476 Series

NANO2® Fuse > 250V > Fast Acting



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 & Benefits

- 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
- Recognized to UL/CSA/NMX 248-1 and UL/CSA/NMX 248-14
- IEC 61547 Surge Compliant (tested per IEC 61000-4-5 with a combination wave of 500V, 1.2/50us and 250A, 8/20us for ≤25W Luminaires) – only for 3A and above
- Conforms to DENAN's Appendix 3
- Conforms to EN 60127-1 and EN 60127-7 (3.5A only)

Applications

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

Additional Information

Resources | Accessories | Samples

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

Agency Approvals

Agency	Agency File Number	Ampere Range
c UL us	E10480	1A - 15A
PS E	NBK240818-JP1021A NBK240818-JP1021B	1A - 1.6A 2A - 5A
UK CA	N/A	1A - 15A
CE	N/A	1A - 15A

Electrical Characteristic

Ampere Rating (A)	Amp Code	Max Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I²t (A² sec.)	Agency Approvals			
						UK CA	CE	c UL us	PS E
1.00	001	250V	100A @ 250VAC 300A @ 125VDC 10kA @ 86VDC	0.1575	0.193	x	x	x	x
1.25	1.25	250V		0.122	0.276	x	x	x	x
1.60	01.6	250V		0.0825	0.620	x	x	x	x
2.00	002	250V		0.0448	0.530	x	x	x	x
2.50	02.5	250V		0.0363	0.910	x	x	x	x
3.00	003	250V		0.0277	1.660	x	x	x	x
3.50	03.5	250V		0.0234	2.356	x	x	x	x
4.00	004	250V		0.01839	2.820	x	x	x	x
5.00	005	250V		0.0157	4.000	x	x	x	x
6.30	06.3	125V	100A @ 125VAC 300A @ 125VDC 10kA @ 86VDC	0.0126	7.500	x	x	x	-
7.00	007	125V		0.0116	7.800	x	x	x	-
8.00	008	125V		0.0112	9.757	x	x	x	-
10.0	010	125V		0.0096	14.879	x	x	x	-
12.0	012	125V		0.006	20.635	x	x	x	-
15.0	015	125V	300A @ 125Vdc 100A @ 125Vac	0.0045	61.286	x	x	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.
5. 15A rating with suffix "MRS" is UL certified with 10kA at 86VDC. This is also reflected on page 3.

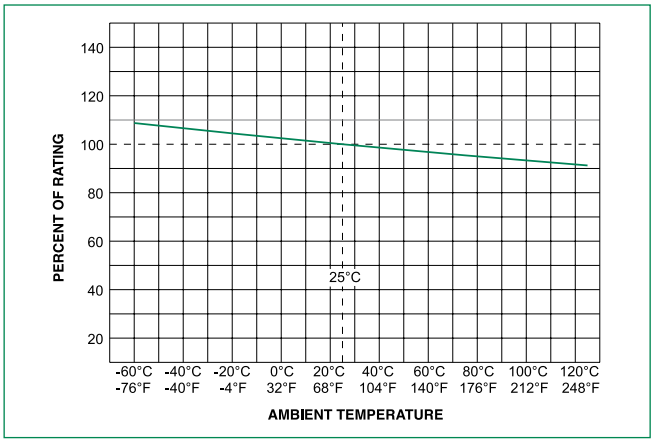
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476 Series

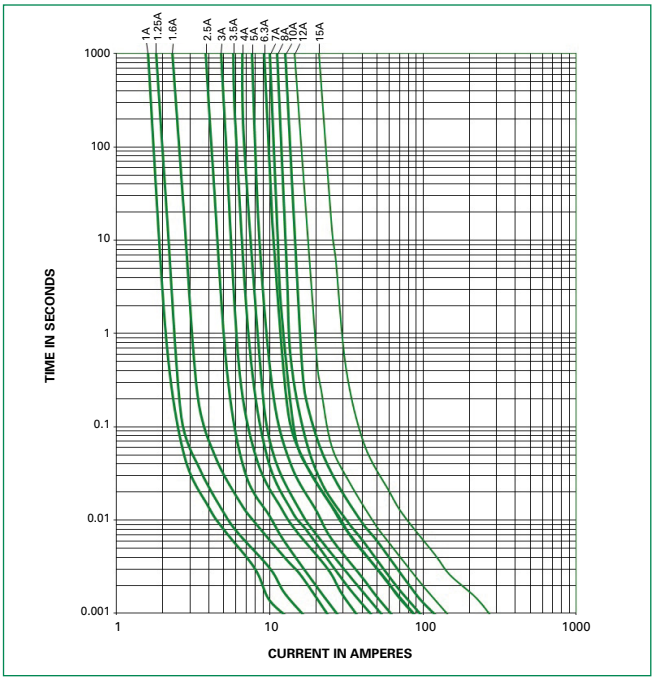
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Temperature Rerating Curve



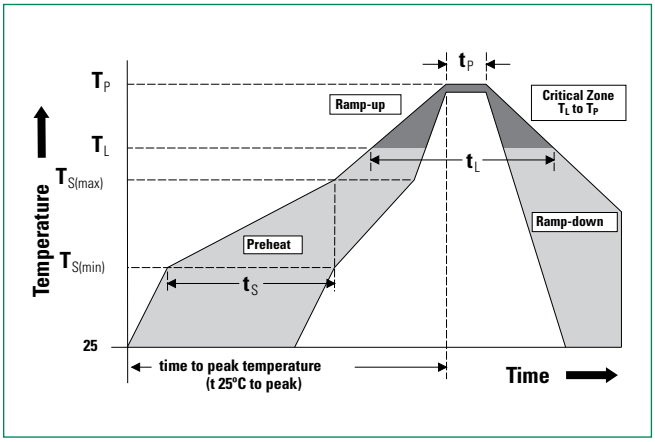
Note: Derating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

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



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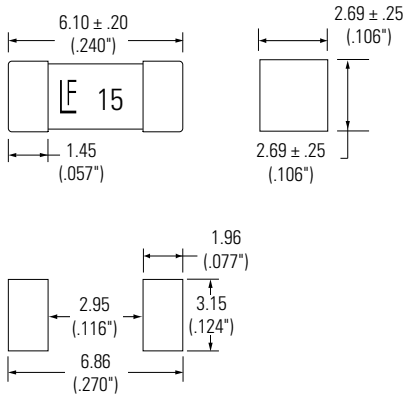
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Product Characteristics

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, Method 213 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	MIL-STD-202, Method 106 10 cycles
Salt Spray	MIL-STD-202, Method 101 Test Condition B (48 hrs)
Resistance to Soldering Heat	MIL-STD-202, Method 210, Test Condition B (10 sec at 260°C)

Dimensions
mm(inches)



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 60286-3	1000	MR	N/A

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