

- Features:
- 0402 to 2512 & 1225 sizes available
  - Power ratings to 3W
  - Low inductance – less than 0.2nH typically
  - RoHS compliant
  - 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 (Ω) and Tolerance |                            |
|                           |              |                             |                                 |                                    | 1%                            | 2%, 5%                     |
| CSR 1/8S                  | 0402         | 0.125W                      | 200V                            | ±200 ppm/°C                        | 0.051 - 1                     | 0.051 - 1                  |
| CSR 1/8                   | 0603         | 0.125W                      | 200V                            | ±300 ppm/°C                        | 0.021 - 1                     | 0.021 - 1                  |
| CSR 1/4                   | 0805         | 0.250W                      | 200V                            | ±200 ppm/°C                        | 0.02 - 1                      | 0.021 - 1                  |
| CSR 1/2                   | 1206         | 0.500W                      | 200V                            | ±100 ppm/°C (1)                    | 0.01 - 1                      | 0.01 - 1                   |
| CSRN 1S                   | 0815         | 1.000W                      | 200V                            | ±300 ppm/°C<br>±150 ppm/°C         | 0.01 - 0.019<br>0.02 - 0.5    | 0.01 - 0.019<br>0.02 - 0.5 |
| CSRN 1                    | 2010         | 1.000W                      | 200V                            | ±250 ppm/°C                        | 0.01 - 1                      | 0.01 - 1                   |
| CSRN 2                    | 2512         | 2.000W                      | 200V                            | ±200 ppm/°C                        | 0.01 - 1                      | 0.01 - 1                   |
| CSR 3                     | 1225         | 3.000W                      | 200V                            | ±200 ppm/°C<br>±100 ppm/°C         | 0.003 - 0.02<br>0.021 - 10    | 0.003 - 0.02<br>0.021 - 10 |

(1) Contact Factory for TCR below 50mOhm

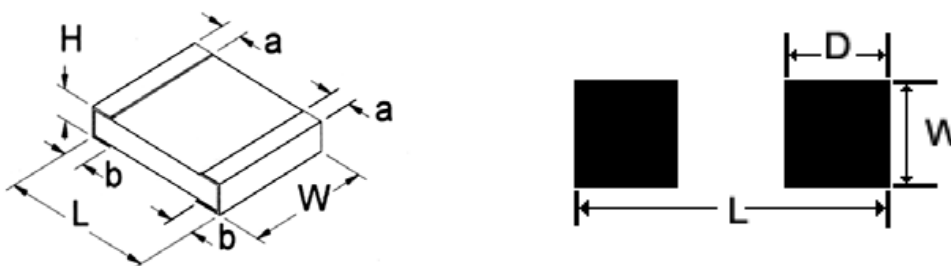
| Performance Characteristics  |                      |              |
|------------------------------|----------------------|--------------|
| Test                         | Test Specification   | Typical      |
| Moisture Resistance          | ± 0.5%               | ≤ 0.5%       |
| Load Life                    | ± 0.5%               | ≤ 0.5%       |
| Leach Resistance             | 90 seconds minimum   | > 90 seconds |
| Resistance to Soldering Heat | ± 0.5%               | ≤ 0.25%      |
| Solderability                | minimum 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        |

Operating Temperature Range: -55°C to +155°C

### How to Order

| SEI Type |                     | Code |         |      | Nominal Resistance | Tolerance | Packaging |               |             |      |
|----------|---------------------|------|---------|------|--------------------|-----------|-----------|---------------|-------------|------|
| CSR      |                     | 1/2  |         |      | 0.01               | 1%        | R         |               |             |      |
| Type     | Description         | Code | Wattage | Size | Tolerance          |           | SEI Types | Pkg Qty       | Description | Code |
| CSR      | Standard            | 1/8S | 0.125W  | 0402 | 1%                 | 1%        | 1/8S      | 10,000        | 7" reel     | R    |
| CSRN     | Narrow Terminations | 1/8  | 0.125W  | 0603 |                    |           | 2%        | 1/8, 1/4, 1/2 |             |      |
|          |                     | 1/4  | 0.250W  | 0805 | 5%                 | 1, 2      | 4,000     |               |             |      |
|          |                     | 1/2  | 0.500W  | 1206 |                    |           | 1S, 3     | 2,000         |             |      |
|          |                     | 1S   | 1.000W  | 0815 |                    |           |           |               |             |      |
|          |                     | 1    | 1.000W  | 2010 |                    |           |           |               |             |      |
|          |                     | 2    | 2.000W  | 2512 |                    |           |           |               |             |      |
|          |                     | 3    | 3.000W  | 1225 |                    |           |           |               |             |      |

