

## Features

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

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

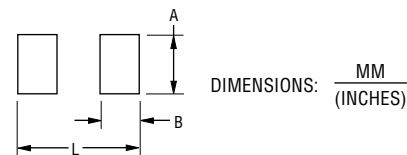
### Electrical Characteristics

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 10 ohms to 1 megohm / ±100 PPM/°C			
Tolerance / Standard Resistance Values	1 % / E96 + E24 5 % / E24			

### Performance Characteristics

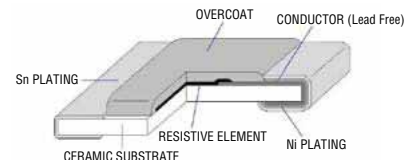
Test	Conditions	Specification
Short Time Overload	2 times rated voltage or maximum overload voltage for 5 seconds.	$\Delta R \leq \pm(2\% + 0.1\ \Omega)$
Solderability	245 ±5 °C for 3 ±0.5 seconds.	Over 95 % coverage
Resistance to Solder Heat	260 ±5 °C for 10 ±1 seconds.	$\Delta R \leq \pm(1\% + 0.1\ \Omega)$
Load Life Humidity	40 ±2 °C, 90 to 95 %. 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. 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.), +155 °C (30 min.), +25 °C (2~3 min.) for five cycles.	$\Delta R \leq \pm(1\% + 0.05\ \Omega)$

### Recommended Solder Pad Layout

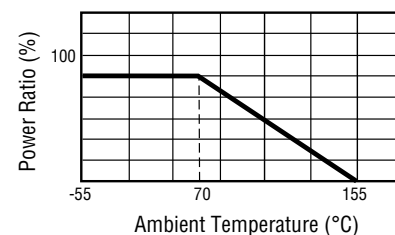


Model	Dimension		
	A	B	L
CRS0805	1.30 (0.051)	1.15 (0.045)	3.50 (0.138)
CRS1206	1.80 (0.071)	1.30 (0.051)	4.70 (0.185)
CRS2010	3.00 (0.118)	1.50 (0.059)	6.80 (0.268)
CRS2512	3.70 (0.146)	2.45 (0.096)	7.60 (0.299)

