Effective January 2015 Supersedes July 2014

Bussmann C308F Series

Ferrule and axial lead 3x8.4mm fast-acting, ceramic tube fuses for barrier applications



Product description

A compact 3x8.4mm size provides a spacesaving alternative to conventional fuse solutions with high interrupting rating for primary and secondary circuit protection up to 250 volts AC or DC and 250mA. Ceramic tube construction.

- Meets Standards (EN60079-11) for hazardous applications
- 3x8.4mm physical size
- Fast-acting, high breaking capacity of 4000 amps
- Ceramic tube, silver-plated brass endcap construction
- Optional axial leads (tinned copper axial leads construction)
- RoHS compliant

Agency information

 cURus: Guide JDYX2, File E 19180 and Guide JDYX8, File E19180

Applications

- · Hazardous environments
- Oil drilling and refineries
- · Intrinsically safe 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)



The Bussmann brand of circuit protection products (formerly of the Bussmann Division of Cooper Industries) is now part of Eaton's Electrical Group, Electronics Division.

Bussmann is now part of Eaton Same great products plus even more.



Product specifications

Catalog number				Interrupting			
Ferrule	Axial lead	Voltage rating Vac/dc	Color coding	rating @ 250Vac/dc (amps)*	Typical DC cold resistance (Ω)**	lypical melting l ² t***	Agency Information cURus
C308F50mA	C308F-V-50mA	250	Red	4000	9.40	0.00049	Х
C308F80mA	C308F-V-80mA		Green		5.10	0.00050	Х
C308F100mA	C308F-V-100mA		Yellow		2.87	0.00087	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 (4000A, PF = 0.4); DC Interrupting Rating measured at rated voltage, time constant 4 microseconds, battery source.

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

*** Typical I²t measured at 10I_n.

Electrical characteristics

Rated Current	Amp Rating	Opening Time	
	110%	4 Hours, min	
50mA~250mA	300%	10 Seconds, max	
	1000%	0.002 Seconds, max	

Environmental Data

- 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 (10~55Hz) 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, 500h

Dimensions and recomended pad layout - mm





Average time-current curves



www.eaton.com/elx

Surface mounting soldering parameters

- Reflow solder: JEDEC J-STD-202D $T_c = 250^{\circ}C$. $T_p = 30s$
- Wave and manual solder is not recommended



Table 1 - Standard SnPb Solder (T _C)				
	Volume	Volume		
Package	mm ³	mm ³		
Thickness	<350	≥350		
<2.5mm	235°C	220°C		
≥2.5mm	220°C	220°C		

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

Package	Volume mm ³	Volume mm ³	Volume mm ³
Thickness	<350	350 - 2000	>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-020D

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)		183°C	217°C	
Time at liquidous (t _L)		60-150 Seconds	60-150 Seconds	
Peak package body t	emperature (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 (Tp to Tsmax)		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



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 Temeperature	150°C max.	150°C max.	
Peak temperature (T _p)	235 [°] C - 260 [°] C	250°C - 260°C	
Time at neak temperature (t.)	10 seconds max	10 seconds max	
Time at peak temperature (tp)	5 seconds max each wave	5 seconds max each wave	
	~ 2 K/s min	~ 2 K/s min	
Ramp-down rate	~3.5 K/s typ	~3.5 K/s typ	
•	~5 K/s max	~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.

North America

Eaton's Electrical Group Electronics Division 1225 Broken Sound Parkway NW Suite F Boca Raton, FL 33487-3533 Tel: 1-561-998-4100 Fax: 1-561-9241-6640 Toll Free: 1-888-414-2645 Eaton's Electrical Group Electronics Division P.O. Box 14460 St. Louis, MO 63178-4460 Tel: 1-636-394-2877 Fax: 1-636-527-1607 Europe Eaton's Electrical Group Electronics Division Burton-on-the-Wolds Leicestershire, LE 12 5th UK Phone: +44 (0) 1509 882 786

Eaton's Electrical Group Electronics Division Avda Santa Eulalia, 290 Terrassa, Barcelona 08223 Spain Phone: +34-93-736-2813 Fax: +34-93-783-5055 Asia Pacific Eaton's Electrical Group Electronics Division No.2, #06-01 Serangoon North Avenue 5 Singapore 554911 Tel: +65 6645 9888 Fax: +65 6728 3155

The only controlled copy of this Data Sheet is the electronic read-only version located on the Bussmann Network Drive. All other copies of this document are by definition uncontrolled. This bulletin is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Bussmann reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Bussmann also reserves the right to change or update, without notice, any technical information contained in this bulletin. Once a product has been selected, it should be tested by the user in all possible applications.

in this bulletin. Once a product has been selected, it should be tested by the user in all possible applications. Life Support Policy: Bussmann 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's Electrical Group Electronics Division 114 Old State Road Ellisville, MO 63021 United States www.eaton.com/elx

© 2015 Eaton All Rights Reserved Publication No. 4405 — BU-SB15051 January 2015 Eaton is a registered trademark.

All other trademarks are property of their respective owners.

www.eaton.com/elx