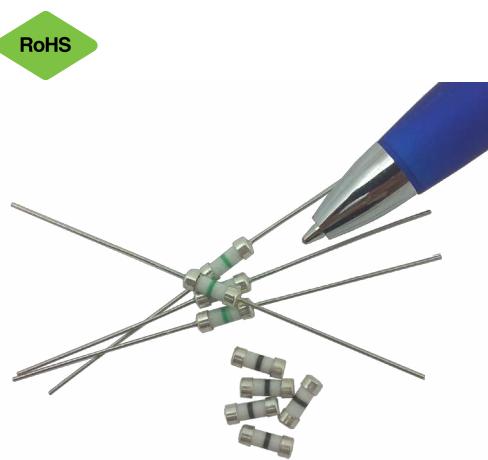


# C308F

## 3 mm x 8.4 mm fast-acting, ceramic tube fuses for hazardous applications



### Product features

A compact 3 mm x 8.4 mm fuse provides a space saving alternative to conventional fuse solutions with high interrupting rating for primary and secondary circuit protection up to 250 Vac/dc and 250 mA

- Meets electrical performance specifications for intrinsically safe (EN60079-11) applications
- Fast-acting, high interrupting rating of 4000 A at 250 Vac/dc
- Ceramic tube, silver plated brass end cap construction
- Optional axial leads (tinned copper axial leads construction)
- RoHS compliant

### Agency information

- cURus Recognition file number: E19180, Guide JDYX2/JDYX8

### Applications

- Hazardous environments
- Petrochemical processing and refining equipment
- Pulp and paper processing equipment
- Intrinsically safe network barriers

### Packaging

- Specify part number and packaging suffix.
- Package suffixes:

#### Ferrule

- -TR (500 fuses on tape and reel)
- -TR1 (1000 fuses on tape and reel)

#### Axial leaded

- TR1 (axial leaded version, 1500 fuses on tape and reel)

### Ordering

- Specify part number and packaging suffix (e.g., C308F-V-160mA-TR1)

## Product specifications

| Part number |               | Voltage rating Vac/dc | Color coding | Interrupting rating @ 250 Vac/dc (A)* | Typical DC cold resistance (Ω)** | Typical melting I <sup>2</sup> T*** | Agency Information cURus |
|-------------|---------------|-----------------------|--------------|---------------------------------------|----------------------------------|-------------------------------------|--------------------------|
| Ferrule     | Axial lead    |                       |              |                                       |                                  |                                     |                          |
| C308F40mA   | C308F-V-40mA  | 250                   | Grey         | 4000                                  | 14.2                             | 0.00006                             | X                        |
| C308F50mA   | C308F-V-50mA  |                       | Red          |                                       | 9.40                             | 0.00010                             | X                        |
| C308F63mA   | C308F-V-63mA  |                       | Pink         |                                       | 8.80                             | 0.00012                             | Pending                  |
| C308F80mA   | C308F-V-80mA  |                       | Green        |                                       | 5.10                             | 0.00018                             | X                        |
| C308F100mA  | C308F-V-100mA |                       | Yellow       |                                       | 2.87                             | 0.00087                             | X                        |
| C308F125mA  | C308F-V-125mA |                       | Orange       |                                       | 2.20                             | 0.00134                             | X                        |
| C308F160mA  | C308F-V-160mA |                       | Violet       |                                       | 2.05                             | 0.00166                             | X                        |
| C308F200mA  | C308F-V-200mA |                       | Brown        |                                       | 1.01                             | 0.00237                             | X                        |
| C308F250mA  | C308F-V-250mA |                       | Black        |                                       | 0.71                             | 0.00530                             | X                        |

\* AC Interrupting Rating (4000 A, PF = 0.4); DC Interrupting Rating measured at rated voltage, time constant 4 microseconds, battery source.

\*\* DC Cold Resistance (Measured at  $\leq 10\%$  of rated current).

\*\*\* Typical  $I^2t$  measured at 10In.

