

# Surface Mount Fuses

NANO<sup>2</sup>® > Very Fast Acting Fuse > 456SD Series

## 456SD Series Fuse



### Description

The High Current NANO<sup>2</sup>® Fuse is a small square surface mount fuse that is designed to support higher current requirements of various applications.

### Features

- Surface mount high current fuse
- Fully compatible with lead-free solder alloys and higher temperature profiles associated with lead-free assembly
- RoHS compliant and Halogen Free
- Available in ratings of 20 to 50 Amperes

### Applications

- Voltage regulator module for PC server
- Cooling fan system for PC server
- Storage system power
- Basestation power supply
- Power tools

### Agency Approvals

AGENCY	AGENCY FILE NUMBER	AMPERE RATING
	E10480	40A - 50A
	PENDING	PENDING

### Electrical Characteristics

% of Ampere Rating	Opening Time
100%	4 hours, Minimum
200%	60 seconds, Maximum

### Additional Information



Datasheet



Resources



Samples

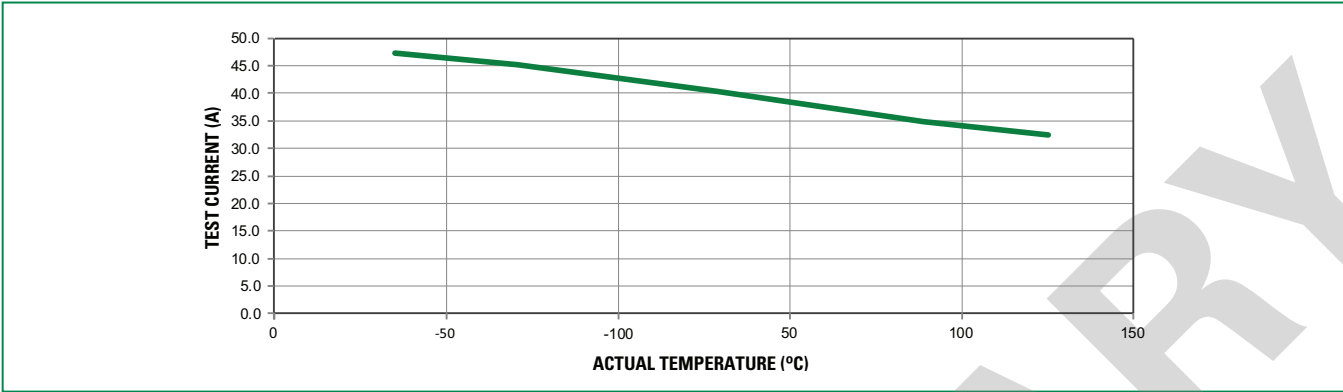
### Electrical Specifications

Ampere Rating (A)	Amp Code	Max Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I <sup>2</sup> t (A <sup>2</sup> Sec.)	Nom Voltage Drop (mV)	Agency Approvals	
40	040.	125	100A @ 125VAC 600A @ 75VDC	0.00130	1700	110	x	P
50	050.	125	100A @ 125VAC 600A @ 75VDC	0.00105	2700	115	x	P

**Notes:**

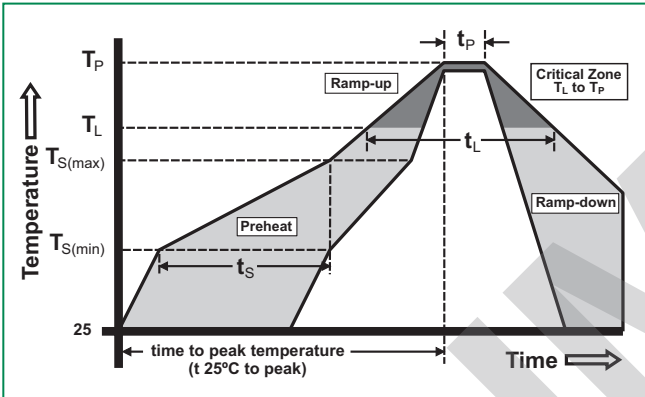
1. Cold resistance measured at less than 10% of rated current at 23°C.
2. Agency Approval Table Key: X = Approved or Certified, P = Pending.
3. I<sup>2</sup>t values stated for 1 msec opening time.