### Construction

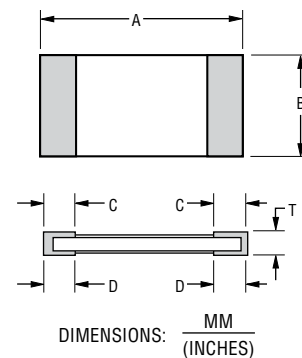


### Derating Curve



### Product Dimensions

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



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

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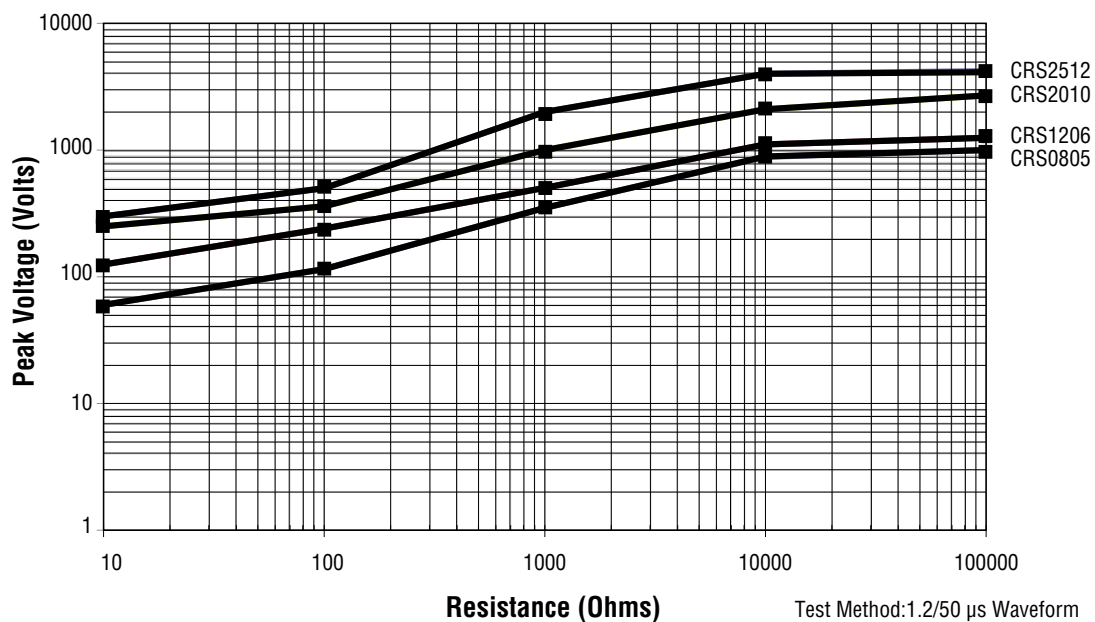
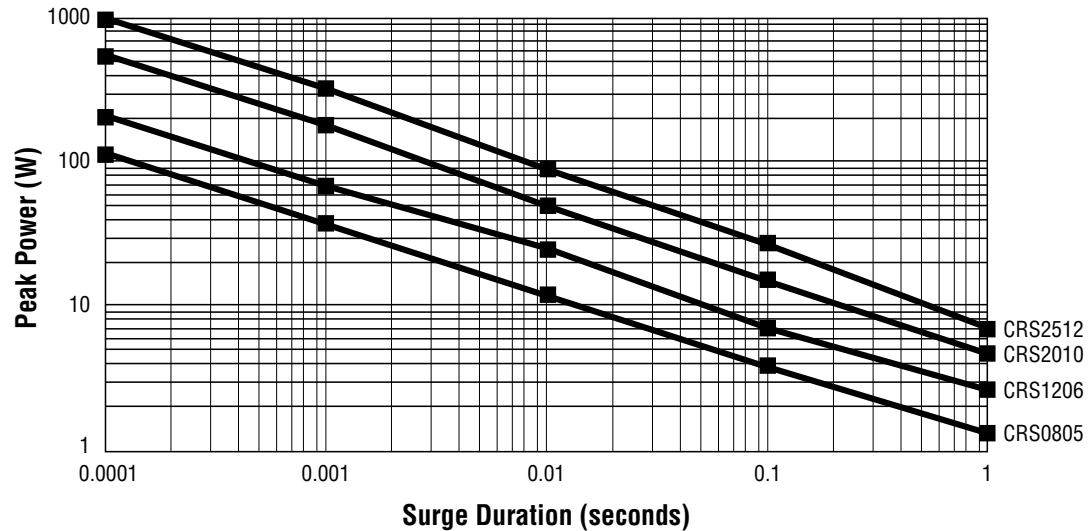
## Applications

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

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### Surge Performance



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

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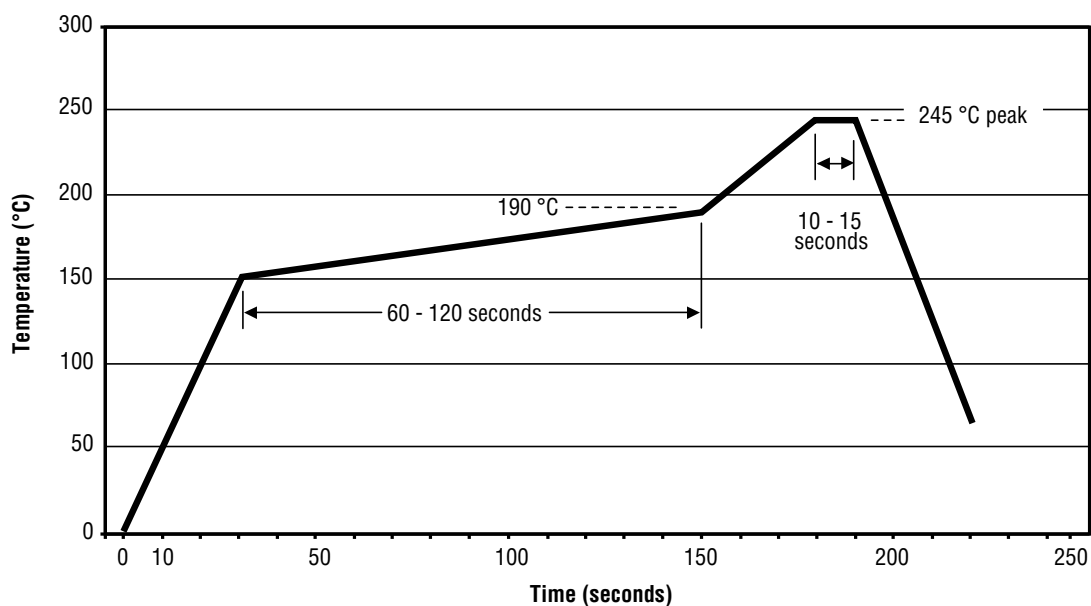
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## CRS Series - High Power Anti-Surge Chip Resistor

