

# Accu-Guard® II

## SMD Thin-Film Fuse



Accu-Guard® II is a version of Accu-Guard® fuses for a wider range of current and voltage ratings. Constructed on alumina substrates, Accu-Guard® II fuses display superior electrical, mechanical and environmental properties. Accu-Guard® II dimensions are standard 0402, 0603, 0805, 1206 and 0612 chip sizes, see page 2.

### ELECTRICAL SPECIFICATIONS

Operating temperature: -55°C to +125°C

Current carrying capacity:

For F0402E and F0603E at -55°C 107% of rating, at +25°C 100% of rating, at +125°C 80% of rating. For F0603C at -55°C is 107% of rating, at +25°C 100% of rating, at +85°C 90% of rating, at +125°C 75% of rating

For F1206B and F0805B at -55°C is 107% of rating, at +25°C 100% of rating, at +85°C 93% of rating, at +125°C 90% of rating. For F0805B 2.50A and 3.00A at +85°C 90% of rating, at +125°C 90% of rating.

Interrupting rating: 50A.

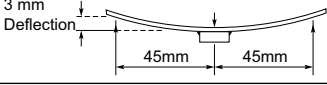
Insulation resistance: >20MΩ guaranteed (after fusing at rated voltage).

For F0612D at -55°C 107% of rating, at +25°C 100% of rating, at +85°C 80% of rating, at +125°C 75% of rating.

| Type             | Part Number      | Current Rating A | Resistance 10% x I rated, 25°C Ω (max.) | Voltage Drop @1 x I rated, 25°C mV (max.) | Fusing Current (within 5 sec), 25°C A | Pre-Arc I <sup>2</sup> t @ 50A A <sup>2</sup> -sec | Rated Voltage V |
|------------------|------------------|------------------|---|---|---------------------------------------|--|-----------------|
| F0402E           | F0402E0R25FSTR   | 0.25             | 0.650                                   | 220                                       | 0.625                                 | 0.00005*   | 32              |
|                  | F0402E0R50FSTR   | 0.50             | 0.250                                   | 180                                       | 1.25                                  | 0.0003   | 32              |
|                  | F0402E0R75FSTR   | 0.75             | 0.200                                   | 180                                       | 1.875                                 | 0.003  | 32              |
|                  | F0402E1R00FSTR   | 1.00             | 0.130                                   | 160                                       | 2.50                                  | 0.008  | 32              |
|                  | F0402E1R50FSTR   | 1.50             | 0.060                                   | 140                                       | 3.75                                  | 0.03   | 32              |
|                  | F0402E2R00FSTR   | 2.00             | 0.040                                   | 120                                       | 5.00                                  | 0.06   | 32              |
| F0603E           | F0603E0R25FSTR   | 0.25             | 0.650                                   | 220                                       | 0.625                                 | 0.00005*   | 32              |
|                  | F0603E0R37FSTR   | 0.375            | 0.450                                   | 220                                       | 0.940                                 | 0.0001   | 32              |
|                  | F0603E0R50FSTR   | 0.50             | 0.250                                   | 180                                       | 1.25                                  | 0.0003   | 32              |
|                  | F0603E0R75FSTR   | 0.75             | 0.200                                   | 180                                       | 1.875                                 | 0.003  | 32              |
|                  | F0603E1R00FSTR   | 1.00             | 0.130                                   | 160                                       | 2.50                                  | 0.008  | 32              |
|                  | F0603E1R25FSTR   | 1.25             | 0.090                                   | 140                                       | 3.125                                 | 0.01   | 32              |
|                  | F0603E1R50FSTR   | 1.50             | 0.060                                   | 140                                       | 3.75                                  | 0.03   | 32              |
|                  | F0603E1R75FSTR   | 1.75             | 0.050                                   | 120                                       | 4.375                                 | 0.04   | 32              |
|                  | F0603E2R00FSTR   | 2.00             | 0.040                                   | 120                                       | 5.00                                  | 0.06   | 32              |
|                  | F0603E2R50FSTR   | 2.50             | 0.035                                   | 100                                       | 6.25                                  | 0.12   | 32              |
| F0603C           | F0603C0R25FWTR   | 0.25             | 0.800                                   | 280                                       | 0.50                                  | 0.00003*   | 32              |
|                  | F0603C0R37FWTR   | 0.375            | 0.500                                   | 280                                       | 0.75                                  | 0.0001   | 32              |
|                  | F0603C0R50FWTR   | 0.50             | 0.320                                   | 280                                       | 1.00                                  | 0.0002   | 32              |
|                  | F0603C0R75FWTR   | 0.75             | 0.300                                   | 280                                       | 1.50                                  | 0.0015   | 32              |
|                  | F0603C1R00FWTR   | 1.00             | 0.200                                   | 240                                       | 2.00                                  | 0.004  | 32              |
|                  | F0603C1R25FWTR   | 1.25             | 0.170                                   | 240                                       | 2.50                                  | 0.007  | 32              |
|                  | F0603C1R50FWTR   | 1.50             | 0.110                                   | 240                                       | 3.00                                  | 0.012  | 32              |
|                  | F0603C1R75FWTR   | 1.75             | 0.090                                   | 240                                       | 3.50                                  | 0.02   | 24              |
|                  | F0603C2R00FWTR   | 2.00             | 0.075                                   | 240                                       | 4.00                                  | 0.03   | 24              |
|                  | F0603C2R50FWTR   | 2.50             | 0.055                                   | 200                                       | 5.00                                  | 0.05   | 16              |
| F0805B           | F0805B0R25FW/STR | 0.25             | 0.750                                   | 280                                       | 0.50                                  | 0.00003*   | 63              |
|                  | F0805B0R50FW/STR | 0.50             | 0.350                                   | 280                                       | 1.00                                  | 0.0002   | 63              |
|                  | F0805B0R75FW/STR | 0.75             | 0.270                                   | 280                                       | 1.50                                  | 0.001  | 63              |
|                  | F0805B1R00FW/STR | 1.00             | 0.220                                   | 280                                       | 2.00                                  | 0.003  | 63              |
|                  | F0805B1R25FW/STR | 1.25             | 0.170                                   | 280                                       | 2.50                                  | 0.007  | 63              |
|                  | F0805B1R50FW/STR | 1.50             | 0.120                                   | 240                                       | 3.00                                  | 0.010  | 63              |
|                  | F0805B2R00FW/STR | 2.00             | 0.080                                   | 220                                       | 4.00                                  | 0.030  | 63              |
|                  | F0805B2R50FW/STR | 2.50             | 0.060                                   | 220                                       | 5.00                                  | 0.050  | 63              |
|                  | F0805B3R00FW/STR | 3.00             | 0.050                                   | 220                                       | 6.00                                  | 0.10   | 63              |
|                  | F1206B           | F1206B0R25FW/STR | 0.25                                    | 0.750                                     | 280                                   | 0.50   | 0.00003         |
| F1206B0R50FW/STR |                  | 0.50             | 0.350                                   | 280                                       | 1.00                                  | 0.0002   | 63              |
| F1206B1R00FW/STR |                  | 1.00             | 0.180                                   | 240                                       | 2.00                                  | 0.003  | 63              |
| F1206B1R50FW/STR |                  | 1.50             | 0.120                                   | 240                                       | 3.00                                  | 0.010  | 63              |
| F1206B2R00FW/STR |                  | 2.00             | 0.080                                   | 220                                       | 4.00                                  | 0.030  | 63              |
| F0612D           | F0612D4R00FWTR   | 4.00             | 0.040                                   | 260                                       | 10                                    | 0.10   | 32              |
|                  | F0612D5R00FWTR   | 5.00             | 0.025                                   | 200                                       | 12.5                                  | 0.25   | 32              |

\*Current is limited to less than 50A at 32V due to internal fuse resistance.

