

**RoHS** **Pb** **977 Series, 5 x 20mm, Time-Lag (Slo-Blo®) Fuse**


### Description

450Vdc/500Vac rated, 5x20mm, Time-Lag, surge withstand, ceramic body, cartridge fuse.

### Features

- Designed to International (IEC) Standards 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 Pb-free

### Applications

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



### Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time
150%	500mA – 800mA	60 minutes, Minimum
	2A – 3.15A	60 minutes, Minimum
	4A – 6.3A	60 minutes, Minimum
	8A – 16A	30 minutes, Minimum
210%	500mA – 800mA	30 minutes, Maximum
	2A – 3.15A	30 minutes, Maximum
	4A – 6.3A	30 minutes, Maximum
	8A – 16A	30 minutes, Maximum
275%	500mA – 800mA	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%	500mA – 800mA	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%	500mA – 800mA	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.

### Agency Approvals

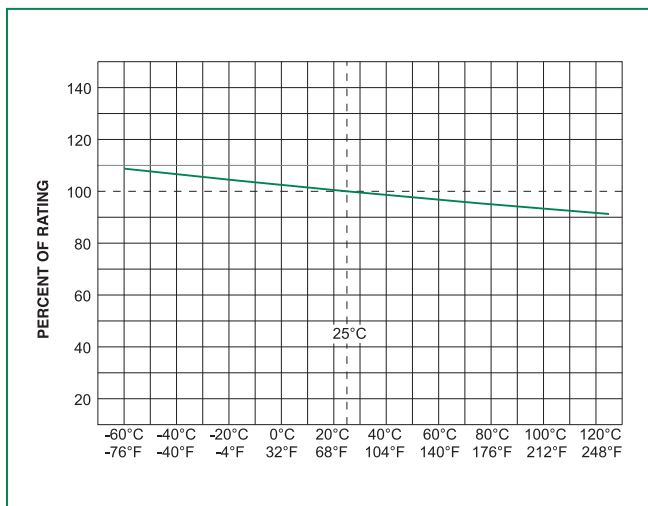
Agency	Agency File Number	Ampere Range
	Cartridge Certificates: NBK040609-JP1021A NBK040609-JP1021C NBK100408-JP1021A	2A – 5A 6.3A – 12A 16A
	Leaded Certificates: NBK040609-JP1021B NBK040609-JP1021D NBK100408-JP1021B	2A – 5A 6.3A – 12A 16A
	Cartridge Certificates: 1010769	500mA – 8A
	Leaded Certificates: 1010769	500mA – 8A
		500mA – 16A

### Electrical Characteristic

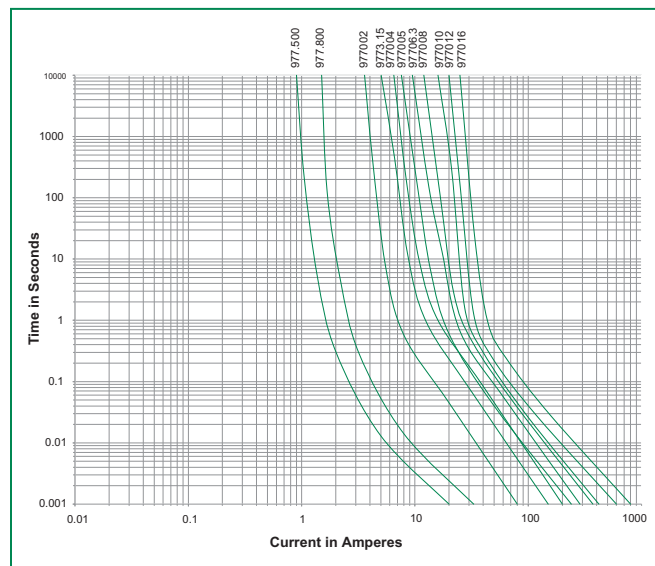
Amp Code	Amp Rating	Voltage Rating		Interrupting Rating	Nominal Cold Resistance (milli-ohms)	Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec.)	Agency Approvals	
		AC	DC					
.500	0.5	500	450	100A @ 500Vac 200A @ 450Vdc	945.0	0.3		x
.800	0.8	500	450		417.0	0.8		x
002.	2	500	450		44.5	17	x	x
3.15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

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

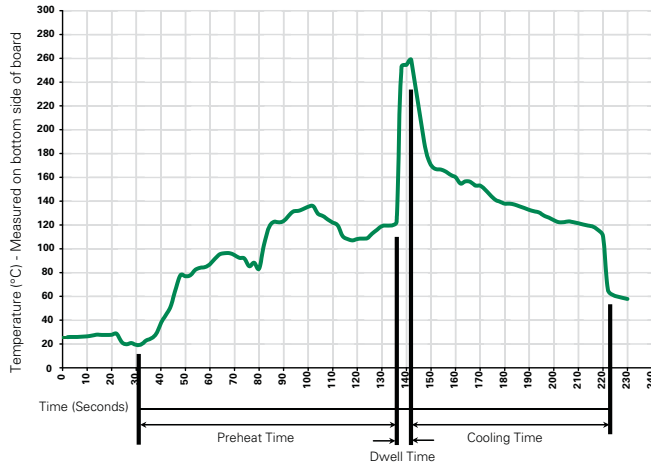
### Temperature Rerating Curve



### Average Time Current Curves



### Soldering Parameters - Wave Soldering



#### Recommended Process Parameters:

Wave Parameter	Lead-Free Recommendation
<b>Preheat:</b> (Depends on Flux Activation Temperature)	(Typical Industry Recommendation)
Temperature Minimum:	100° C
Temperature Maximum:	150° C
Preheat Time:	60-180 seconds
<b>Solder Pot Temperature:</b>	260° C Maximum
<b>Solder Dwell Time:</b>	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.**

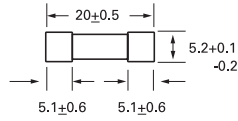
### Product Characteristics

<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-202G, Method 211A, Test Condition A
<b>Solderability</b>	Reference IEC 60127 Second Edition 2003-01 Annex A
<b>Product Marking</b>	<b>Cap 1:</b> Brand logo, current and voltage ratings <b>Cap 2:</b> Series and agency approval markings

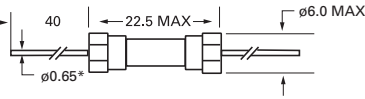
<b>Operating Temperature</b>	-55°C to +125°C
<b>Thermal Shock</b>	MIL-STD-202G, Method 107G, Test Condition B (5 cycles, -65°C to +125°C)
<b>Vibration</b>	MIL-STD-202G, Method 201A
<b>Humidity</b>	MIL-STD-202G, Method 103B, Test Condition A (High RH (95%) and elevated temp (40°C) for 240 hours)
<b>Salt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

### Dimensions

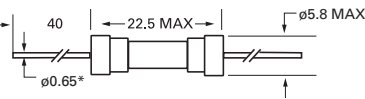
**0977000.XP**



0977.500XEP  
to  
0977.800XEP



0977002.XEP  
to  
0977016.XEP



All dimensions in mm

\* Ratings above 5A  $\phi$ 1 Lead.  
\* For 977 16A  $\phi$ 1.2 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