

# 977 Series

## 5 x 20mm, Time-Lag (Slo-Blo®) Fuse



### Description

The 977 Series is a 450Vdc/500Vac rated, 5x20mm, Time-Lag, surge withstand, ceramic body, cartridge fuse.

### Features & Benefits

- Designed to International (IEC) Standards for use globally
- Follows the IEC 60127-2, Sheet 5 specification for Time-Lag Fuses
- Available in Cartridge and Axial lead Form
- ROHS-compliant and lead-free (Pb-free)

### Applications

- Inverter in LCD backlight unit
- DC side of air-conditioners
- 3-phase power supplies
- Higher Energy and Power Efficient applications.

### Additional Information



Resources



Accessories



Samples

### Agency Approvals

Agency	Agency File Number	Ampere Range
	Cartridge: NBK040609-JP1021A	2A – 5A
	NBK040609-JP1021C	6.3A – 12A
	NBK100408-JP1021A	16A
	Leaded: NBK040609-JP1021B	2A – 5A
	NBK040609-JP1021D	6.3A – 12A
	NBK100408-JP1021B	16A
	1410854	0.5A – 8A
	N/A	0.5A – 16A
	N/A	0.5A – 16A
	E10480	0.5A – 16A

### Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time
150%	0.5A – 8A	60 minutes, Minimum
	2A – 3.15A	60 minutes, Minimum
	4A – 6.3A	60 minutes, Minimum
	8A – 16A	30 minutes, Minimum
210%	0.5A – 8A	30 minutes, Maximum
	2A – 3.15A	30 minutes, Maximum
	4A – 6.3A	30 minutes, Maximum
275%	0.5A – 8A	250 ms. Min.; 80 secs. Max.
	2A – 3.15A	750 ms. Min.; 80 secs. Max.
	4A – 6.3A	750 ms. Min.; 80 secs. Max.
	8A – 16A	750 ms. Min.; 80 secs. Max.
400%	0.5A – 8A	50 ms, Min.; 5 secs. Max.
	2A – 3.15A	95 ms, Min.; 5 secs. Max.
	4A – 6.3A	150 ms, Min.; 5 secs. Max.
	8A – 16A	150 ms, Min.; 5 secs. Max.
1000%	0.5A – 8A	5 ms, Min.; .150 ms, Max.
	2A – 3.15A	10 ms, Min.; .150 ms, Max.
	4A – 6.3A	10 ms, Min.; .150 ms, Max.
	8A – 16A	10 ms, Min.; .150 ms, Max.

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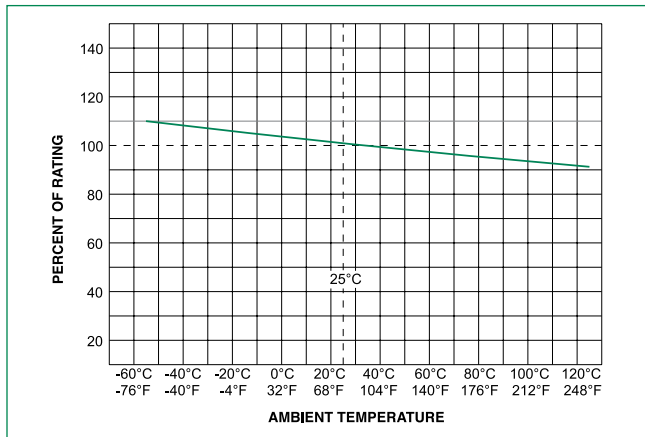
## 5 x 20mm, Time-Lag (Slo-Blo®) Fuse

### Electrical Characteristic

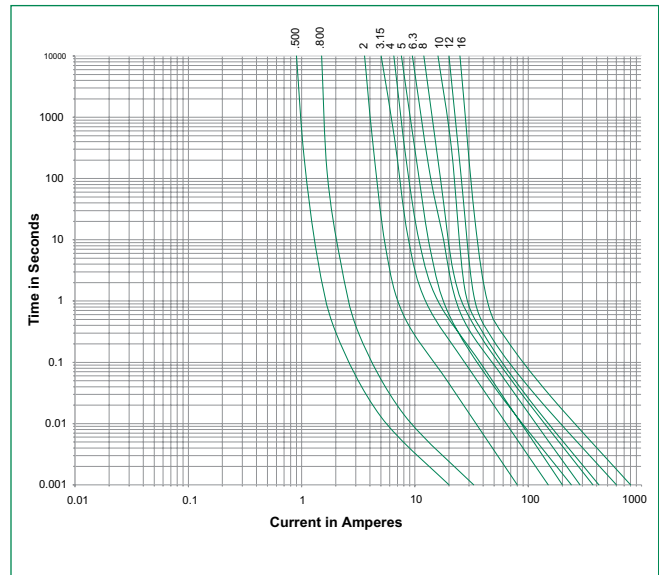
Amp Code	Amp Rating	Voltage Rating		Interrupting Rating	Nominal Cold Resistance (milli-ohms)	Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec.)	Agency Approvals				
		AC	DC				cULus	CE	UKCA	PP	Ⓢ
.500	0.5	500	450	100A @ 500Vac 200A @ 450Vdc	945.0	0.3	x	x	x	-	x
.800	0.8	500	450		417.0	0.8	x	x	x	-	x
002.	2	500	450		44.5	17	x	x	x	x	x
3.15	3.15	500	450		27.5	58	x	x	x	x	x
004.	4	500	450		18.4	124	x	x	x	x	x
005.	5	500	450		11.9	91	x	x	x	x	x
06.3	6.3	500	450		9.1	188	x	x	x	x	x
008.	8	500	450		8.0	233	x	x	x	x	x
010.	10	500	450		7.2	249	x	x	x	x	-
012.	12	500	450		5.8	388	x	x	x	x	-
016.	16	500	450		3.9	725	x	x	x	x	-

