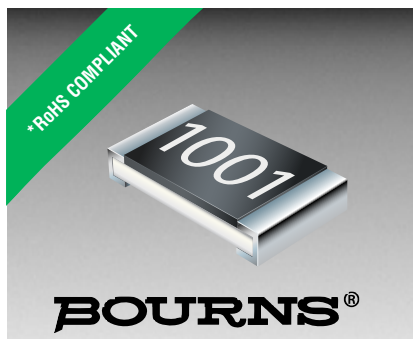




## Features

- Anti-surge
- Wide resistance range
- RoHS compliant\*

## Applications

- Pulse power applications
- High voltage applications
- Consumer electronics
- Telecommunications
- Power supplies

## CRS Series - High Power Anti-Surge Chip Resistor

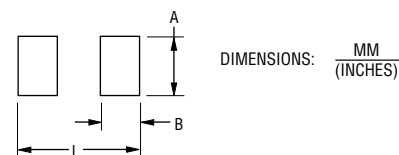
### Electrical Characteristics

| Characteristic                             | CRS0805                                                          | CRS1206 | CRS2010 | CRS2512 |
|--------------------------------------------|------------------------------------------------------------------|---------|---------|---------|
| Power Rating @ 70°C                        | 0.25 W                                                           | 0.5 W   | 1 W     | 2 W     |
| Operating Temperature Range                | -55 °C to +155 °C                                                |         |         |         |
| Maximum Working Voltage                    | 150 V                                                            | 200 V   | 200 V   | 300 V   |
| Maximum Overload Voltage                   | 300 V                                                            | 400 V   | 400 V   | 600 V   |
| Resistance Range / Temperature Coefficient | 1 to 9.9 ohms / ±200 PPM/°C<br>10 ohms to 1 megohm / ±100 PPM/°C |         |         |         |
| Tolerance / Standard Resistance Values     | 1 % / E96 + E24<br>5 % / E24                                     |         |         |         |

### Performance Characteristics

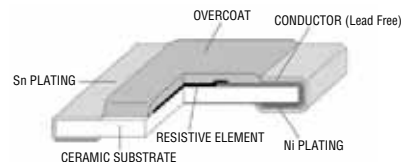
| Test                      | Conditions                                                                                       | Specification                          |
|---------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------|
| Short Time Overload       | 2 times rated voltage or maximum overload voltage for 5 seconds.                                 | $\Delta R \leq \pm(2\% + 0.1 \Omega)$  |
| Solderability             | 245 ±5 °C for 3 ±0.5 seconds.                                                                    | Over 95 % coverage                     |
| Resistance to Solder Heat | 260 ±5 °C for 10 ± 1 seconds.                                                                    | $\Delta R \leq \pm(1\% + 0.1 \Omega)$  |
| Load Life Humidity        | 40 ±2 °C, 90 to 95 %.<br>1.5 hours ON, 0.5 hours OFF for 1000 hours at rated power.              | $\Delta R \leq \pm(3\% + 0.1 \Omega)$  |
| Load Life                 | 70 °C.<br>1.5 hours ON, 0.5 hours OFF for 1000 hours at rated power.                             | $\Delta R \leq \pm(3\% + 0.1 \Omega)$  |
| Temperature Cycle         | -55 °C (30 min.), +25 °C (2~3 min.),<br>+155 °C (30 min.), +25 °C (2~3 min.)<br>for five cycles. | $\Delta R \leq \pm(1\% + 0.05 \Omega)$ |

### Recommended Solder Pad Layout

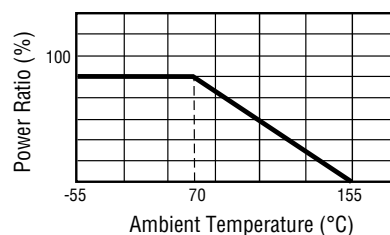


| Model   | Dimension       |                 |                 |
|---------|-----------------|-----------------|-----------------|
|         | A               | B               | L               |
| CRS0805 | 1.30<br>(0.051) | 1.15<br>(0.045) | 3.50<br>(0.138) |
| CRS1206 | 1.80<br>(0.071) | 1.30<br>(0.051) | 4.70<br>(0.185) |
| CRS2010 | 3.00<br>(0.118) | 1.50<br>(0.059) | 6.80<br>(0.268) |
| CRS2512 | 3.70<br>(0.146) | 2.45<br>(0.096) | 7.60<br>(0.299) |

