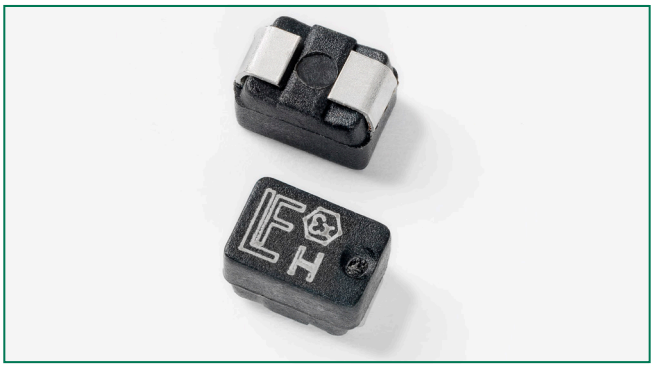
308 Series 30V Intrinsically Safe Fuse



Agency Approvals

Agency	Agency File Number	Ampere Rating
Ex	DEMKO 15 ATEX 1439U Ex II 1 G Ex ia IIC	0.25A – 1.5A
c UL us	E358130	0.25A – 1.5A
IEC IECEx	IECEx UL 15.0011U Ex ia IIC	0.25A – 1.5A

Reference Standards

Certification	Standards
ATEX	EN 60079-0, EN 60079-11, EN 60079-26
IECEx	IEC 60079-0, IEC 60079-11, IEC 60079-26
UL	UL 913, UL 60079-0, UL 60079-11
cUL	CAN/CSA C22.2 No. 157, CAN/CSA C22.2 No. 60079-0, CAN/CSA C22.2 No. 60079-11

Description

The 308 Series offers a range of surface mountable encapsulated fuses certified as intrinsically safe components that can be used in hazardous locations. Ideal for use in oil, gas, mine, chemical, pharmaceutical and process industries, the 308 Series surface mountable fuse was designed to limit the energy and temperature generated during its operation. The fuse design and its encapsulant are suitable for use in intrinsically safe apparatus and associated apparatus for peak voltage not exceeding 30V.

Features

- Surface Mountable
- Encapsulated and sealed (0.7mm minimum)
- Designed for operation in a range of hazardous area applications requiring 30V peak
- RoHS compliant and Pb-Free
- Fully compatible with lead-free solder alloys and higher temperature profiles associated with lead-free assembly
- Global hazardous location certifications

Applications

- Testing, measuring or processing electronic and electrical equipment
- Motor controllers
- Communication handsets/ two-way radios
- Process control and automation
- Sensors
- Lighting
- Flow/gas meters

Electrical Characteristics for Series

% of Ampere Rating	Opening Time
100%	4 Hours, Minimum
250%*	120 Seconds, Maximum
350%*	60 Seconds, Maximum

* Applicable to 750mA - 1.5A
** Applicable to 250mA - 1.5A

Electrical Specifications by Items

Catalog Number	Ampere Rating (A)	Amp Code	Interrupting Rating	Nominal Melting I^2t (A^2 Sec.)	Minimum Cold Resistance at -20°C (Ohms)	Minimum Cold Resistance at -40°C (Ohms)	Nominal Cold Resistance at 25°C (Ohms)	Agency Approvals		
								Ex	c UL us	IEC IECEx
0308.250	0.250	.250	50A@24VAC 50A@30VDC	0.006	1.856	1.821	2.290	X	X	X
0308.375	0.375	.375		0.010	1.022	1.006	1.330	X	X	X
0308.500	0.500	.500		0.022	0.712	0.676	0.908	X	X	X
0308.750	0.750	.750		0.047	0.520	0.511	0.665	X	X	X
0308001.	1.00	001.		0.218	0.226	0.216	0.420	X	X	X
03081.25	1.25	1.25		0.256	0.240	0.236	0.318	X	X	X
030801.5	1.50	01.5		0.361	0.182	0.144	0.209	X	X	X

Notes: 1. The fuse must be mounted so that creepage and clearance distances aren't impaired in any way.
2. The fuse is suitable for use in intrinsically safe equipment and associated apparatus for voltage not exceeding 30V peak.
3. Maximum surface temperature rise at 170% rated current: 250-375mA = 23°C, 500mA = 35°C, 750mA = 53°C, 1A = 38°C, 1.25-1.50A = 96°C.
4. Minimum Cold Resistance at -30°C is available upon request.

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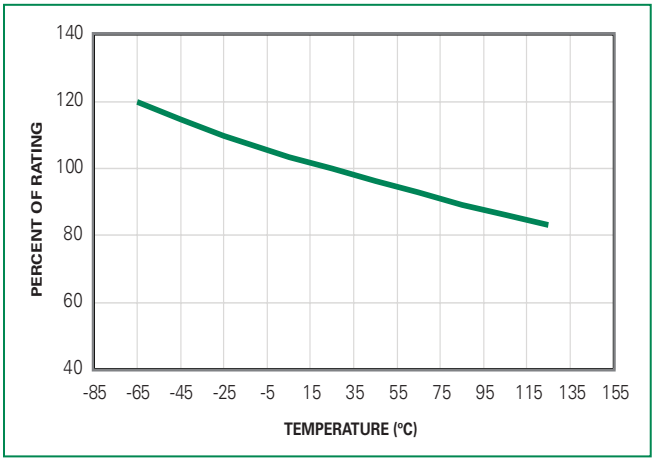
Special Application Fuses

