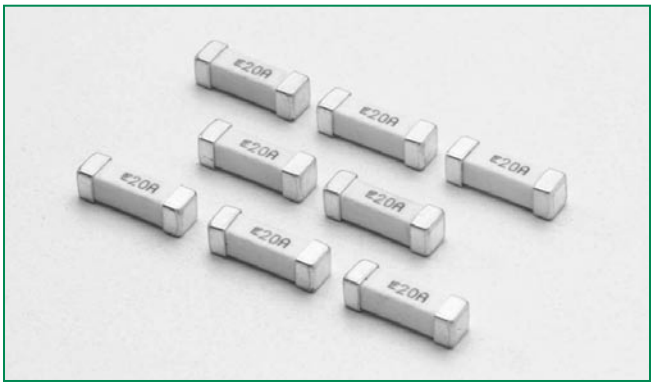
RoHS HF 456 Series Fuse



Description

The High Current NANO2® 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 40 Amperes

Applications

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

Agency Approvals

AGENCY	AGENCY FILE NUMBER	AMPERE RATING
c UL us	E10480	20A, 25A, 30A, 40A
PS E	NBK030308-JP1021	20A, 25A, 30A

Electrical Characteristics

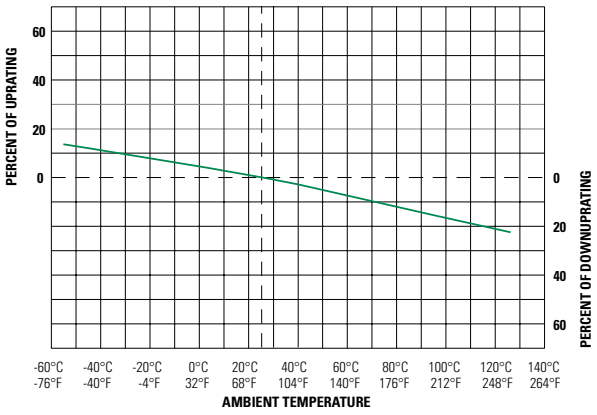
% of Ampere Rating	Opening Time
100%	4 hours, Minimum
200%	60 seconds, Maximum

Electrical Specifications

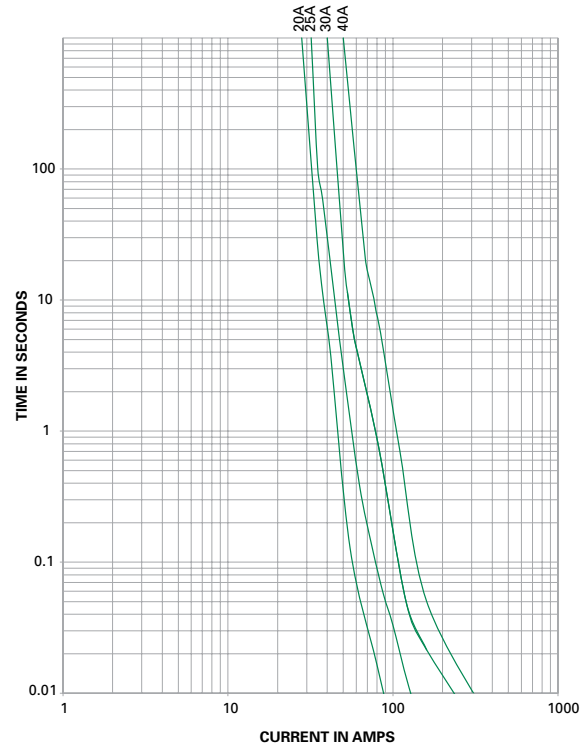
Ampere Rating (A)	Amp Code	Max Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I^2t (A^2 Sec.)	Nom Voltage Drop (mV)	Agency Approvals	
							c UL us	PS E
20	020.	125	100A @125V AC 300A @ 65V AC 300A @ 100V DC 1000A @ 32V DC 500A @ 72VDC	0.00230	18	64.7	x	x
25	025.	125	100A @ 125V AC 300A @ 65V AC 500A @ 72VDC 1000A @ 32V DC	0.00192	45	68.38	x	x
30	030.	125	100A @ 125V AC 300A @ 65V AC 1000A @ 32V DC 500A @ 72VDC	0.00132	81	69.9	x	x
40	040.	60	600A @ 60V DC	0.00105	454	55	x	

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^2t values stated for 10 msec opening time.

