

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^2t ***	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	X
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 $10I_n$.

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 leaded version IEC60068-2-6
- Solderability: J-STD-002C, Test Method C1, "-V" axial leaded 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^3 <350	Volume mm^3 ≥ 350
<2.5mm	235°C	220°C
$\geq 2.5\text{mm}$	220°C	220°C

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

Package Thickness	Volume mm^3 <350	Volume mm^3 350 - 2000	Volume mm^3 >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 JEDEC J-STD-020

Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak	• Temperature min. (T_{smin})	100 °C
	• Temperature max. (T_{smax})	150 °C
	• Time (T_{smin} to T_{smax}) (t_s)	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		
• Temperature min. (T_{smin})	100°C	100°C
• Temperature typ. (T_{styp})	120°C	120°C
• Temperature max. (T_{smax})	130°C	130°C
• Time (T_{smin} to T_{smax}) (t_s)	70 seconds	70 seconds
Δ 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 5 seconds max each wave	10 seconds max 5 seconds max each wave
Ramp-down rate	~ 2 K/s min ~3.5 K/s typ ~5 K/s max	~ 2 K/s min ~3.5 K/s typ ~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.

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