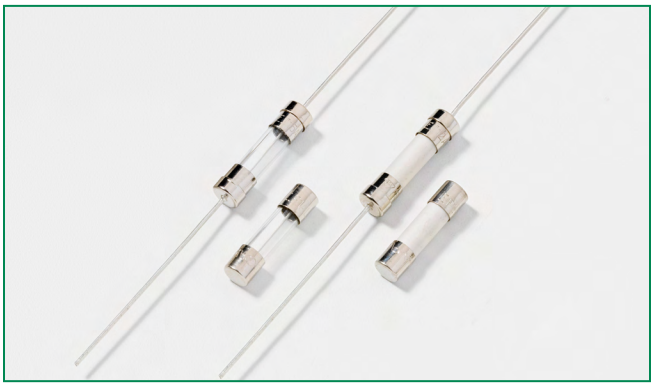
# 234 Series, 5×20 mm, Medium-Acting Fuse



## Description

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

## Features

- Designed to UL/CSA/ANCE 248 Standard
- 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.

## Agency Approvals

| Agency | Agency File Number | Ampere Range |
|---|---|---|
| PS E | Cartridge:<br>NBK040609-JP1021A<br>NBK040609-JP1021C<br>Leaded:<br>NBK040609-JP1021B<br>NBK040609-JP1021D | <br>1A - 5A<br>6A - 10A<br><br>1A - 5A<br>6A - 10A |
| CE | N/A | 1A - 10A |
| KC | SU05001-3001<br>SU05001-4001<br>SU05001-2016 | 1A - 3.15A<br>3.5A<br>4A - 10A |
| UL | E10480 | 1A – 10A |
| CSA | 29862 | |

## Additional Information

Datasheet | Resources | Samples

## Electrical Characteristics for Series

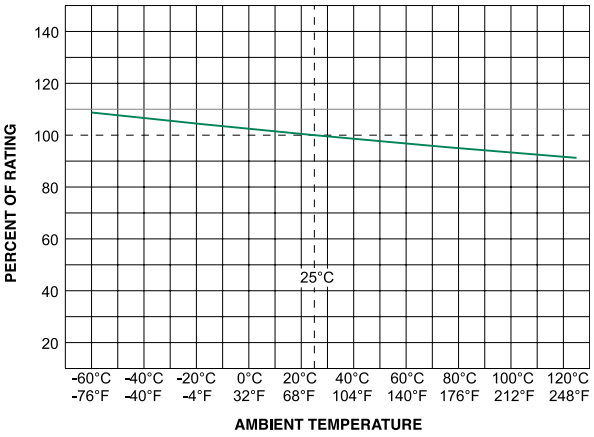
| % of Ampere Rating | Ampere Rating | Opening Time |
|---|---|---|
| 100% | 1 – 3.5 | 4 hours, Minimum |
| | 4 – 10 | 1 hour, Minimum |
| 135% | 1 – 3.5 | 3 sec., Min; 1 hr. Max |
| | 4 – 10 | 3 sec., Min; 1 hr. Max |
| 200% | 1 – 3.5 | 400ms., Min; 2.25 sec. Max |
| | 4 – 10 | 400ms., Min; 4 sec. Max |

## Electrical Characteristic Specification by Item

| Amp Code | Ampere Rating (A) | Voltage Rating (V) | Interrupting Rating | Nominal Cold Resistance (Ohms) | Nominal Melting $I^2t$ ($A^2$ sec) | Agency Approvals | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | CE | UL | CSA | KC | PS E |
| 001. | 1 | 250 | 100A @ 250 VAC<br>10000A @ 125 VAC | 0.1750 | 1.97500 | x | x | x | x | x |
| 1.25 | 1.25 | 250 | | 0.1262 | 2.06000 | x | x | x | x | x |
| 01.6 | 1.6 | 250 | | 0.0884 | 6.14000 | x | x | x | x | x |
| 002. | 2 | 250 | | 0.0684 | 9.97000 | x | x | x | x | x |
| 02.5 | 2.5 | 250 | | 0.0521 | 17.04500 | x | x | x | x | x |
| 003. | 3 | 250 | | 0.0431 | 26.2400 | x | x | x | x | x |
| 3.15 | 3.15 | 250 | | 0.0380 | 29.79500 | x | x | x | x | x |
| 03.5 | 3.5 | 250 | | 0.0322 | 36.27500 | x | x | x | x | x |
| 004. | 4 | 250 | 200A @ 250 VAC<br>10000A @ 125 VAC | 0.0304 | 10.37000 | x | x | x | x | x |
| 005. | 5 | 250 | | 0.0214 | 20.64500 | x | x | x | x | x |
| 006. | 6 | 250 | | 0.0194 | 33.01500 | x | x | x | x | x |
| 06.3 | 6.3 | 250 | | 0.0168 | 37.68500 | x | x | x | x | x |
| 008. | 8 | 250 | | 0.0144 | 80.67500 | x | x | x | x | x |
| 010. | 10 | 250 | | 0.0107 | 51.40000 | x | x | x | x | x |