Intrinsically Safe > Surface Mount > 308 Series

Temperature Rerating Curve



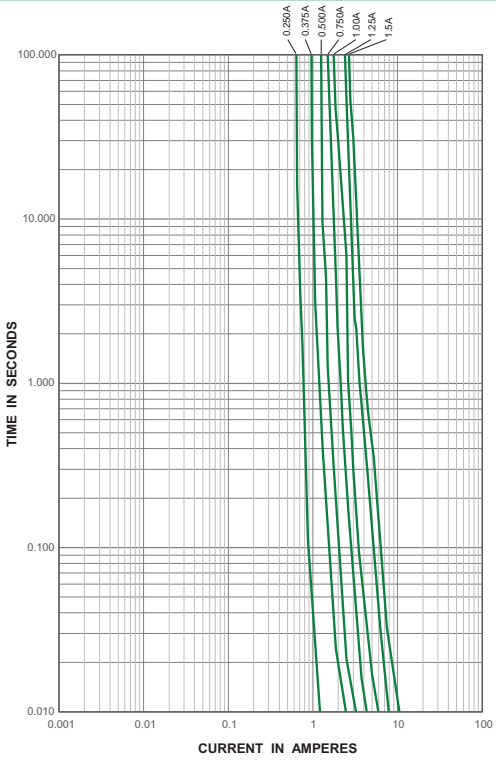
Notes:

1. Re-rating depicted in this curve is in addition to the standard re-rating of 20% for continuous operation.

   Example:
   For continuous operation at 55°C, the fuse should be rerated as follows:
   $I = (0.80)(0.90)I_{RAT} = (0.72)I_{RAT}$

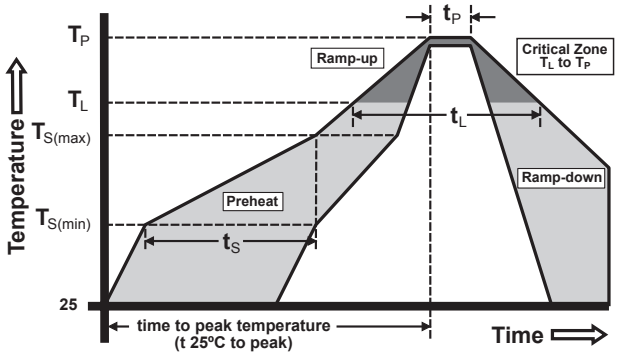
2. The temperature rerating curve represents the nominal conditions. For questions about temperature rerating curve, please consult Littelfuse technical support for assistance.

Average Time Current Curves



Soldering Parameters

Reflow Condition		Pb-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (Min to Max) (t_s)	60 – 120 seconds
Average Ramp-up Rate (Liquidus Temp (T_L) to peak)		3°C/second max.
$T_{S(max)}$ to TL - Ramp-up Rate		3°C/second max.
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		$250^{+0/-5}$°C
Time within 5°C of actual peak Temperature (t_p)		30sec max
Ramp-down Rate		6°C/second max.
Time 25°C to Peak Temperature (T_P)		8 minutes max.
Do not exceed		260°C



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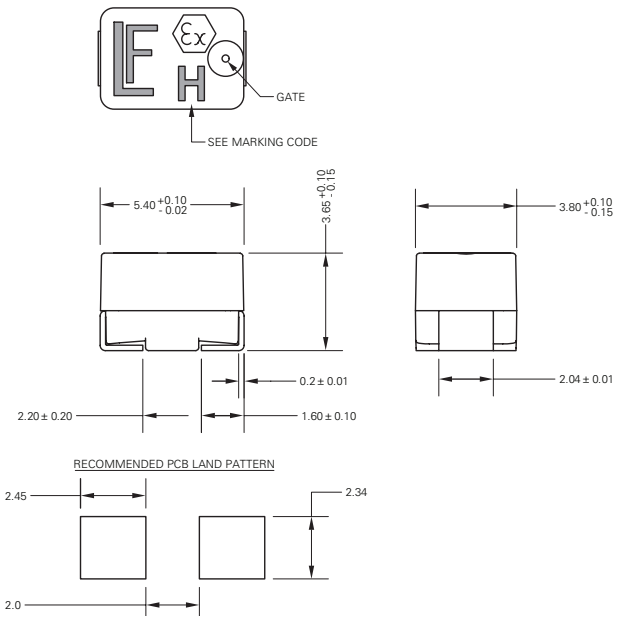
Dimensions (mm)



Part Marking System

Amp Code	Marking Code
.250	**D**
.375	**E**
.500	**F**
.750	**G**
001.	**H**
1.25	**J**
01.5	**K**

Part Numbering System

0308 001. U R

SERIES

AMP CODE
Refer to Electrical Specifications table

QUANTITY CODE
U = 500 pcs

PACKAGING CODE
R = Tape and Reel

Packaging

Packaging Option	Packaging Specification	Quantity	Quantity and Packaging Code
12mm Tape and Reel	EIA 481-1	500	UR

Product Characteristics

Molding Material	Polyamide 6T/66 CTI 100 volts minimum **Continuous Operating Temperature:** 140°C
Ambient Temperature [1,2]	-40°C to +70°C
Terminations	Tin-plated copper
Thermal Shock	Withstands 100 cycles of -55°C to 125°C
Vibration	MIL-STD-202, Method 201
Mechanical Shock	MIL-STD-202, Method 213, Condition A
Moisture Resistance	MIL-STD-202, Method 106
Salt Spray	MIL-STD-202, Method 101, Condition B
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

Notes:
1. Any use of the 308 Series fuse outside of the ambient temperature range specified in the table is subject to additional investigation.
2. Specified ambient temperature range is for intrinsic safety certification.

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