

449 Series

NANO2® > Slo-Blo®



Additional Information



Resources



Accessories



Samples

Agency Approvals

Agency	Agency File Number	Ampere Range
	E10480	0.375A - 5A
	NBK030205-E10480B	1A - 5A
	N/A	0.375A - 5A
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Electrical Characteristics for Series

% of Ampere Rating	Opening Time
100%	4 hours, Minimum
200%	1 sec., Min.; 60 sec., Max.
300%	0.2 sec., Min.; 3 sec., Max
800%	0.002 sec., Min.; 0.1 sec., Max.

Electrical Specifications by Item

Ampere Rating (A)	Amp Code	Max Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I²t (A²sec)	Agency Approvals			
						UK CA	CE	c UL US	
0.375	.375	125	50A @125 VAC/VDC PSE: 100A @100 VAC	1.5130	0.088	x	x	x	-
0.500	.500	125		0.7633	0.258	x	x	x	-
0.750	.750	125		0.4080	0.847	x	x	x	-
1.00	.001	125		0.2516	1.76	x	x	x	x
1.50	.015	125		0.1186	4.70	x	x	x	x
2.00	.002	125		0.0708	6.76	x	x	x	x
2.50	.025	125		0.0400	13.18	x	x	x	x
3.00	.003	125		0.0352	19.55	x	x	x	x
3.50	.035	125		0.0261	32.70	x	x	x	x
4.00	.004	125		0.0227	40.80	x	x	x	x
5.00	.005	125		0.0171	59.59	x	x	x	x

Notes - I²t calculated at 8ms. Resistance is measured at 10% of rated current, 25°C

Description

The lead free NANO2® Slo-Blo® fuse 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. The Slo-Blo® fuse design has enhanced inrush withstand characteristics over the NANO2® Fast-Acting Fuse. The unique time delay feature of this fuse design helps solve the problem of nuisance “opening” by accommodating inrush currents that normally cause a fast-acting fuse to open.

Features & Benefits

- Lead-free, Halogen free and RoHS compliant
- Small size
- Wide range of current ratings available
- 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

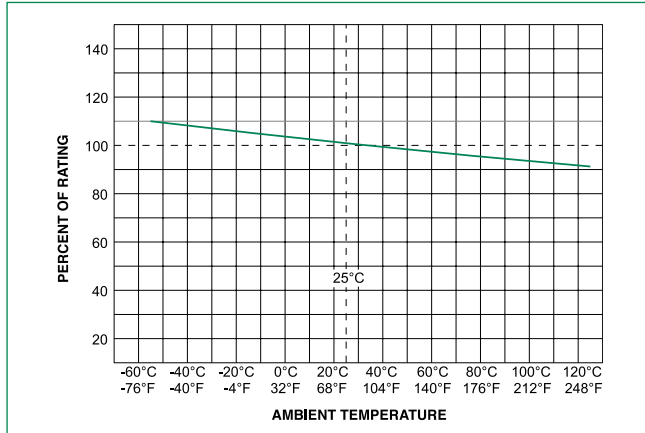
Secondary protection for space constrained applications:

- 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

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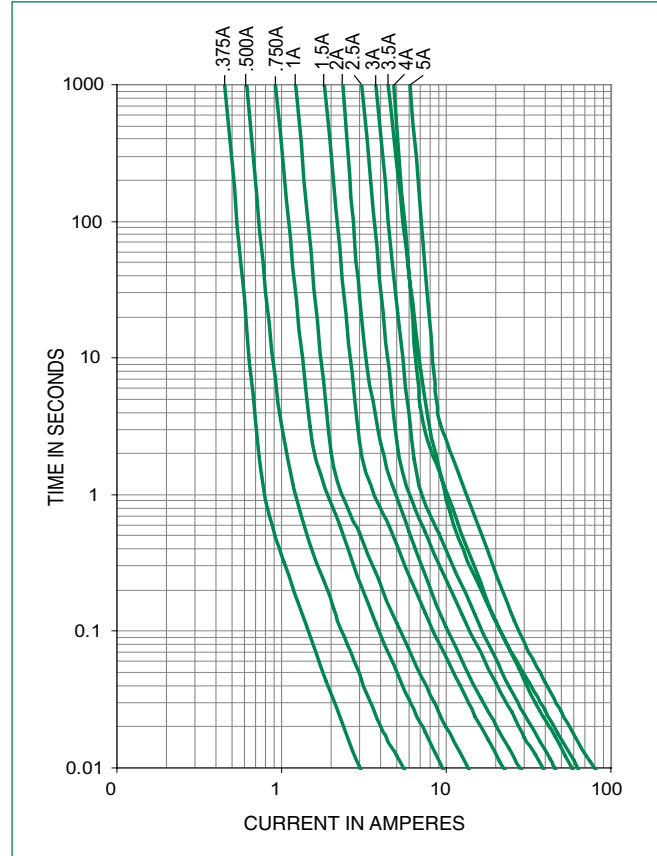
Temperature Re-rating Curve



Note:

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

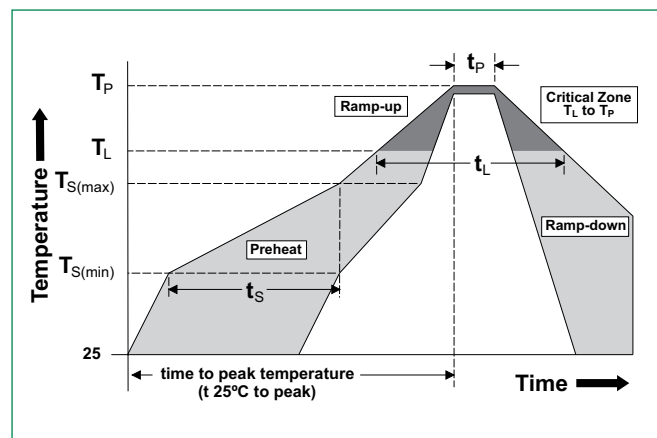
Average Time Current Curves



Soldering Parameters

Reflow 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)		3°C/second max.
$T_{s(max)}$ to T_L - Ramp-up Rate		3°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

Wave Soldering Parameters 260°C Peak Temperature, 3 seconds max.



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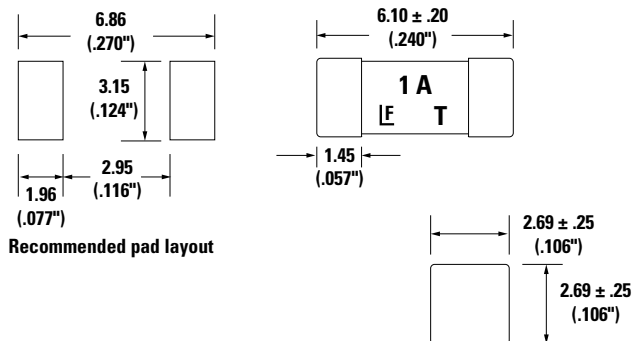
Product Characteristics

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

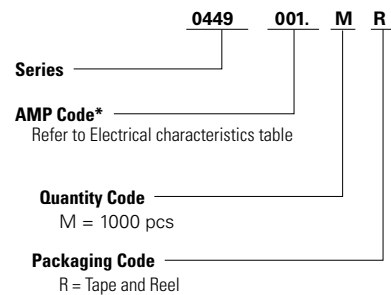
Thermal Shock	MIL-STD-202, Method 107, Test Condition B, 5 cycles, -65°C to 125°C, 15 minutes @ each extreme
Mechanical Shock	MIL-STD-202, Method 213, Test I: Deenergized. 100G's pk amplitude, sawtooth wave 6ms duration, 3 cycles XYZ+xyz = 18 shocks
Vibration	MIL-STD-202, Method 201: 0.03" amplitude, 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

mm (inches)



Part Numbering System



***Example:**
0.375 Amp product is 0449.375MR (1 amp product shown above).

Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
12mm Tape and Reel	EIA RS-481-2 IEC 60286-3	1000	MR

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