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Axial Lead & Cartridge Fuses

5×20 mm > Medium-Acting > 233 Series

233 Series, 5×20 mm, Medium-Acting Fuse













Agency Approvals

Agency	Agency File Number	Ampere Range		
PS E	Cartridge: NBK190609-JP1021A NBK030609-JP1021B Leaded: NBK190609-JP1021B NBK030609-JP1021D	1A – 5A 6A – 10A 1A – 5A 6A – 10A		
€	N/A	1A – 10A		
(ÚL)	E10480	1A – 10A		
	SU05001 - 2010	1A – 6.5A		
(29862	1A – 6A 8A – 10A		

Additional Information









Description

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

Features

- Designed to UL/CSA/ ANCE 248-1 and 248-14 Standards
 - Available in cartridge and axial lead format
- RoHS compliant and lead-free

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		
	1A – 3.5A	4 hours, Minimum		
100%	4A – 7A	1 hour, Minimum		
	8A – 10A	1 hour, Minimum		
	1A – 3.5A	15 sec., Min; 1500 sec., Max.		
135%	4A – 7A	15 sec., Min; 1500 sec., Max.		
	8A – 10A	3 sec., Min; 3600 sec., Max.		
	1A – 3.5A	.60 sec., Min; 3 sec., Max.		
200%	4A – 7A	.60 sec., Min; 3 sec., Max.		
	8A – 10A	0.4 sec., Min; 2.25 sec., Max.		

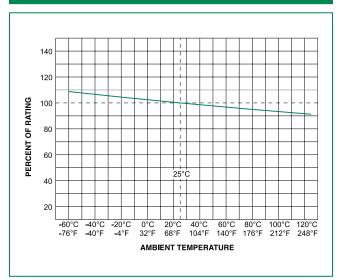
For recommended fuse accessories for this product series, see 'Recommended Accessories' section.

Electrical Characteristic Specifications by Item

	A man Valtage			Name in al Calal	Name in al Malain n	Agency Approvals				
Amp Code	Amp Rating (A)	Voltage Rating (V)	Interrupting Rating	Nominal Cold Resistance (Ohms)		Œ	(UL)	(PSE	
001.	1	125		0.1750	1.97500	Х	Х	Х	Х	Х
1.25	1.25	125		0.1263	3.39000	Х	Х	х	X	Х
01.6	1.6	125		0.0880	6.14000	Х	Х	Х	X	Х
002.	2	125		0.0684	9.97000	Х	X	х	X	Х
02.5	2.5	125		0.0521	17.04500	Х	Х	Х	X	Х
003.	3	125		0.0431	26.24000	Х	X	х	X	Х
3.15	3.15	125		0.0380	29.79500	Х	Х	Х	X	Х
03.5	3.5	125	10 kA @ 125VAC	0.0322	36.27500	Х	X	х	X	Х
004.	4	125		0.0293	51.61000	Х	Х	х	X	Х
005.	5	125		0.0217	89.97500	Х	Х	х	X	Х
006.	6	125		0.0179	131.45500	Х	Х	Х	X	Х
06.3	6.3	125		0.0166	151.90500	Х	Х	х	X	Х
007.	7	125		0.0137	157.31000	Х	Х		X	
008.	8	125		0.0084	169.43500	х	х	х	×	
010.	10	125		0.0066	274.11500	Х	Х	Х	Х	



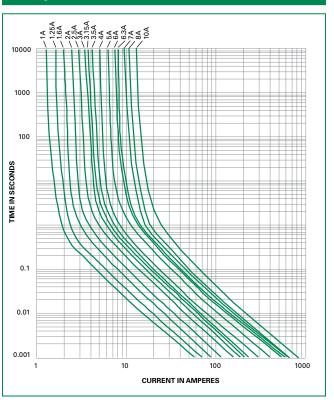
Temperature Re-rating Curve



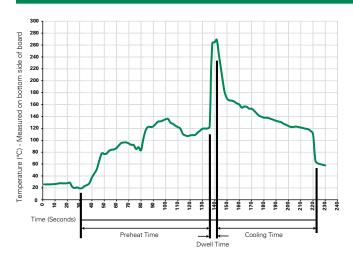
Note:

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.

Axial Lead & Cartridge Fuses 5×20 mm > Medium-Acting > 233 Series

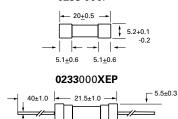
Product Characteristics

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 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

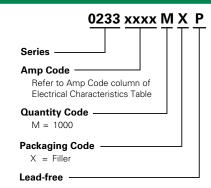
0233 000P



All dimensions in mm

Notes: * Ratings above 6.3A have 0.8±0.05 diameter lead.

Part Numbering System



Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	Taping Width	
233 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")	
Bulk	N/A	1000	MXB	N/A	

Recommended Accessories

- 0.65+0.05

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