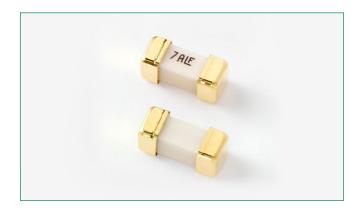


448 Series Fuse





Agency Approvals

Agency	Agency File Number	Ampere Range
<i>71</i>	E10480	0.062A - 15A
(29862	0.062A - 15A
PS	NBK030205-E10480A NBK030205-E10480B	1A - 1.6A 2A - 5A
E	NBK101105-E184655	6.3A - 10A

Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time
100%	0.062A -15	4 hours, Minimum
200%	0.062A -10	5 sec., Maximum
	12 –15	20 sec., Maximum

Description

The lead-free Nano^{2®} SMF Fuse is a very small, square surface mount fuse that is RoHS compliant, Halogen Free and 100% lead-free. This product is fully compatible with lead-free solder alloys and higher temperature profiles associated with lead-free assembly.

Features

- RoHS compliant, Leadfree and Halogen Free
- Very fast-acting
- Small size
- Wide range of current rating available (0.062A to 15A)
- Wide operating temperature range
- UL Recognized to UL/ CSA/NMX UL 248-1 and UL/CSA/NMX UL 248-14
- Conforms to DENAN's Appendix 3

Applications

- Notebook PC
- LCD/PDPTV
- LCD monitor
- LCD/PDP panel
- LCD backlight inverter
- Portable DVD player
- Power supply
- Networking
- PC server
- Cooling fan system

- Storage system
- Telecom system
- Wireless basestation
- White goods
- Game console
- Office Automation equipment
- Battery charging circuit protection
- Industrial equipment

Additional Information



Datasheet



Resources



Samples

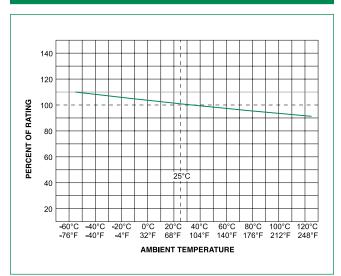


Electrical Specifications by Item

Ampere Rating (A)	Amp Code	Max Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting l²t (A²sec)	Agency Approvals		
						<i>717</i>	(PS E
0.062	.062	125		5.50	0.00023	×	х	
0.080	.080	125		4.42	0.00043	Х	x	
0.100	.100	125		2.90	0.00082	Х	×	
0.125	.125	125		2.58	0.00130	х	×	
0.160	.160	125		1.76	0.00280	Х	x	
0.200	.200	125		1.65	0.00380	Х	х	
0.250	.250	125		0.95	0.01520	х	X	
0.315	.315	125		0.7015	0.02650	Х	x	
0.375	.375	125		0.6155	0.02400	Х	x	
0.400	.400	125		0.4895	0.04160	Х	x	
0.500	.500	125		0.3800	0.10000	Х	х	
0.630	.630	125		0.3125	0.121	Х	X	
0.750	.750	125	50A @125VAC/	0.2290	0.206	X	x	
0.800	.800	125	VDC 300A @32 VDC	0.1907	0.272	X	x	
1.00	001.	125	PSE: 100A	0.08630	0.441	Х	x	×
1.25	1.25	125	@100VAC	0.06619	0.900	X	x	×
1.50	01.5	125		0.06514	0.900	Х	x	×
1.60	01.6	125		0.06261	1.122	X	x	×
2.00	002.	125		0.03529	0.812	X	x	×
2.50	02.5	125		0.02934	1.156	X	x	×
3.00	003.	125		0.02445	1.720	X	х	×
3.15	3.15	125		0.02300	1.810	X	x	×
3.50	03.5	125		0.02100	2.300	X	x	×
4.00	004.	125		0.01577	3.970	X	x	×
5.00	005.	125		0.01531	4.490	X	х	×
6.30	06.3	125		0.01044	12.10	X	x	×
7.00	007.	125		0.00900	13.92	Х	x	×
8.00	008.	125		0.00780	18.33	Х	x	×
10.00	010.	125	35A @125 VAC 50A @125 VDC 300A @32 VDC PSE: 100A @100VAC	0.00700	28.00	x	х	×
12.00	012.	85	50A @65 VAC/	0.00533	47.59	X	х	
15.00	015.	85	VDC 300A @24 VDC 200A @85 VDC	0.00394	78.4	×	х	

⁻ l²t calculated at 8ms.
- Resistance is measured at 10% of rated current, 25°C

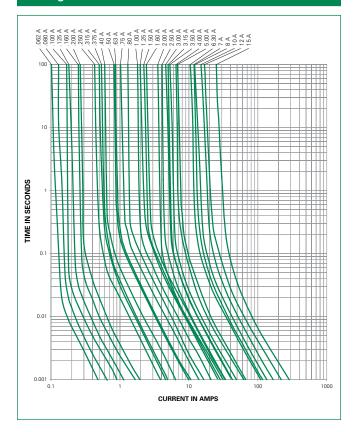
Temperature Re-rating Curve



Note:

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

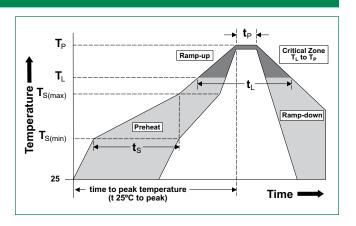
Average Time Current Curves



Soldering Parameters

Reflow Cond	Pb – Free assembly		
	-Temperature Min (T _{s(min)})	150°C	
Pre Heat	-Temperature Max (T _{s(max)})	200°C	
	-Time (Min to Max) (t _s)	60 – 180 secs	
Average ram	5°C/second max.		
T _{S(max)} to T _L -	5°C/second max.		
Reflow	- Temperature (T _L) (Liquidus)	217°C	
Retiow	- 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	8 minutes max.		
Do not exceed		260°C	



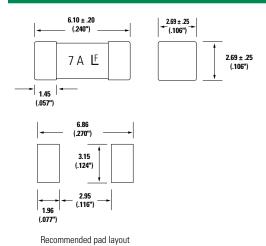


Product Characteristics

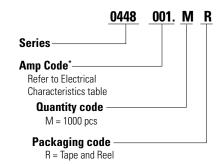
Materials	Body: Ceramic Terminations: Gold-plated Caps	
Product Marking	Brand, Amperage Rating	
Operating Temperature	-55°C to 125°C	
Moisture Sensitivity Level	Level 1, J-STD-020	
Solderability	MIL-STD-202, Method 208	
Insulation Resistance (after Opening)	MIL-STD-202, Method 302, Test Condition A (10,000 ohms minimum)	

Thermal Shock	MILSTD-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 I: Deenergized. 100G's pk 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. 2hrs each XYZ=6hrs	
Moisture Resistance	MIL-STD-202, Method 106, 10 cycles	
Salt Spray	MIL-STD-202, Method 101, Test Condition B (48hrs)	
Resistance to Soldering Heat	MIL-STD-202, Method 210, Test condition B (10 sec at 260°C)	

Dimensions



Part Numbering System



*Example:

1.5 amp product is 0448<u>01.5</u>MR (1 amp product shown above).

Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
12mm Tape and Reel	EIA RS-481-1 (IEC 600286-3)	1000	MR

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