

RoHS 452/454 Series Fuse



Agency Approvals

AGENCY	AGENCY FILE NUMBER	AMPERE RANGE
	E10480	375MA - 5A
	LR29862	375MA - 5A.
	NBK030205-E10480B	1A - 5A

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%	0.02 sec., Min.; 0.1 sec., Max.

Description

The NANO² Slo-Blo® fuse 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

- Time-Lag (Slo-Blo)
- Small size
- Wide range of current rating available (375mA to 5A)
- Wide operating temperature range
- Low temperature de-rating
- RoHS compliant
- Halogen Free

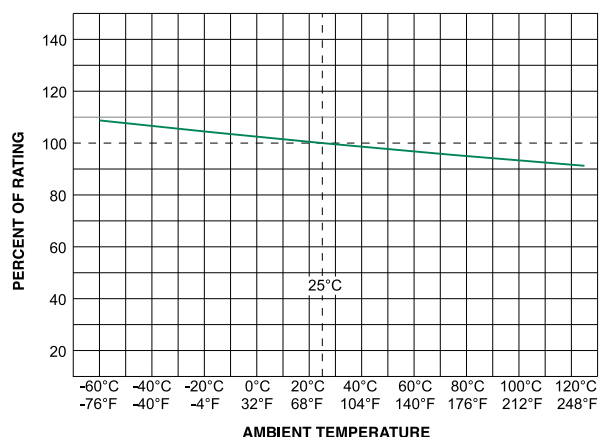
Applications

- Notebook PC
- LCD/PDP TV
- 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
- Medical equipment
- Automotive

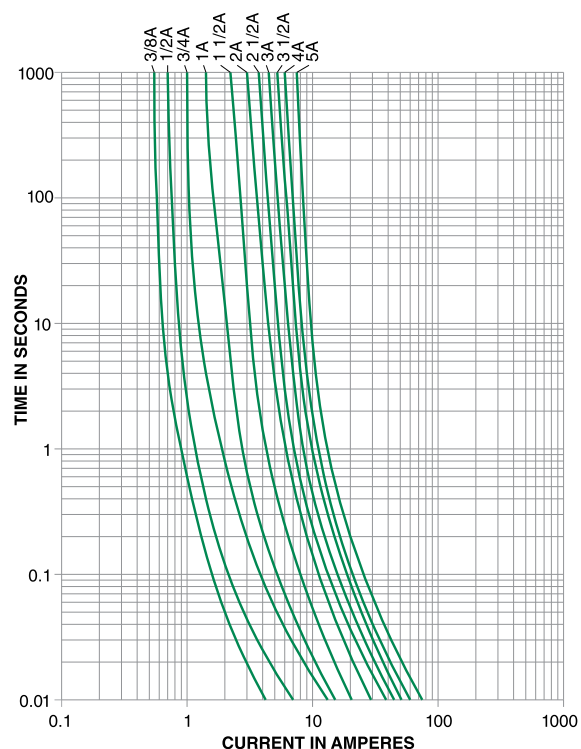
Electrical Specifications by Item

Ampere Rating (A)	Amp Code	Max Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I ² t (A ² sec)	Agency Approvals		
								
0.375	.375	125	50 amperes @125 VAC/VDC	1.2000	0.101	x	x	
0.500	.500	125		0.7000	0.240	x	x	
0.750	.750	125		0.3600	0.904	x	x	
001.	001.	125		0.2250	1.98	x	x	x
1.50	01.5	125		0.0930	3.65	x	x	x
2.00	002.	125		0.0625	8.20	x	x	x
2.50	02.5	125		0.0450	15.0	x	x	x
3.00	003.	125		0.0340	20.16	x	x	x
3.50	03.5	125		0.0224	26.53	x	x	x
4.00	004.	125		0.0186	34.40	x	x	x
5.00	005.	125		0.0136	53.72	x	x	x

Temperature Derating Curve

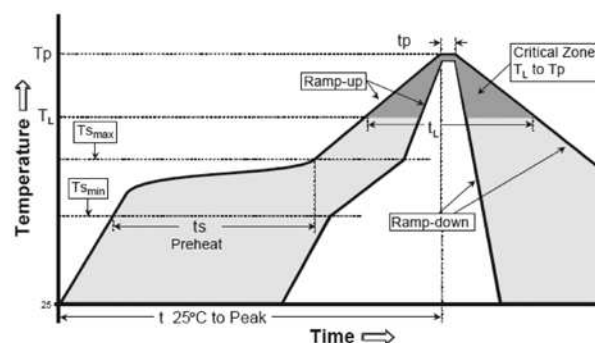


Average Time Current Curves



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 – 120 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 – 90 seconds
Peak Temperature (T_p)		250 ^{+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

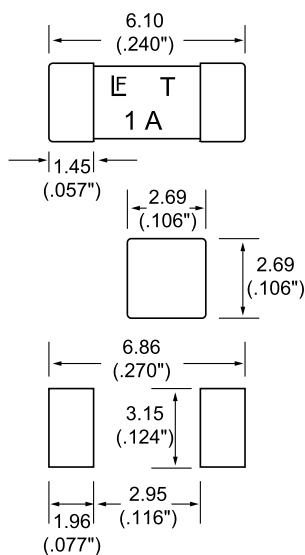


Product Characteristics

Materials	Body: Ceramic Terminations: Gold-plated Caps (452) / Silver-plated Caps (454)
Product Marking	Brand, Ampere Rating
Operating Temperature	-55°C to 125°C
Moisture Sensitivity Level	Level 1, J-STD-020C
Solderability	MIL-STD-202, Method 208
Insulation Resistance (after Opening)	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 / +125°C, 15 minutes @ each extreme
Mechanical Shock	MIL-STD-202, Method 213, Test I: Deenergized. 100gn 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



Recommended pad layout

Part Numbering System

SERIES	0452	001.	M	R	L
AMP Code	Refer to Amp Code column in the Electrical Specifications table. The dot is positioned at the end of the number sequence with whole ratings and within for fractional ratings. Example: 0.375 Amp product is 0452. 375 MRL (1 amp product shown)				
QUANTITY Code	M = 1000 pcs N = 5000 pcs				
PACKAGING Code	R = Tape and Reel				
RoHS Compliant					

Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
12mm Tape and Reel	EIA RS-481-1 (IEC 286, part 3)	5000	NR
12mm Tape and Reel	EIA RS-481-1 (IEC 286, part 3)	1000	MR