477 Series, 5×20 mm, Time-Lag Fuse



Agency Approvals

Agency	Agency File Number	Ampere Range
PSE	Cartridge: NBK040609-JP1021A NBK040609-JP1021C NBK100408-JP1021A Leaded: NBK040609-JP1021B NBK040609-JP1021D NBK100408-JP1021B	 1A – 5A 6.3A – 12A 16A 1A – 5A 6.3A – 12A 16A
S	1219190	0.500A – 8A
c UL us	E10480	0.5A – 5A(600VAC) 0.5A – 16A(400VDC) 6.3A – 16A(500VAC)
VDE	40025413	1A, 3.15A (500VAC) 1A, 3.15A (400VDC)
△	J50248089	10A/12A/16A
CE	N/A	0.500A – 16A

Additional Information

Datasheet | Resources | Samples

Description

400Vdc/500Vac rated, 5x20mm, time-lag, surge withstand ceramic body cartridge fuse.

Features

- Designed to International (IEC) Standard for use globally.
- Follow the IEC 60127-2, Sheet 5 specification for time-lag fuses
- Available in cartridge and axial lead form
- RoHS compliant and lead-free

Applications

High energy and power efficient applications.

Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time
150%	.5 - .8	60 minutes, Minimum
	1 - 3.15	60 minutes, Minimum
	4 - 6.3	60 minutes, Minimum
	8 - 16	30 minutes, Minimum
210%	.5 - .8	30 minutes, Maximum
	1 - 3.15	30 minutes, Maximum
	4 - 6.3	30 minutes, Maximum
	8 - 16	30 minutes, Maximum
275%	.5 - .8	.25 sec., Min.; 80 sec. Max.
	1 - 3.15	.75 sec., Min.; 80 sec. Max.
	4 - 6.3	.75 sec., Min.; 80 sec. Max.
	8 - 16	.75 sec., Min.; 80 sec. Max.
400%	.5 - .8	.05 sec., Min.; 5 sec. Max.
	1 - 3.15	.095 sec., Min.; 5 sec. Max.
	4 - 6.3	.15 sec., Min.; 5 sec. Max.
	8 - 16	.15 sec., Min.; 5 sec. Max.
1000%	.5 - .8	.005 sec., Min.; .15 sec. Max.
	1 - 3.15	.01 sec., Min.; .15 sec. Max.
	4 - 6.3	.01 sec., Min.; .15 sec. Max.
	8 - 16	.01 sec., Min.; .15 sec. Max.

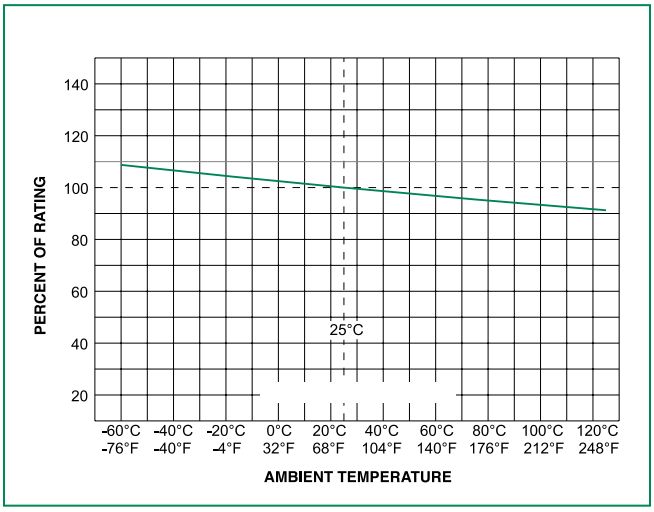
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Application testing is strongly recommended. Specifications are subject to change without notice.
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Electrical Characteristic

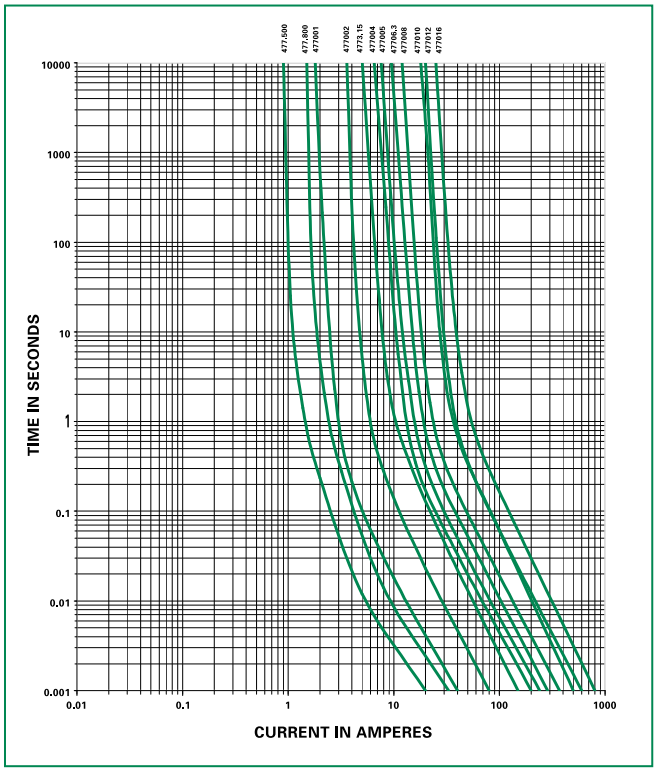
Amp Code	Amp Rating	Max Voltage Rating (V)		Interrupting Rating	Nominal Cold Resistance (Milli-ohms)	Nominal Melting I^2t (A^2 sec.)	Agency Approvals				
		AC	DC				PS E	c UL us			VDE
.500	0.5	500	400	100A@500VAC 1500A@400VDC	1055.900	0.300		x*	x**		
.800	0.8	500	400		430.000	0.909		x*	x**		
001.	1	500	400		139.400	1.800	x	x*	x**		x
002.	2	500	400		55.200	9.120	x	x*	x**		
3.15	3.15	500	400		27.700	50.109	x	x*	x**		x
004.	4	500	400	100A@500VAC 500A@400VDC	17.200	52.480	x	x*	x**		
005.	5	500	400		13.700	76.500	x	x*	x**		
06.3	6.3	500	400		10.970	121.451	x	x	x**		
008.	8	500	400		8.305	203.520	x	x	x**		
010.	10	500	400		4.950	509.000	x	x		x	
012.	12	500	400		4.730	576.000	x	x		x	
016.	16	500	400	100A@500VAC 400A@400VDC	3.100	1331.200	x	x		x***	

*100A @ 600Vac also available. Add suffix "MXE6P". Example: 0477004.MXE6P.
**Semko approval for 100A@500Vac and 200A@400Vdc.
I^2t test at 10x rated current.
***100A@ 500Vac and 300A@400Vdc for 16A

Temperature Re-rating Curve



Average Time Current Curves



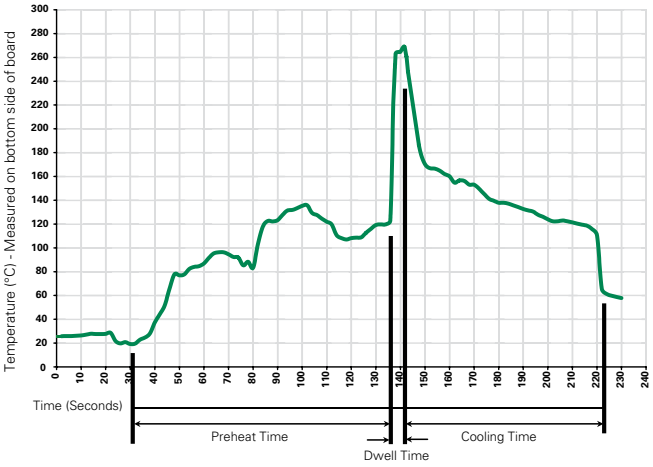
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Axial Lead & Cartridge Fuses

5×20 mm > Time-Lag > 477 Series

Soldering Parameters - Wave Soldering



Recommended Process Parameters:

Wave Parameter	Lead-Free Recommendation
Preheat: (Depends on Flux Activation Temperature)	(Typical Industry Recommendation)
Temperature Minimum:	100°C
Temperature Maximum:	150°C
Preheat Time:	60-180 seconds
Solder Pot Temperature:	260°C Maximum
Solder Dwell Time:	2-5 seconds

Recommended Hand-Solder Parameters:

Solder Iron Temperature: 350°C +/- 5°C
Heating Time: 5 seconds max.

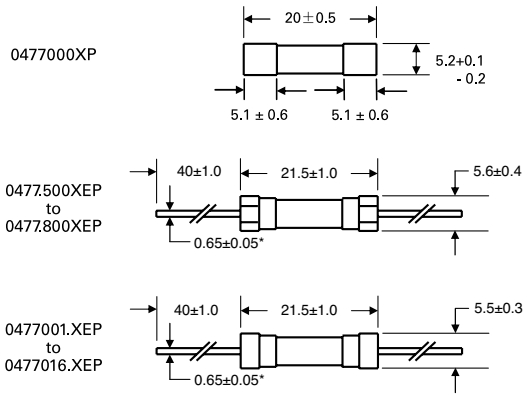
Note: These devices are not recommended for IR or Convection Reflow process.

Product Characteristics

Materials	**Body:** Ceramic **Cap:** Nickel–plated Brass **Leads:** Tin–plated Copper
Terminal Strength	MIL-STD-202, Method 211, Test Condition A
Solderability	MIL-STD-202 Method 208
Product Marking	**Cap 1:** Brand logo, current and voltage ratings **Cap 2:** Series and agency approval markings
Packaging	Available in Bulk (M=1000 pcs/pkg)

Operating Temperature	–55°C to +125°C
Thermal Shock	MIL-STD-202, Method 107, Test Condition B (5 cycles, –65°C to +125°C)
Vibration	MIL-STD-202, Method 201
Humidity	MIL-STD-202, Method 103, Test Condition A (High RH (95%) and elevated temp (40°C) for 240 hours)
Salt Spray	MIL-STD-202, Method 101, Test Condition B

Dimensions



All dimensions in mm

Notes:
* Ratings above 5A 1.0±0.05 diameter lead.

Part Numbering System

0477 xxxx M X E P

Series

Amp Code
Refer to Amp Code column of Electrical Characteristics Table

Quantity Code
M = 1000

Packaging Code
X = Filler

Option Codes
E : Axial Lead
Others : special options.
Please call
Littelfuse for detail.

Lead-Free

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Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	Reel Size
477 Series				
Bulk	N/A	1000	MX	N/A
Bulk	N/A	1000	MXE	N/A
Reel and Tape	N/A	1000	MRET1	T1=53mm (2.087")

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