476 Series Fuse

Description

The 476 Series is a family of 250V rated fuses with a very small 2410 footprint. It is the smallest SMD fuse with this high voltage rating and is designed to mainly serve as primary side circuit protection for compact devices with high voltage requirements.

Features

- Small 2410 Footprint
- 250V Voltage Rating (1A to 5A)
- High Interrupting Ratings
- Fast-Acting
- RoHS Compliant and Halogen-Free
- Wide Operating temperature range of -55°C to 125°C
- IEC 61000-4-5 2 ed. Surge Immunity Test Compliant (1.2 x 50us/8x20us combination wave 500V/250A for <25W Lamp Category) – 3A and above ampere rating only

Agency Approvals

Agency	Agency File Number	Ampere Range
c UL us	E10480	1A - 15A
	Pending	1A - 5A
CQC	Pending	1A - 5A
VDE	Pending	1A - 5A

Applications

- LED Lighting
- LCD/LED TVs
- Power Supply Units
- White Goods

Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time
100%	1A - 15A	4 Hour, Minimum
125%	1A - 5A	1 Hour, Minimum
200%	1A - 15A	120 Sec., Maximum
1000%	1A - 5A	0.001 Sec., Min; 0.01 Sec., Max

Electrical Characteristic

Ampere Rating (A)	Amp Code	Max Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I²t (A² sec.)	Agency Approvals			
						c UL us	CQC	VDE	
1.00	001	250V	100A @ 250VAC 300A @ 125VDC 10kA @ 86VDC	0.1575	0.193	x	P	P	P
1.25	1.25	250V		0.122	0.276	x	P	P	P
1.60	01.6	250V		0.0825	0.620	x	P	P	P
2.00	002	250V		0.0448	0.530	x	P	P	P
2.50	02.5	250V		0.0363	0.910	x	P	P	P
3.00	003	250V		0.0277	1.660	x	P	P	P
3.50	03.5	250V		0.0234	2.356	x	P	P	P
4.00	004	250V		0.01839	2.820	x	P	P	P
5.00	005	250V		0.0157	4.000	x	P	P	P
6.30	06.3	125V	100A@125VAC 300A@125VDC 10kA@86VDC	0.0126	7.500	x			
7.00	007	125V		0.0116	7.800	x			
8.00	008	125V		0.0112	9.757	x			
10.0	010	125V		0.0096	14.879	x			
12.0	012	125V		0.006	20.635	x			
15.0	015	125V		0.0045	61.286	x			

Notes: 1. Cold resistance measured at less than 10% of rated current at 25°C

2. Agency Approval Table Key: X = Approved or Certified, P=Pending and Blank=Not Approved.

3. I²t values stated for 8msec opening time.

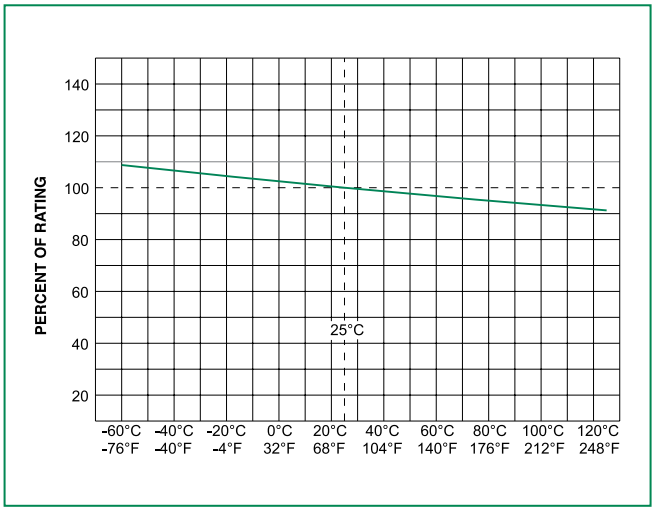
4. For 15A rating with 10kA@86VDC IR, please use suffix "S" for ordering. Refer to Part Numbering System for reference.

