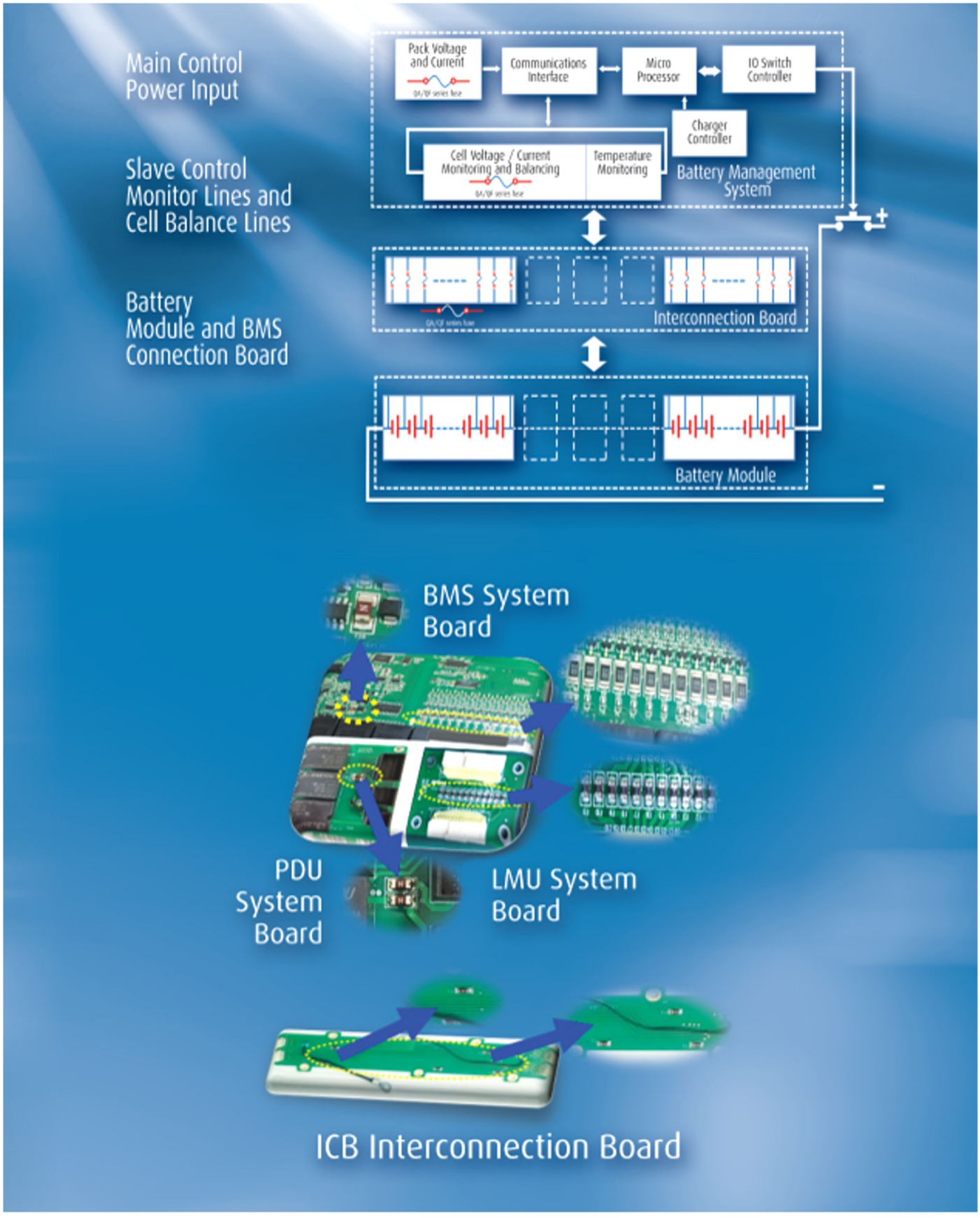
AEM

Innovation to power your vision

Automotive Grade Surface-Mount Fuses

- AEC-Q200 Rev.E Qualified
- IATF16949 Certified

SolidMatrix Platform, QF Series
AirMatrix Platform, QA Series
CMF Platform, QMF Series


Main Control Power Input
Slave Control Monitor Lines and Cell Balance Lines
Battery Module and BMS Connection Board
Pack Voltage and Current
Communications Interface
Micro Processor
IO Switch Controller
Charger Controller
Cell Voltage / Current Monitoring and Balancing
Temperature Monitoring
Battery Management System
Interconnection Board
Battery Module
BMS System Board
PDU System Board
LMU System Board
ICB Interconnection Board

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Revision of Nov. 2024

Automotive Surface Mount Fuses

Features:

AEM Components' AEC-Q200 Rev.E qualified and ISO IATF16949 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℃ to +125℃ (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℃ to +150℃ (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	1.0, 1.5, 2.0	250VDC	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	1.0, 1.5, 1.6, 2.0	125VDC	7
		2.5, 3.0, 3.15, 3.5, 4.0	65VDC	
		5.0, 6.3, 7.0, 8.0, 10.0, 12.0, 15.0	32VDC	
QF1206G	1206	0.5, 0.75, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0	65VDC	10
QF0603G	0603	0.5, 0.75, 1.0, 1.25, 1.5, 1.75	65VDC	13
		2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0	35VDC	
		7.0, 8.0	24VDC	
QF1206F	1206	0.5, 0.75, 1.0, 1.5, 1.75, 2.0	63VDC	16
		2.5, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0	32VDC	
QF0603F	0603	1.0, 1.5	63VDC	19
		2.0, 2.5, 3.0, 3.5, 4.0, 5.0	32VDC	
		6.0	24VDC	
QF1206H	1206	0.5, 0.75	65VDC	22
		1.0, 1.5, 2.0	63VDC	
		2.5, 3.0, 3.5, 4.0, 4.5, 5.0	32VDC	
		6.0	24VDC	
QF0603H	0603	1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0	32VDC	25
QM2822H	2822	20, 30, 40, 50, 60, 70, 80, 90, 100, 125	75VDC	28

Automotive Surface Mount Fuses

Product Identification:

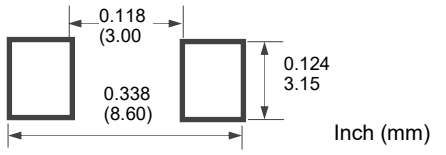
Q A 1206 F 2A00 T
(1) (2) (3) (4) (5) (6)

(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
T – Tape and Reel
B – Bulk

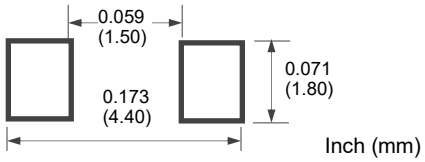
Q A 2410 F 1A00 T -7
(1) (2) (3) (4) (5) (6) (6)

(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: 1A00-1.0A
(6) Package code: T – Tape and Reel B – Bulk
No suffix after T: - 2K Tape & Reel
With suffix -7 after T: - 7K Tape & Reel

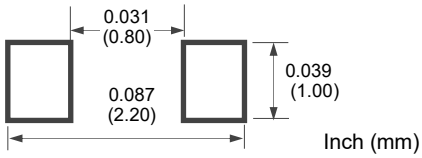
Recommended Land Pattern:



2410 Size



1206 Size

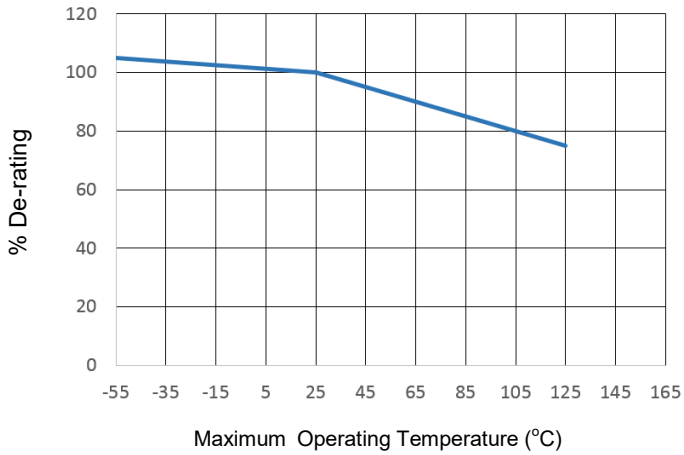


0603 Size

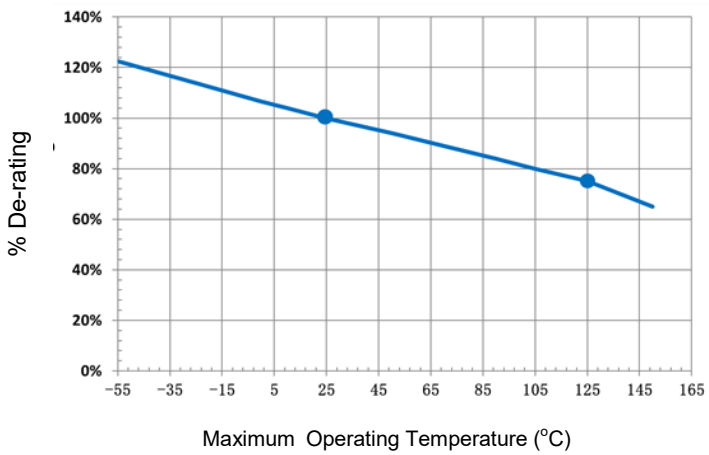
Fuse Selection and Temperature De-rating Guideline:

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.

Effect of Ambient Temperature on Current Rating of QA2410 and QA1210 Series.



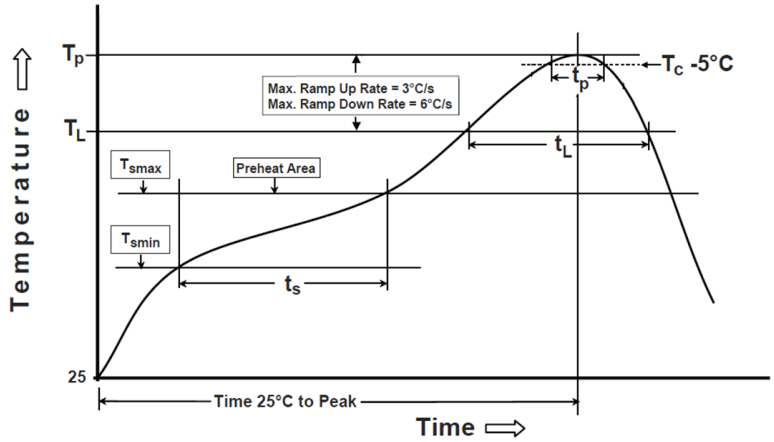
Effect of Ambient Temperature on Current Rating of QF1206 and QF0603 Series.



Automotive Surface Mount Fuses

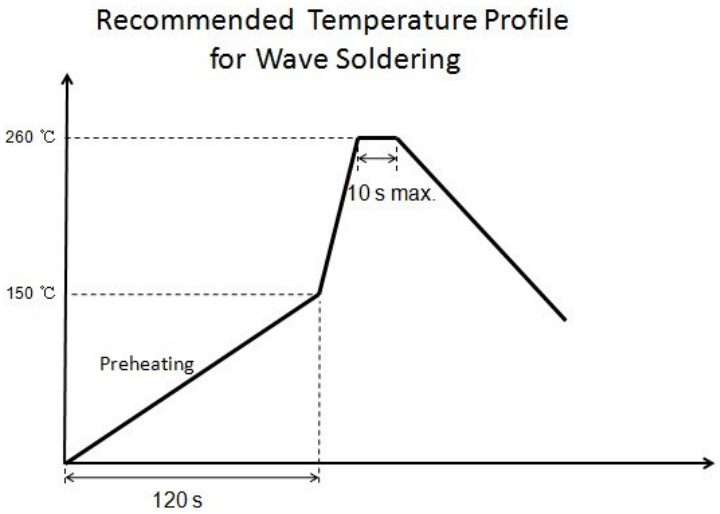
Soldering Temperature Profile:

∗ 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-uprate (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



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

Packaging:

Chip Size	Parts on 7 inch (178 mm) Reel	Parts on 13 inch (330 mm) Reel
0603 (1608)	4,000	-
1206 (3216)	3,000	-
1206 (3216), QA Series	3,500	-
2410 (6125)	2,000	7,000

AirMatrix® Automotive Surface Mount Fuses

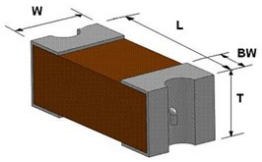
QA2410F Series

Agency Approval:

Agency	File NO.
UL	E232989

Shape and Dimensions:

Unit	Inch	mm
L	0.240 ± 0.006	6.10 ± 0.15
W	0.098 ± 0.006	2.49 ± 0.15
T	0.085 ± 0.008	2.16 ± 0.20
B	0.053 ± 0.015	1.35 ± 0.38



Clearing Time Characteristics:

% of current rating	Clearing time at 25°C	
	Min.	Max.
100%	4 hours	
200% (1.0-10.0A)	0.01 second	5 seconds
200%	0.01 second	20 seconds