### Construction

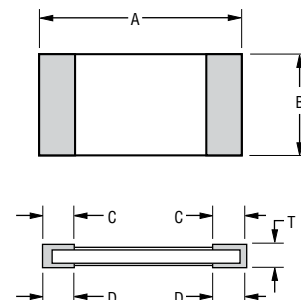


### Derating Curve



### Product Dimensions

| Model   | Dimension                      |                                |                                |                                |                                |
|---------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
|         | A                              | B                              | C                              | D                              | T                              |
| CRS0805 | 2.00 ± 0.10<br>(0.079 ± 0.004) | 1.25 ± 0.10<br>(0.049 ± 0.004) | 0.40 ± 0.20<br>(0.016 ± 0.008) | 0.40 ± 0.20<br>(0.016 ± 0.008) | 0.50 ± 0.10<br>(0.020 ± 0.004) |
| CRS1206 | 3.10 ± 0.10<br>(0.122 ± 0.004) | 1.60 ± 0.10<br>(0.063 ± 0.004) | 0.50 ± 0.20<br>(0.020 ± 0.008) | 0.50 ± 0.20<br>(0.020 ± 0.008) | 0.55 ± 0.10<br>(0.022 ± 0.004) |
| CRS2010 | 5.00 ± 0.20<br>(0.197 ± 0.008) | 2.50 ± 0.20<br>(0.098 ± 0.008) | 0.60 ± 0.25<br>(0.024 ± 0.010) | 0.60 ± 0.25<br>(0.024 ± 0.010) | 0.55 ± 0.10<br>(0.022 ± 0.004) |
| CRS2512 | 6.40 ± 0.20<br>(0.252 ± 0.008) | 3.20 ± 0.20<br>(0.126 ± 0.008) | 0.60 ± 0.25<br>(0.024 ± 0.010) | 1.80 ± 0.25<br>(0.071 ± 0.010) | 0.60 ± 0.15<br>(0.024 ± 0.006) |



DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$



**WARNING**  
Cancer and Reproductive Harm  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

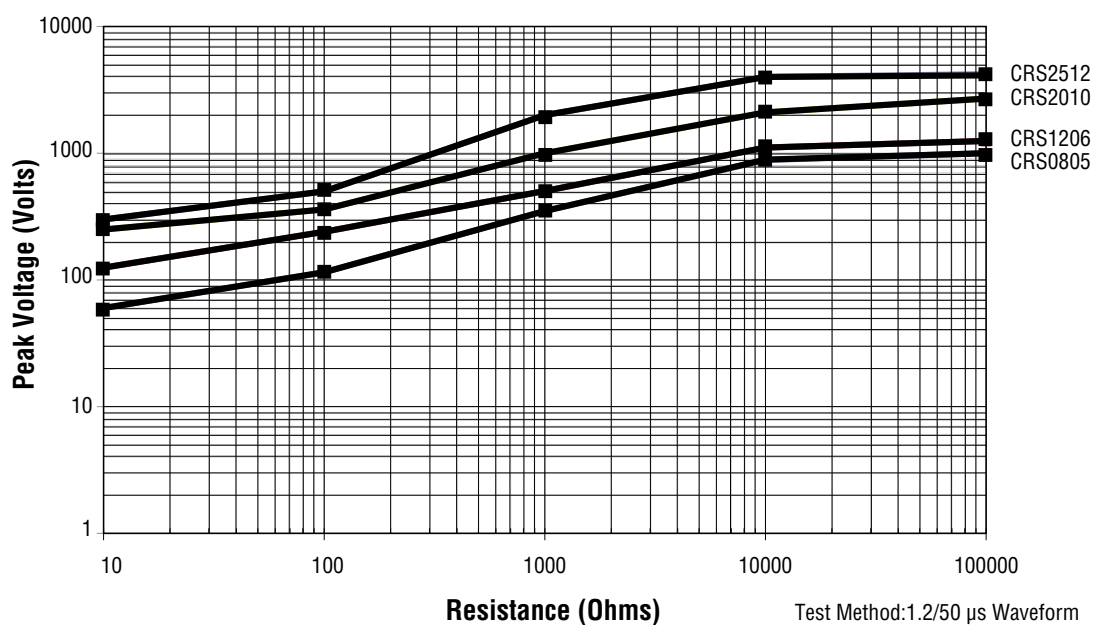
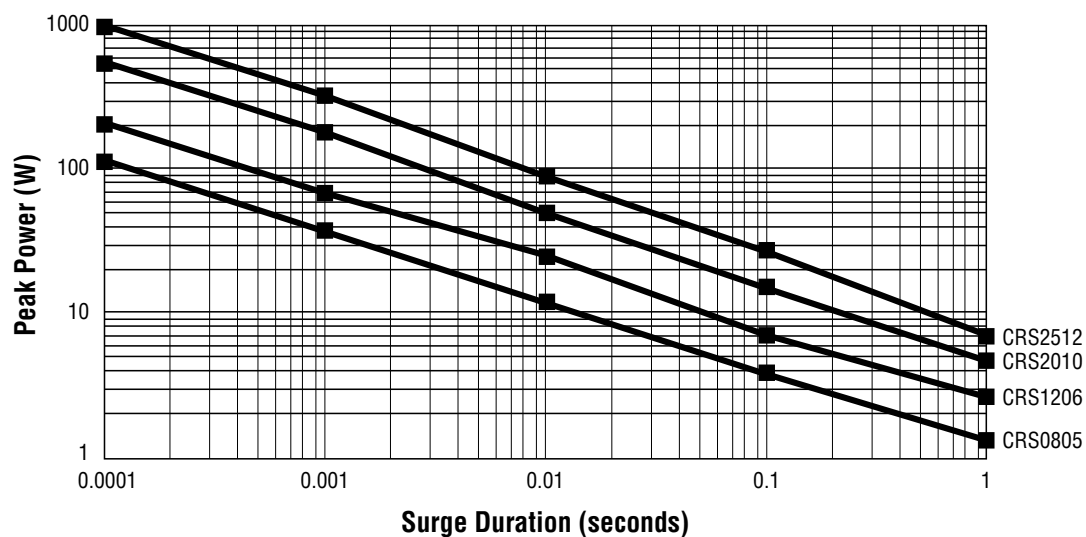
Users should verify actual device performance in their specific applications.