**ENVIRONMENTAL CHARACTERISTICS**

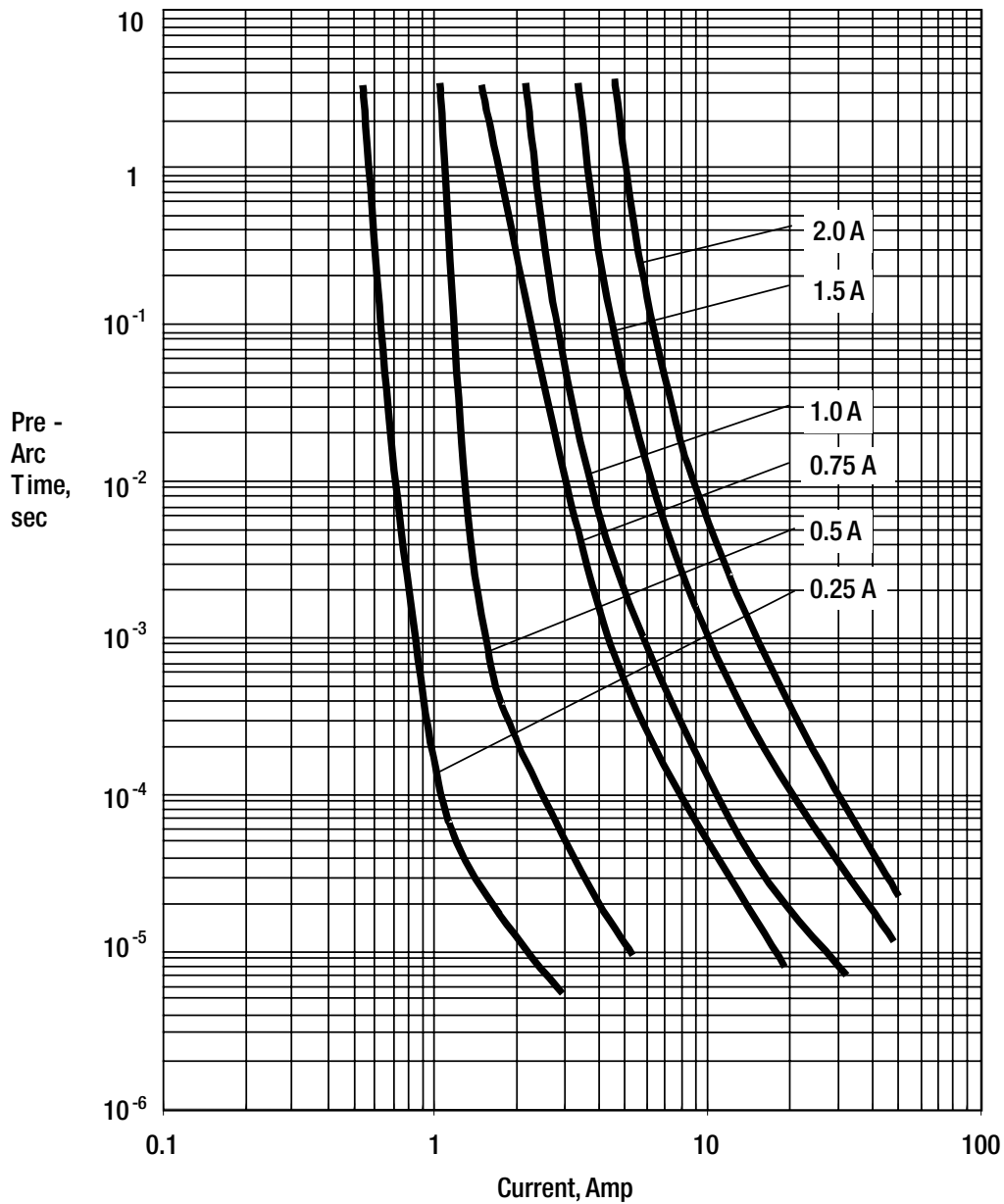
| Test                        | Conditions   | Required  |
|-----------------------------|--|---|
| Solderability               | Components completely immersed in a solder bath at 235 ±5°C for 2 secs.  | Terminations to be well tinned No visible damage        |
| Leach Resistance            | Completely immersed in a solder bath at 260 ±5°C for 60 secs   | Dissolution of termination<br>≤ 25% of area<br>ΔR/R<10% |
| Storage                     | 12 months minimum with components stored in "as received" packaging.   | Good solderability                                      |
| Shear                       | Components mounted to a substrate. A force of 5N applied normal to the line joining the terminations and in a line parallel to the substrate | No visible damage                                       |
| Rapid Change of Temperature | Components mounted to a substrate. 50 cycles -55° to +125°C.   | No Visible damage<br>ΔR/R<10%                           |
| Vibration                   | Components mounted to substrate. 50 cycles -55°C to +125°C.  | No Visible damage<br>ΔR/R<10%                           |
| Vibration                   | Components mounted to substrate. 50 cycles -55°C to +125°C.  | No Visible damage<br>ΔR/R<10%                           |
| Bend                        | Tested as shown in diagram<br>                              | No visible damage<br>ΔR/R<10%                           |
| Load Life<br>F0805B, F1206B | 25°C, rated current, 20,000 hrs.   | No visible damage<br>ΔR/R<10%                           |