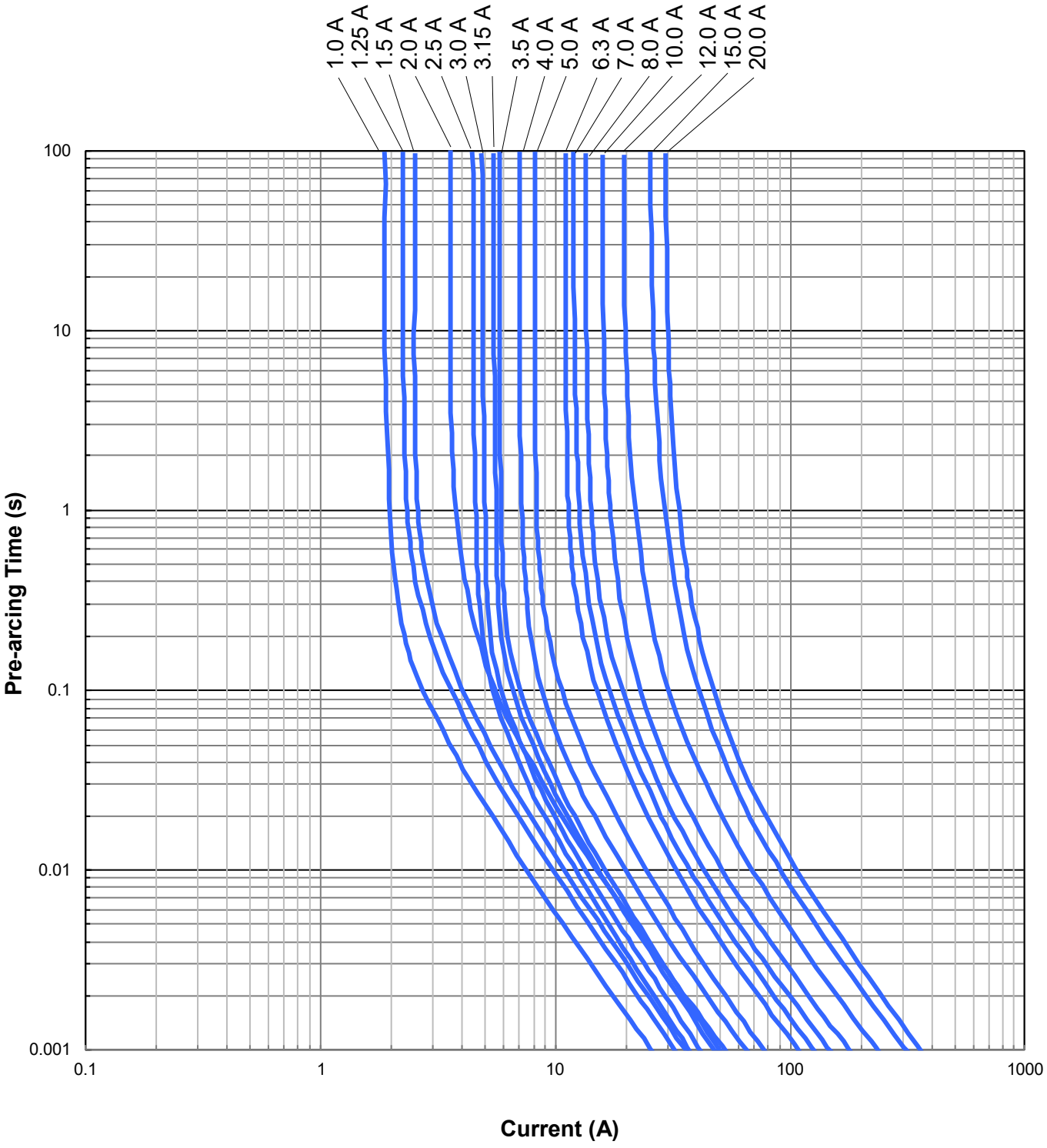
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Interrupting Ratings	Nominal Cold DCR (Ω)[1]	Nominal I^2t (A^2s)[2]	Marking Code[3]
QA2410F1A00T	1.00	250	1.0-2.0A: 100A @ 250VDC 300A @ 32VDC 2.5-10.0A: 50A @ 125VDC 300A @ 32VDC 12.0-15.0A: 50A @ 65VDC 300A @ 32VDC 20.0A: 100A @ 65VDC 300A @ 32VDC	0.093	0.59	E
QA2410F1A25T	1.25			0.070	0.96	F
QA2410F1A50T	1.50			0.060	1.19	G
QA2410F2A00T	2.00			0.042	2.75	I
QA2410F2A50T	2.50	125		0.031	1.21	J
QA2410F3A00T	3.00			0.0249	1.73	K
QA2410F3A15T	3.15			0.0230	2.2	V
QA2410F3A50T	3.50			0.0210	2.5	L
QA2410F4A00T	4.00			0.0175	3.3	M
QA2410F5A00T	5.00			0.0146	5.9	N
QA2410F6A30T	6.30			0.0100	12.5	O
QA2410F7A00T	7.00			0.0097	14.2	P
QA2410F8A00T	8.00			0.0085	16.5	R
QA2410F10A0T	10.0			0.0068	29.2	Q
QA2410F12A0T	12.0	65		0.0053	39.3	X
QA2410F15A0T	15.0			0.0037	102.5	Y
QA2410F20A0T	20.0			0.0029	126.2	Z

1. Measured at ≤ 10% rated current and 25°C ambient. 2. Melting I^2t at 0.001 second pre-arcing time. 3. Blue Marking Character Code.

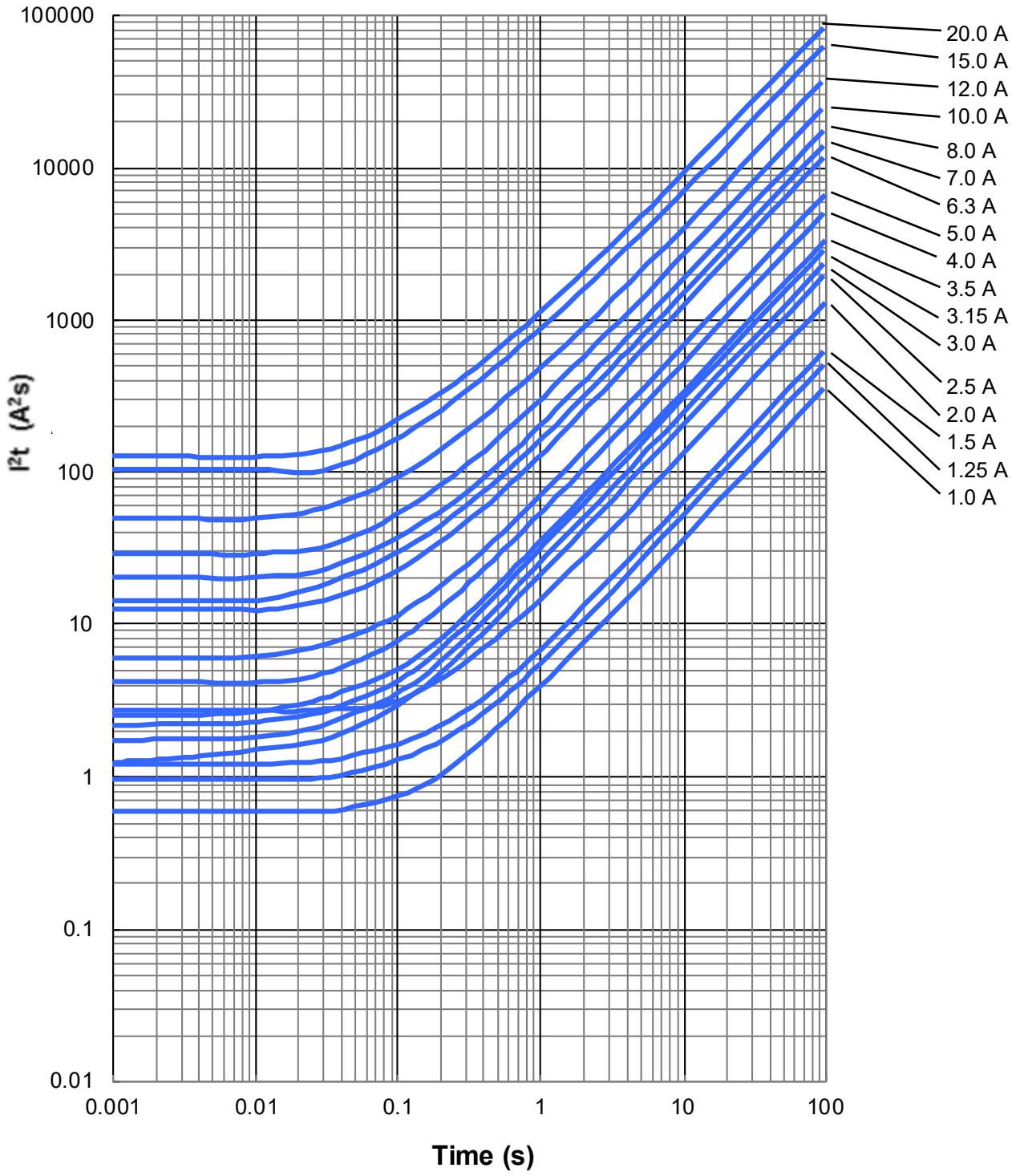
AirMatrix® Automotive Surface Mount Fuses
QA2410F Series

Average Pre-arcing Time Curves:



AirMatrix® Automotive Surface Mount Fuses
QA2410F Series

Average I^2t vs. t Curves:



AirMatrix® Automotive Surface Mount Fuses

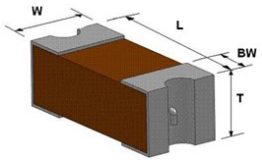
QA1206F Series

Agency Approval:

Agency	File NO.
UL	E232989

Shape and Dimensions:

Unit	Inch	mm
L	0.126 ± 0.008	3.20 ± 0.20
W	0.063 + 0.012 / -0.004	1.60 + 0.30 / -0.10
T	0.042 ± 0.006	1.08 ± 0.15
B	0.033 ± 0.012	0.85 ± 0.30



Clearing Time Characteristics:

% of current rating	Clearing time at 25°C	
	Min.	Max.
100%	4 hours	
250%		5 seconds

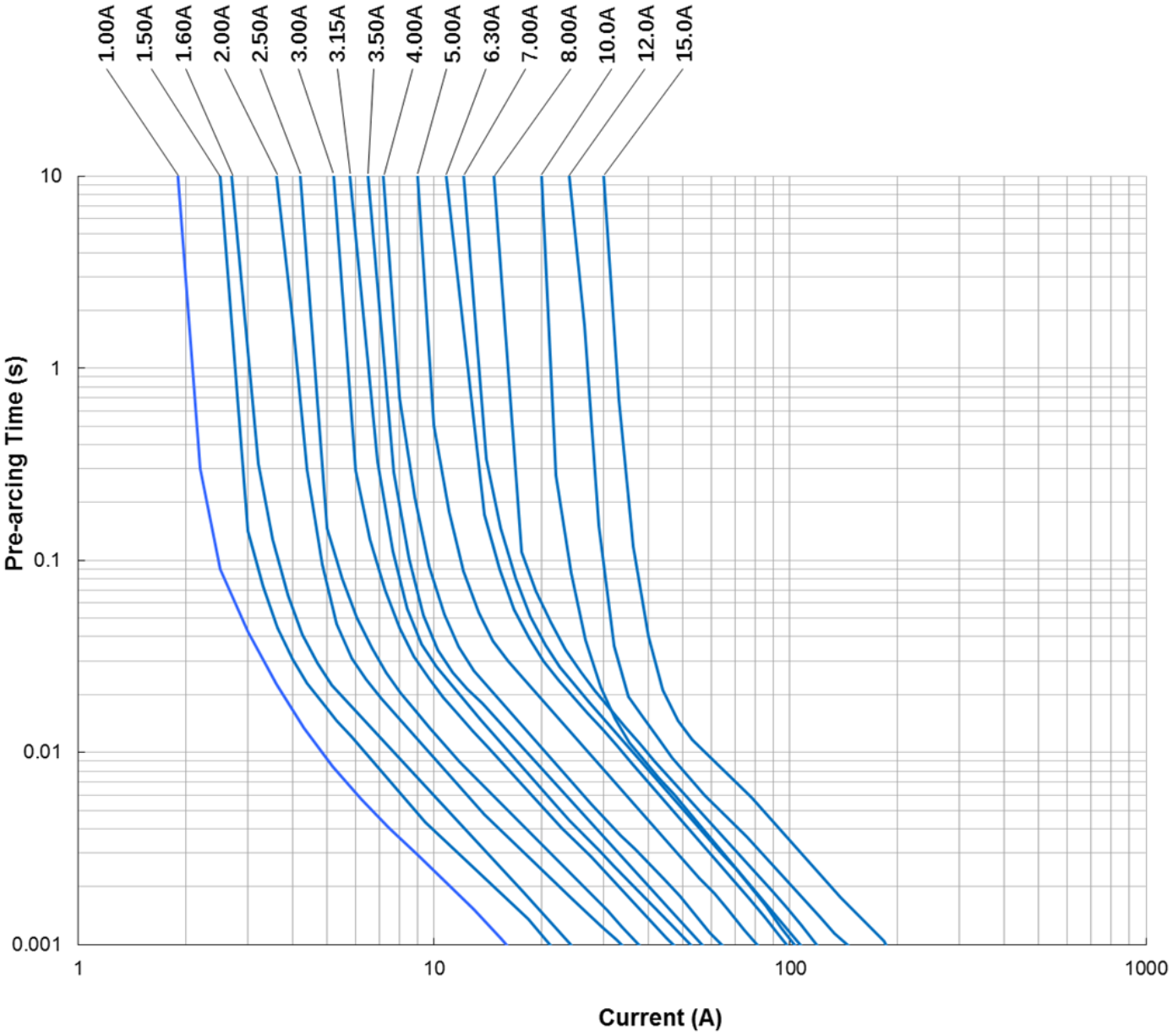
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Interrupting Ratings	Nominal Cold DCR (Ω)[1]	Nominal I^2t (A^2s)[2]	Marking Code[3]
QA1206F1A00T	1.00	125	50 A @ 125VDC	0.066	0.21	E
QA1206F1A50T	1.50			0.050	0.37	G
QA1206F1A60T	1.60			0.043	0.52	T
QA1206F2A00T	2.00			0.032	0.88	I
QA1206F2A50T	2.50	65	50 A @ 65VDC	0.028	1.1	J
QA1206F3A00T	3.00			0.0224	1.9	K
QA1206F3A15T	3.15			0.0203	2.2	V
QA1206F3A50T	3.50			0.0180	2.6	L
QA1206F4A00T	4.00			0.0161	3.3	M
QA1206F5A00T	5.00	32	50 A @ 32VDC	0.0129	5.4	N
QA1206F6A30T	6.30			0.0100	8.9	O
QA1206F7A00T	7.00			0.0094	10.4	P
QA1206F8A00T	8.00			0.0084	13.5	R
QA1206F10A0T	10.0			0.0050	11.2	Q
QA1206F12A0T	12.0			0.0041	15.0	X
QA1206F15A0T	15.0			0.0035	24.5	Y