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# CRS Series - High Power Anti-Surge Chip Resistor

**BOURNS®**

## Surge Performance



Test Method: 1.2/50  $\mu$ s Waveform  
5 Pulses at 12 Second Intervals

Specifications are subject to change without notice.

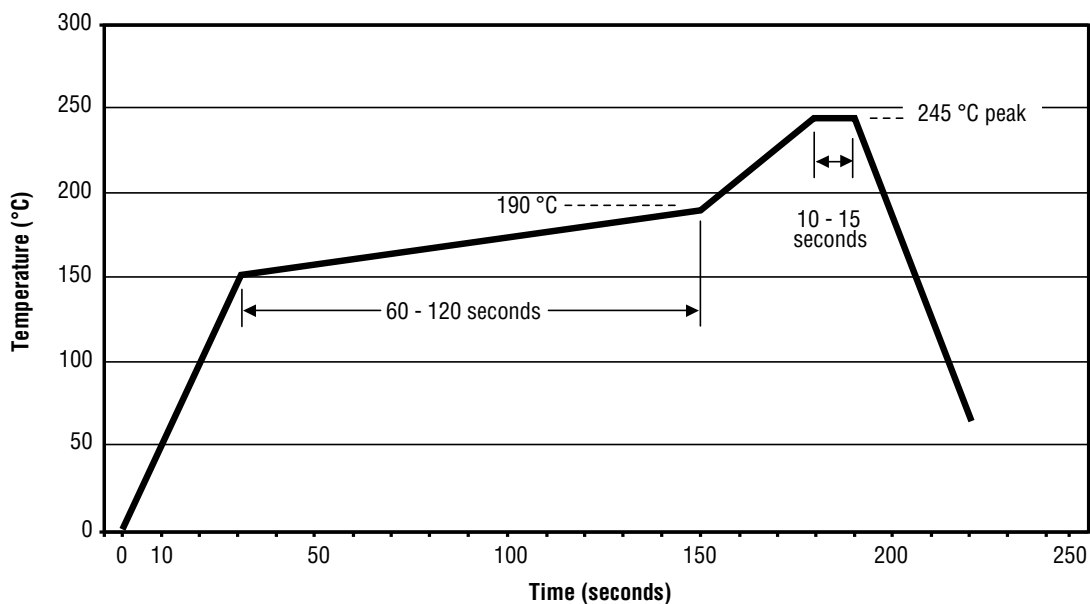
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## CRS Series - High Power Anti-Surge Chip Resistor

**BOURNS®**

### Soldering Profile



### How to Order

**CRS 2512 - F X - 24R3 E LF**

Model \_\_\_\_\_  
 CRS = Anti-Surge Chip Resistor

Size \_\_\_\_\_  
 0805  
 1206  
 2010  
 2512

Resistance Tolerance \_\_\_\_\_  
 F =  $\pm 1\%$   
 J =  $\pm 5\%$

TCR \_\_\_\_\_  
 X =  $\pm 100$  PPM/ $^{\circ}$ C  
 W =  $\pm 200$  PPM/ $^{\circ}$ C