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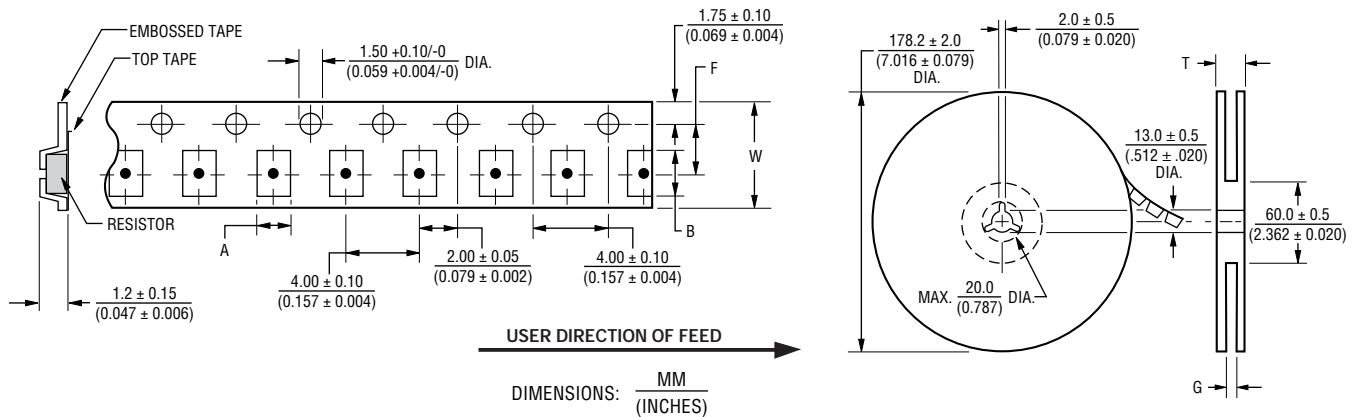
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## Packaging Dimensions (Conforms to EIA RS-481A)



Model	Dimension			
	A	B	F	W
CRS0805	$\frac{1.65 \pm 0.20}{(0.065 \pm 0.008)}$	$\frac{2.40 \pm 0.20}{(0.094 \pm 0.008)}$	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$	$\frac{8.00 \pm 0.30}{(0.315 \pm 0.012)}$
CRS1206	$\frac{2.00 \pm 0.20}{(0.079 \pm 0.008)}$	$\frac{3.60 \pm 0.10}{(0.142 \pm 0.004)}$	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$	$\frac{8.00 \pm 0.30}{(0.315 \pm 0.012)}$
CRS2010	$\frac{2.80 \pm 0.20}{(0.110 \pm 0.008)}$	$\frac{5.50 \pm 0.20}{(0.217 \pm 0.008)}$	$\frac{5.50 \pm 0.05}{(0.217 \pm 0.002)}$	$\frac{12.00 \pm 0.30}{(0.472 \pm 0.012)}$
CRS2512	$\frac{3.50 \pm 0.20}{(0.138 \pm 0.008)}$	$\frac{6.70 \pm 0.20}{(0.264 \pm 0.008)}$	$\frac{5.50 \pm 0.05}{(0.217 \pm 0.002)}$	$\frac{12.00 \pm 0.30}{(0.472 \pm 0.012)}$

Model	Pcs. per Reel	Dimension	
		G	T (MAX.)
CRS0805	5,000	$\frac{10.00 \pm 1.50}{0.394 \pm 0.059}$	$\frac{20.00}{(0.587)}$
CRS1206			
CRS2010	4,000	$\frac{13.80 \pm 1.50}{(0.543 \pm 0.059)}$	$\frac{16.70}{(0.657)}$
CRS2512			

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