1. Measured at ≤ 10% rated current and 25°C ambient.
2. Melting I^2t at 0.001 second pre-arcing time.
3. Blue Marking Character Code.

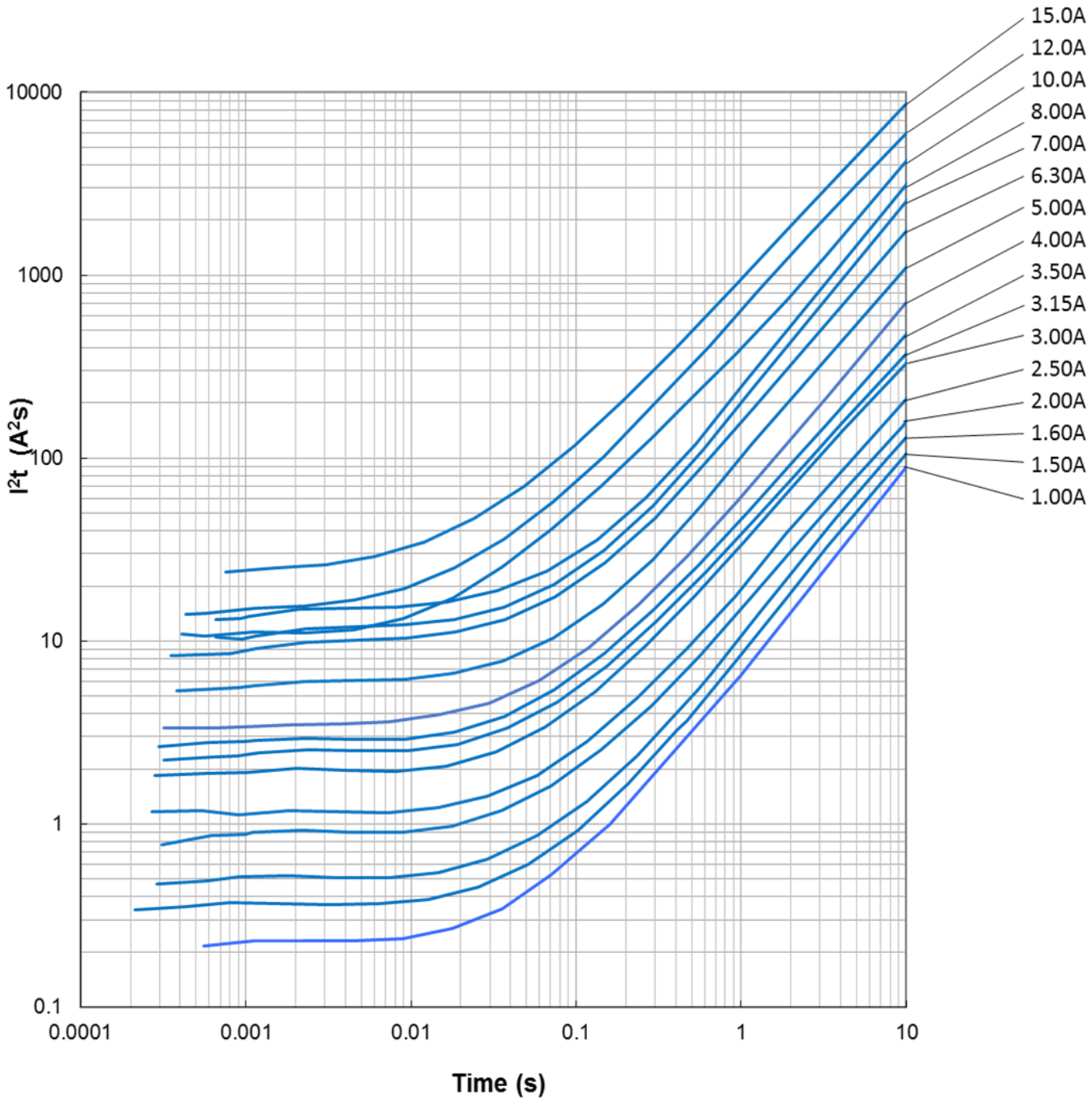
AirMatrix® Automotive Surface Mount Fuses
QA1206F Series

Average Pre-arcing Time Curves:



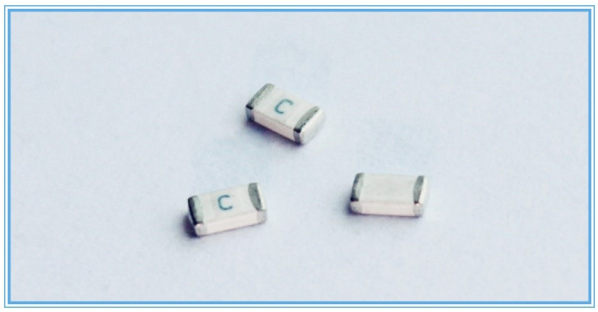
AirMatrix® Automotive Surface Mount Fuses
QA1206F Series

Average I^2t vs. t Curves:



SolidMatrix® Automotive Surface Mount Fuses

QF1206G Series



Agency Approval:

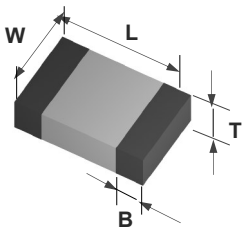
Agency	File NO.
UL	E232989

Clearing Time Characteristics:

% of current rating	Clearing time at 25°C	
	Min.	Max.
100%	4 hours	
250%		5 seconds

Shape and Dimensions:

Unit	Inch	mm
L	0.126 ± 0.008	3.20 ± 0.20
W	0.063 ± 0.008	1.60 ± 0.20
T	0.033 ± 0.008	0.85 ± 0.20
B	0.020 ± 0.010	0.51 ± 0.25



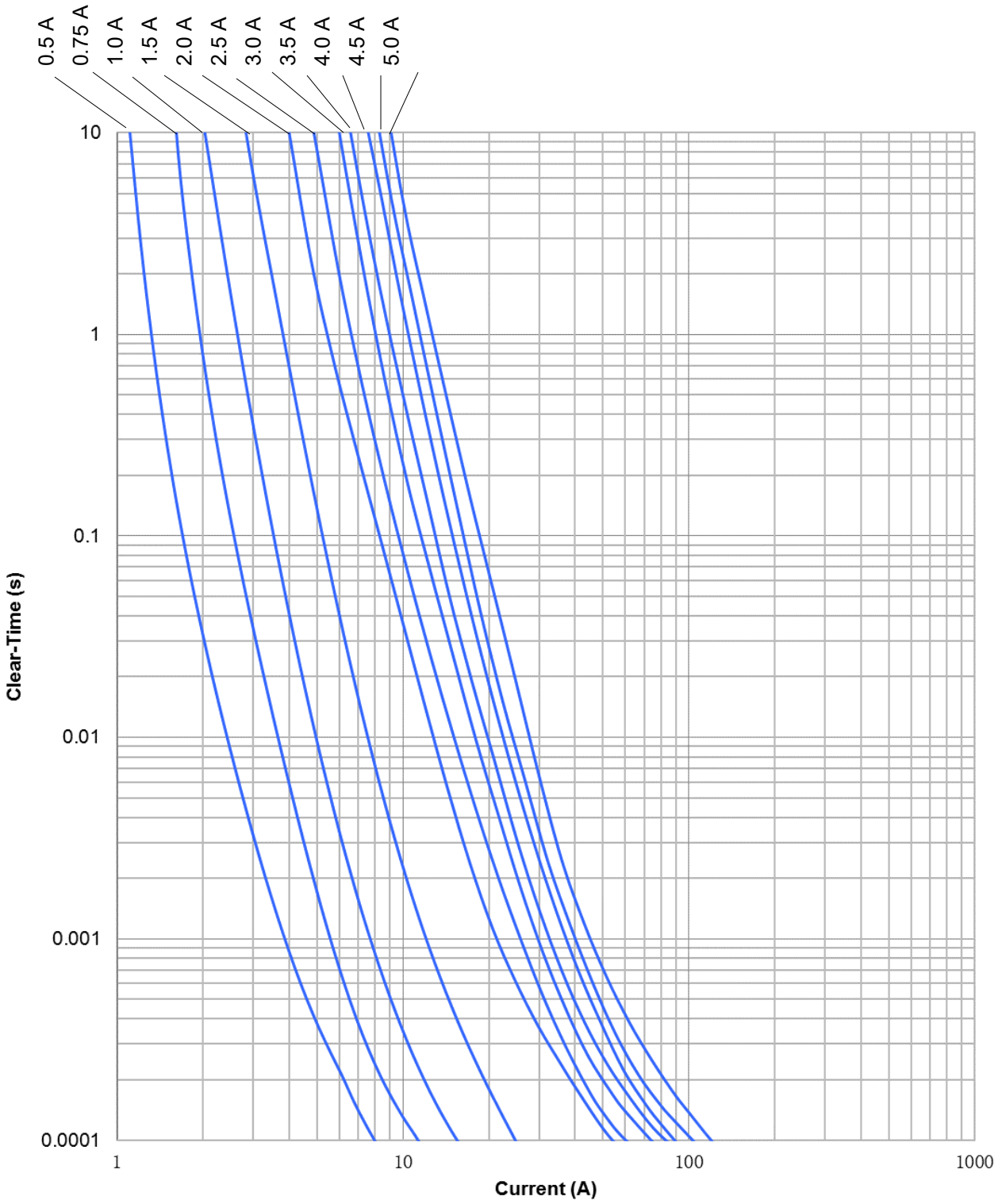
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Interrupting Ratings	Nominal Cold DCR (Ω)[1]	Nominal I^2t $(A^2s)^2$	Marking Code[3]
QF1206GA500T	0.5	65	50A @ 65VDC	1.080	0.006	C
QF1206GA750T	0.75			0.513	0.016	D
QF1206G1A00T	1.0			0.420	0.048	E
QF1206G1A50T	1.5			0.209	0.120	G
QF1206G2A00T	2.0			0.140	0.330	I
QF1206G2A50T	2.5			0.070	0.480	J
QF1206G3A00T	3.0			0.051	0.600	K
QF1206G3A50T	3.5			0.039	0.750	L
QF1206G4A00T	4.0			0.032	0.900	M
QF1206G4A50T	4.5			0.027	1.120	T
QF1206G5A00T	5.0			0.023	1.500	N

1. Measured at ≤10% rated current and 25℃ ambient.
2. Melting I^2t at 0.001 second pre-arcing time.
3. Cyan marking character code at the top side (0.5-0.75A), cyan marking character code at both sides (1-8A).

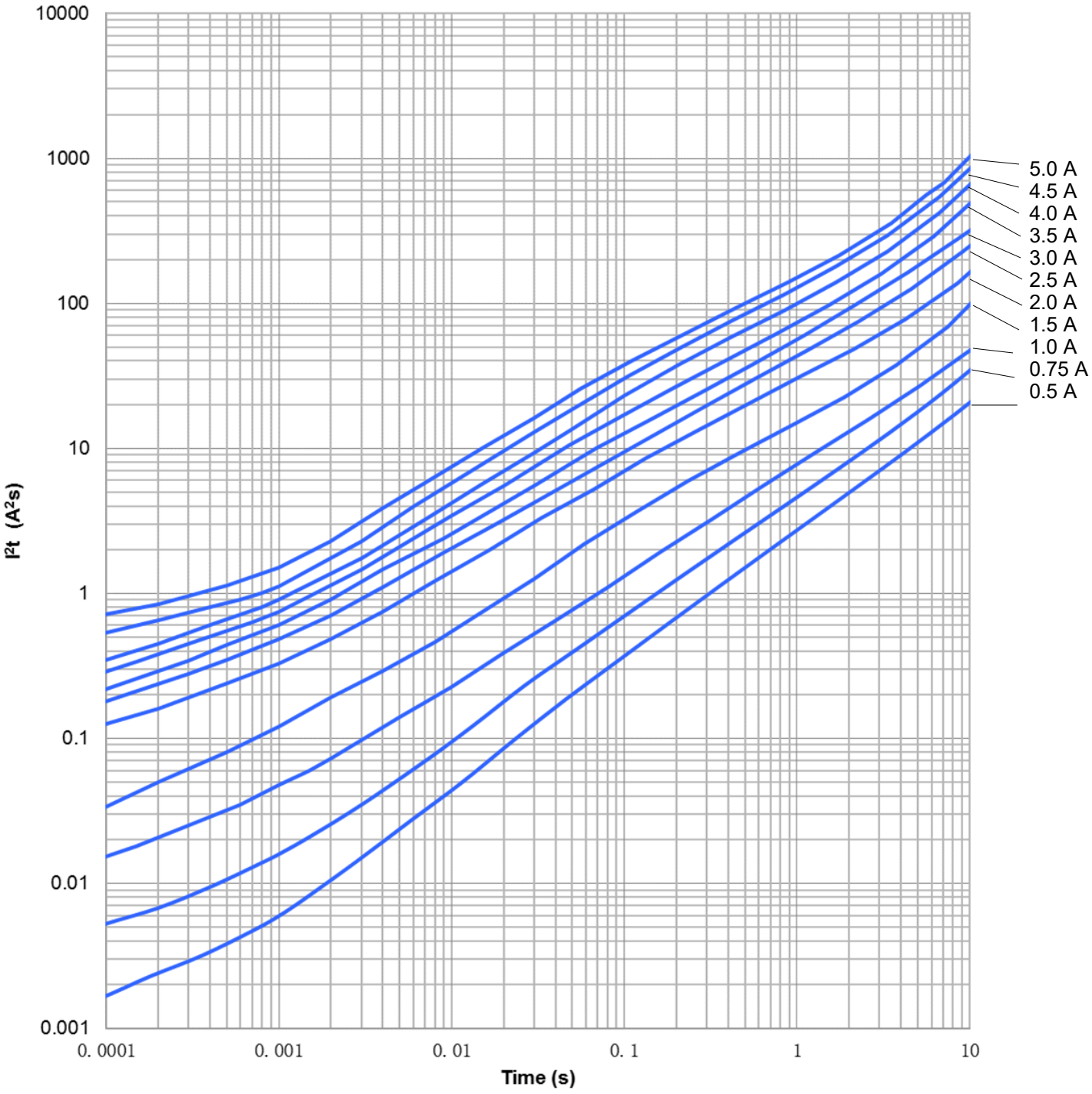
SolidMatrix® Automotive Surface Mount Fuses
QF1206G Series

Average Pre-arcing Time Curves:



SolidMatrix® Automotive Surface Mount Fuses
QF1206G Series

Average I^2t vs. t Curves:



SolidMatrix® Automotive Surface Mount Fuses

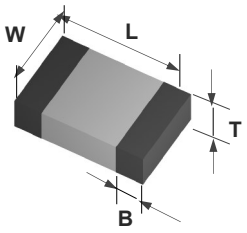
QF0603G Series

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	
250%		5 seconds

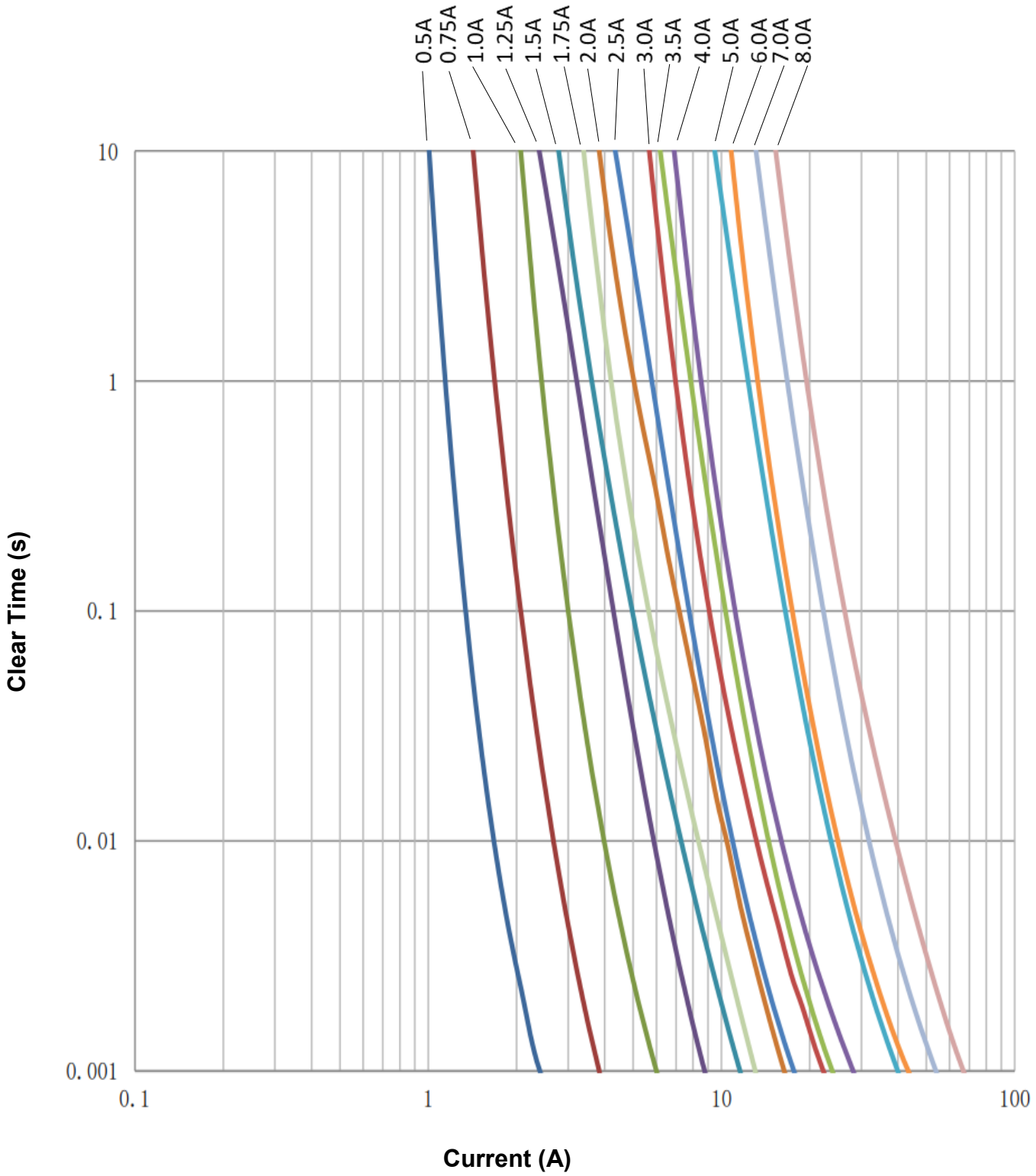
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Interrupting Ratings	Nominal Cold DCR (Ω)[1]	Nominal I^2t (A^2s)[2]	Marking Code[3]
QF0603GA500T	0.5	65	50A @ 65VDC	0.827	0.004	C
QF0603GA750T	0.75			0.373	0.012	D
QF0603G1A00T	1.0			0.237	0.030	E
QF0603G1A25T	1.25			0.153	0.065	F
QF0603G1A50T	1.5			0.116	0.10	G
QF0603G1A75T	1.75			0.091	0.145	H
QF0603G2A00T	2.0	35	50A @ 35VDC	0.067	0.18	I
QF0603G2A50T	2.5			0.039	0.22	J
QF0603G3A00T	3.0			0.029	0.34	K
QF0603G3A50T	3.5			0.024	0.39	L
QF0603G4A00T	4.0			0.020	0.53	M
QF0603G5A00T	5.0			0.012	0.88	N
QF0603G6A00T	6.0			0.011	1.09	O
QF0603G7A00T	7.0	24	80A @ 24VDC	0.008	1.86	P
QF0603G8A00T	8.0			0.007	2.7	R

1. Measured at ≤10% of rated current and 25℃ ambient.
2. Melting I^2t at 0.001 second pre-arcing time.
3. Cyan marking character code.

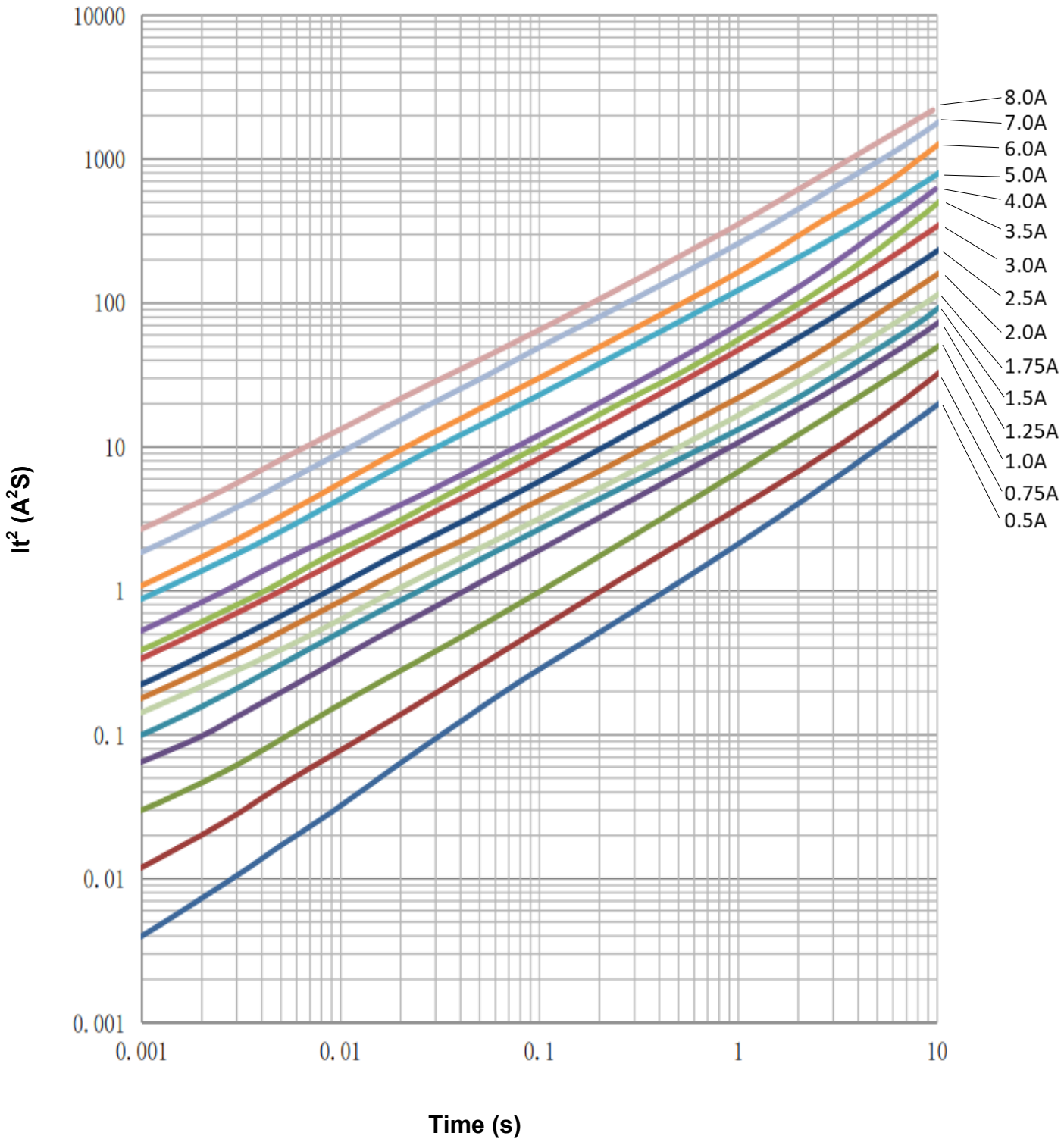
SolidMatrix® Automotive Surface Mount Fuses
QF0603G Series

Average Pre-arcing Time Curves:



SolidMatrix® Automotive Surface Mount Fuses
QF0603G Series

Average I^2t vs. t Curves:



SolidMatrix® Automotive Surface Mount Fuses

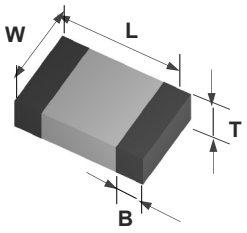
QF1206F Series

Agency Approval:

Agency	File NO.
UL	E232989

Shape and Dimensions:

Unit	Inch	mm
L	0.126 ± 0.008	3.20 ± 0.20
W	0.063 ± 0.008	1.60 ± 0.20
T	0.033 ± 0.008	0.85 ± 0.20
B	0.020 ± 0.010	0.51 ± 0.25



Clearing Time Characteristics:

% of current rating	Clearing time at 25°C	
	Min.	Max.
100%	4 hours	
250%		5 seconds
400%		0.05 second

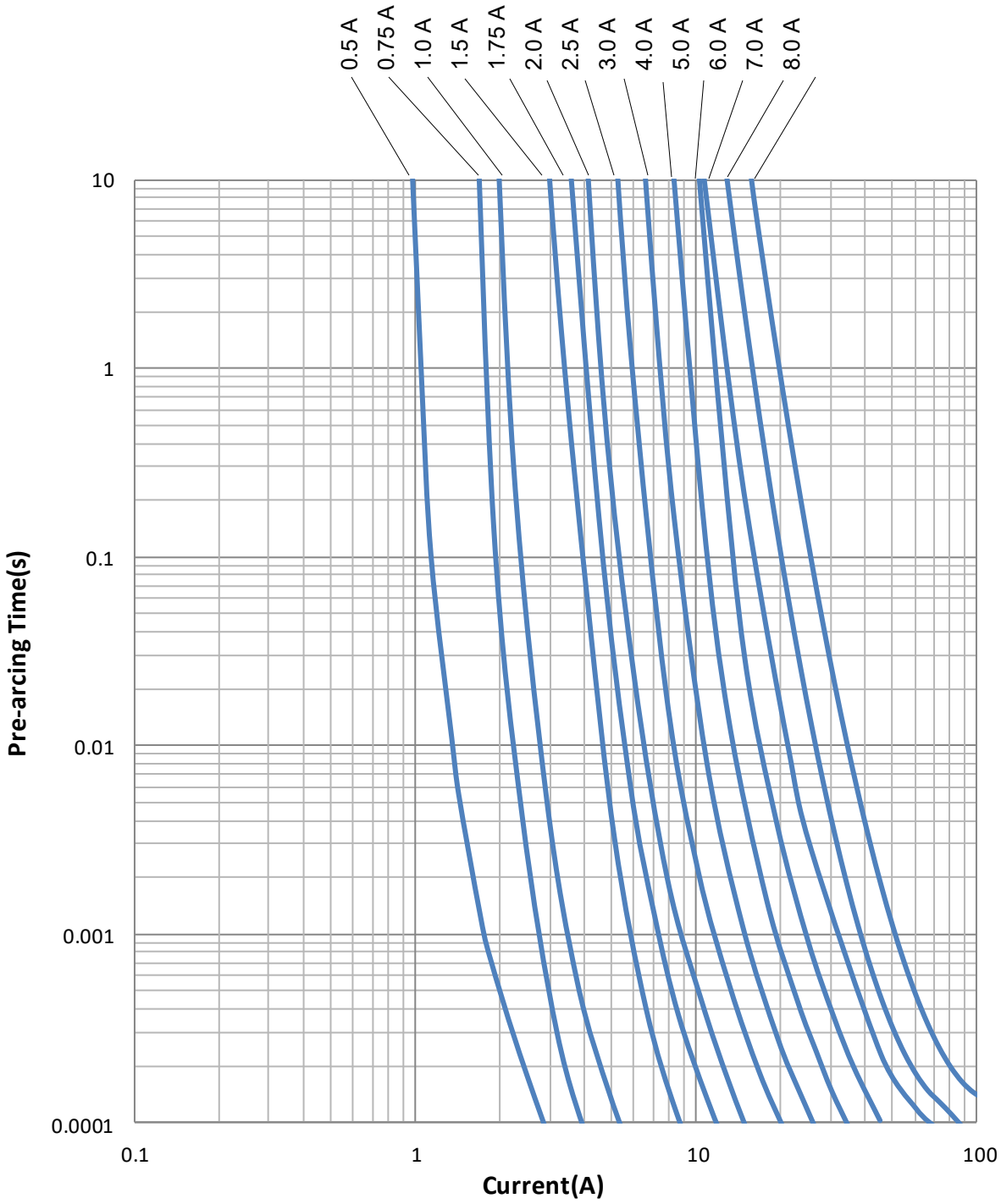
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Interrupting Ratings	Nominal Cold DCR (Ω)[1]	Nominal I^2t (A^2s)[2]	Marking Code[3]
QF1206FA500T	0.5	63	50A @ 63VDC	0.780	0.003	C
QF1206FA750T	0.75			0.530	0.008	D
QF1206F1A00T	1.0			0.250	0.012	E
QF1206F1A50T	1.5			0.110	0.026	G
QF1206F1A75T	1.75			0.098	0.046	H
QF1206F2A00T	2.0			0.054	0.076	I
QF1206F2A50T	2.5	32	50A @ 32VDC	0.040	0.115	J
QF1206F3A00T	3.0			0.036	0.220	K
QF1206F4A00T	4.0		45A @ 32VDC	0.022	0.360	M
QF1206F5A00T	5.0			0.015	0.620	N
QF1206F6A00T	6.0		50A @ 32VDC	0.013	0.850	+
QF1206F7A00T	7.0			0.011	1.030	-
QF1206F8A00T	8.0			0.008	2.040	=

1. Measured at ≤ 10% rated current and 25°C ambient.
2. Melting I^2t at 0.001 second pre-arcing time.
3. Black Marking Character Code.

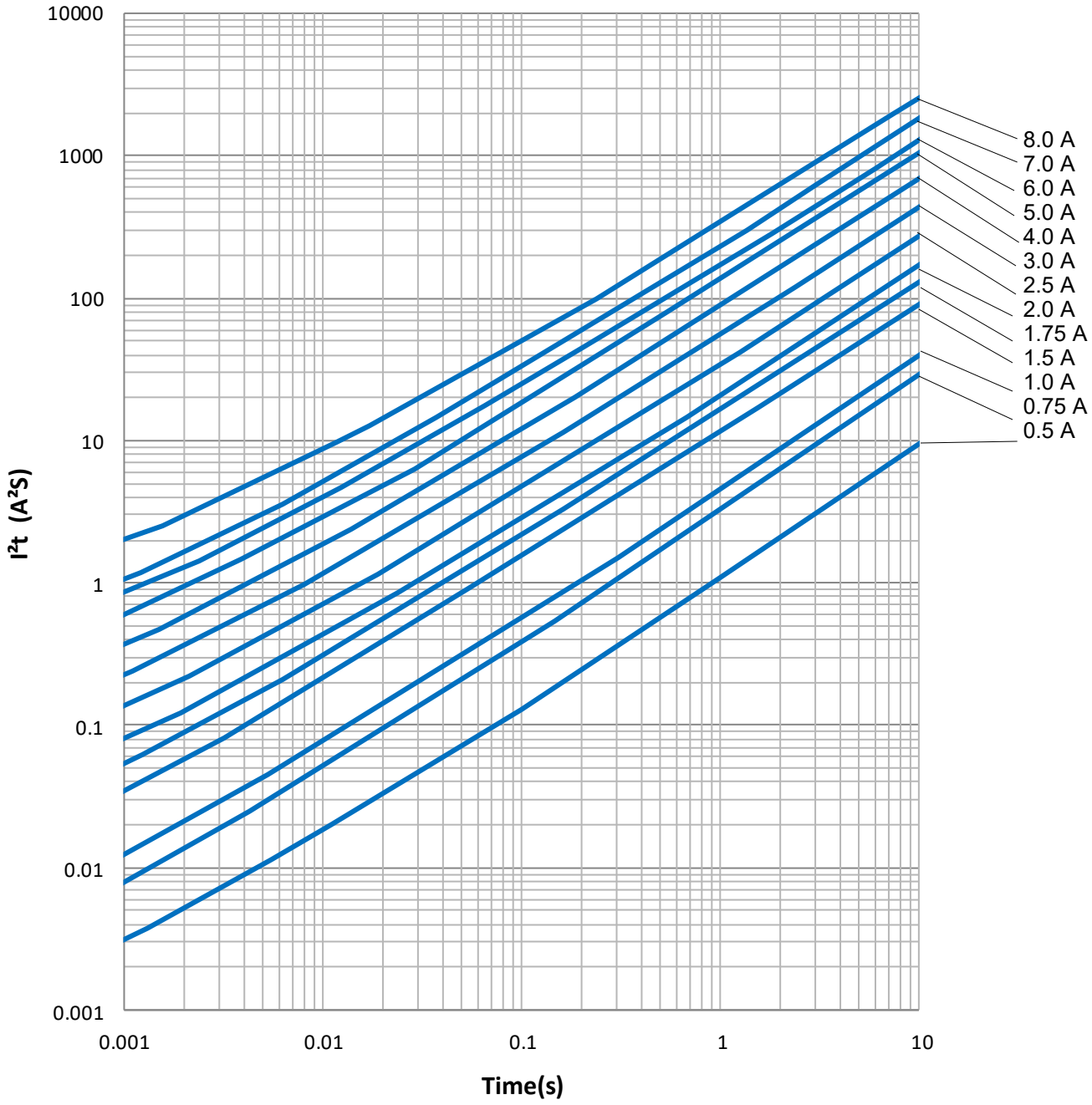
SolidMatrix® Automotive Surface Mount Fuses
QF1206F Series

Average Pre-arcing Time Curves:



SolidMatrix® Automotive Surface Mount Fuses
QF1206F Series

Average I^2t vs. t Curves:



SolidMatrix® Automotive Surface Mount Fuses

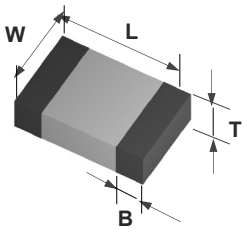
QF0603F Series

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	
250%		5 seconds
400%		0.05 second

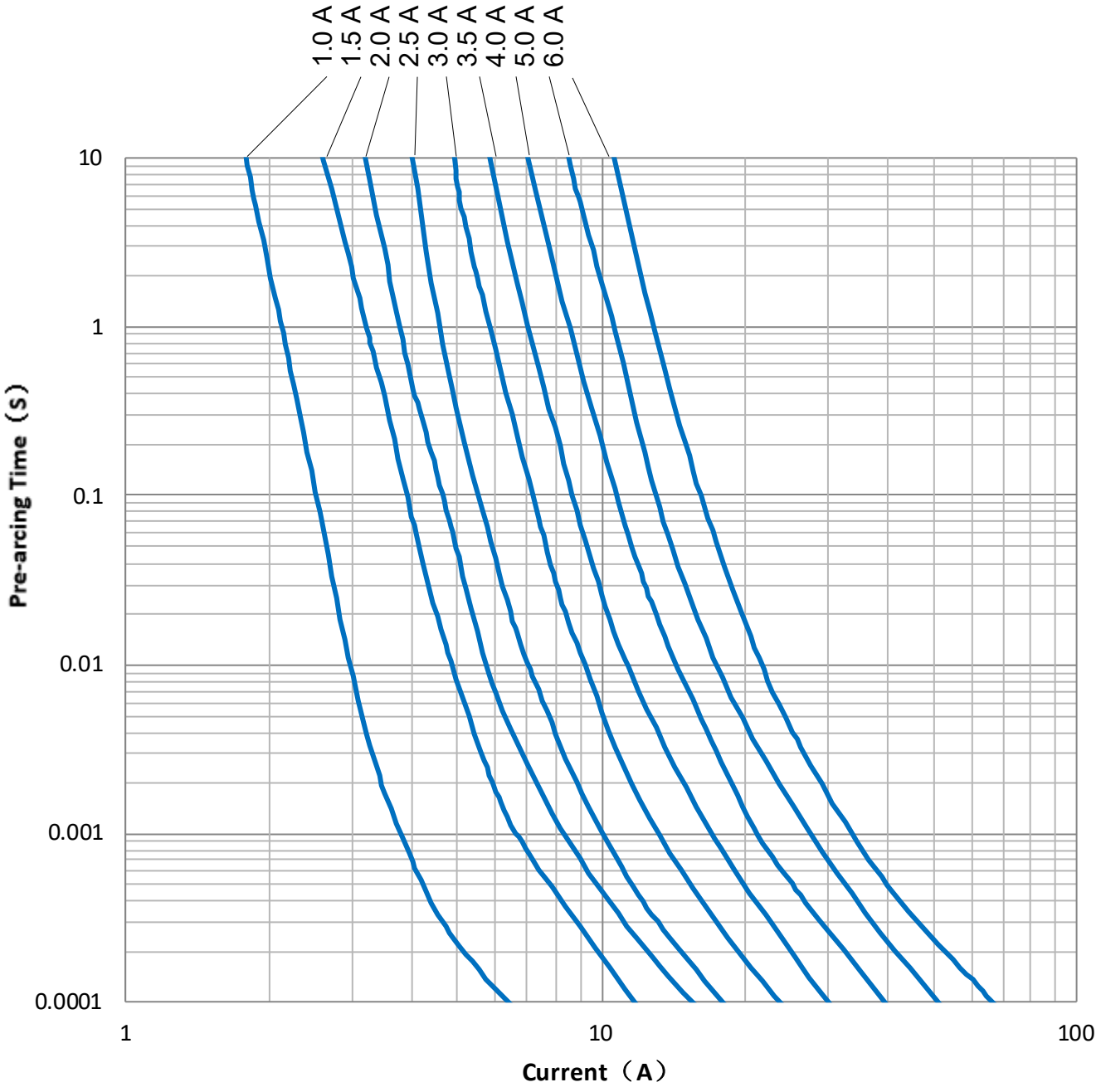
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Interrupting Ratings	Nominal Cold DCR (Ω)[1]	Nominal I^2t (A^2s)[2]	Marking Code[3]
QF0603F1A00T	1.0	63	35A @ 63VDC	0.150	0.0132	E
QF0603F1A50T	1.5			0.063	0.043	G
QF0603F2A00T	2.0	32	35A @ 32VDC	0.044	0.070	I
QF0603F2A50T	2.5			0.034	0.103	J
QF0603F3A00T	3.0			0.025	0.183	K
QF0603F3A50T	3.5			0.024	0.306	L
QF0603F4A00T	4.0			0.019	0.508	M
QF0603F5A00T	5.0			0.013	0.810	N
QF0603F6A00T	6.0	24	35A @ 24VDC	0.010	1.120	O

1. Measured at ≤ 10% rated current and 25°C ambient.
2. Melting I^2t at 0.001 second pre-arcing time.
3. Black Marking Character Code.

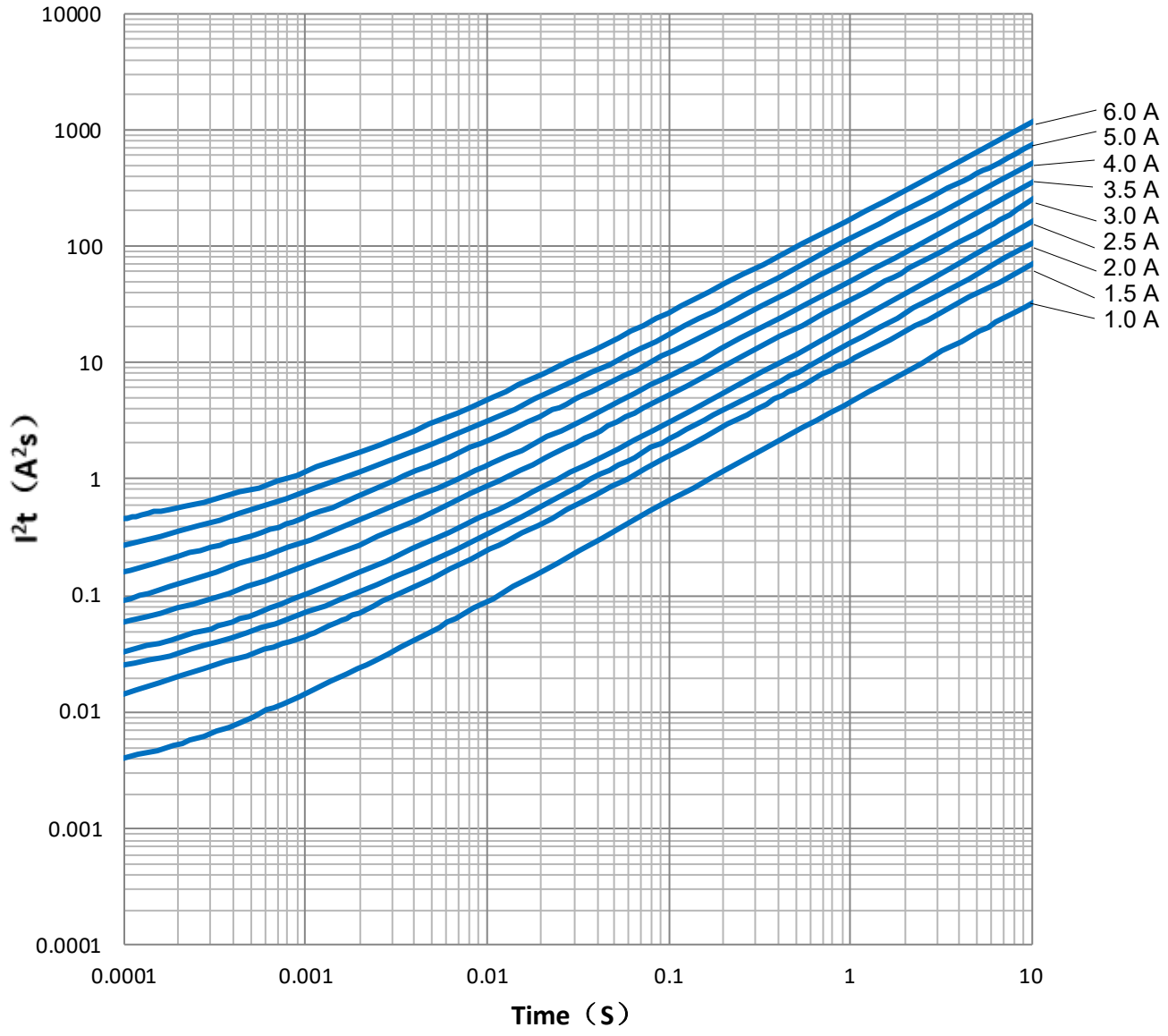
SolidMatrix® Automotive Surface Mount Fuses
QF0603F Series

Average Pre-arcing Time Curves:



SolidMatrix® Automotive Surface Mount Fuses
QF0603F Series

Average I^2t vs. t Curves:



SolidMatrix® Automotive Surface Mount Fuses

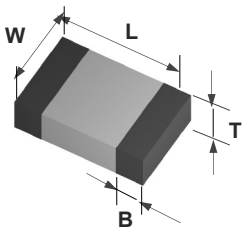
QF1206H Series

Agency Approval:

Agency	File NO.
UL	E232989

Shape and Dimensions:

Unit	Inch	mm
L	0.126 ± 0.008	3.20 ± 0.20
W	0.063 ± 0.008	1.60 ± 0.20
T	0.038 ± 0.008	0.97 ± 0.20
B	0.020 ± 0.010	0.51 ± 0.25



Clearing Time Characteristics:

% of current rating	Clearing time at 25°C	
	Min.	Max.
100%	4 hours	
200% (1-6A)	1 second	60 seconds
350% (0.5-0.75A)		5 seconds

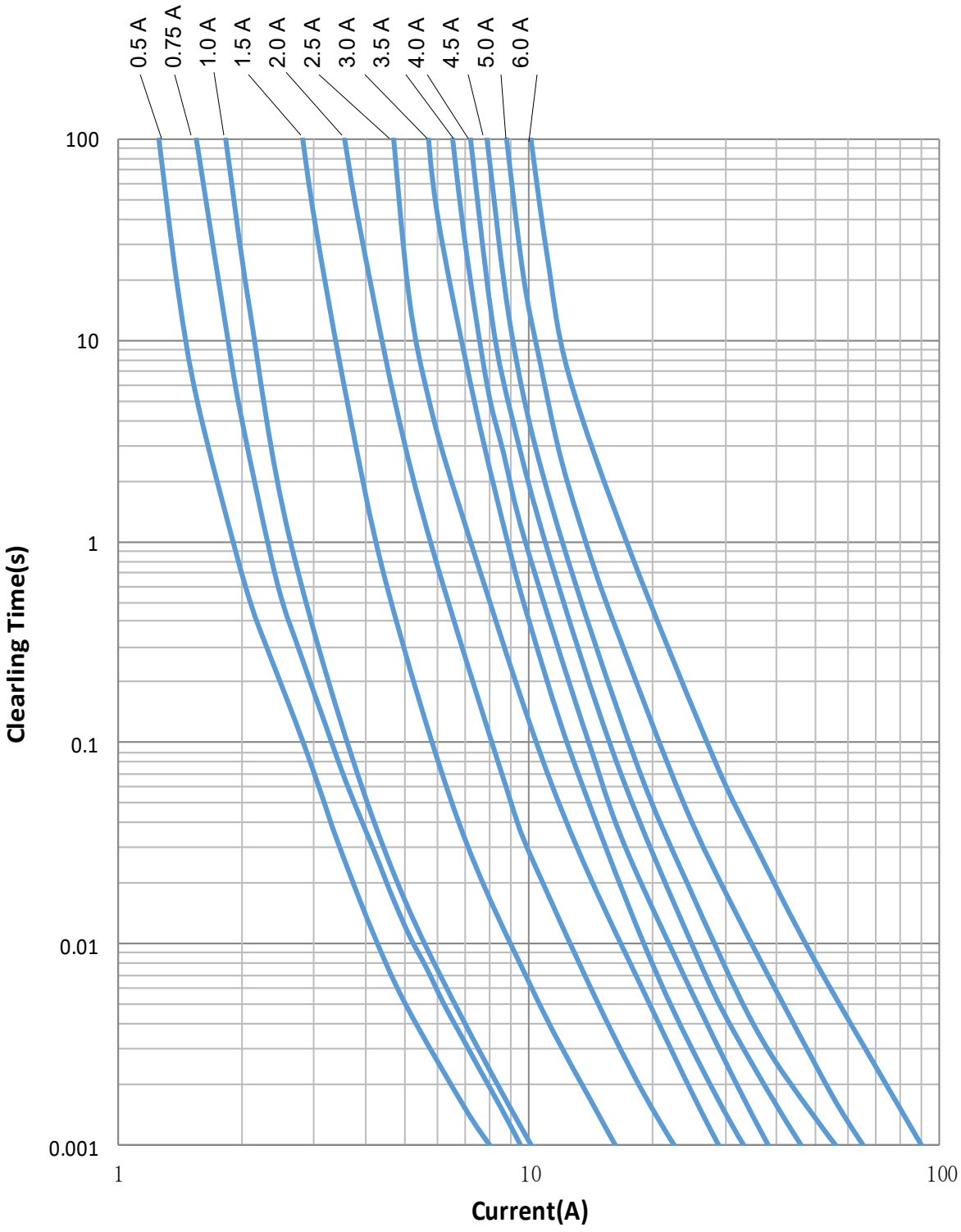
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Interrupting Ratings	Nominal Cold DCR (Ω)[1]	Nominal I^2t (A^2s)[2]	Marking Code[3]
QF1206HA500T	0.5	65	50A @ 65VDC	0.980	0.035	C
QF1206HA750T	0.75			0.420	0.100	D
QF1206H1A00T	1.0	63	50A @ 63VDC	0.370	0.112	E
QF1206H1A50T	1.5			0.165	0.336	G
QF1206H2A00T	2.0			0.089	0.820	I
QF1206H2A50T	2.5	32	50A @ 32VDC	0.067	1.210	J
QF1206H3A00T	3.0			0.039	1.360	K
QF1206H3A50T	3.5			0.030	1.890	L
QF1206H4A00T	4.0			0.025	2.780	M
QF1206H4A50T	4.5			0.023	3.250	T
QF1206H5A00T	5.0			0.020	7.500	N
QF1206H6A00T	6.0	24	80A @ 24VDC	0.013	12.80	O

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

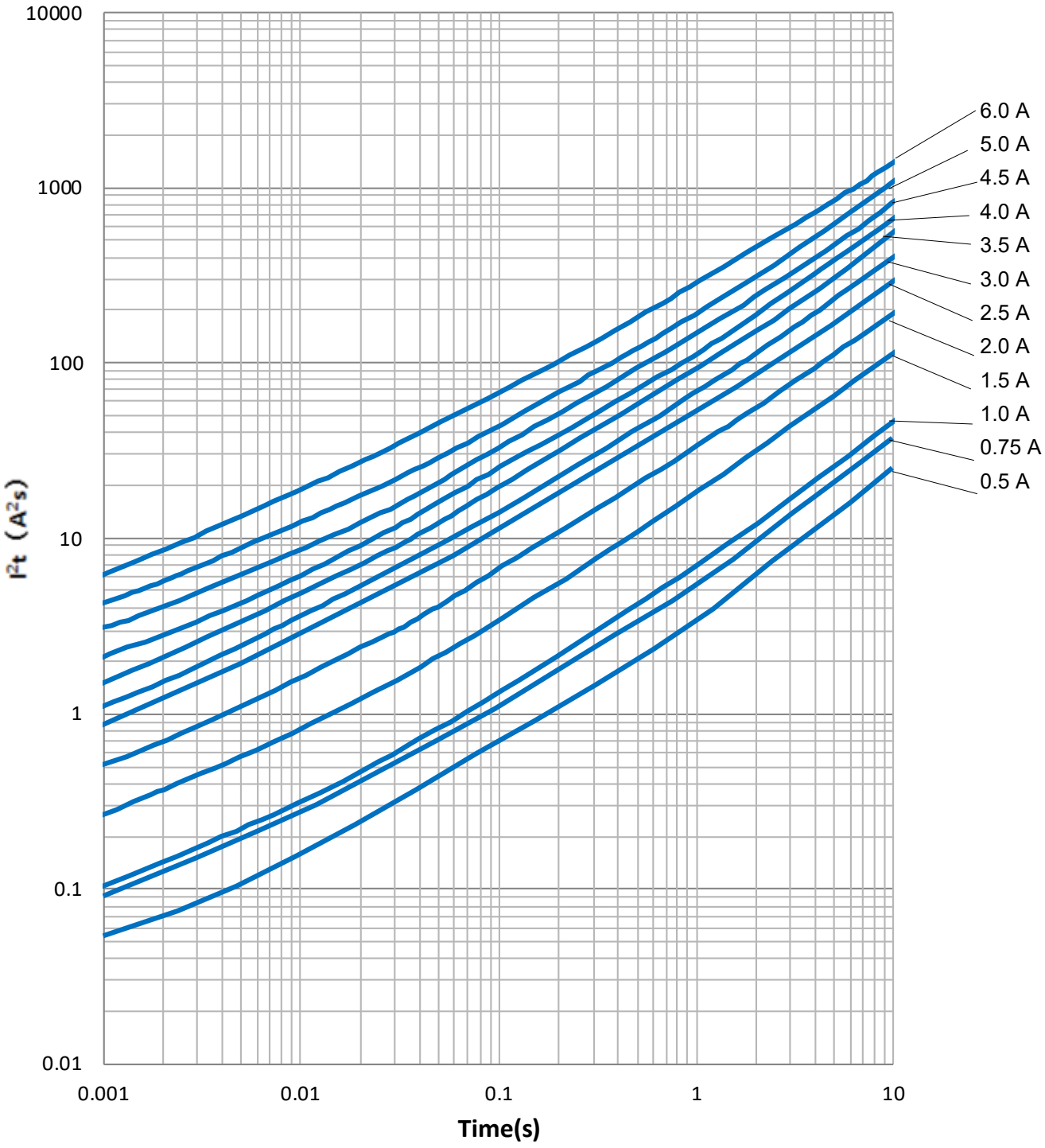
SolidMatrix® Automotive Surface Mount Fuses
QF1206H Series

Average Pre-arcing Time Curves:



SolidMatrix® Automotive Surface Mount Fuses
QF1206H Series

Average I^2t vs. t Curves:



SolidMatrix® Automotive Surface Mount Fuses

QF0603H Series

Agency Approval:

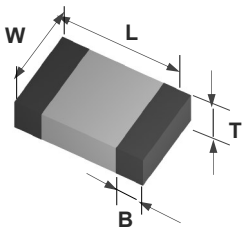
Agency	File NO.
UL	E232989

Clearing Time Characteristics:

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

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



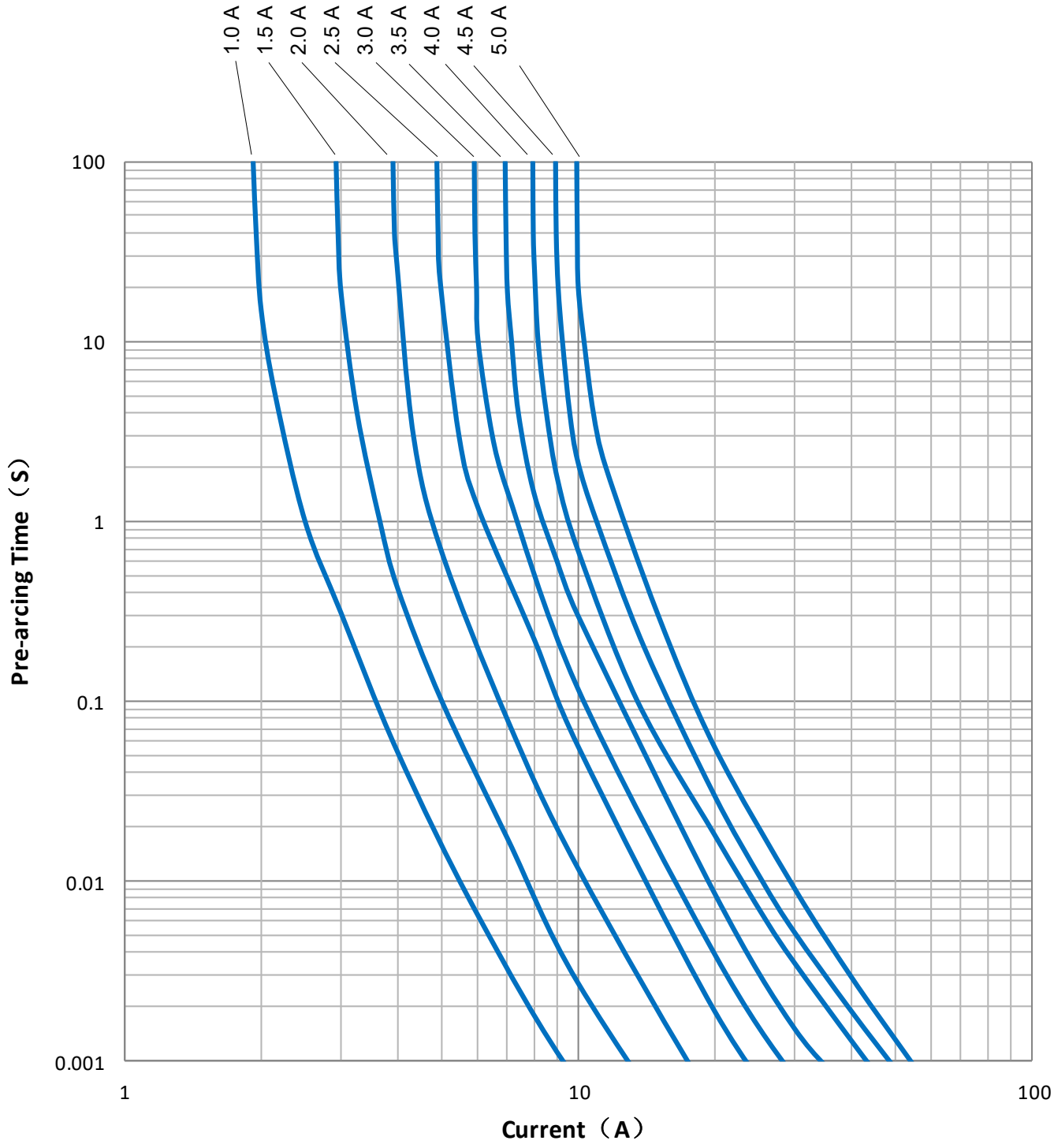
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (VDC)	Interrupting Ratings	Nominal Cold DCR (Ω)[1]	Nominal I^2t $(A^2s)^2$	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

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

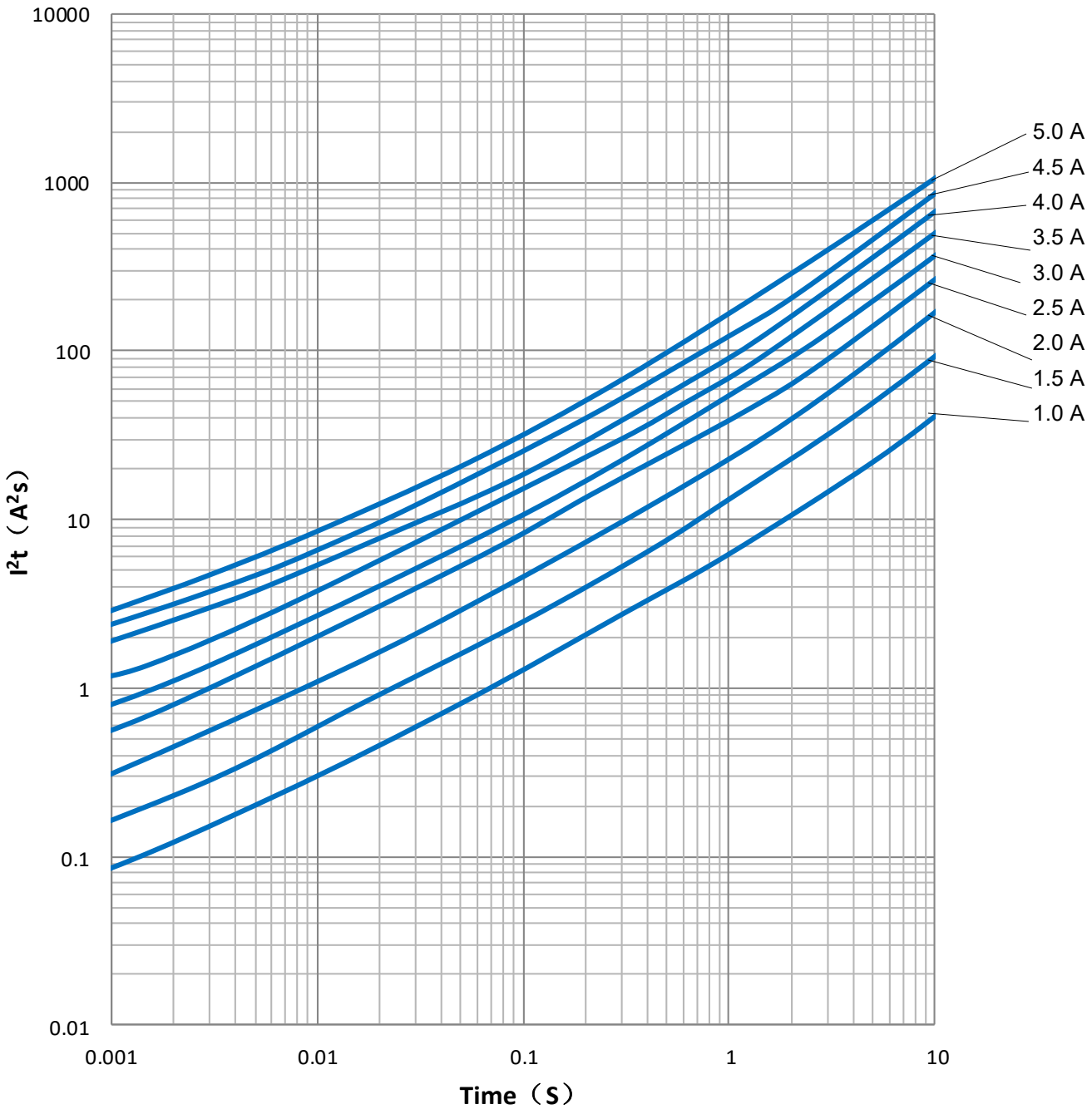
SolidMatrix® Automotive Surface Mount Fuses
QF0603H Series

Average I^2t vs. t Curves:



SolidMatrix® Automotive Surface Mount Fuses
QF0603H Series

Average I^2t vs. t Curves:



AEM
Innovation to power your vision

Revision of Nov. 2024

High Power Surface Mount Fuse
QM2822H Series

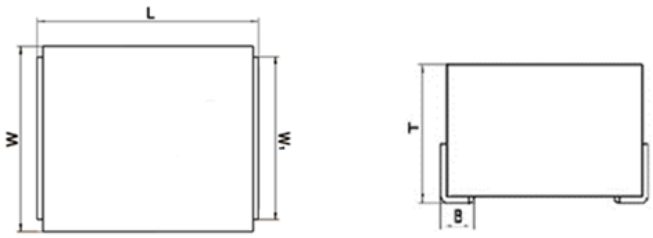
Features:

- Solid body structure, sealed for harsh environments
- High interrupting ratings – for excellent inrush current capability
- High reliability for long time operation
- Current ratings from 20A to 125A at 2822 case size
- Voltage ratings from 48Vdc to 125Vdc
- Automotive grade with AEC-Q200 qualification
- Halogen free, RoHS compliant and 100% lead-free

Clearing Time Characteristics:

% of Current Rating	Clearing Time at 25°C	
	Min.	Max.
100%	4 hours	
250%		60 seconds

Shape and Dimensions:



Unit	Inch	mm
L	0.287 ± 0.012	7.3 ± 0.3
W	0.228 ± 0.008	5.8 ± 0.2
W_1	0.201±0.008	5.1±0.2
T	0.165 ± 0.008	4.2 ± 0.2
B	0.051 ± 0.012	1.3 ± 0.3

Applications:

- Server Systems
- UPS & Routers and Switches
- Telecom DC/DC Power
- Drones
- Power tools
- EV Battery Power Systems

Agency Approval:

Recognized Under the Components Program of Underwriters Laboratories. File Number: E507943.

