415 Series Surface Mount Fuse

NANO²® > 277 V > 15mm x 5mm Sq. > Time Lag

Description

Littelfuse 415 Series is a 277 VAC rated, surface mount fuse in a compact 15mm x 5mm square package Nano fuse. It has a high interrupting rating of 1500 A, needed for circuit protection on applications where high fault currents is a possibility.

Features

- Surface mountable and comes in a small package size of 15mm x 5mm square SMD fuse
- Rated voltage at 277 VAC
- High interrupting rating of 1500 A at rated voltage
- Time Lag type - designed to have relatively high melting I²t
- RoHS compliant and Halogen-free
- Recognized to UL/CSA/NMX 248-1 and UL/CSA/NMX 248-14
- Conforms to EN 60127-1 and EN 60127-7

Benefits

- Small size
- High voltage

Application

- Power supplies
- Lighting systems
- Industrial equipment
- White Goods

Web Resources

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

Agency Approvals

Agency	Agency File Number	Ampere Range
c UL us	E10480	1A - 6.3 A
	R 50598112	1A - 6.3 A
PS E	JD 50659959	1A - 6.3 A
CE	N/A	1A - 6.3 A
UK CA	N/A	1A - 6.3 A

Electrical Characteristics

% of Ampere Rating	Opening Time at 25 °C
125%	1 hour, Min.
200%	120 seconds, Max.
1000%	1 second, Max.

Electrical Specifications

Ampere Rating (A)	Amp Code	Max Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (mOhms)	Nominal Melting I²t (A²sec)*	Agency Approvals				
						c UL us		CE	PS E	UK CA
1.0	001.	277	1500A @ 277VAC 1500A @ 250VDC	0.400	3.6	X	X	X	X	X
1.25	1.25	277		0.267	4.5	X	X	X	X	X
2.0	002.	277		0.125	12.0	X	X	X	X	X
2.5	02.5	277	1500A @ 277VAC 1500A @ 125VDC	0.091	25.0	X	X	X	X	X
3.15	3.15	277		0.054	37.0	X	X	X	X	X
4.0	004.	277		0.040	60.0	X	X	X	X	X
5.0	005.	277		0.025	110.0	X	X	X	X	X
6.3	06.3	277		0.0168	200.0	X	X	X	X	X

Notes:

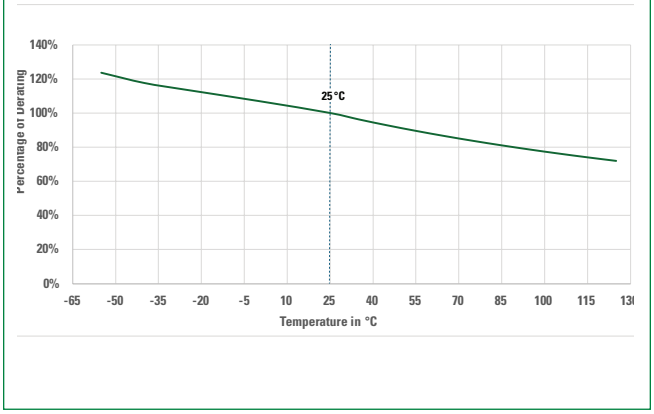
1. Nominal Cold Resistance measured at less than 10% of rated current at 23 °C.
2. Nominal Melting I²t is measured at 10 the Ampere Rating (I_n)
3. Agency Approval Table key: X = Approved or Certified, P = Pending, and Blank = Not Approved
4. If you have special electrical characteristic needs, contact Littelfuse to learn more about application specific options

Revised: VL 02/13/25

415 Series Surface Mount Fuse

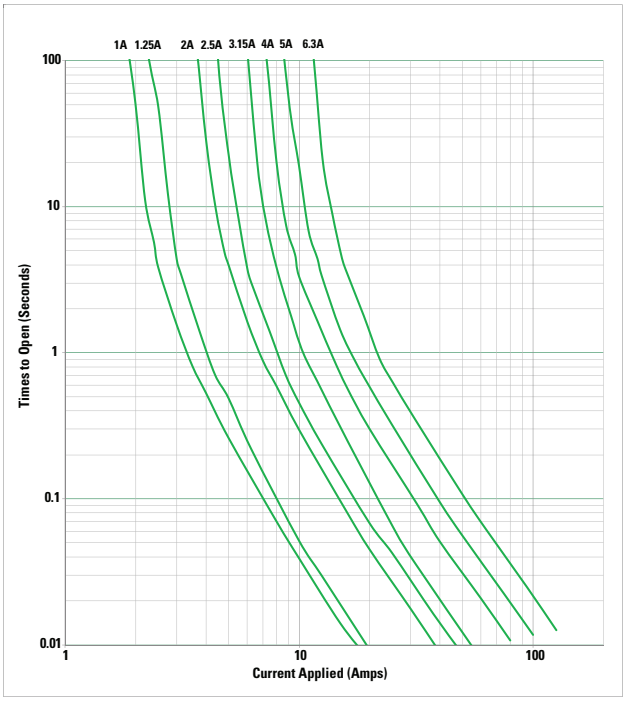
NANO²® > 277 V > 15mm x 5mm Sq. > Time Lag

Temperature Derating Curve



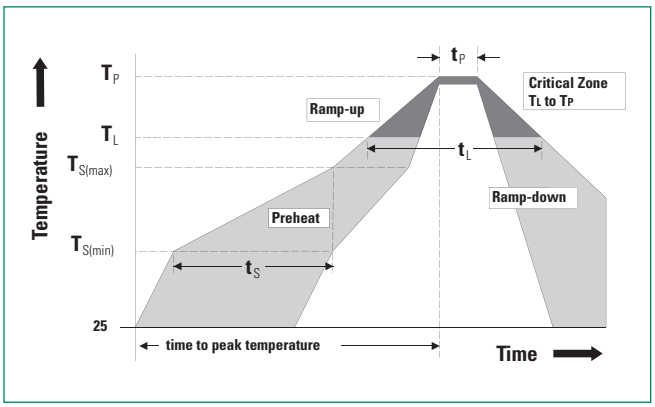
Note:
Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

Average Time Current Curves



Soldering Parameters–Reflow Soldering

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)	60–180 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



Revised: VL 02/13/25

415 Series Surface Mount Fuse

NANO²® > 277 V > 15mm x 5mm Sq. > Time Lag

Product Characteristics

Materials	**Body:** Ceramic **Cap:** Silver plated Copper alloy
Product Marking	Body: Brand Logo, Current Rating
Insulation Resistance (after Opening)	MIL-STD-202, Method 302, Test Condition S (10,000 ohms, Minimum)
MechanicalShock	MIL-STD-202, Method 213, Test Condition I (100 G's peak for 6 miliseconds)
Solderability	MIL-STD-202, Method 208
Resistance to Solder Heat	MIL-STD-202, Method 210, Test Condition B (10 sec at 260°)

Operating Temperature	–55 °C to 125 °C with proper derating
Thermal Shock	MIL-STD-202, Method 107, Test Condition B (5 cycles -55°C to 125°C)
Vibration Test	MIL-STD-202, Method 201 (10 - 55Hz)
Moisture Sensitivity Level	J-STD-020, Level 1
Moisture Resistance	MIL-STD-202, Method 106, High Humidity (90-98% RH), Heat (65°C)
Salt Spray	MIL-STD-202, Method 101: Test Condition B (48 hrs.)

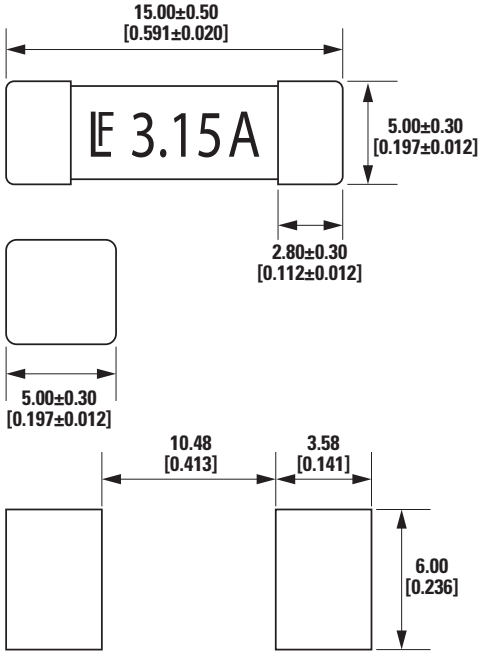
Part Numbering System

0415 3.15 D R SP

- **SP = Standard Part**
- **Packing Code**: R = Tape and Reel
- **Quantity Code**: D = 1500 pcs
- **Series**
- **AMP Code**: Refer to Electrical Characteristics Table

Dimensions

All dimensions in mm [in]



Recommended Pad Layout

Packaging

Packaging Option	Form Factor	Packaging Specification	Quantity	Quantity and Packaging Code
24mm Tape and Reel	Surface Mount	EIA-481 (IEC 60286-3)	1500	DR

Revised: VL 02/13/25