

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 perfomance 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	Color	Interrupting rating @ 250	Typical DC cold resistance	Typical melting I²T***	Agency Information
Ferrule	Axial lead	Vac/dc	coding	Vac/dc (A)*	(Ω)**	I ² T***	cURus
C308F40mA	C308F-V-40mA		Grey		14.2	0.00006	Х
C308F50mA	C308F-V-50mA		Red		9.40	0.00010	Х
C308F63mA	C308F-V-63mA		Pink		8.80	0.00012	Х
C308F80mA	C308F-V-80mA		Green		5.10	0.00018	Х
C308F100mA	C308F-V-100mA	250	Yellow	4000	2.87	0.00087	Х
C308F125mA	C308F-V-125mA		Orange		2.20	0.00134	Х
C308F160mA	C308F-V-160mA		Violet		2.05	0.00166	Х
C308F200mA	C308F-V-200mA		Brown		1.01	0.00237	Х
C308F250mA	C308F-V-250mA		Black		0.71	0.00530	Х

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

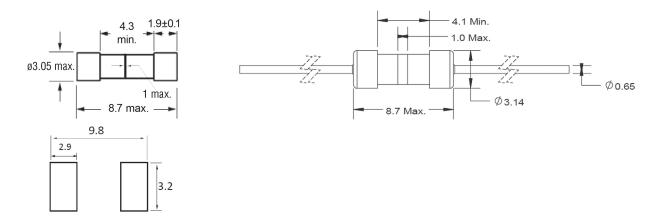
Electrical characteristics

Amp Rating	% of Amp Rating	Opening Time	
	110%	4 hours, min	
40 mA ~ 250 mA	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

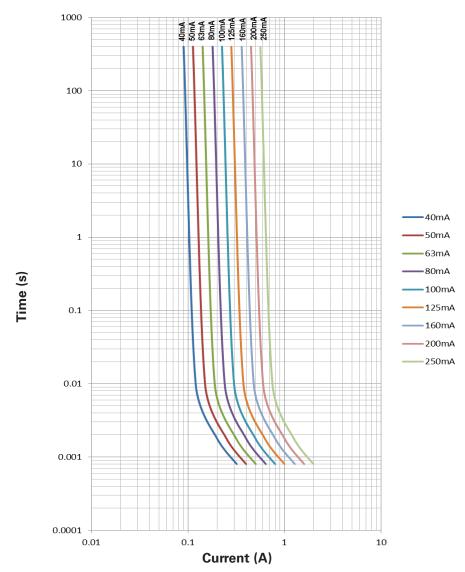
Dimensions-mm



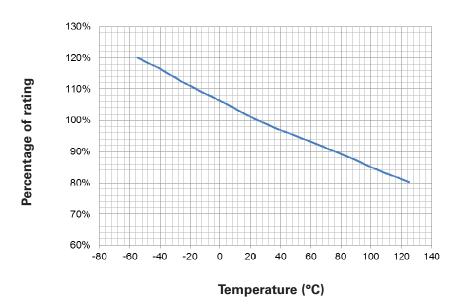
^{**} DC Cold Resistance (Measured at ≤10% of rated current).

^{***} Typical I2t measured at 10In.

Average time-current curves



Temperature derating curve



Surface mounting soldering parameters (Ferrule)

- Reflow solder: JEDEC J-STD-020 $T_c = 250$ °C. $T_p = 30$ s
- Wave and manual solder is not recommended

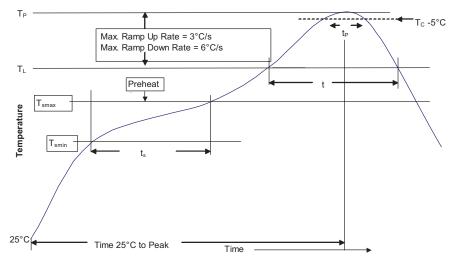


Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm3 <350	Volume mm3 ≥350	
<2.5mm)	235°C	220°C	
≥2.5mm	220°C	220°C	

Table 2 - Lead (Pb) Free Solder ($T_{\rm C}$)

Package Thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >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

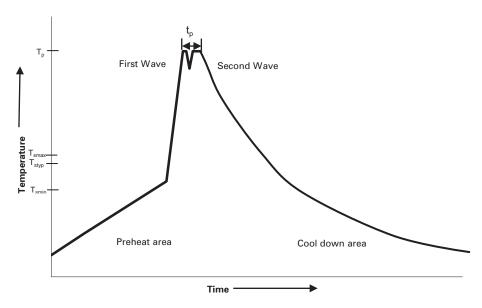
Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder	
Preheat and Soak • Temperature min. (T _{smin})	100 °C	150 °C	
• Temperature max. (T _{smax})	150 °C	200 °C	
• Time (T _{Smin} to T _{Smax}) (t _S)	60-120 Seconds	60-120 Seconds	
Average ramp up rate T_{SMax} to T_p	3 °C/ Second Max.	3 °C/ Second Max.	
Liquidous temperature (TL) Time at liquidous (tL)	183 °C 60-150 Seconds	217 °C 60-150 Seconds	
Peak package body temperature (Tp)*	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 tempera	ature (Tp)*	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 r	ate	~ 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

 $350\ ^{\circ}\text{C}$, $4\text{-}5\ \text{seconds}$. (by soldering iron), generally manual, hand soldering is not recommended.

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