| Mechanical Specifications     |                  |                 |                  |                      |                         |        |
|-------------------------------|------------------|-----------------|------------------|----------------------|-------------------------|--------|
| Type / Code                   | L<br>Body Length | W<br>Body Width | H<br>Body Height | a<br>Top Termination | b<br>Bottom Termination | Units  |
| CSR 1/8 S                     | 0.039 ± 0.002    | 0.020 ± 0.002   | 0.013 ± 0.004    | 0.010 ± 0.004        | 0.008 ± 0.004           | inches |
|                               | 1.000 ± 0.050    | 0.500 ± 0.050   | 0.320 ± 0.100    | 0.250 ± 0.100        | 0.200 ± 0.100           | mm     |
| CSR 1/8                       | 0.063 ± 0.004    | 0.032 ± 0.004   | 0.018 ± 0.004    | 0.012 ± 0.008        | 0.012 ± 0.008           | inches |
|                               | 1.600 ± 0.100    | 0.800 ± 0.100   | 0.450 ± 0.100    | 0.300 ± 0.200        | 0.300 ± 0.200           | mm     |
| CSR 1/4                       | 0.079 ± 0.006    | 0.049 ± 0.006   | 0.022 ± 0.004    | 0.012 ± 0.008        | 0.016 ± 0.010           | inches |
|                               | 2.000 ± 0.150    | 1.250 ± 0.150   | 0.550 ± 0.100    | 0.300 ± 0.200        | 0.400 ± 0.250           | mm     |
| CSR 1/2                       | 0.120 ± 0.006    | 0.061 ± 0.006   | 0.022 ± 0.004    | 0.020 ± 0.012        | 0.016 ± 0.010           | inches |
|                               | 3.050 ± 0.150    | 1.550 ± 0.150   | 0.550 ± 0.100    | 0.500 ± 0.300        | 0.400 ± 0.250           | mm     |
| CSRN 1S                       | 0.079 ± 0.008    | 0.148 ± 0.008   | 0.024 ± 0.004    | 0.016 ± 0.008        | 0.016 ± 0.008           | inches |
|                               | 2.000 ± 0.200    | 3.750 ± 0.200   | 0.600 ± 0.100    | 0.400 ± 0.200        | 0.400 ± 0.200           | mm     |
| CSRN 1                        | 0.197 ± 0.008    | 0.097 ± 0.006   | 0.024 ± 0.006    | 0.024 ± 0.012        | 0.020 ± 0.010           | inches |
|                               | 5.000 ± 0.200    | 2.450 ± 0.150   | 0.600 ± 0.150    | 0.600 ± 0.300        | 0.508 ± 0.250           | mm     |
| CSRN 2<br>(10-99 milliohm)    | 0.250 ± 0.008    | 0.124 ± 0.006   | 0.029 ± 0.004    | 0.024 ± 0.012        | 0.022 ± 0.010           | inches |
|                               | 6.350 ± 0.200    | 3.150 ± 0.150   | 0.740 ± 0.100    | 0.600 ± 0.300        | 0.550 ± 0.250           | mm     |
| CSRN 2<br>(100-1000 milliohm) | 0.250 ± 0.008    | 0.124 ± 0.006   | 0.029 ± 0.004    | 0.024 ± 0.012        | 0.083 ± 0.004           | inches |
|                               | 6.350 ± 0.200    | 3.150 ± 0.150   | 0.740 ± 0.100    | 0.600 ± 0.300        | 2.100 ± 0.100           | mm     |
| CSR 3                         | 0.122 ± 0.006    | 0.248 ± 0.006   | 0.035 ± 0.006    | 0.024 ± 0.012        | 0.022 ± 0.010           | inches |
|                               | 3.100 ± 0.150    | 6.300 ± 0.150   | 0.900 ± 0.150    | 0.600 ± 0.300        | 0.550 ± 0.250           | mm     |



| Solder Pad Dimensions |                   |                  |                |        |             |                   |
|-----------------------|-------------------|------------------|----------------|--------|-------------|-------------------|
| Type / Code           | L<br>Total Length | W<br>Total Width | D<br>Pad Depth | Units  | CSR3 (1225) | 4 Terminal Bottom |
| CSR 1/8 S             | 0.05              | 0.03             | 0.02           | inches |             |                   |
|                       | 1.30              | 0.80             | 0.40           | mm     |             |                   |
| CSR 1/8               | 0.08              | 0.04             | 0.03           | inches |             |                   |
|                       | 2.10              | 1.10             | 0.70           | mm     |             |                   |
| CSR 1/4               | 0.11              | 0.06             | 0.04           | inches |             |                   |
|                       | 2.70              | 1.40             | 1.00           | mm     |             |                   |
| CSR 1/2               | 0.16              | 0.07             | 0.06           | inches |             |                   |
|                       | 4.00              | 1.80             | 1.40           | mm     |             |                   |
| CSRN 1S               | 0.15              | 0.18             | 0.06           | inches |             |                   |
|                       | 3.80              | 4.50             | 1.50           | mm     |             |                   |
| CSRN 1                | 0.25              | 0.14             | 0.06           | inches |             |                   |
|                       | 6.40              | 3.60             | 1.40           | mm     |             |                   |
| CSRN 2                | 0.31              | 0.15             | 0.10           | inches |             |                   |
|                       | 8.00              | 3.75             | 2.50           | mm     |             |                   |
| CSR 3                 | 0.20              | 0.30             | 0.08           | inches |             |                   |
|                       | 5.08              | 7.60             | 2.00           | mm     |             |                   |

Power Derating Curve:

