

Automotive Surface Mount Fuses

Features:

AEM Components' AEC-Q200 qualified and ISO TS16949 certificated fuses are setting a new standard for reliable performance in demanding automotive applications. Choose from AirMatrix wire-in-air fuses and SolidMatrix solid body fuses for optimum performance under the hood or in the cabin.

AirMatrix® Platform

QA Series

- Excellent inrush current withstanding capability
- Fiberglass enforced epoxy fuse body
- Copper or copper alloy composite fuse link
- Copper termination with nickel and tin plating
- Operating temperature range: -55°C to +125°C (with de-rating)

SolidMatrix® Platform

QF Series

- Multilayer monolithic structure with glass ceramic body and silver fusing element
- Silver termination with nickel and pure-tin solder plating, providing excellent solderability
- Compatible with both wave and reflow soldering processes
- Operating temperature range: -55°C to +150°C (with de-rating)

Applications:

- Communications & Networks
- Battery Management Systems
- Infotainment Systems
- Under-the-hood Applications

Quick Index:

| Series | Size | Current Rating (A) | Voltage Rating | Page |
|---------|------|--|----------------|------|
| QA2410F | 2410 | 0.5, 0.63, 0.75, 1.0, 1.5, 2.0 | 250VAC/125VDC | 4 |
| | | 2.5, 3.0, 3.15, 3.5, 4.0, 5.0, 6.3, 7.0, 8.0, 10.0 | 125VDC | |
| | | 12.0, 15.0, 20.0 | 65VDC | |
| QA1206F | 1206 | 1.5, 1.6, 2.0, 2.5, 3.0, 3.15, 3.5, 4.0 | 65VDC | 7 |
| | | 5.0, 6.3, 7.0, 8.0, 10.0, 12.0, 15.0 | 32VDC | |
| QF1206F | 1206 | 0.5, 0.75, 1.0, 1.5, 1.75, 2.0 | 63VDC | 10 |
| | | 2.5, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0 | 32VDC | |
| QF0603F | 0603 | 0.5, 0.75, 1.0, 1.5 | 63VDC | 13 |
| | | 2.0, 2.5, 3.0, 3.5, 4.0, 5.0 | 32VDC | |
| | | 6.0 | 24VDC | |
| QF1206H | 1206 | 0.5, 0.75 | 65VDC | 16 |
| | | 1.0, 1.5, 2.0 | 63VDC | |
| | | 2.5, 3.0, 3.5, 4.0, 4.5, 5.0 | 32VDC | |
| | | 6.0, 7.0, 8.0 | 24VDC | |
| QF0603H | 0603 | 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 6.0, 7.0, 8.0 | 32VDC | 19 |

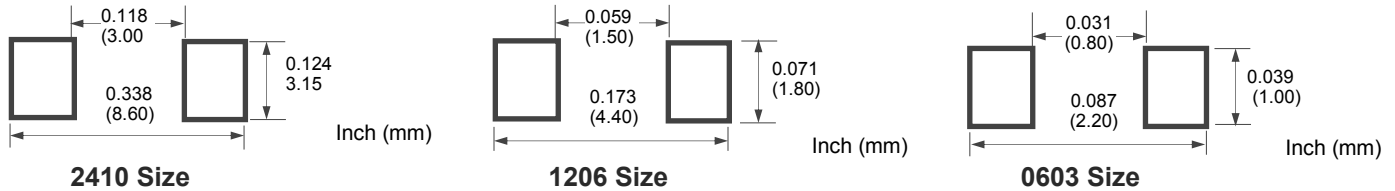
Automotive Surface Mount Fuses

Product Identification:

Q A 1206 F 2A00 T
 (1) (2) (3) (4) (5) (6)

- (1) Product type code: Q- Automotive fuse
- (2) Product code: A-AirMatrix Chip Fuse, F-SolidMatrix Chip Fuse
- (3) Dimension code: L x W (inch)
 - The first two digits - L (length)
 - The last two digits - W (width)
- (4) Characteristic code: F-fast acting, H-Slow Blow
- (5) Current rating code: 2A00-2.0A
- (6) Package code:
 - T – Tape and Reel
 - B – Bulk

Recommended Land Pattern:



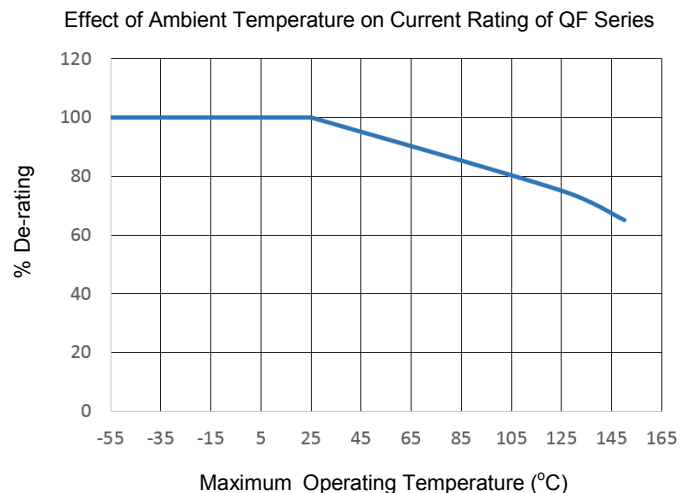
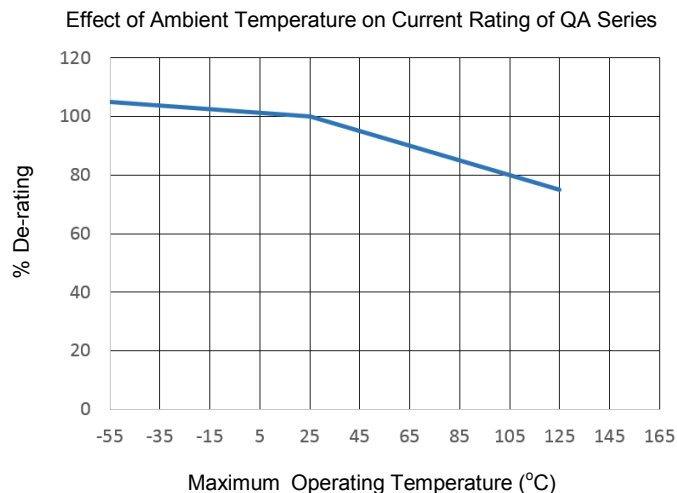
Fuse Selection and Temperature De-rating Guideline:

The ambient temperature affects the current carrying capacity of fuses. When a fuse is operating at a temperature higher than 25°C, the fuse shall be "de-rated".

To select a fuse from the catalog, the following rule may be followed:

Catalog Fuse Current Rating = Nominal Operating Current / 0.75 / % De-rating at the maximum operating temperature.

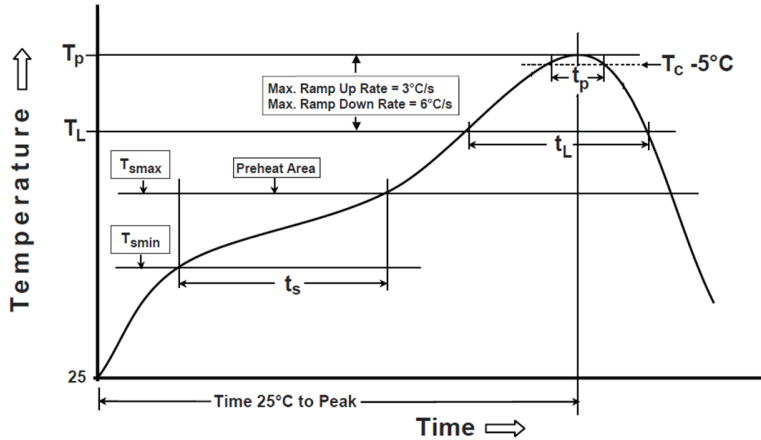
Example: At maximum operating temperature of 65°C, % De-rating is 90%. The nominal operating current is 4 A. The current rating for fuse selected from the catalog shall be: $4 / 0.75 / 90\% = 5.9$ or 6 A. Specifications and descriptions in this literature are as accurate as known at the time of publish, but are subject to change without notice.