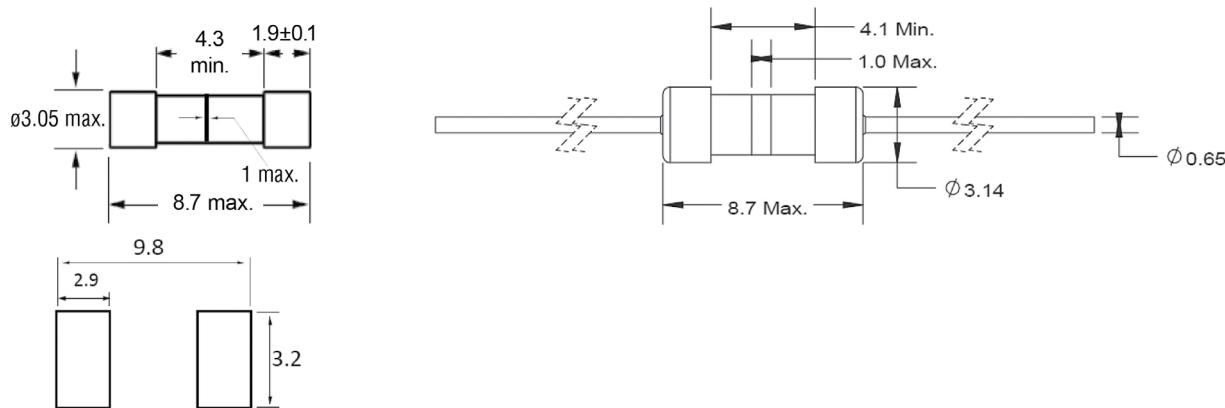
## Electrical characteristics

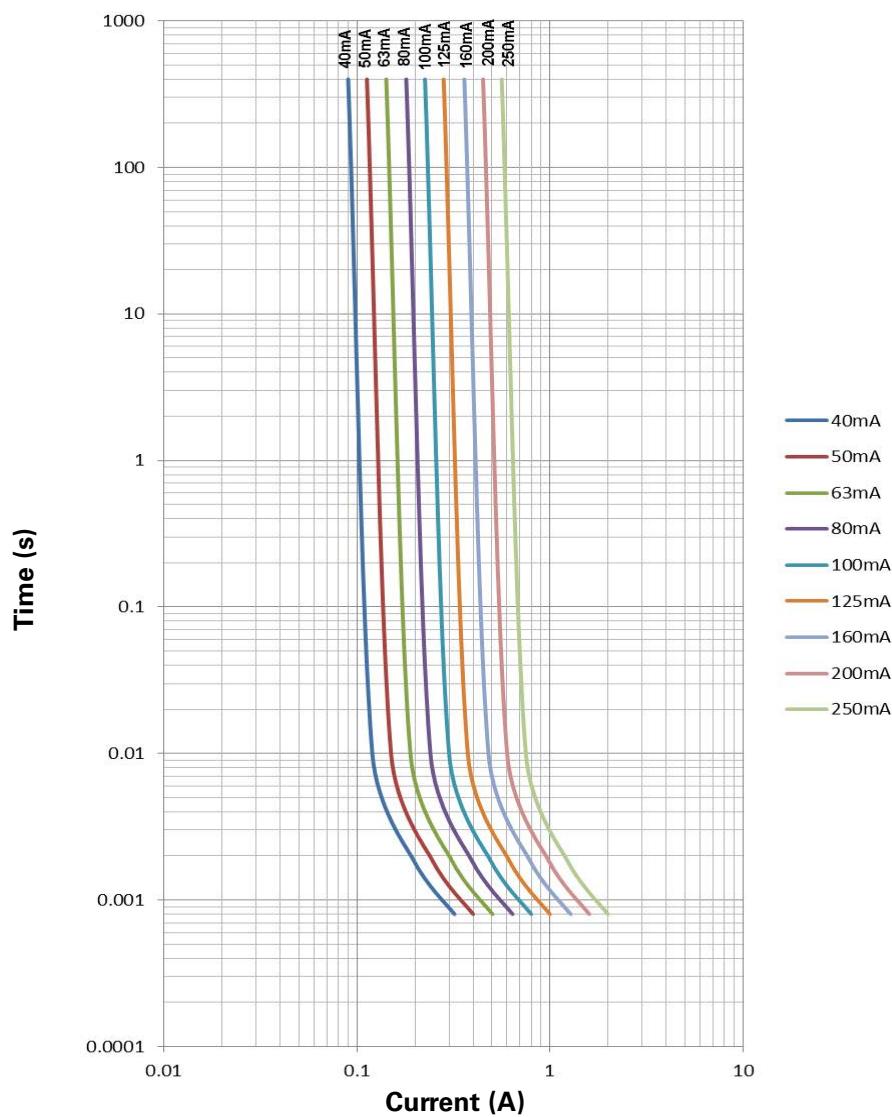
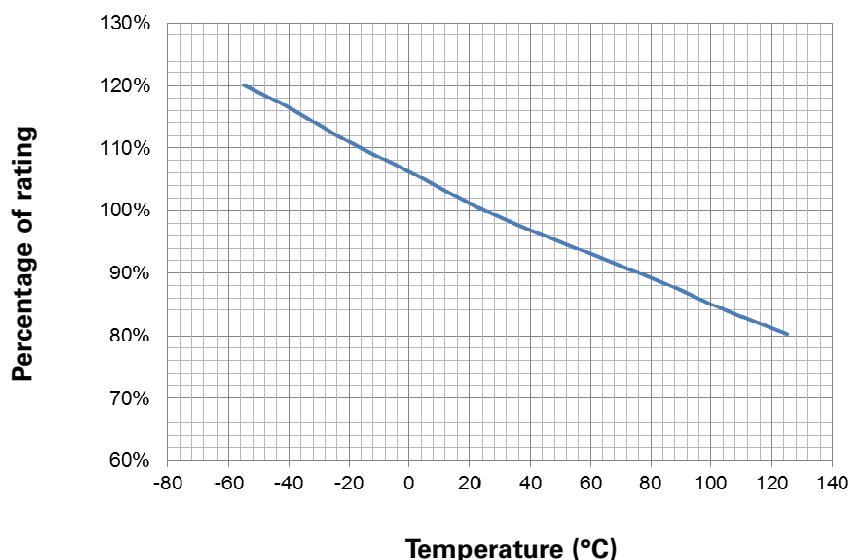
| Amp Rating     | % of Amp Rating | Opening Time       |
|----------------|-----------------|--------------------|
| 40 mA ~ 250 mA | 110%            | 4 hours, min       |
|                | 300%            | 10 seconds, max    |
|                | 1000%           | 0.002 seconds, max |

## Environmental data

- Operating temperature: -55 °C to +125 °C (with derating)
- Thermal Shock: MIL-STD-202G, Method 107G (Test Condition 5 cycles -55 °C to 125 °C)
- Resistance to Solder Heat: MIL-STD-202G Method 210F
- Vibration: MIL-STD-202G, Method 201A (10 Hz to 55 Hz) Condition A, "-V" axial lead version IEC60068-2-6
- Solderability: J-STD-002C, Test Method C1, "-V" axial lead version IEC60127-2/A3.3
- Component Life Reliability: +125 °C, 500 hours

