

### Features

- RoHS compliant\*
- Small package dimensions
- Power rating at 70 °C = 1/16 W
- Three layer termination process with nickel barrier helps prevent leaching and provides excellent solderability



This series is currently available but not recommended for new designs. Recommended replacement products are available. The replacement devices are functionally equivalent, but are not in identical packages. See [CR0402A-AS Series](#).

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## CR0402-AS Series - Sulfur-Resistant Thick Film Chip Resistors

### General Characteristics

Characteristic	CR0402-AS
Power Rating @ 70 °C per Resistor	0.063 W
Resistor Tolerance	±1 %, ±5 %
Resistance Range - 1 % Tolerance (E24 + E96)	10 ohms to 1 megohm
Resistance Range - 5 % Tolerance (E24), Zero-ohm Jumper	1 ohm to 10 megohms, 0 ohms
Temperature Coefficient of Resistance (TCR) 1 % Tolerance 5 % Tolerance Zero-ohm Jumper	±100 ppm/°C ±200 ppm/°C** N/A
Maximum Overload Voltage	50 V
Maximum Working Voltage	100 V
Operating Temperature Range	-55 to +155 °C
Storage Conditions	+5 ~ +40 °C, 25~75 % RH, 1 year
Derating Temperature	+70 °C
Packaging (Paper Tape)	10,000 pcs. per reel
Zero-ohm Jumper: Current Rating Maximum Resistance	1 A per element 50 milliohms

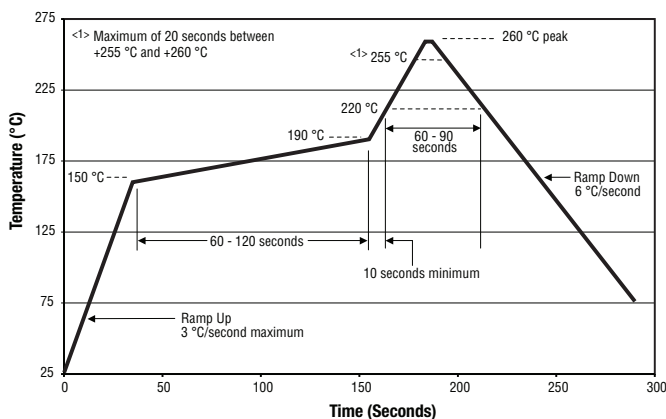
\*\*TCR for 1 ohm to 9.1 ohm resistance range, 5 % tolerance is ±300 ppm/°C.

### Environmental Characteristics

Specification	Test Method (JIS C 5201-1)	Characteristics
Short Time Overload	Rated voltage x 2.5, 5 seconds	±(2 % +0.1 ohm)
Soldering Heat	+260 °C ±5 °C, 10 ±1 seconds	±(1 % +0.05 ohm)
Temperature Cycling	-55 °C (30 minutes) - normal (2~3 minutes) +125 °C (30 minutes) - normal (2~3 minutes), 5 cycles	±(1 % +0.05 ohm)
Moisture Load Life	+40 °C, 90~95 % RH, 1000 hours, 1.5 hours ON, 0.5 hours OFF	±(3 % +0.1 ohm)
Load Life	+70 °C, 1000 hours, 1.5 hours ON, 0.5 hours OFF	±(3 % +0.1 ohm)
Sulfur Test	3 ppm H <sub>2</sub> S, +50 °C, 90~95 % RH, 100 hours	±(5 % +0.1 ohm)

NOTE: Zero-ohm jumper ≤100 milliohms.