Automotive Surface Mount Fuses

Soldering Temperature Profile:

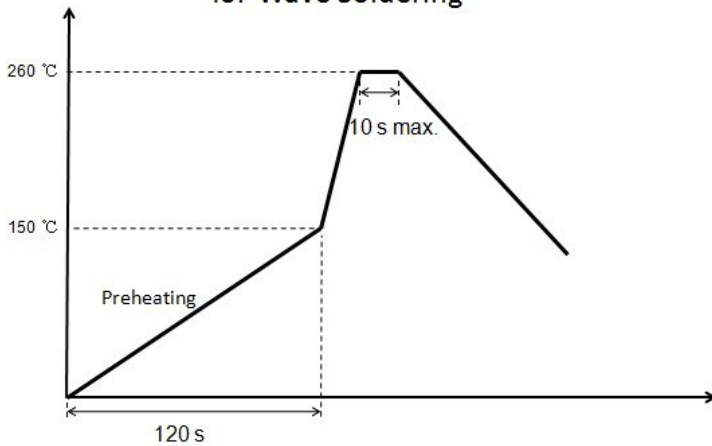
* Recommended Temperature Profile for Reflow Soldering



| Profile Feature | Pb-Free Assembly |
|---|----------------------------------|
| Preheat/Soak Temperature Min (T_{smin}) Temperature Max (T_{smax}) Time (t_s) from (T_{smin} to T_{smax}) | 150°C 200°C 60~120 seconds |
| Ramp-up rate (T_L to T_p) | 3°C/second max. |
| Liquidous temperature (T_L) Time (t_L) maintained above T_L | 217°C 60~150 seconds |
| Peak package body temperature (T_p) | 260°C |
| Time (t_p)* within 5°C of the specified classification temperature (T_c) | 30 seconds * |
| Ramp-down rate (T_p to T_L) | 6°C/second max. |
| Time 25°C to peak temperature | 8 minutes max. |
| * Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum | |

* Recommended Temperature Profile for Wave Soldering

Recommended Temperature Profile for Wave Soldering



Notice: Wave Soldering is suitable for 1206 and 0603 size.

Packaging:

| Chip Size | Parts on 7 inch (178 mm) Reel |
|----------------------------------|-------------------------------|
| 0603 (1608) | 4,000 |
| 1206 (3216) (For QA1206F Series) | 3,500 |
| 1206 (3216) | 3,000 |
| 2410 | 2,000 |

SolidMatrix[®] Automotive Surface Mount Fuses

QF0603H Series

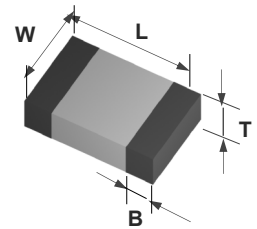


Agency Approval:

| Agency | File NO. |
|--------|----------|
| UL | E232989 |

Shape and Dimensions:

| Unit | Inch | mm |
|------|---------------|-------------|
| L | 0.063 ± 0.006 | 1.60 ± 0.15 |
| W | 0.031 ± 0.006 | 0.80 ± 0.15 |
| T | 0.031 ± 0.006 | 0.80 ± 0.15 |
| B | 0.014 ± 0.006 | 0.36 ± 0.15 |



Clearing Time Characteristics:

| % of current rating | Clearing time at 25°C | |
|---------------------|-----------------------|------------|
| | Min. | Max. |
| 100% | 4 hours | |
| 200% | 1 second | 60 seconds |

Ordering Information:

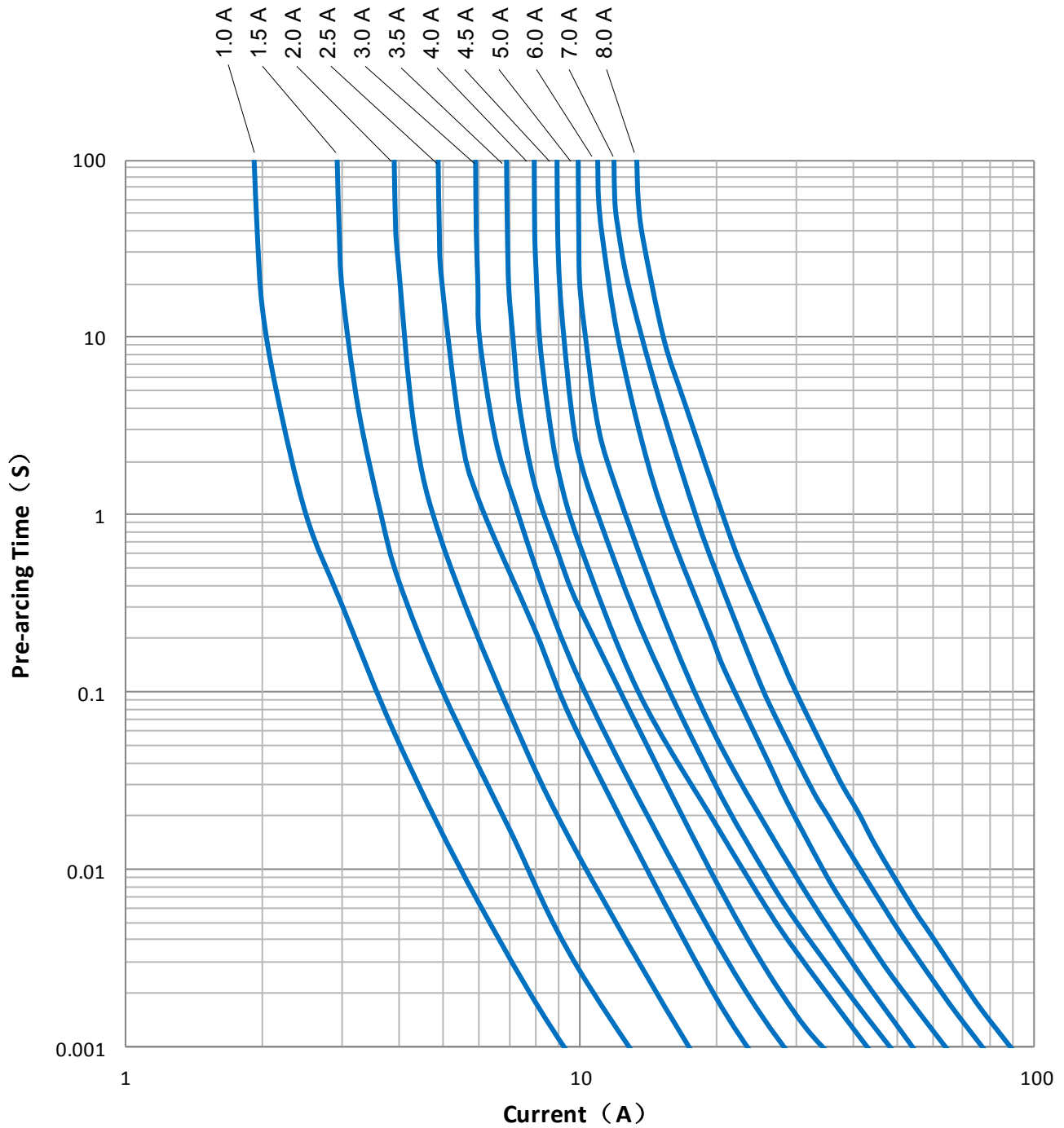
| Part Number | Current Rating (A) | Voltage Rating (VDC) | Interrupting Ratings | Nominal Cold DCR (Ω) ¹ | Nominal I ² t (A ² s) ² | Marking Code ³ | |
|--------------|--------------------|----------------------|----------------------|--|--|---------------------------|---|
| QF0603H1A00T | 1.0 | 32 | 50A @ 32VDC | 0.240 | 0.082 | E | |
| QF0603H1A50T | 1.5 | | | 0.115 | 0.112 | G | |
| QF0603H2A00T | 2.0 | | | 0.060 | 0.245 | I | |
| QF0603H2A50T | 2.5 | | | 0.042 | 0.570 | J | |
| QF0603H3A00T | 3.0 | | | 0.032 | 0.740 | K | |
| QF0603H3A50T | 3.5 | | | 0.022 | 1.120 | L | |
| QF0603H4A00T | 4.0 | | | 0.018 | 2.10 | M | |
| QF0603H4A50T | 4.5 | | | 0.015 | 2.68 | T | |
| QF0603H5A00T | 5.0 | | | 0.013 | 3.30 | N | |
| QF0603H6A00T | 6.0 | | | 80A @ 32VDC | 0.010 | 4.10 | O |
| QF0603H7A00T | 7.0 | | | | 0.008 | 5.20 | P |
| QF0603H8A00T | 8.0 | | | | 0.006 | 7.20 | R |

1. Measured at ≤ 10% rated current and 25°C ambient.
2. Melting I²t at 1000% of current rating.
3. Green Marking Character Code.

SolidMatrix[®] Automotive Surface Mount Fuses

QF0603H Series

Average I^2t vs. t Curves:



SolidMatrix[®] Automotive Surface Mount Fuses

QF0603H Series

Average I^2t vs. t Curves:

