

708 Series

High-Current High IR SMD Fuse



Description

This high-current, high interrupting rating SMD fuse is a small, square, surface mount fuse that is designed as supplemental overcurrent protection for circuits in various applications where high fault current is anticipated.

Features & Benefits

- High Reliability Solderless Fuse
- High pulse resistance
- High-Current High Interrupting Rating SMD Fuse
- Compatible with lead-free solders and higher temperature profiles
- RoHS compliant
- UL Recognized to UL/CSA/NMX 248-1
- Conforms to IEC/EN 60127-1 and IEC/EN 60127-7

Web Resources



Download ECAD models, order samples, and find technical resources at www.littelfuse.com

Agency Approvals

Agency	Agency File Number	Ampere Range
	E71611	60 A – 200A
	J 50716850	60 A – 200A
	N/A	60 A – 200A
	N/A	60 A – 200A

Application

- High-power Battery Systems
- Power Factor Correction (PFC) in high wattage power supplies
- Power Distribution Units (PDUs)
- Data center
- Blade server
- Router

Electrical Characteristics

% of Ampere Rating	Opening Time
100%	4 Hour, Min.
250%	60 Seconds, Max.

Electrical Specifications

Ampere Rating (A)	Amp Code	Max Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (mOhms)	Nominal Voltage Drop* (mV)	Nominal Melting** I ² t (A ² sec)	Agency Approvals			
60	060.	125 VDC	14KA@80Vdc 3KA@125Vdc	0.930	70.0	1350	X	X	X	X
70	070.			0.725	68.0	2400	X	X	X	X
80	080.			0.640	72.5	3000	X	X	X	X
90	090.			0.585	78.0	4200	X	X	X	X
100	100.			0.430	60.0	7000	X	X	X	X
125	125.			0.375	63.0	13500	X	X	X	X
150	150.			0.330	67.0	18350	X	X	X	X
175	175.			0.290	74.5	21000	X	X	X	X
200	200.			0.250	84.0	22830	X	X	X	X

Notes:
 * Nominal Voltage Drop measured at 100% rated Current.
 ** Nominal Melting I²t measured at 14000A.

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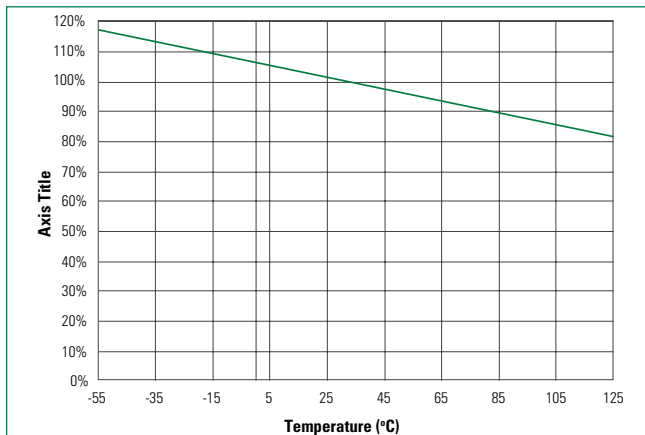
Thermal Characteristics

Ampere Rating I_n (A)	Typical Case Temperature Rise (°C)		
	@ 50% I_n	@ 75% I_n	@ 100% I_n
60	16	34	56
70	16	36	63
80	20	46	80
90	25	56	100
*100	22	45	72
*125	25	54	90
**150	22	53	90
**175	28	61	110
**200	30	70	130

Notes:

60A - 90A: Typical values based on tests conducted with fuse mounted on FR-4 circuit board of 0.062" (1.6mm) thickness with 6 oz. (210 μm) Cu. at rated current
100A - 125A: *Typical values based on tests conducted with fuse mounted on FR-4 circuit board of 0.093" (2.4mm) thickness with 10 oz. (350 μm) Cu. at rated current
150A - 200A: **Typical values based on tests conducted with fuse mounted on FR-4 circuit board of 0.156" (4mm) thickness with 15 oz. (525 μm) Cu. at rated current

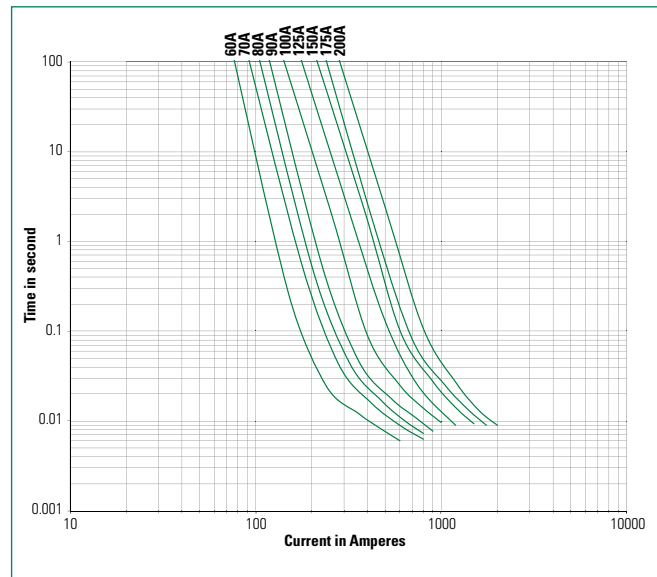
Temperature Re-rating Curve



Notes:

- Derating depicted in this curve is in addition to the standard derating of 25% for continuous operation.
 Example:
 For continuous operation at 85°C, the fuse should be re-rated as follows:
 $I = (0.75)(0.90)I_n = (0.675)I_n$
- The temperature re-rating curve represents nominal conditions. For questions about the temperature re-rating curve, please consult Littelfuse technical support assistance.

Average Time Current Curves

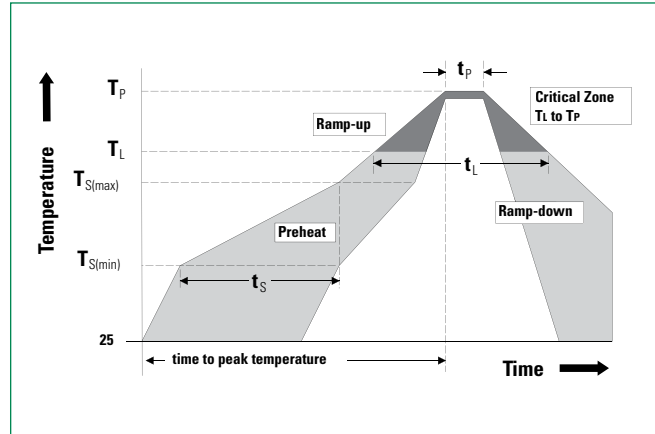


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Soldering Parameters

Reflow Condition		Pb-free assembly
Number of allowed reflow cycles		3
Pre Heat	- Temperature Min ($T_{s(min)}$)	150 °C
	- Temperature Max ($T_{s(max)}$)	200 °C
	- Time (Min to Max) (t_s)	60–180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		5 °C / second max.
$T_{s(max)}$ to T_L - Ramp-up Rate		5 °C / second max.
Reflow	- Temperature (T_L) (Liquidus)	217 °C
	- Temperature (t_l)	60–150 secs
Peak Temperature (T_p)		260 ^{+0/-5} °C
Time within 5 °C of actual peak Temperature (t_p)		20–40 seconds
Ramp-down Rate		5 °C / second max.
Time 25 °C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260 °C



Product Characteristics

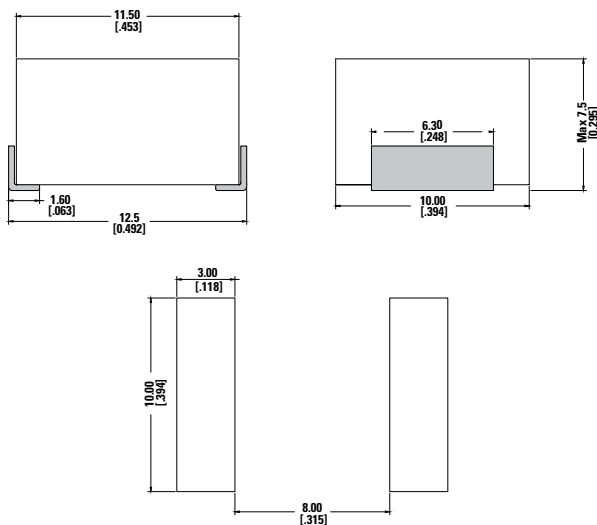
Materials	Body: Ceramic Body Terminations: Tin-plated Copper
Product Marking	Brand Logo, Voltage Rating, and Ampere Rating
Operating Temperature ^{1,2}	-55 °C to +125 °C with proper derating

- Notes:**
- Based on loading at 75% of ampere rating when mounted using recommended pad layout.
 - Usage outside of stated operating temperature range requires testing in application. Maintain case temperature below 150°C in application.

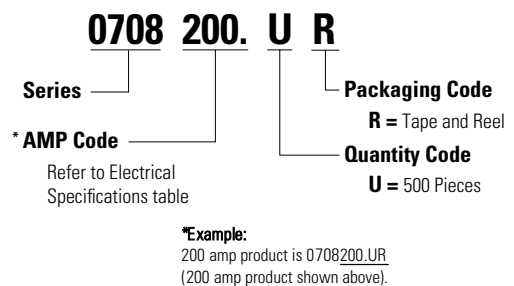
Thermal Shock	MIL-STD-202 Method 107 Test Condition B (-55°C to 125°C, 5 cycles).
Moisture Resistance	MIL-STD-202 method 106 High Humidity (90-98%RH), Heat (65°C)
Vibration	MIL-STD-202, Method 201 (10-55 Hz)
Mechanical Shock	MIL-STD-202, Method 213, Test Condition I (100 G's peak for 6 milliseconds)
Resistance to Solder Heat	MIL-STD-202 Method 210 Test Condition B (10sec at 260°C)
Solderability	MIL-STD-202 Method 208
MSL Test	Level 1 J-STD-020
Salt Fog	MIL-STD-202 Method 101 Test Condition B (5% NaCl solution, 48 hours exposure)

Dimensions

Units: mm (in.)



Part Numbering System



Packaging

Packaging Option	Packaging Specification	Quantity	Quantity and Packaging Code
24mm Tape and Reel	EIA-481	500	UR

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