

235 Series

5x20 mm, Fast-Acting Fuse

**Web Resources**

Download ECAD models, order samples, and find technical resources at www.littelfuse.com

Agency Approvals

Agency	Agency File Number	Ampere Range
	Cartridge: NBK030609-JP1021A NBK190609-JP1021A NBK030609-JP1021B Leaded: NBK030609-JP1021C NBK190609-JP1021B NBK030609-JP1021D	1A - 3.5A 4A - 5A 6A - 7A 1A - 3.5A 4A - 5A 6A - 7A
	SU05001 - 3007 SU05001 - 2002 SU05001 - 2003	0.100A - 0.400A 0.500A - 3A 4A - 6A
	E10480	0.100A - 7A
	29862	0.100A - 7A
	N/A	0.100A - 7A

Description

5x20mm fast-acting glass body cartridge fuse designed to UL specification.

Features & Benefits

- Designed to UL/CSA/ANCE 248 Standard
- RoHS compliant and lead-free
- Available in cartridge and axial lead format

Applications

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

Electrical Characteristics for Series

% of Ampere Rating	Ampere Rating	Opening Time
100%	0.100A – 7A	4 hours, Minimum
135%		1 hour, Maximum
200%		5 seconds, Maximum

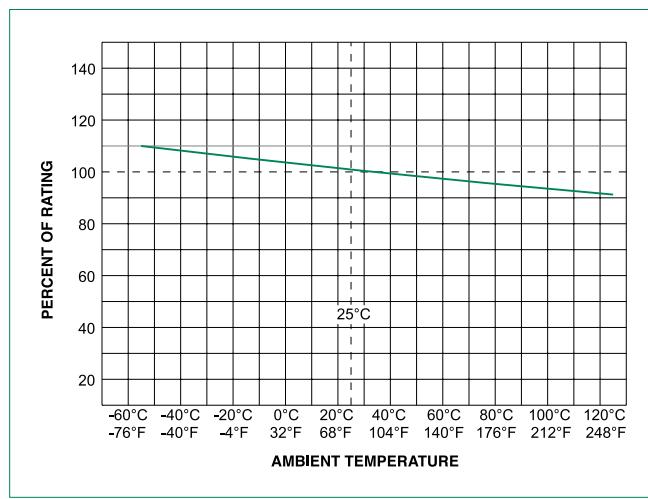
235 Series

5x20 mm, Fast-Acting Fuse

Electrical Characteristic Specifications by Item

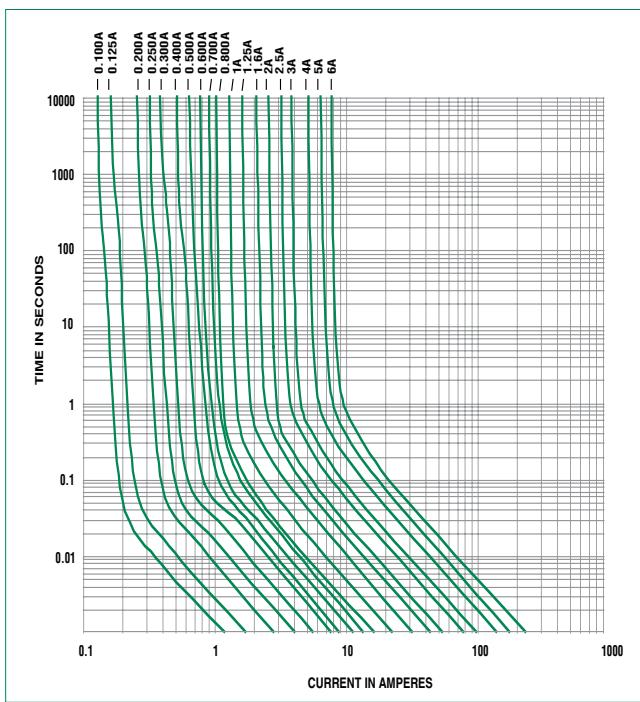
Amp Code	Amp Rating (A)	Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I^2t (A ² sec)	Agency Approvals				
						CE	UL	CSA	IEC	KC
.100	0.1	250	35A @ 250VAC 10kA @ 125VAC	8.4000	0.00127	x	x	x	-	x
.125	0.125	250		5.7500	0.00273	x	x	x	-	x
.200	0.2	250		3.1500	0.00867	x	x	x	-	x
.250	0.25	250		2.2500	0.01660	x	x	x	-	x
.300	0.3	250		1.6000	0.03215	x	x	x	-	x
.400	0.4	250		1.075	0.05845	x	x	x	-	x
.500	0.5	250		0.4265	0.06915	x	x	x	-	x
.600	0.6	250		0.3195	0.11200	x	x	x	-	x
.700	0.7	250		0.2625	0.15600	x	x	x	-	x
.800	0.8	250		0.1920	0.25300	x	x	x	-	x
001.	1	250	100A @ 250VAC 10kA @ 125VAC	0.1530	0.46750	x	x	x	x	x
1.25	1.25	250		0.1055	1.08500	x	x	x	x	x
01.6	1.6	250		0.0758	2.02500	x	x	x	x	x
002.	2	250		0.0603	2.64500	x	x	x	x	x
02.5	2.5	250		0.0437	5.44500	x	x	x	x	x
003.	3	250		0.0347	8.39500	x	x	x	x	x
03.5	3.5	250		0.0331	17.14000	x	x	-	x	-
004.	4	125	10kA @ 125VAC	0.0246	17.14000	x	x	x	x	x
005.	5	125		0.0184	27.41000	x	x	x	x	x
006.	6	125		0.0148	47.32500	x	x	x	x	x
007.	7	125		0.0157	64.81500	x	x	-	x	-