# Accu-Guard® II

## Lead-Free SMD Thin-Film Fuse



### FUSE TIME - CURRENT CHARACTERISTICS FOR TYPE F0402E (TYPICAL)

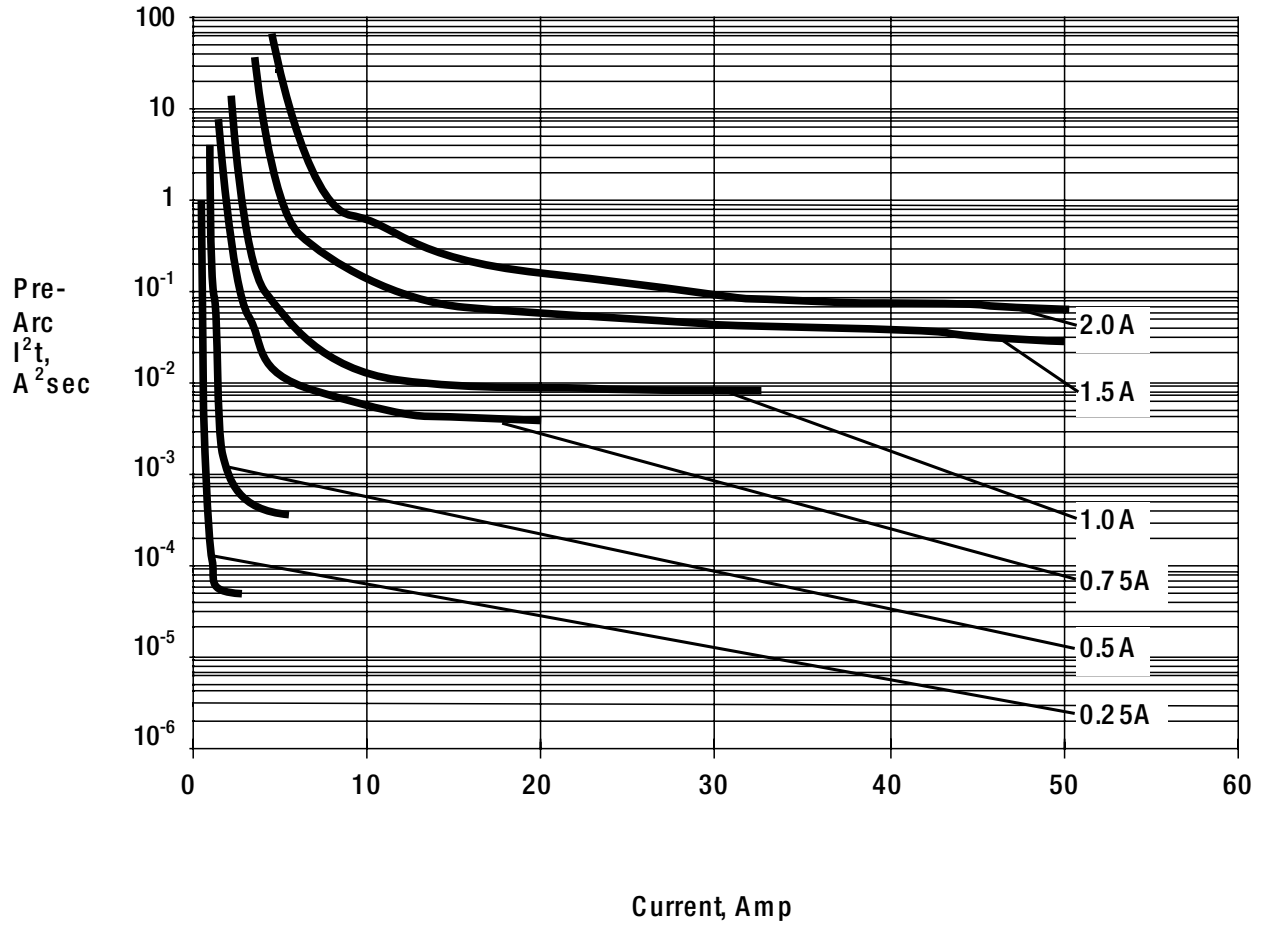


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## Lead-Free SMD Thin-Film Fuse

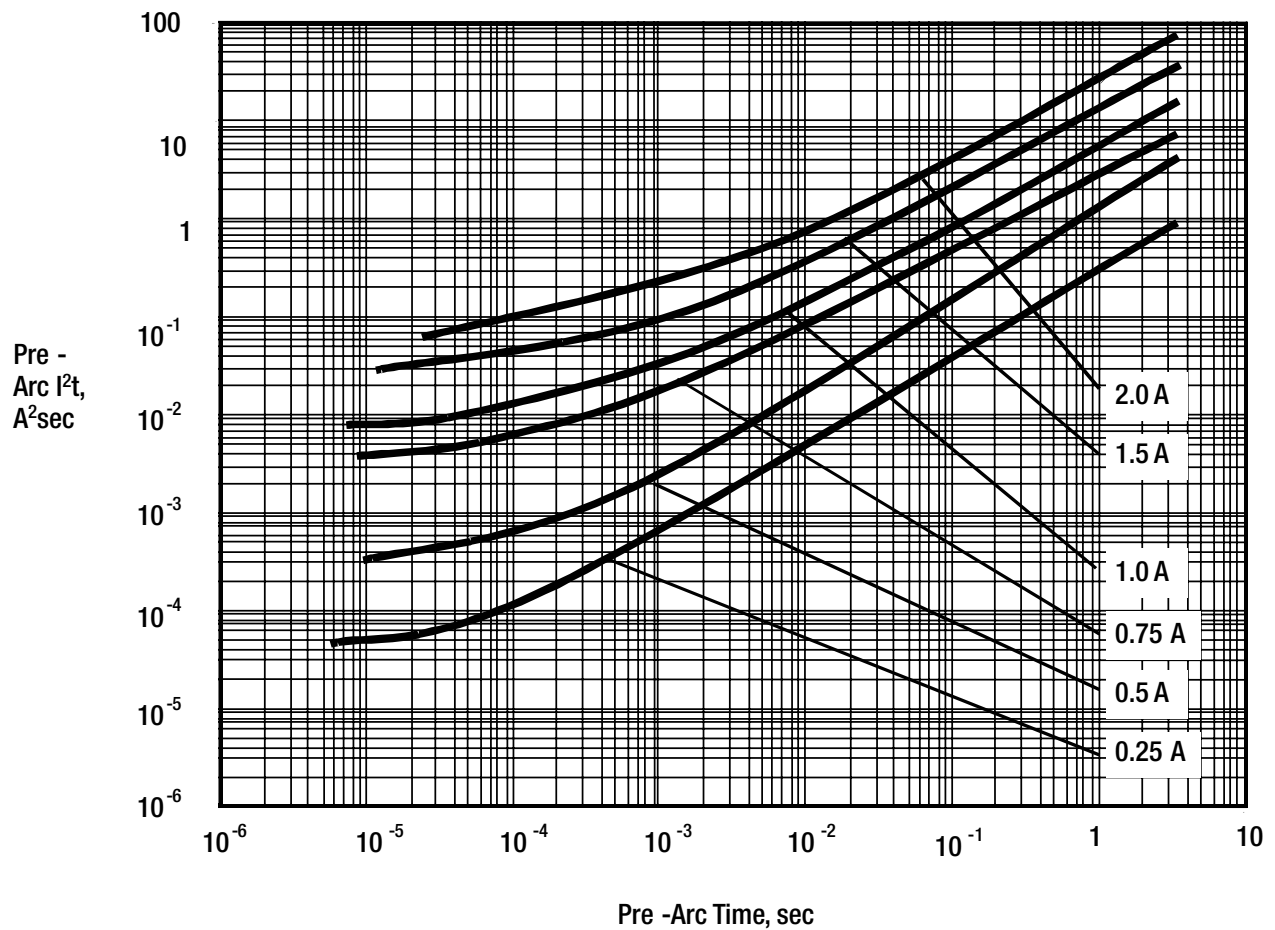


### FUSE PRE-ARC JOULE INTEGRALS VS CURRENT FOR TYPE F0402E (TYPICAL)



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### FUSE PRE-ARC JOULE INTEGRALS VS PRE-ARC TIME FOR TYPE F0402E (TYPICAL)