Temperature Rerating Curve

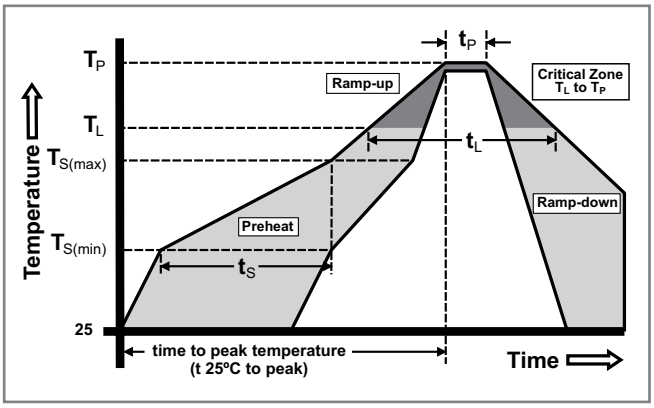


Average Time Current Curves



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)		$250^{+0/-5}$ °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



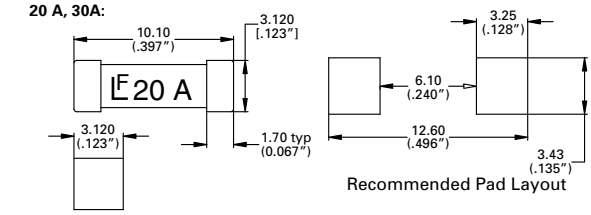
Product Characteristics

Materials	Body: Ceramic Cap: Silver Plated Brass
Product Marking	Body: Brand Logo, Current Rating
Insulation Resistance	MIL-STD-202, method 302, Test Condition A (10,000 ohms, Minimum)
Solderability	MIL-STD-202, Method 208
Resistance to Soldering Heat	MIL-STD-202, Method 210, Test Condition B (10 sec at 260°C)
PCB Recommendation for Thermal Management	Min. copper layer thickness = 100µm Min. copper trace width =20A, 30 10mm (20A, 30A) / 15mm (40A) Alternate methods of thermal management may be used. In such cases, under normal operations, the maximum temperature of the fuse body should not exceed 80°C in a 25°C environment.

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

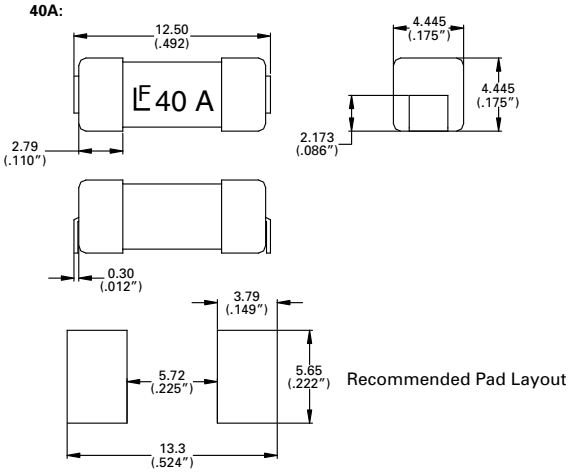
Dimensions

20 A, 30A:



Recommended Pad Layout

40A:



Recommended Pad Layout

Part Numbering System

0456 020. E R

SERIES

AMP Code
Refer to Electrical characteristics table

QUANTITY Code
E = 2500 pcs
D = 1500 pcs

PACKAGING Code
R = Tape and Reel

Packaging

Rating	Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code
20A, 25A, 30A	24 mm Tape and Reel	EIA RS-481-2	2500	ER
40A	24 mm Tape and Reel	EIA RS-481-2 (IEC 286, part 3)	1500	DR