Revised: 02/08/15

Surface Mount Fuses

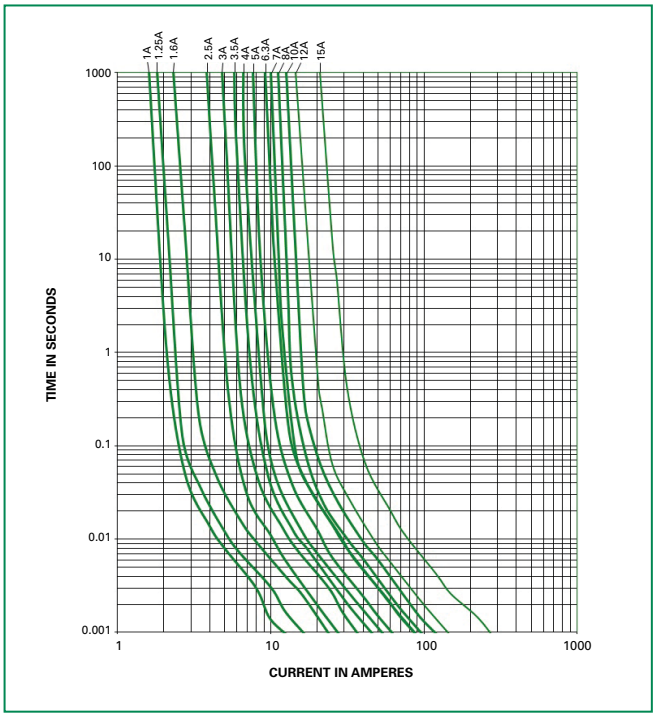
NANO²® Fuse > 250V > Fast Acting > 476 Series

Temperature Rerating Curve



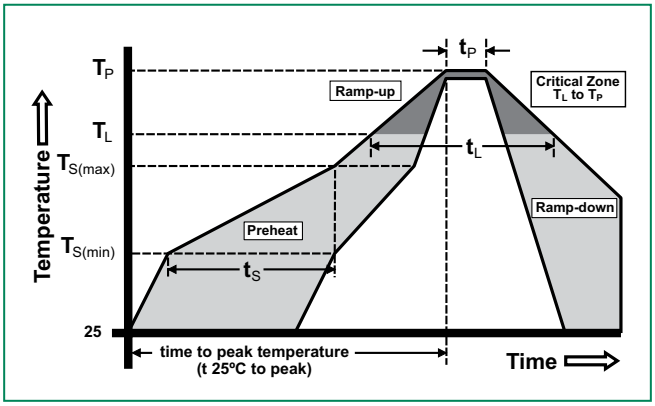
NOTE: Derating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

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 – 180 seconds
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 seconds
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: 02/08/15

Surface Mount Fuses

NANO²® Fuse > 250V > Fast Acting > 476 Series

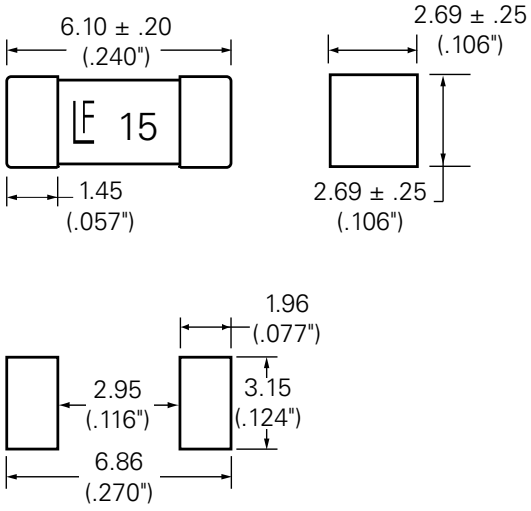
Littelfuse
Expertise Applied | Answers Delivered

Product Characteristics

Materials	**Body:** Ceramic **Cap:** Silver Plated Brass/Sn Dipped Silver Plated Brass/Gold Plated Brass
Product Marking	**Body:** Brand Logo, Current Rating
Operating Temperature	–55°C to +125°C
Moisture Sensitivity Level	Level 1
Solderability	MIL-STD-202, Method 208
Insulation Resistance (after opening)	IEC 60127-4 (0.1Mohm Min)

Thermal Shock	MIL-STD-202, Method 107, Test Condition B, 5 cycles, -65°C to 125°C, 15 minutes @ each extreme
Mechanical Shock	MIL-STD-202 Test Condition I: De-energized. 100G's peak amplitude, sawtooth wave 6ms duration, 3 cycles XYZ+xyz = 18 shocks
Vibration	MIL-STD-202, Method 201: 0.03" amplitude, 10-55 Hz in 1 min. 2 hrs. each XYZ = 6hrs (10- 55 Hz)
Moisture Resistance	Method 106, 10 cycles
Salt Spray	MIL-STD-202, Method 101, Test Condition B (48 hrs)
Resistance to Soldering Heat	Method 210, Test Condition B (10 sec at 260°C)

Dimensions



Recommended Pad Layout

Part Numbering System

0476 015. M R SN

Series

Amp Code*
Refer to Amp Code column of Electrical Characteristics Table

Quantity Code
M = 1000 pieces

Packaging Code
R = Tape and Reel

SN — Sn-dipped Caps
S — For 15A only - Gold Plated Caps with 10kA@86VDC IR

Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	Reel Size
12mm Tape and Reel	EIA-RS-481-2 (IEC 286 part 3)	1000	MR	N/A

Revised: 02/08/15