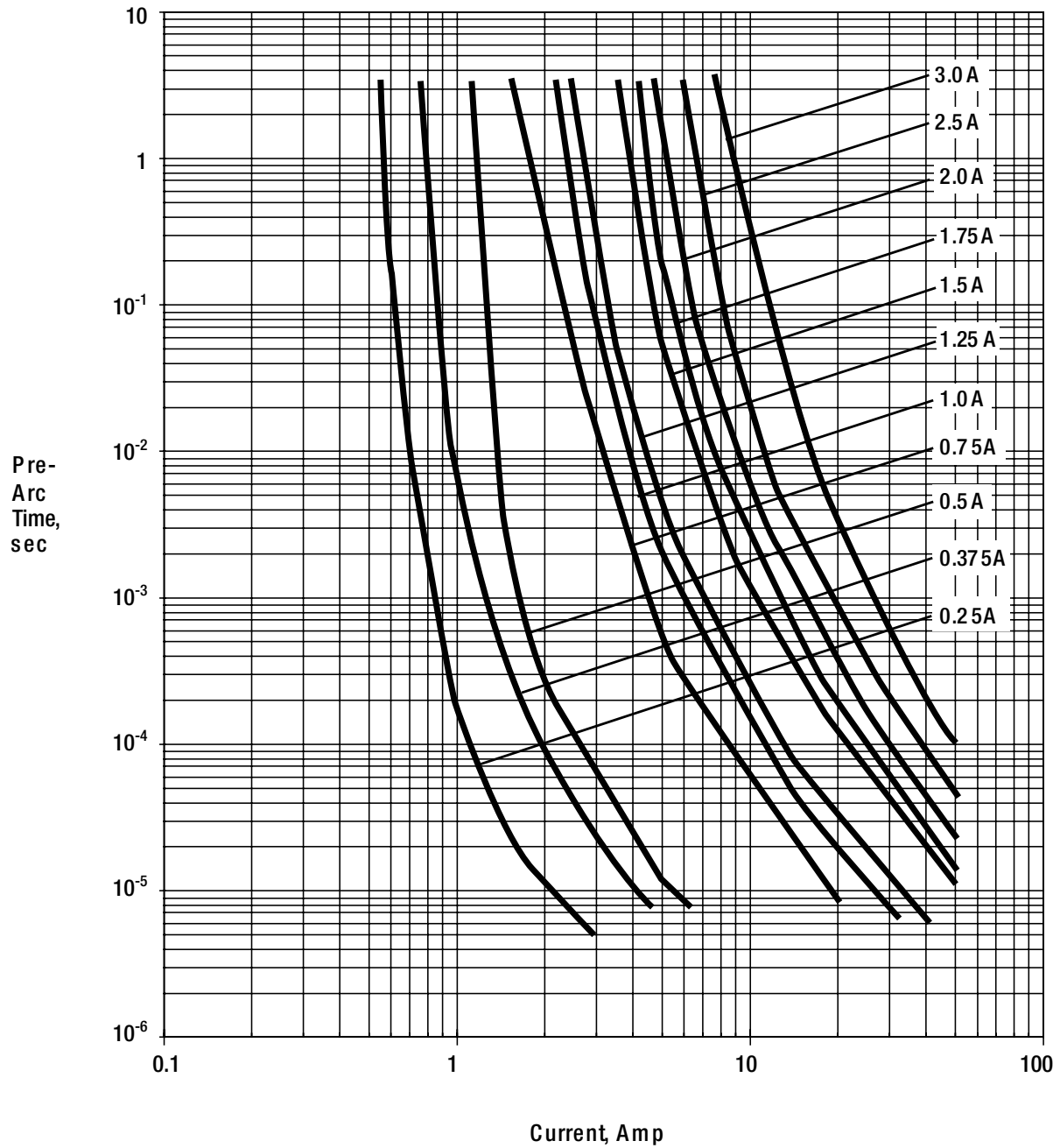


# Accu-Guard® II

## Lead-Free SMD Thin-Film Fuse



### FUSE TIME - CURRENT CHARACTERISTICS FOR TYPE F0603E (TYPICAL)



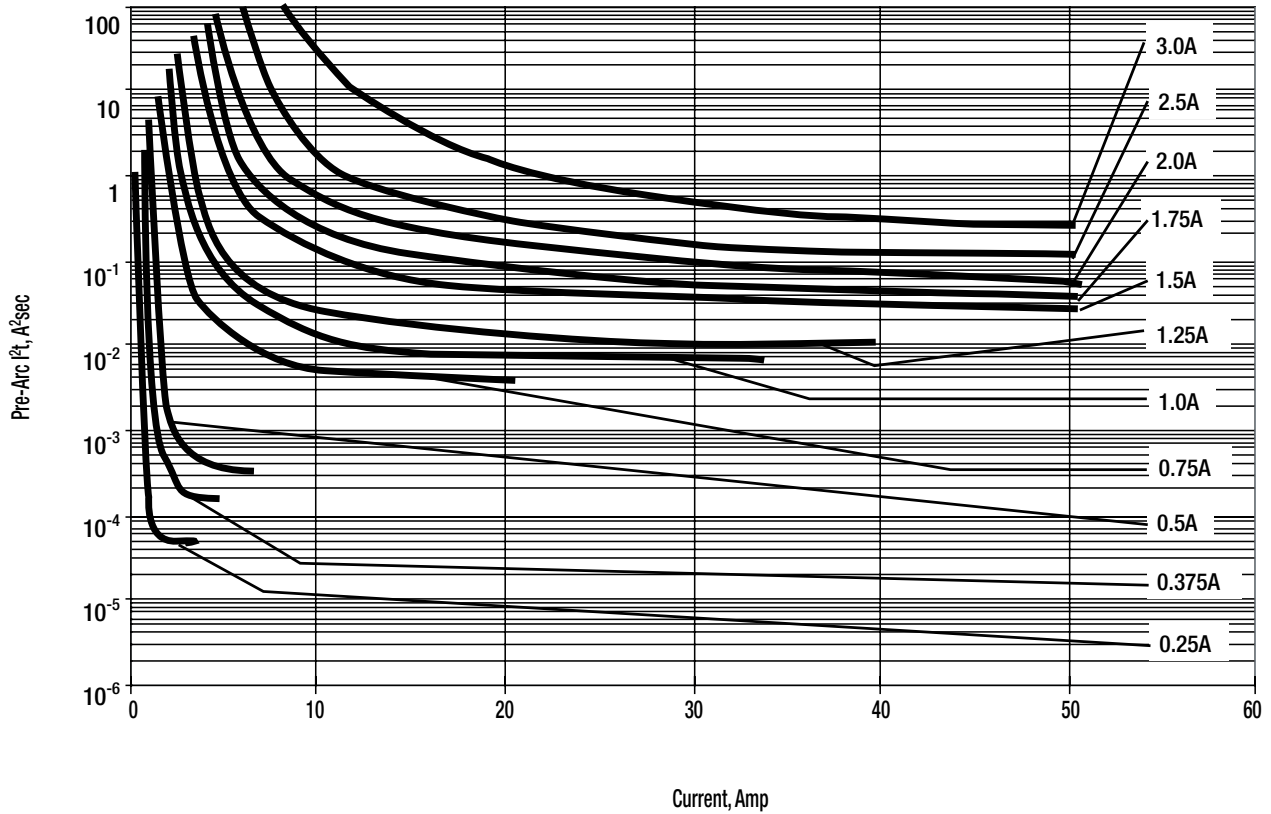
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## Lead-Free SMD Thin-Film Fuse



### FUSE PRE-ARC JOULE INTEGRALS VS CURRENT FOR TYPE F0603E (TYPICAL)

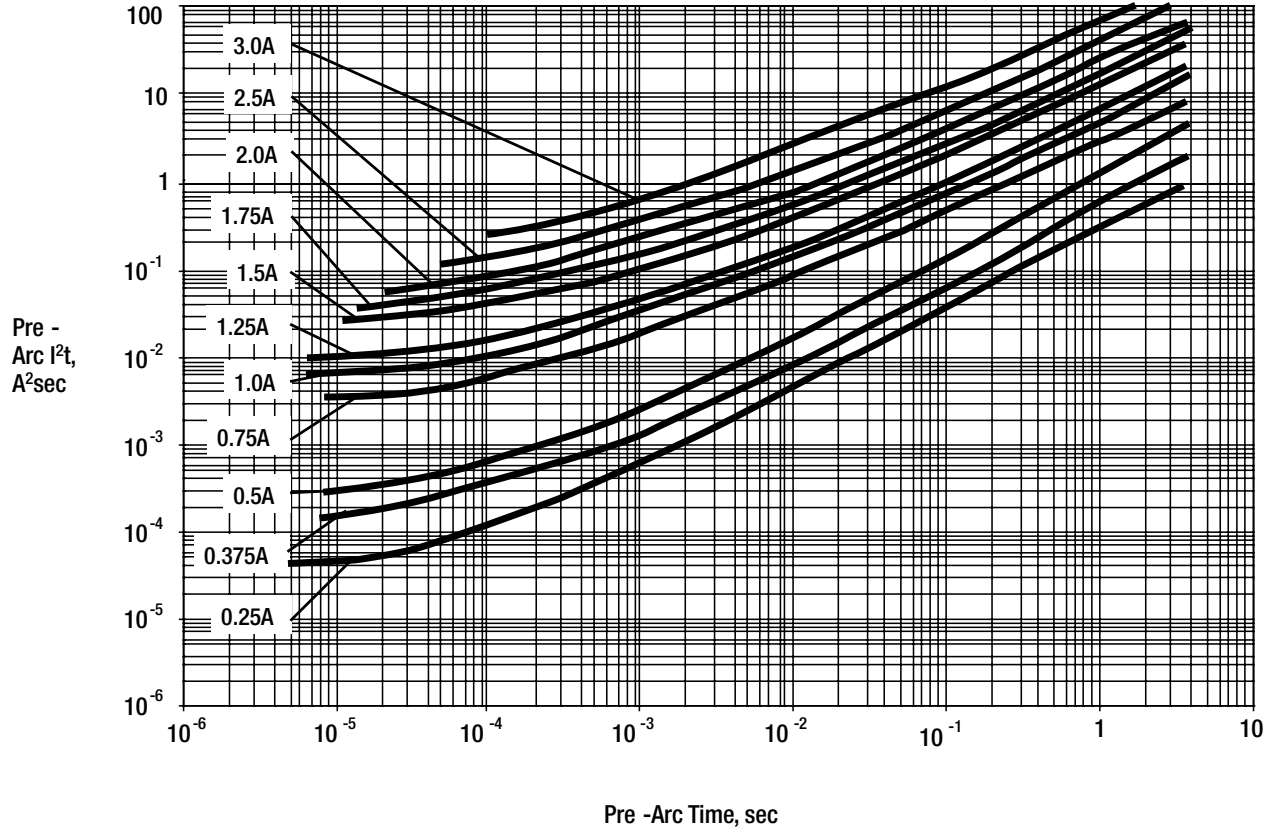


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## Lead-Free SMD Thin-Film Fuse



### FUSE PRE-ARC JOULE INTEGRALS VS PRE-ARC TIME FOR TYPE F0603E (TYPICAL)



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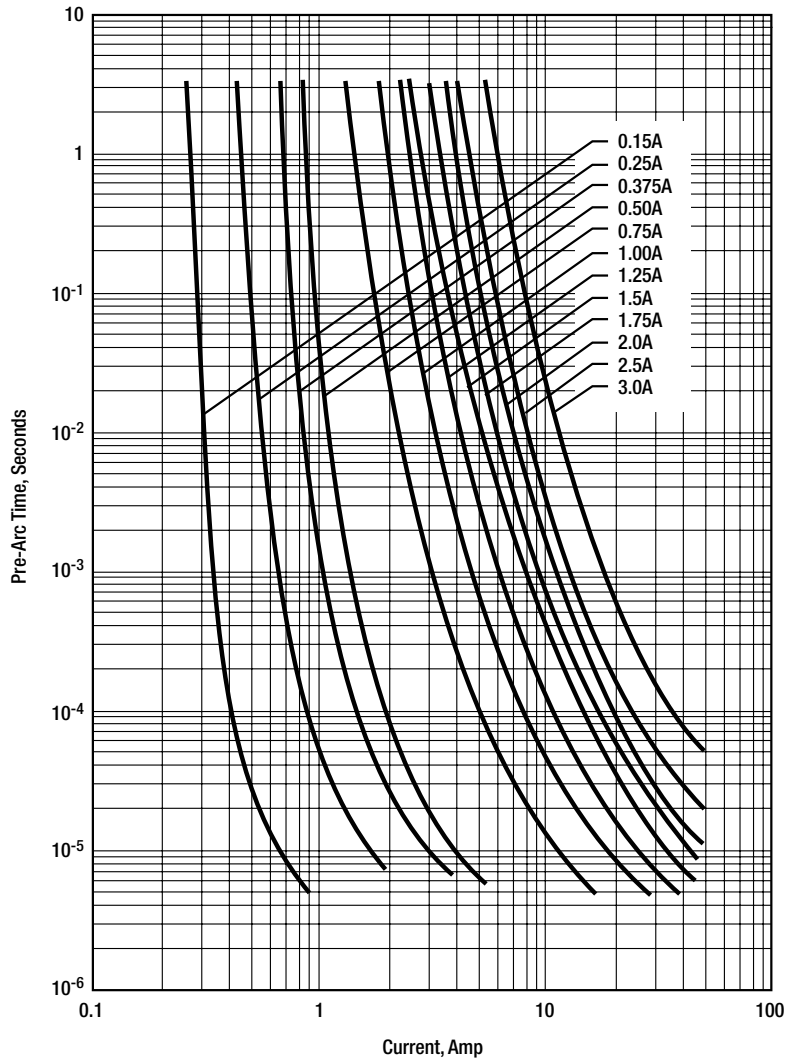
# Accu-Guard® II

## SMD Thin-Film Fuse



### FUSE TIME - CURRENT CHARACTERISTICS FOR TYPE F0603C (TYPICAL)\*

**\*Not recommended for new designs, please contact factory**

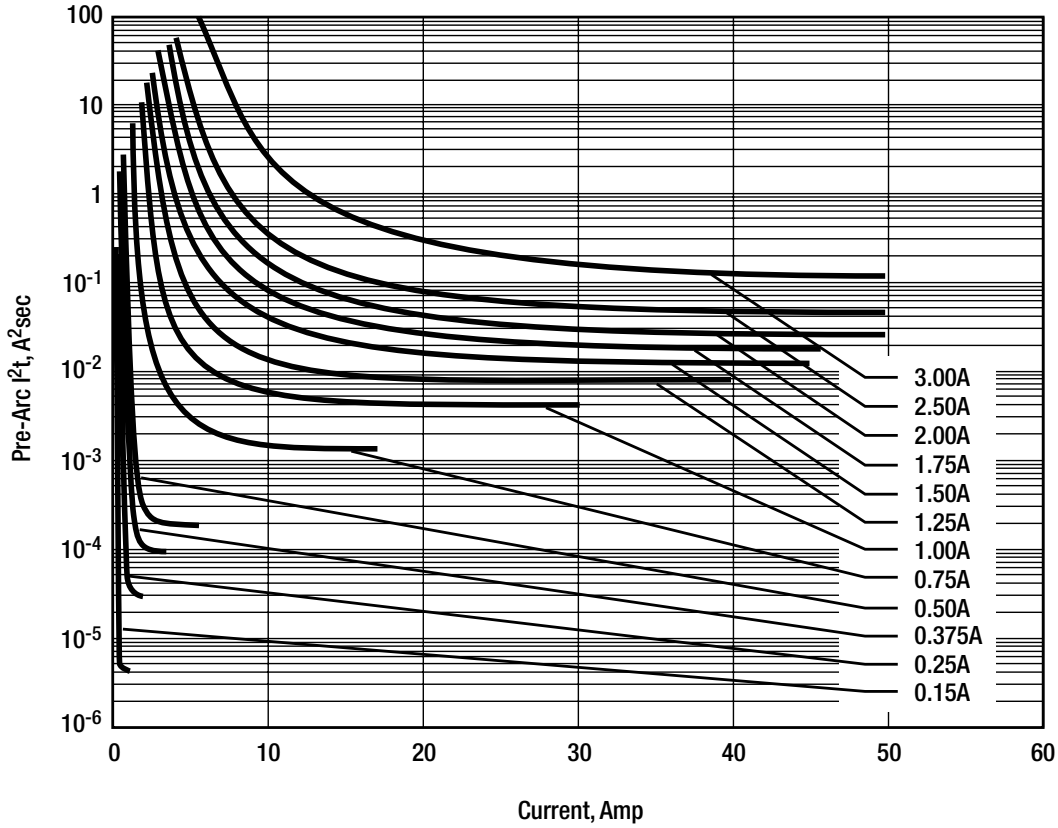


# Accu-Guard® II

## SMD Thin-Film Fuse

### FUSE PRE-ARC JOULE INTEGRALS VS. CURRENT FOR TYPE F0603C (TYPICAL)\*

**\*Not recommended for new designs,  
please contact factory**



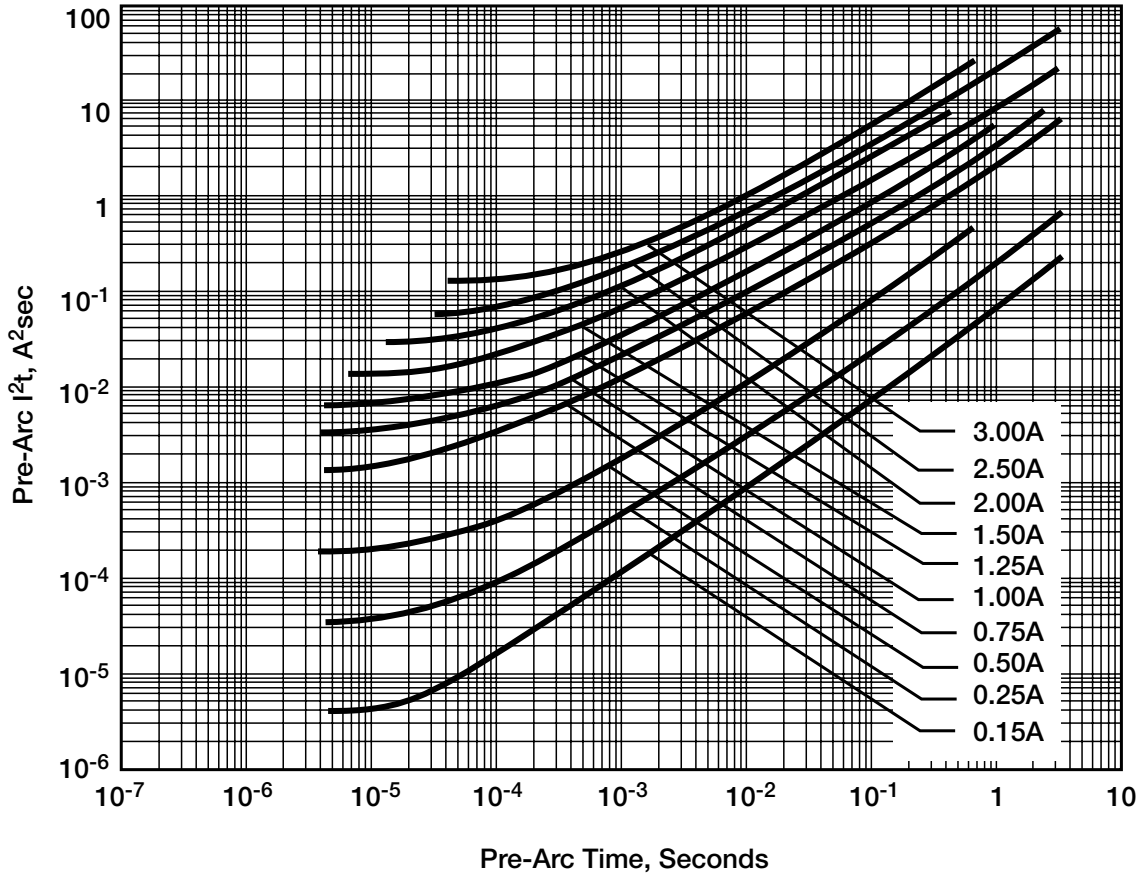
