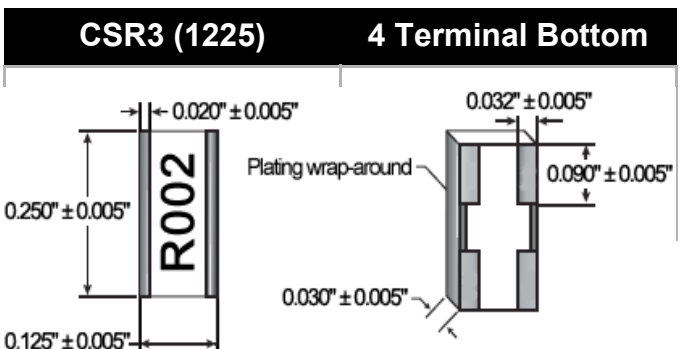
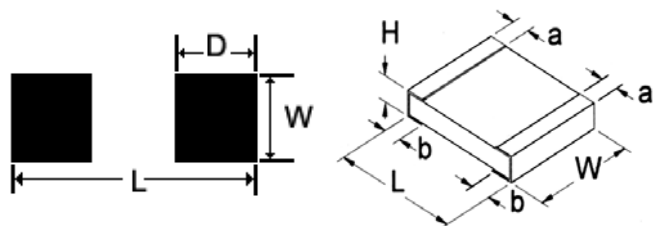
CSR/CSRN Series — Thick Film Current Sensing Resistors

Mechanical Specifications

| Type / Code | L Body Length | W Body Width | H Body Height | a Top Termination | b Bottom Termination | Units |
|-------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------|
| CSR 1/8S | 0.039 ± 0.004 0.991 ± 0.102 | 0.020 ± 0.004 0.508 ± 0.102 | 0.014 ± 0.004 0.35 ± 0.102 | 0.006 ± 0.004 0.152 ± 0.102 | 0.006 ± 0.004 0.152 ± 0.102 | inches mm |
| CSR 1/8 | 0.063 ± 0.004 1.600 ± 0.102 | 0.032 ± 0.004 0.813 ± 0.102 | 0.018 ± 0.004 0.457 ± 0.102 | 0.012 ± 0.008 0.305 ± 0.203 | 0.012 ± 0.008 0.305 ± 0.203 | inches mm |
| CSR 1/4 | 0.079 ± 0.008 2.006 ± 0.203 | 0.049 ± 0.008 1.245 ± 0.203 | 0.016 ± 0.004 0.406 ± 0.102 | 0.016 ± 0.008 0.406 ± 0.203 | 0.016 ± 0.008 0.406 ± 0.203 | inches mm |
| CSR 1/2 | 0.120 ± 0.006 3.048 ± 0.152 | 0.063 ± 0.008 1.600 ± 0.203 | 0.020 ± 0.006 0.508 ± 0.152 | 0.002 ± 0.012 0.051 ± 0.304 | 0.016 ± 0.010 0.406 ± 0.254 | inches mm |
| CSRN 1S | 0.079 ± 0.008 2.000 ± 0.200 | 0.148 ± 0.008 3.750 ± 0.200 | 0.024 ± 0.004 0.610 ± 0.102 | 0.016 ± 0.008 0.400 ± 0.200 | 0.016 ± 0.008 0.400 ± 0.200 | inches mm |
| CSR 1 | 0.197 ± 0.008 5.003 ± 0.203 | 0.100 ± 0.008 2.540 ± 0.203 | 0.020 ± 0.006 0.508 ± 0.152 | 0.067 ± 0.006 1.702 ± 0.152 | 0.067 ± 0.006 1.702 ± 0.152 | inches mm |
| CSRN 1 | 0.197 ± 0.006 5.004 ± 0.152 | 0.100 ± 0.006 2.540 ± 0.152 | 0.024 ± 0.004 0.610 ± 0.102 | 0.024 ± 0.012 0.610 ± 0.305 | 0.020 ± 0.010 0.508 ± 0.254 | inches mm |
| CSR 2 | 0.252 ± 0.008 6.401 ± 0.203 | 0.126 ± 0.008 3.200 ± 0.203 | 0.020 ± 0.006 0.508 ± 0.152 | 0.075 ± 0.006 1.905 ± 0.152 | 0.075 ± 0.006 1.905 ± 0.152 | inches mm |
| CSRN 2 | 0.246 ± 0.006 6.248 ± 0.152 | 0.121 ± 0.006 3.073 ± 0.152 | 0.023 ± 0.004 0.584 ± 0.102 | 0.023 ± 0.012 0.584 ± 0.305 | 0.020 ± 0.010 0.508 ± 0.254 | inches mm |
| CSR 3 | 0.125 ± 0.005 3.180 ± 0.127 | 0.250 ± 0.005 6.350 ± 0.127 | 0.030 ± 0.005 0.900 ± 0.127 | 0.023 ± 0.012 0.584 ± 0.305 | 0.020 ± 0.010 0.508 ± 0.254 | inches mm |

Solder Pad Dimensions

| Type / Code | L Total Length | W Total Width | D Pad Depth | Units |
|-------------|-------------------|------------------|----------------|--------------|
| CSR 1/8S | 0.049 1.25 | 0.025 0.63 | 0.015 0.38 | inches mm |
| CSR 1/8 | 0.060 1.50 | 0.035 0.90 | 0.020 0.50 | inches mm |
| CSR 1/4 | 0.099 2.50 | 0.059 1.50 | 0.055 1.40 | inches mm |
| CSR 1/2 | 0.158 4.00 | 0.079 2.00 | 0.071 1.80 | inches mm |
| CSRN 1S | 0.149 3.80 | 0.177 4.50 | 0.059 1.50 | inches mm |
| CSR 1 | 0.258 6.54 | 0.130 3.30 | 0.071 1.80 | inches mm |
| CSRN 1 | 0.250 6.35 | 0.145 3.68 | 0.055 1.40 | inches mm |
| CSR 2 | 0.315 8.00 | 0.158 4.00 | 0.079 2.00 | inches mm |
| CSRN 2 | 0.315 8.00 | 0.158 4.00 | 0.055 1.40 | inches mm |
| CSR 3 | 0.20 5.08 | 0.30 7.60 | 0.080 2.00 | inches mm |



Power Derating

