# Littelfuse Expertise Applied | Answers Delivered

### 234 Series, 5×20 mm, Medium-Acting Fuse





#### **Agency Approvals**

Agency	Agency File Number	Ampere Range
PS	Cartridge: NBK040609-JP1021A NBK040609-JP1021C Leaded: NBK040609-JP1021B NBK040609-JP1021D	1A - 5A 6A - 10A 1A - 5A 6A - 10A
Œ	N/A	1A - 10A
	SU05001-3001 SU05001-4001 SU05001-2016	1A - 3.15A 3.5A 4A - 10A
(jr)	E10480	1A - 10A
<b>(</b>	29862	1A - 10A

#### **Description**

5×20mm medium-acting glass/ceramic body cartridge fuse designed to UL specification.

#### **Features**

- Designed to UL/CSA/ ANCE 248-1 and 248-14 Standards
- Available in cartridge and axial lead format
- Glass body for 1-3.5A, Ceramic body for 4-10A
- RoHS compliant and lead-free

#### **Applications**

Used as supplementary protection in appliance or utilization equipment to provide individual protection for components or internal circuits.

#### **Additional Information**









For recommended fuse accessories for this product series, see 'Recommended Accessories' section.

#### **Electrical Characteristics for Series**

% of Ampere Rating	Ampere Rating	OpeningTime		
100%	1 – 3.5	4 hours, Minimum		
100 %	4 – 10	1 hour, Minimum		
135%	1 – 3.5	3 sec., Min; 1 hr. Max		
135%	4 – 10	3 sec., Min; 1 hr. Max		
200%	1 – 3.5	400ms., Min; 2.25 sec. Max		
200 /6	4 – 10	400ms., Min; 4 sec. Max		

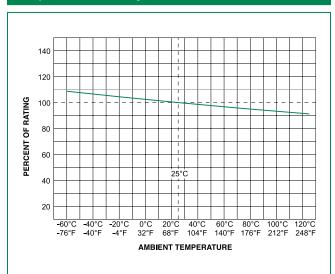
#### **Electrical Characteristic Specification by Item**

	Ampere	Voltage		Nominal Cold .	Nominal Melting	Agency Approvals				
Amp Code	Rating (A)	Rating (V)	Interrupting Rating	errupting Resistance		Œ	(ÎT)	<b>()</b>	<b>S</b>	<b>PS</b> E
001.	1	250		0.1750	1.97500	Х	х	×	Х	X
1.25	1.25	250		0.1262	2.06000	Х	X	X	X	X
01.6	1.6	250		0.0884	6.14000	Х	X	X	Х	X
002.	2	250	100A @ 250 VAC	0.0684	9.97000	Х	X	X	Х	X
02.5	2.5	250	10000A @ 125 VAC	0.0521	17.04500	Х	Х	X	Х	X
003.	3	250		0.0431	26.2400	Х	X	X	Х	X
3.15	3.15	250		0.0380	29.79500	Х	X	X	Х	X
03.5	3.5	250		0.0322	36.27500	Х	X	X	Х	X
004.	4	250		0.0304	10.37000	Х	X	X	Х	X
005.	5	250		0.0214	20.64500	Х	X	X	Х	X
006.	6	250	200A @ 250 VAC	0.0194	33.01500	Х	X	X	Х	X
06.3	6.3	250	10000A @ 125 VAC	0.0168	37.68500	Х	X	X	X	X
008.	8	250		0.0144	80.67500	Х	X	X	Х	Х
010.	10	250		0.0107	51.40000	Х	X	X	X	X

## **Axial Lead & Cartridge Fuses**

5×20 mm > Medium-Acting > 234 Series

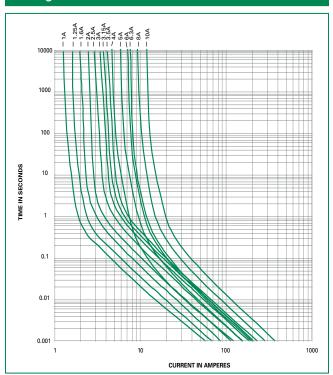
#### **Temperature Re-rating Curve**



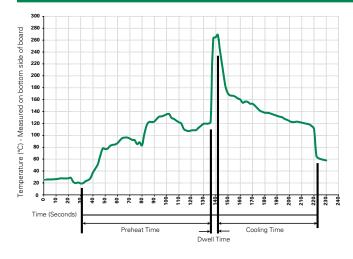
Note:

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

#### **Average Time Current Curves**



#### **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 DwellTime:	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.



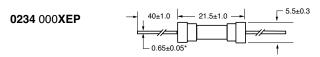
#### **Product Characteristics**

Materials	Body: Glass(1A-3.5A), Ceramic(4A-10A) Cap: Nickel-plated brass Leads: Tin-plated Copper Filter: Sand (4A – 10A)
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 rating Cap 2: Series and agency approval markings
Packaging	Available in Bulk (V=5, H=100, M=1000 pcs/pkg) or on Tape/Reel (MRET1=1000 pcs/reel)

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

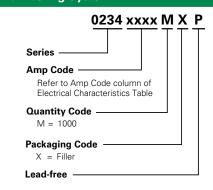
#### **Dimensions**





All dimensions in mm

#### **Part Numbering System**



#### **Packaging**

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	Taping Width
234 Series				
Bulk	N/A	1000	MX	N/A
Bulk	N/A	1000	MXE	N/A
Reel and Tape	EIA 296-E	1000	MRET1	T1=53mm (2.087")

#### **Recommended Accessories**

Accessory Type	Series	Description		Max Application Amperage
	345_ISF	Panel Mount Shock-Safe Fuseholder		10
Holder	older 345 Shock-Safe Fuseholder with PC Mount, Solder Mount and Panel Mount options PC Mount Shock-Safe Miniature Fuseholder			20
				16
	<u>520</u>	Metric OMNI-BLOK® Fuse Block		10
Block	<u>646</u>	PC Mount Miniature Fuse Block	250	6.3
658		Surface Mount Miniature Fuse Block		10
	520 W PC Mount Miniature Fuse Clip			6.3
Clip <u>111</u>		PC Board Mount Fuse Clip		10
	<u>445</u>	PC Board Mount Fuse Clip		10

- Notes:
  1. Do not use in applications above rating.
- 2. Please refer to fuseholder data sheet for specific re-rating information.

  3. Please contact factory for applications greater than the max voltage and amperage shown.

<sup>\*</sup> Ratings above 6.3A have 0.8±0.05 diameter lead.