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

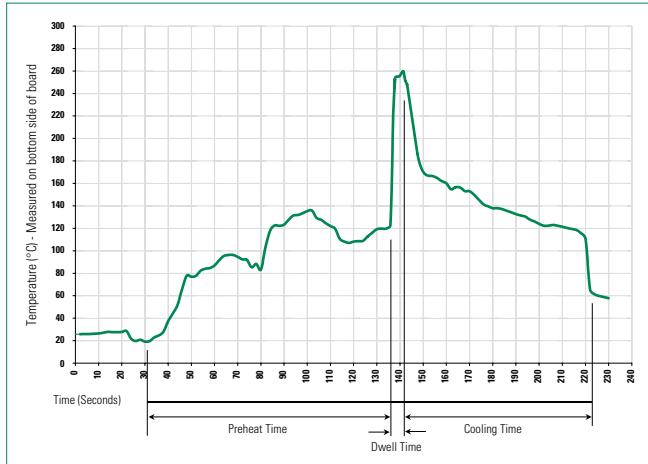


Please contact Littelfuse for details on T-C curve for 7A rating

235 Series

5x20 mm, Fast-Acting Fuse

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

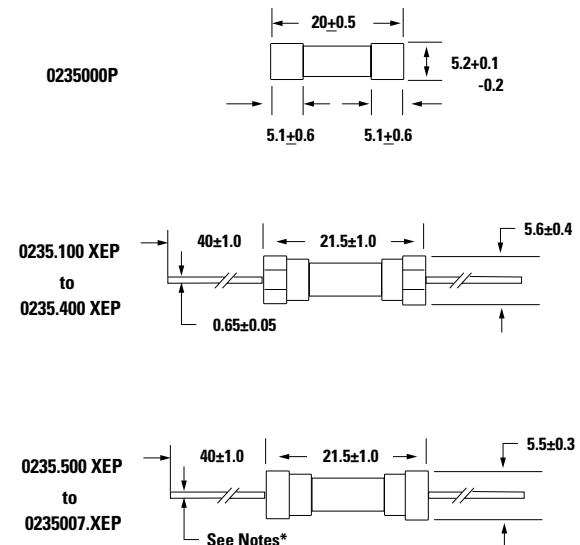
Materials	Body: Glass Cap: Nickel-plated brass Leads: Tin-plated Copper
Terminal Strength	MIL-STD-202, Method 211, Test Condition A
Solderability	MIL-STD-202 Method 208
Product Marking	Cap 1: Brand logo, current and voltage rating Cap 2: Series and agency approval markings
Packaging	Available in Bulk (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 + 125°C)
Vibration	MIL-STD-202, Method 201
Humidity	MIL-STD-202, Method 103, Test Condition A high RH (95%) and elevated temperature (40°C) for 240 hours
Salt Spray	MIL-STD-202, Method 101, Test Condition B

235 Series

5x20 mm, Fast-Acting Fuse

Dimensions

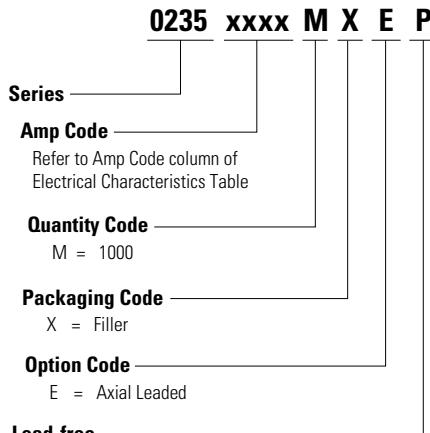


All dimensions in mm

Notes:

- * 0.1A-6A have 0.65±0.05 diameter lead.
- 7A have 0.8±0.05 diameter lead.

Part Numbering System



Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	Taping Width
235 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 Voltage	Max Application Amperage
Holder	345_ISF	Panel Mount Shock-Safe Fuseholder	250	20
	345	Shock-Safe Fuseholder with PC Mount, Solder Mount and Panel Mount options		20
	830	PC Mount Shock-Safe Miniature Fuseholder		16
Block	520	Metric OMNI-BLOK® Fuse Block	250	10
	646	PC Mount Miniature Fuse Block		6.3
	658	Surface Mount Miniature Fuse Block		10
Clip	520_W	PC Mount Miniature Fuse Clip	250	6.3
	111	PC Board Mount Fuse Clip		10
	445	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.

Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at: www.littelfuse.com/disclaimer-electronics.