### Soldering Profile



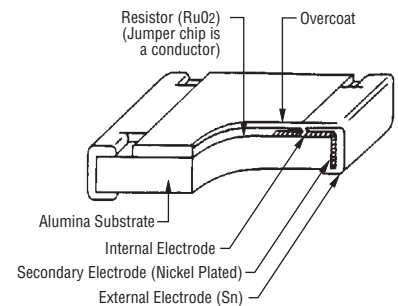
### How To Order

**CR 0402 - F X - 1002 G AS**

- Chip Resistor
- Size
  - 0402
- Tolerance
  - F = 1 %
  - J = 5 %
- TCR (ppm/°C)
  - X = ±100
  - W = ±200
  - / = N/A (for Jumper)
- Resistance Code
  - For 1 % Tolerance
    - <100 ohms: "R" designates decimal point (example: 24R3 = 24.3 ohms)
    - ≥100 ohms: First three digits are significant, fourth digit represents number of zeros to follow (example: 8252 = 82.5K ohms)
  - For 5 % Tolerance
    - <10 ohms: "R" designates decimal point (example: 4R7 = 4.7 ohms)
    - ≥10 ohms: First two digits are significant, third digit represents number of zeros to follow (example: 474 = 470K ohms; 000 = Zero-ohm jumper)
- Packaging
  - G = Paper Tape (10,000 pcs. on 7-inch plastic reel)
- Special Characteristics
  - AS = Sulfur-resistant, Tin-plated terminations (RoHS compliant)

For Standard Values Used in Capacitors, Inductors, and Resistors, [click here](#).

### Construction



**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. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at [www.bourns.com/docs/legal/disclaimer.pdf](http://www.bourns.com/docs/legal/disclaimer.pdf).

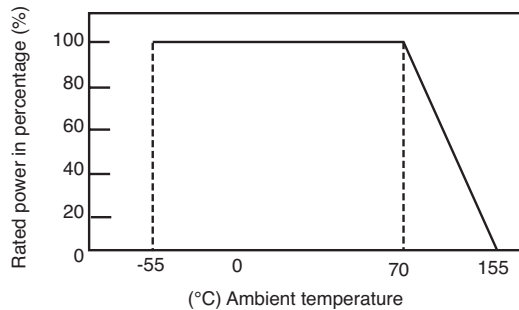
## Features (Continued)

- Suitable for most types of soldering processes
- Standard packaging on paper tape and reel
- Sulfur-resistant design

## CR0402-AS Series - Sulfur-Resistant Thick Film Chip Resistors

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### Derating Curve



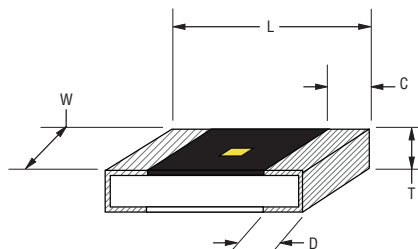
### Typical Part Marking

(See Product Dimensions)

1 % & 5 % Tolerance ..... Yellow dot  
Zero-ohm Jumper ..... 000

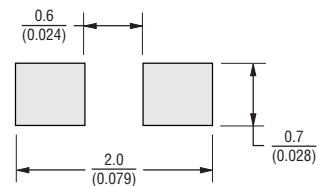
### Product Dimensions

Dim.	CR0402-AS
L	$\frac{1.00 \pm 0.05}{(0.039 \pm 0.002)}$
W	$\frac{0.50 \pm 0.05}{(0.020 \pm 0.002)}$
C	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$
D	$\frac{0.25 \pm 0.10}{(0.010 \pm 0.004)}$
T	$\frac{0.35 \pm 0.05}{(0.014 \pm 0.002)}$

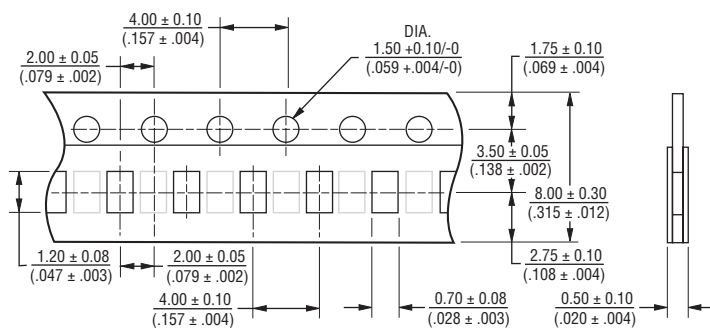


DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

### Recommended Land Pattern



### Packaging Specifications



Reel Diameter:  $\frac{180}{(7.087)}$

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

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REV. 06/20

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