Resistance Value \_\_\_\_\_  
 1% Tolerance:  
 <100 ohms ..... "R" represents decimal point (example: 24R3 = 24.3 ohms)  
 $\geq 100$  ohms..... First three digits are significant, fourth digit represents number of zeros to follow (example: 8252 = 82.5K ohms)  
 5% Tolerance:  
 <10 ohms ..... "R" represents decimal point (example: 4R7 = 4.7 ohms)  
 $\geq 10$  ohms..... First two digits are significant, third digit represents number of zeros to follow (example: 474 = 470K ohms)

Packaging \_\_\_\_\_  
 E = 5,000 pieces per 7-inch reel (CRS0805, CRS1206)  
 4,000 pieces per 7-inch reel (CRS2010, CRS2512)

Termination \_\_\_\_\_  
 LF = Tin-plated (RoHS Compliant)

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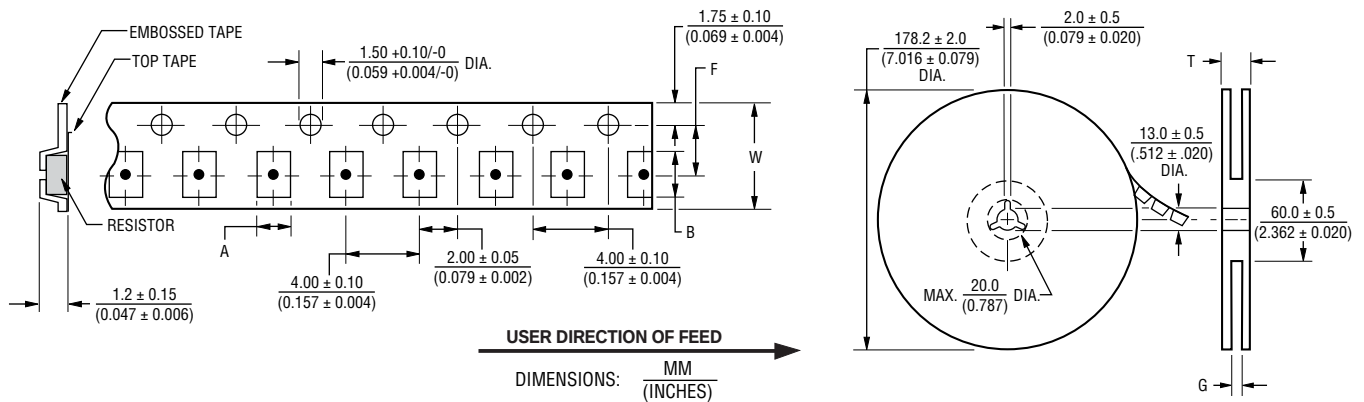
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# CRS Series - High Power Anti-Surge Chip Resistor

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## Packaging Dimensions (Conforms to EIA RS-481A)



| Model   | Dimension                      |                                |                                |                                 |
|---------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|
|         | A                              | B                              | F                              | W                               |
| CRS0805 | 1.65 ± 0.20<br>(0.065 ± 0.008) | 2.40 ± 0.20<br>(0.094 ± 0.008) | 3.50 ± 0.05<br>(0.138 ± 0.002) | 8.00 ± 0.30<br>(0.315 ± 0.012)  |
| CRS1206 | 2.00 ± 0.20<br>(0.079 ± 0.008) | 3.60 ± 0.10<br>(0.142 ± 0.004) | 3.50 ± 0.05<br>(0.138 ± 0.002) | 8.00 ± 0.30<br>(0.315 ± 0.012)  |
| CRS2010 | 2.80 ± 0.20<br>(0.110 ± 0.008) | 5.50 ± 0.20<br>(0.217 ± 0.008) | 5.50 ± 0.05<br>(0.217 ± 0.002) | 12.00 ± 0.30<br>(0.472 ± 0.012) |
| CRS2512 | 3.50 ± 0.20<br>(0.138 ± 0.008) | 6.70 ± 0.20<br>(0.264 ± 0.008) | 5.50 ± 0.05<br>(0.217 ± 0.002) | 12.00 ± 0.30<br>(0.472 ± 0.012) |

| Model   | Pcs. per Reel | Dimension                       |                  |
|---------|---------------|---------------------------------|------------------|
|         |               | G                               | T (MAX.)         |
| CRS0805 | 5,000         | 10.00 ± 1.50<br>0.394 ± 0.059   | 20.00<br>(0.587) |
| CRS1206 |               |                                 |                  |
| CRS2010 | 4,000         | 13.80 ± 1.50<br>(0.543 ± 0.059) | 16.70<br>(0.657) |
| CRS2512 |               |                                 |                  |

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