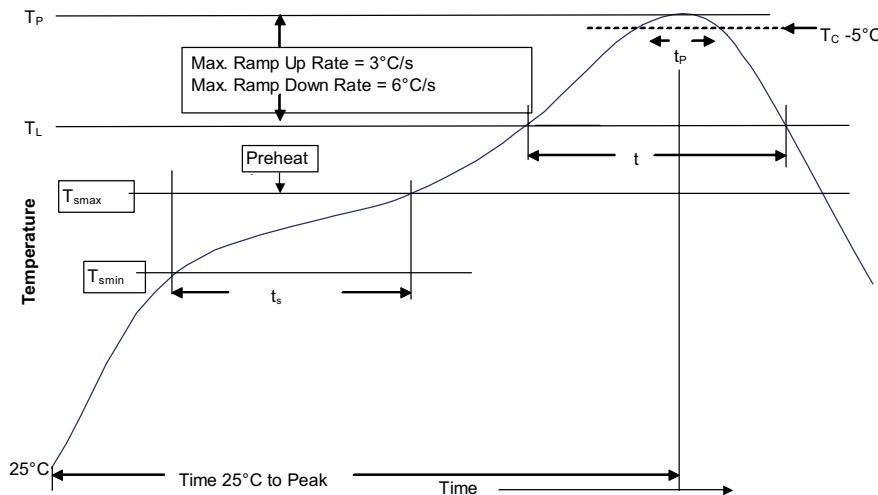
## Dimensions-mm



**Average time-current curves****Temperature derating curve**

**Surface mounting soldering parameters (Ferrule)**

- Reflow solder: JEDEC J-STD-020  $T_c = 250^\circ\text{C}$ ,  $T_p = 30\text{s}$
- Wave and manual solder is not recommended

**Table 1 - Standard SnPb Solder ( $T_c$ )**

| Package Thickness | Volume mm <sup>3</sup> <350 | Volume mm <sup>3</sup> ≥350 |
|-------------------|-----------------------------|-----------------------------|
| <2.5mm)           | 235°C                       | 220°C                       |
| ≥2.5mm            | 220°C                       | 220°C                       |

**Table 2 - Lead (Pb) Free Solder ( $T_c$ )**

| Package Thickness | Volume mm <sup>3</sup> <350 | Volume mm <sup>3</sup> 350 - 2000 | Volume mm <sup>3</sup> >2000 |
|-------------------|-----------------------------|-----------------------------------|------------------------------|
| <1.6mm            | 260°C                       | 260°C                             | 260°C                        |
| 1.6 - 2.5mm       | 260°C                       | 250°C                             | 245°C                        |
| >2.5mm            | 250°C                       | 245°C                             | 245°C                        |

**Reference JDEC J-STD-020**

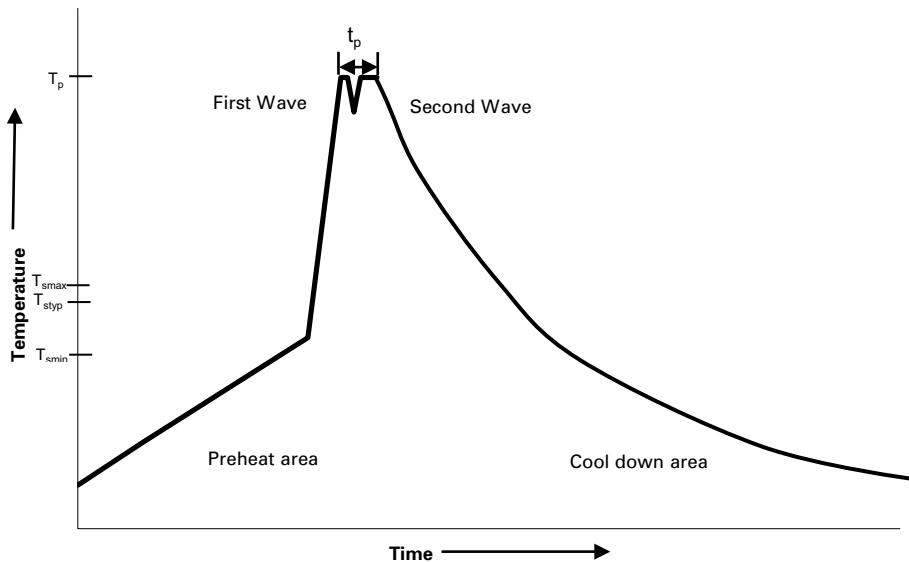
| Profile Feature  | Standard SnPb Solder   | Lead (Pb) Free Solder                                |
|--|--|--|
| Preheat and Soak   | <ul style="list-style-type: none"> <li>Temperature min. (<math>T_{smin}</math>)</li> <li>Temperature max. (<math>T_{smax}</math>)</li> <li>Time (<math>T_{smin}</math> to <math>T_{smax}</math>) (<math>t_s</math>)</li> </ul> | 100 °C<br>150 °C<br>60-120 Seconds<br>60-120 Seconds |
| Average ramp up rate $T_{smax}$ to $T_p$   | 3 °C/ Second Max.  | 3 °C/ Second Max.                                    |
| Liquidous temperature ( $T_L$ )  | 183 °C   | 217 °C   |
| Time at liquidous ( $t_L$ )  | 60-150 Seconds   | 60-150 Seconds                                       |
| Peak package body temperature ( $T_p$ )*   | Table 1  | Table 2  |
| Time ( $t_p$ )** within 5 °C of the specified classification temperature ( $T_c$ ) | 20 Seconds**   | 30 Seconds**   |
| Average ramp-down rate ( $T_p$ to $T_{smax}$ )                                     | 6 °C/ Second Max.  | 6 °C/ Second Max.                                    |
| Time 25 °C to Peak Temperature   | 6 Minutes Max.   | 8 Minutes Max.                                       |

\* Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

\*\* Tolerance for time at peak profile temperature ( $t_p$ ) is defined as a supplier minimum and a user maximum.

**Through hole wave solder profile (Axial lead)**

Reflow soldering not recommended

**Reference EN 61760-1:2006**

| Profile Feature                     | Standard SnPb Solder   | Lead (Pb) Free Solder   |
|-------------------------------------|--|---|
| Preheat                             | <ul style="list-style-type: none"> <li>Temperature min. (<math>T_{smin}</math>)</li> <li>Temperature typ. (<math>T_{styp}</math>)</li> <li>Temperature max. (<math>T_{smax}</math>)</li> <li>Time (<math>T_{smin}</math> to <math>T_{smax}</math>) (<math>t_s</math>)</li> </ul> | <ul style="list-style-type: none"> <li>100°C</li> <li>120°C</li> <li>130°C</li> <li>70 seconds</li> </ul> |
| $\Delta$ preheat to max Temperature | 150°C max.   | 150°C max.  |
| Peak temperature ( $T_p$ )*         | 235°C – 260°C  | 250°C – 260°C   |
| Time at peak temperature ( $t_p$ )  | 10 seconds max<br>5 seconds max each wave  | 10 seconds max<br>5 seconds max each wave   |
| Ramp-down rate                      | $\sim 2$ K/s min<br>$\sim 3.5$ K/s typ<br>$\sim 5$ K/s max   | $\sim 2$ K/s min<br>$\sim 3.5$ K/s typ<br>$\sim 5$ K/s max  |
| Time 25°C to 25°C                   | 4 minutes  | 4 minutes   |

**Manual solder**

350 °C, 4-5 seconds. (by soldering iron), generally manual, hand soldering is not recommended.

Life Support Policy: Eaton does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin.

**Eaton**  
**Electronics Division**  
1000 Eaton Boulevard  
Cleveland, OH 44122  
United States  
[www.eaton.com/electronics](http://www.eaton.com/electronics)

© 2018 Eaton  
All Rights Reserved  
Printed in USA  
Publication No. 4405 — BU-MC15048  
August 2018

Eaton is a registered trademark.

All other trademarks are property  
of their respective owners.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Eaton:

[C308F50MA-TR](#) [C308F100MA-TR](#) [C308F160MA-TR](#) [C308F200MA-TR](#) [C308F80MA-TR](#) [C308F250MA-TR](#) [C308F-V-100MA-TR1](#) [C308F-V-160MA-TR1](#) [C308F-V-200MA-TR1](#) [C308F-V-250MA-TR1](#) [C308F-V-50MA-TR1](#) [C308F-V-80MA-TR1](#)