Note: I<sup>2</sup>t test at 10x rated current.

### Temperature Re-rating Curve

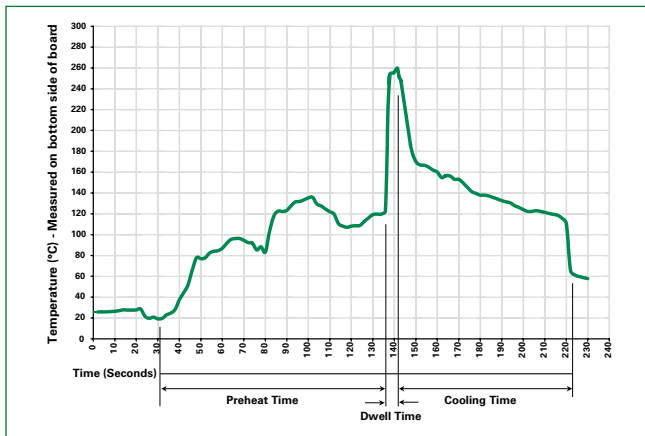


### Average Time Current Curves



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**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**

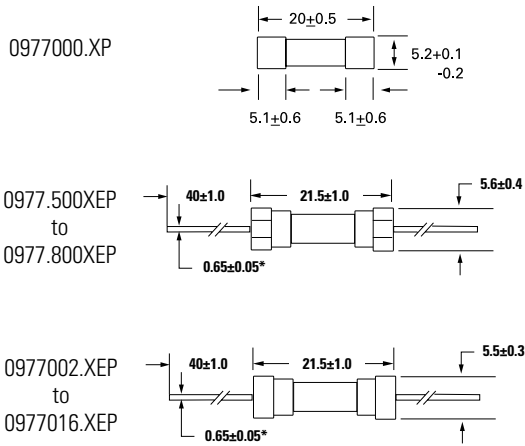
<b>Materials</b>	<b>Body:</b> Ceramic <b>Cap:</b> Nickel-plated Brass <b>Leads:</b> Tin-plated Copper
<b>Terminal Strength</b>	MIL-STD-202, Method 211, Test Condition A
<b>Solderability</b>	MIL-STD-202 Method 208
<b>Product Marking</b>	<b>Cap 1:</b> Brand logo, current and voltage ratings <b>Cap 2:</b> Series and agency approval markings

<b>Operating Temperature</b>	-55°C to +125°C
<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
<b>Humidity</b>	MIL-STD-202, Method 103, Test Condition A (High RH (95%) and elevated temp (40°C) for 240 hours)
<b>Salt Spray</b>	MIL-STD-202, Method 101, Test Condition B

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### Dimensions



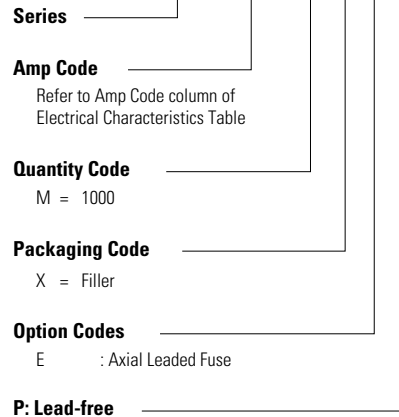
All dimensions in mm

**Notes:**

- \* Ratings above 5A 1.0±0.05 diameter lead.
- \* For 977 16A 1.2±0.05 diameter lead.

### Part Numbering System

**0977 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 Leaded Fuse

**P: Lead-free**

Others : Special options.  
Please call Littelfuse for detail.

### Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	Reel Size
<b>977 Series</b>				
Bulk	N/A	1000	MX	N/A
Bulk	N/A	1000	MXE	N/A

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