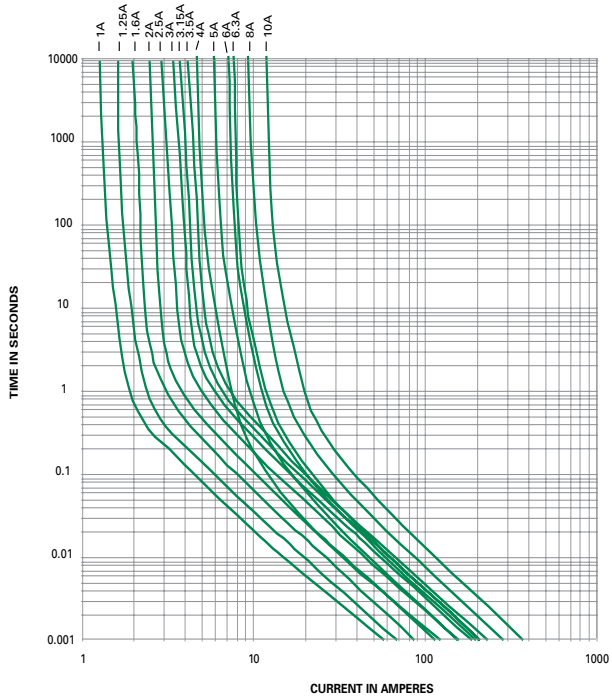

Revised: 07/29/15

## Temperature Re-rating Curve

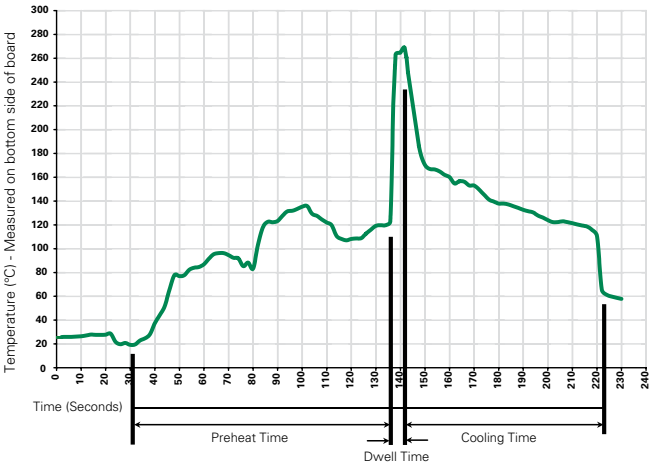



Note:
Rerating depicted in this curve is in addition to the standard derating of 25% for continuous operation.

## 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 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.**



Revised: 07/29/15

# Axial Lead & Cartridge Fuses

## 5×20 mm > Medium-Acting > 234 Series

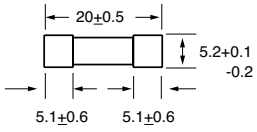
## Product Characteristics

| | |
|---|---|
| **Materials** | Body: Glass(1A-3.5A), Ceramic(4A-10A)<br>Cap: Nickel–plated brass<br>Leads: Tin–plated Copper<br>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<br>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) |

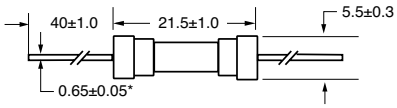
| | |
|---|---|
| **Operating Temperature** | –55°C to +125°C |
| **Thermal Shock** | MIL-STD-202, Method 107, Test Condition B: (5 cycles –65°C to +125°C) |
| **Vibration** | MIL-STD-202 Method 201 |
| **Humidity** | MIL-STD-202, Method 103, Test Condition A. high RH (95%) and elevated temp (40°C) for 240 hours |
| **Salt Spray** | MIL-STD-202, Method 101, Test Condition B |

## Dimensions

**0234** 000P




**0234** 000**XEP**




All dimensions in mm

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

## Part Numbering System

**0234 xxxx M X P**

**Series**

**Amp Code**
Refer to Amp Code column of Electrical Characteristics Table

**Quantity Code**
M = 1000

**Packaging Code**
X = Filler

**Lead-free**

## 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") |


Revised: 07/29/15