**Temperature Re-rating Curve**



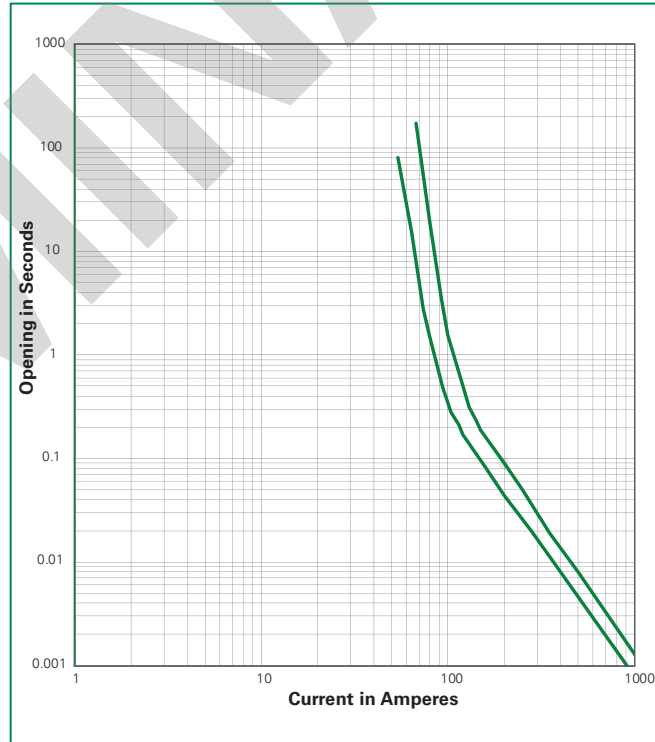
Note:  
1. Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

**Soldering Parameters – Reflow Soldering**



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)		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 <sup>+0/-5</sup> °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

**Average Time Current Curves**

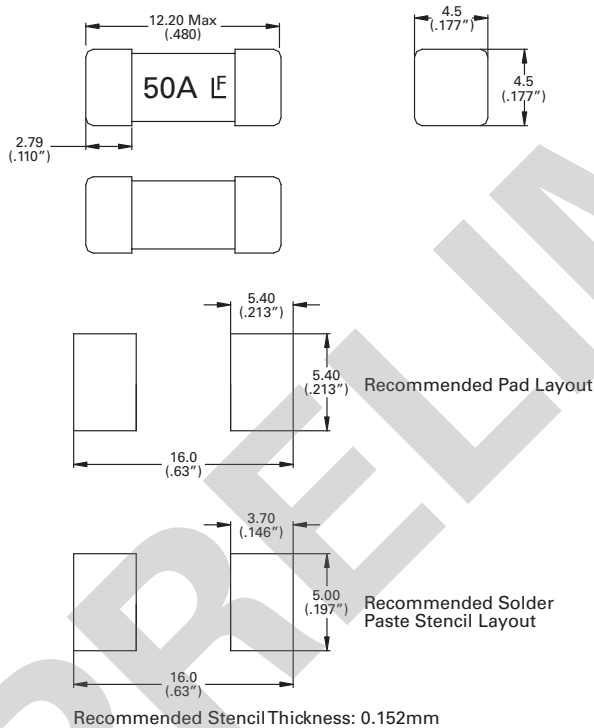


### Product Characteristics

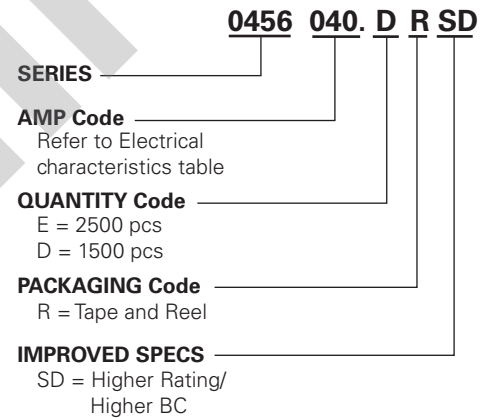
<b>Materials</b>	Body: Ceramic Cap: Silver Plated Brass
<b>Product Marking</b>	Body: Current Rating, Brand Logo
<b>Insulation Resistance</b>	MIL-STD-202, method 302, Test Condition A (10,000ohms, Minimum)
<b>Solderability</b>	MIL-STD-202, Method 208
<b>Resistance to Soldering Heat</b>	MIL-STD-202, Method 210, Test Condition B (10 sec at 260°C)
<b>PCB Recommendation for Thermal Management</b>	Minimum copper trace width = 15mm (40A) / 25mm (50A) Recommended copper trace weight = 3oz (40A) / 6oz (50A)  Alternate methods of thermal management may be used. In such cases, under normal operations, the maximum temperature of the fuse body should not exceed 90°C in a 25°C environment.

<b>Operating Temperature</b>	-55°C to 125°C with proper derating
<b>Thermal Shock</b>	MIL-STD-202, Method 107, Test Condition B (5 cycles -65°C to 125°C)
<b>Vibration</b>	MIL-STD-202, Method 201 (10 – 55Hz)
<b>Moisture Sensitivity Level</b>	J-STD-020, Level 1
<b>Moisture Resistance</b>	MIL-STD-202 Method 106, High Humidity (90-98%RH), Heat (65°C)
<b>Salt Spray</b>	MIL-STD-202, Method 101, Test Condition B
<b>Mechanical Shock</b>	MIL-STD-202, Method 213, Test Condition I (100 G's peak for 6 milliseconds)

### Dimensions



### Part Numbering System



### Packaging

Rating	Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
40A 50A	24mm Tape and Reel	EIA RS-481-2 (IEC 286, Part 3)	1500	DR

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