# Accu-Guard® II

## SMD Thin-Film Fuse



### FUSE PRE-ARC JOULE INTEGRALS VS. PRE-ARC TIME FOR TYPE F0603C (TYPICAL)\*

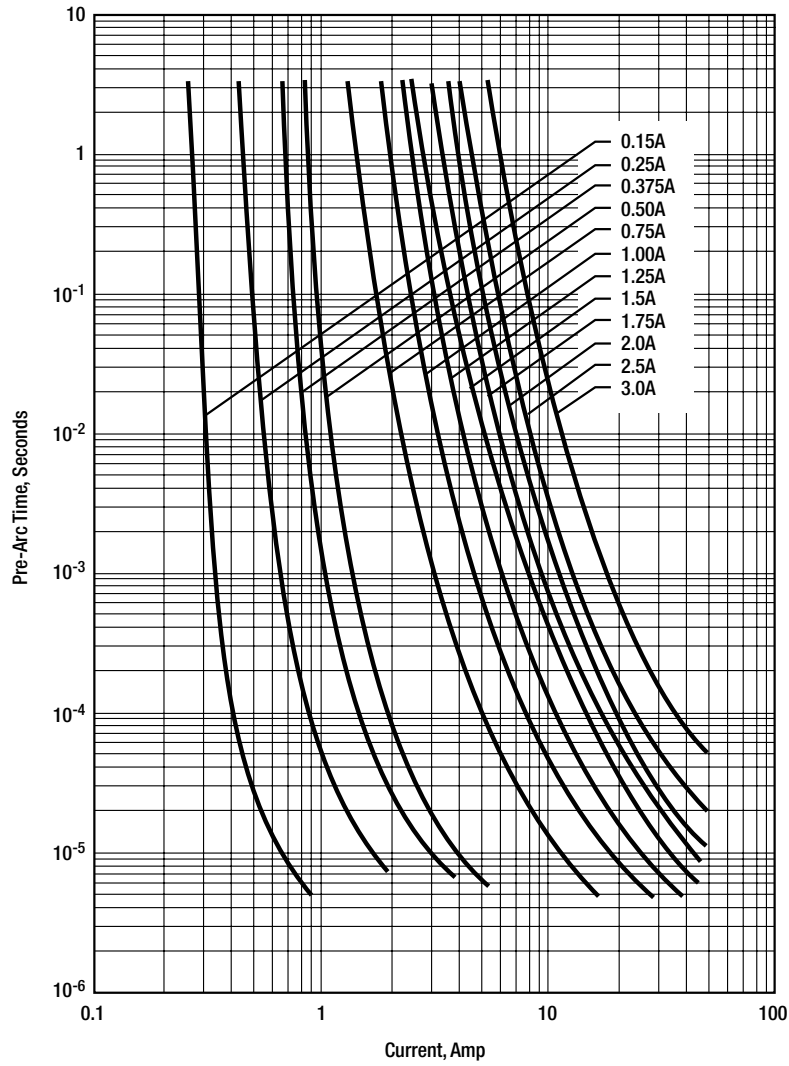
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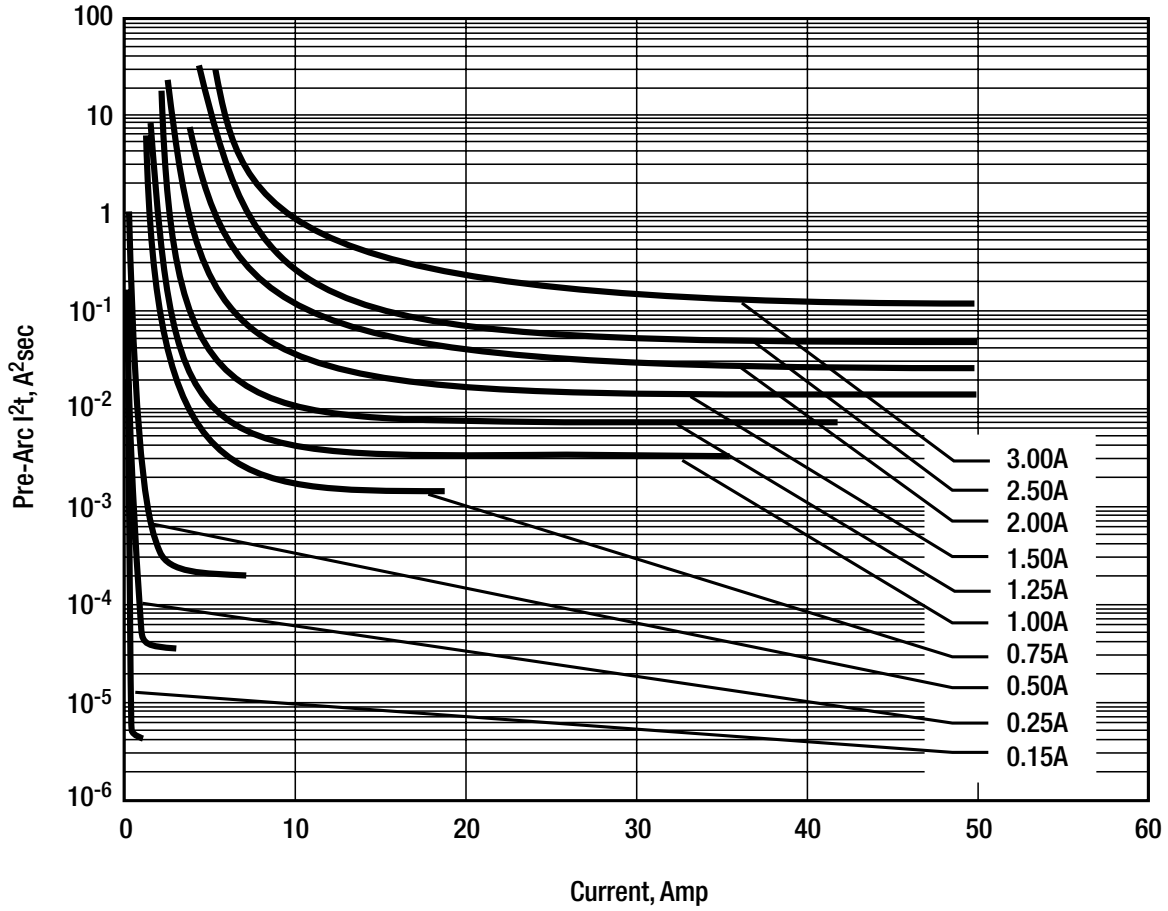
# Accu-Guard® II

## SMD Thin-Film Fuse

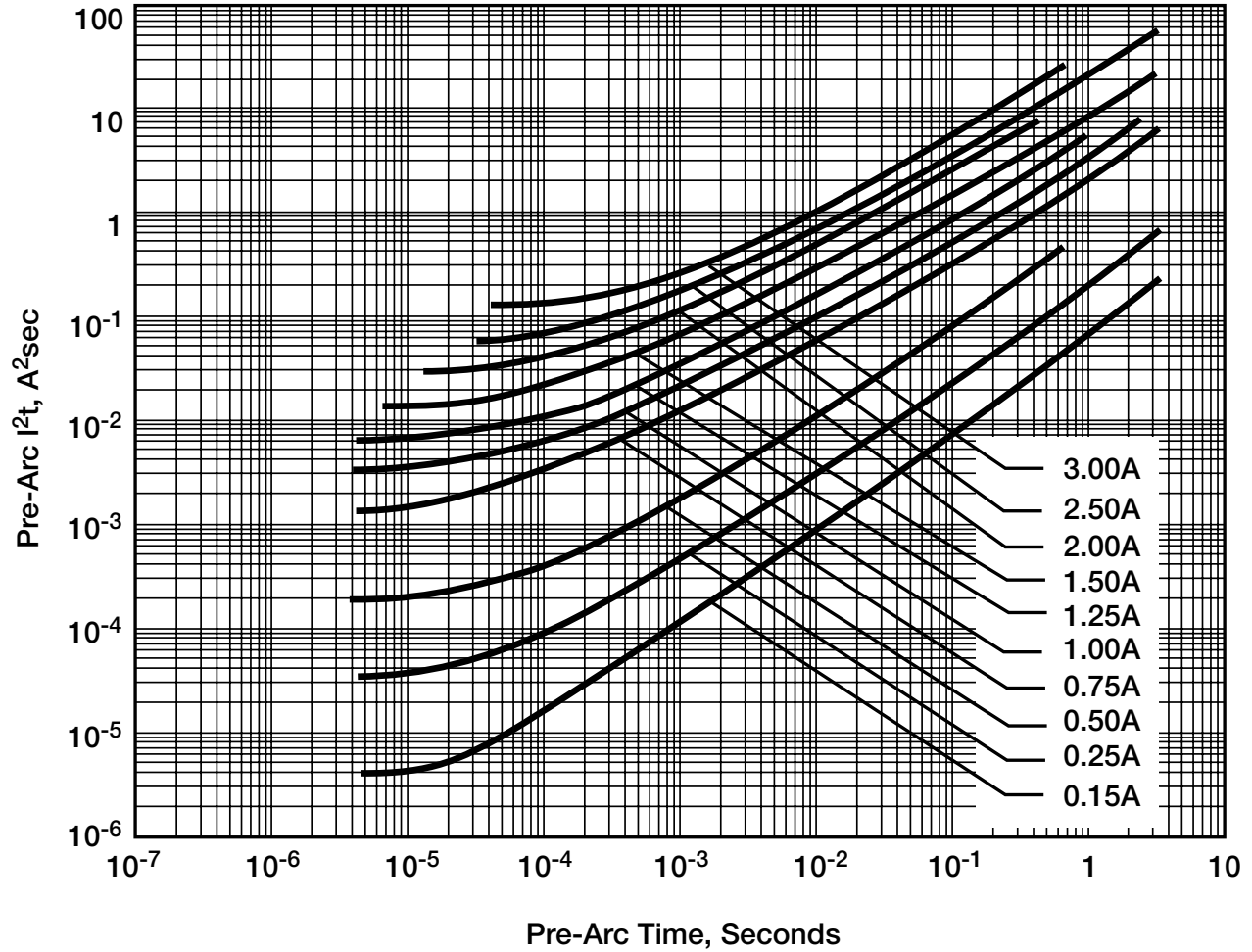
### FUSE TIME - CURRENT CHARACTERISTICS FOR TYPES F0805B AND F1206B (TYPICAL)



**FUSE PRE-ARC JOULE INTEGRALS VS. CURRENT TIME  
 FOR TYPES F0805B AND F1206B (TYPICAL)**



**FUSE PRE-ARC JOULE INTEGRALS VS. PRE-ARC TIME  
 FOR TYPES F0805B AND F1206B (TYPICAL)**



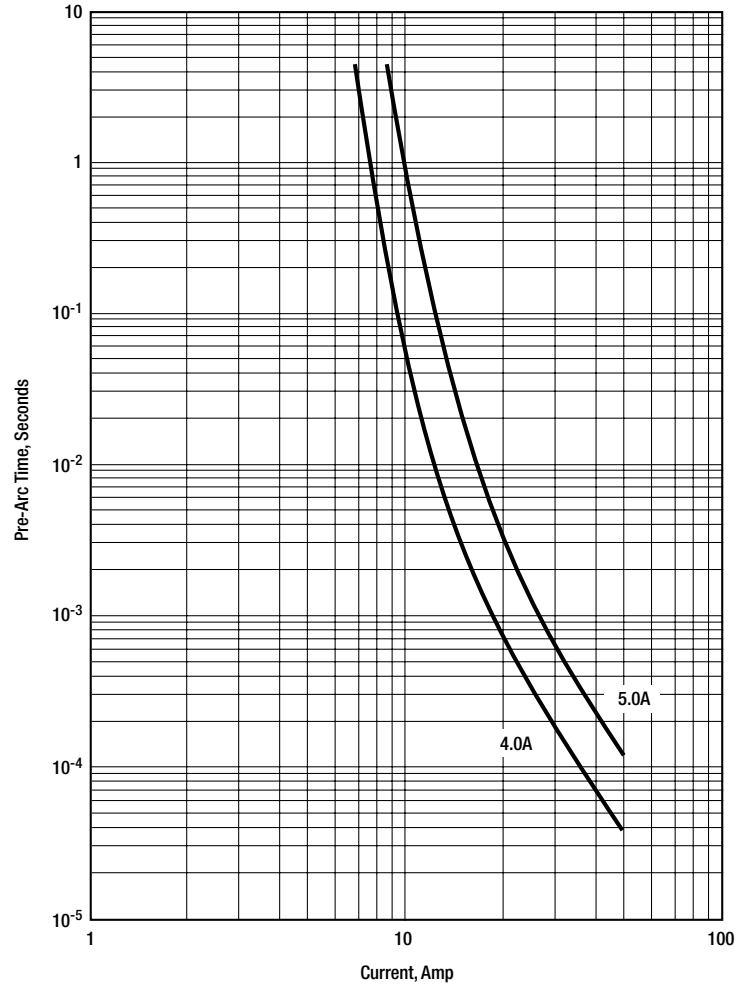
# Accu-Guard® II

## SMD Thin-Film Fuse



### FUSE TIME - CURRENT CHARACTERISTICS FOR TYPE F0612D (TYPICAL)\*

**\*Not recommended for new designs, please contact factory**



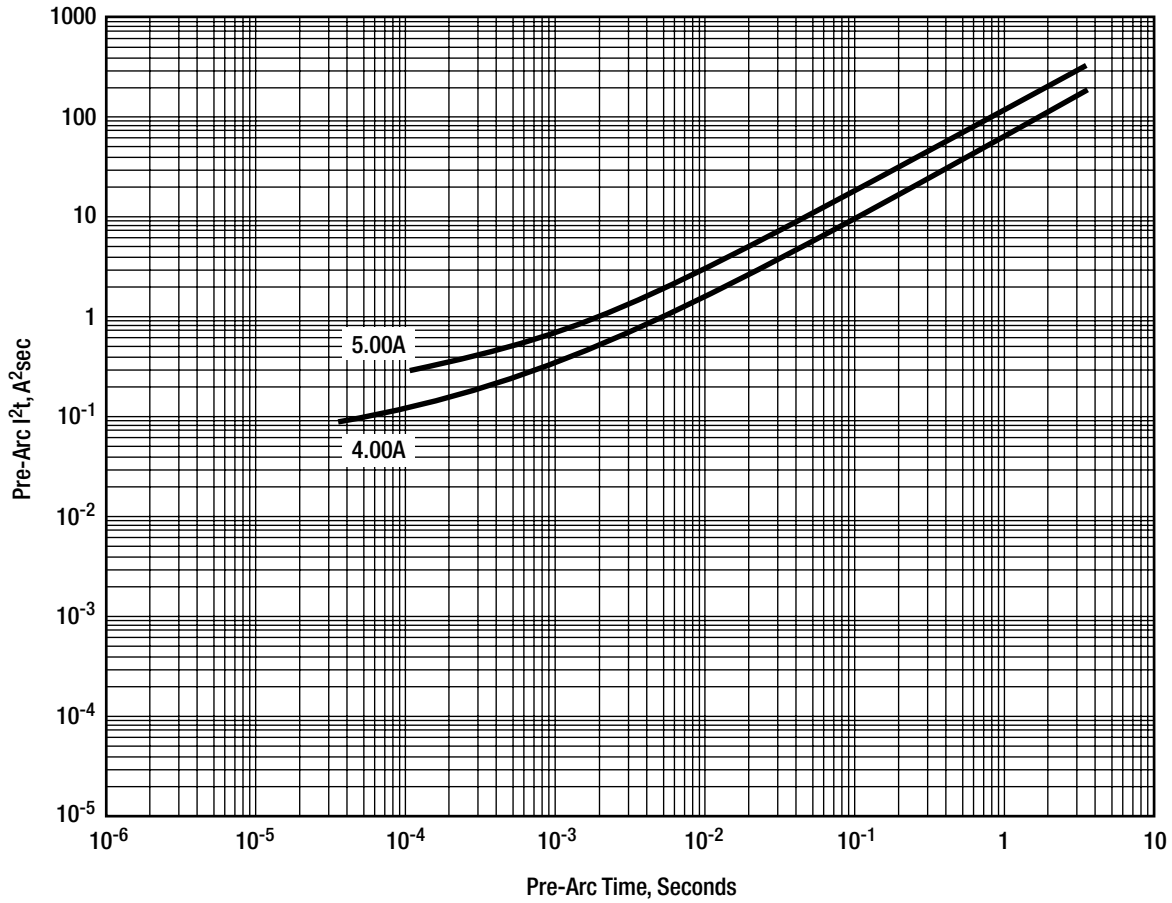
# Accu-Guard® II

## SMD Thin-Film Fuse



### FUSE PRE-ARC JOULE INTEGRALS VS. PRE-ARC TIME FOR TYPE F0612D (TYPICAL)\*

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## SMD Thin-Film Fuse



### FUSE PRE-ARC JOULE INTEGRALS VS. CURRENT FOR TYPE F0612D (TYPICAL)

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