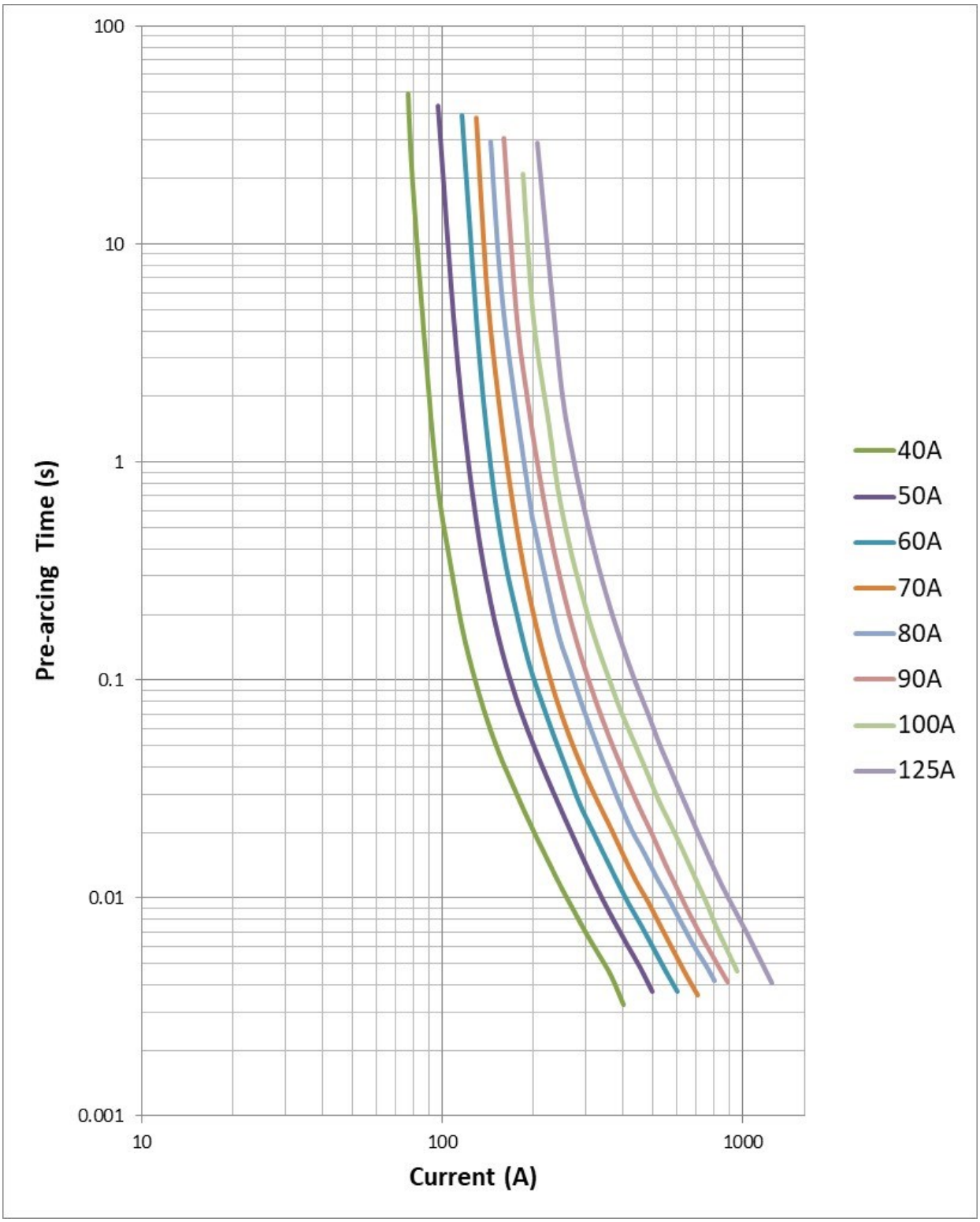
Ordering Information:

Part Number	Current Rating (A)	Voltage Rating (Vdc)	Interrupting Rating	Nominal DCR (mΩ)[1]	Nominal I^2t (A^2s)[2]	Marking[4]
QM2822H20A0T	20	125	300A @125Vdc 1,000A @ 75Vdc[3] 1,500A @ 48Vdc[3]	In Pending	NA	NA
QM2822H30A0T	30			In Pending	NA	NA
QM2822H40A0T	40			1.05	400	QMH 40 A
QM2822H50A0T	50			0.85	600	QMH 50 A
QM2822H60A0T	60	75	1,000A @ 75Vdc[3] 1,500A @ 48Vdc[3]	0.74	900	QMH 60 A
QM2822H70A0T	70			0.61	1,400	QMH 70 A
QM2822H80A0T	80			0.53	2,000	QMH 80 A
QM2822H90A0T	90			0.48	2,400	QMH 90 A
QM2822H100AT	100			0.44	3,600	QMH 100 A
QM2822H125AT	125			0.38	6,000	QMH 125 A

1. Measured at ≤10% rated current and 25 °C ambient
2. Melting I^2t at 10x In
3. Time constant of interrupting test less than 0.1ms
4. Black marketing character code or laser marking code

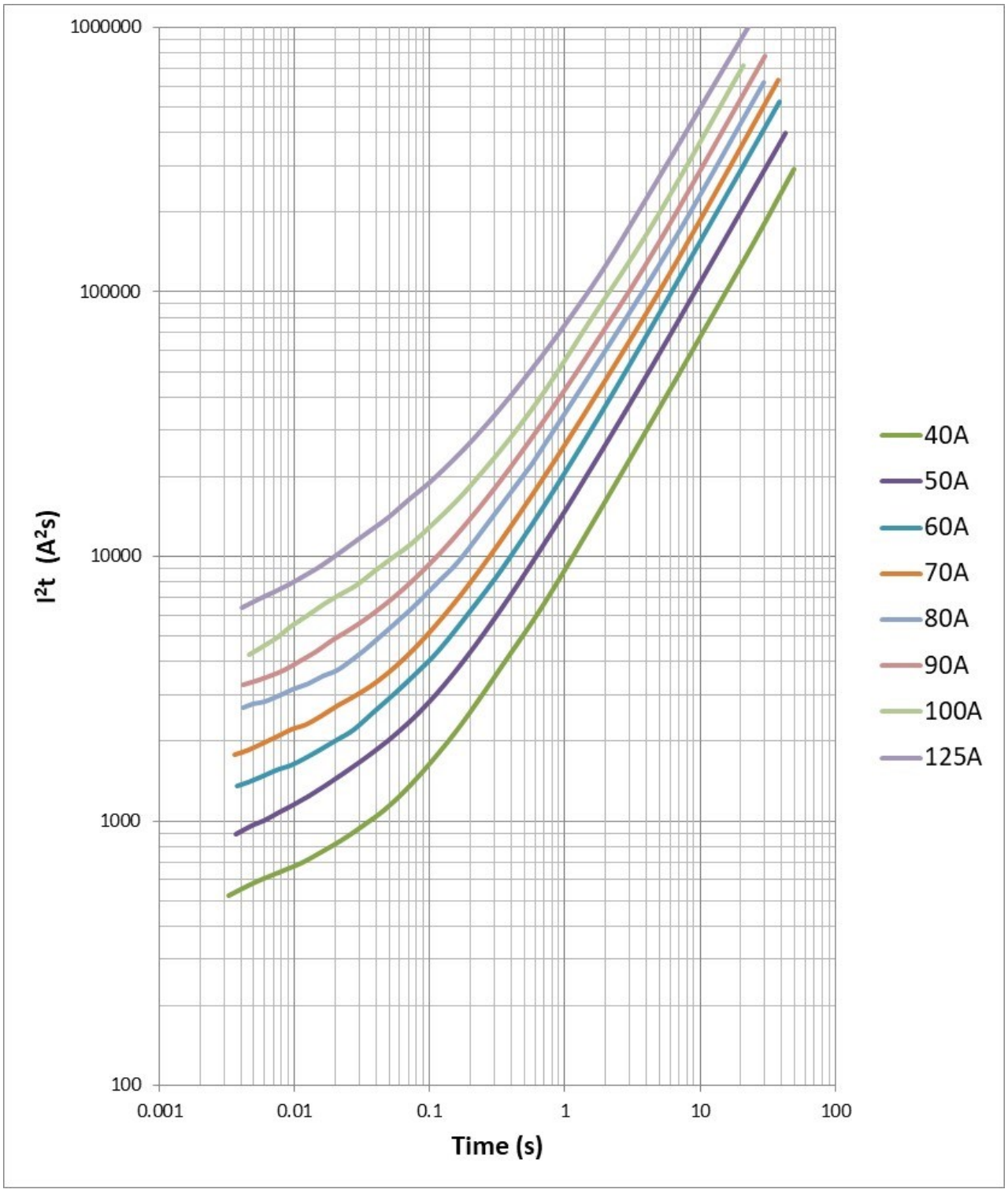
High Power Surface Mount Fuse
QM2822H Series

Clearing Time vs. Current Curves:



High Power Surface Mount Fuse
QM2822H Series

Average I^2t vs. t Curves:



High Power Surface Mount Fuse
QM2822H Series

Product Identification:

QM (1) 2822 (2) H (3) 60A0 (4) T (5)

(1) **Product Code:** QM-Automotive Molding Fuse

(2) **Size code: L x W (inch):** the first two digits - L (length), the last two digits - W (width)

(3) **Series code:** H

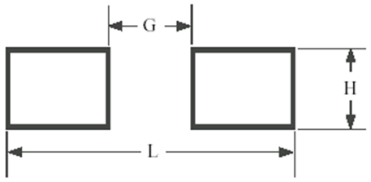
(4) **Current rating code:** e.g. 60A0: 60.0A

(5) **Package code:** T - Tape & Reel, B - Bulk

Marking: Top Line: ⚠ AEM Logo; **QMH**: QM2822H Series
Bottom Line: Current Rating Code

Recommended Land Pattern:

Chip Size	2822 (7358)
L Inch (mm)	0.386 (9.8)
G Inch (mm)	0.173 (4.4)
H Inch (mm)	0.228 (5.8)

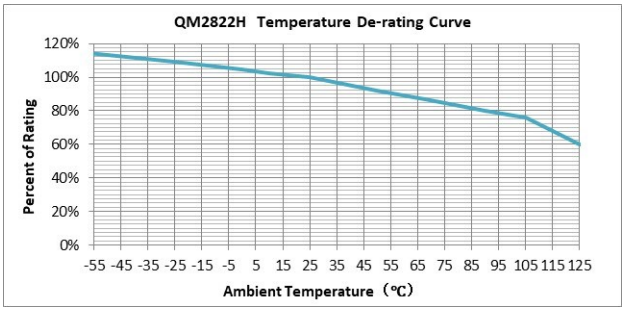


Reliability Tests:

Item	Test Condition	Criteria
High temperature storage	Subject fuses to +125°C for 1000 hours	DCR change within ±20%, no observed damage
Low temperature storage	Subject fuses to -65°C for 1000 hours	DCR change within ±20%, no observed damage
Temperature Cycling	Subject fuses to 1000 temperature cycles, 30min at -65°C lowest temp and 30min at +125°C highest temp	DCR change within ±20%, no mechanical damage
Biased Humidity	Subject fuses to +85°C/85%RH with 10% rated current for 1000 hours	DCR change within ±20%, no excessive corrosion
High Temperature Operating Life	+125°C for 1000 hours. Load setting : 75%(current de-rating)*60%(temp. de-rating)*Rated current	DCR change within ±20%, no observed damage
Mechanical Vibration	0.4" D.A. or 30G between 5 and 3000 Hz, along 3 mutually perpendicular axes for a total of 12 hours	DCR change within ±20%, no mechanical damage
Mechanical Shock	1500G, 0.5 ms, half sine shocks in 6 major directions along 3 mutually perpendicular axes	DCR change within ±20%, no mechanical damage
Resistance to Soldering Heat	One dip at 260°C, 10 seconds	DCR change within ±20%, new solder coverage 75% minimum, no mechanical damage
Salt Spray	5% salt solution, 48 hours exposure	DCR change within ±20%, no excessive corrosion
Solderability	245°C, 5 seconds	New solder coverage 95% minimum
Terminal Strength	Apply 17.7N (1.8kg) force gradually to the side of the fuse, this force shall be applied for 60 seconds	DCR change within ±20%, no mechanical damage
Board Flex	Apply a force that will bend the board distance of x=2mm, and the duration of the applied force shall be 60 seconds	DCR change within ±20%, no mechanical damage

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℃, the fuse shall be "de-rated" according to the de-rating curve.



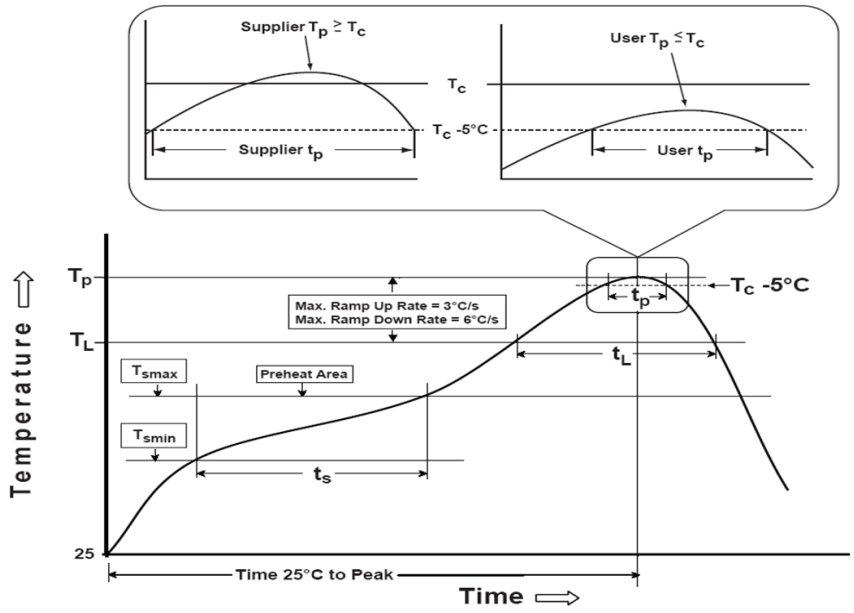
Packaging:

Chip Size	Parts on 13 inch (330 mm) Reel
2822	1,000 pcs

High Power Surface Mount Fuse
QM2822H Series

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-uprate (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 conditions for hand soldering:

1. Appropriate temperature (max.) of soldering iron tip/soldering time (max.): 280°C /10 s or 350°C / 3 s
2. Using hot air rework station with tip that can melt the solder on both terminations at the same time is strongly recommended. Do not directly contact the chip termination with the tip of soldering iron.

Storage:

1. The maximum ambient temperature shall not exceed 35°C . Storage temperatures higher than 35°C could result in the deformation of packaging materials.
2. The maximum relative humidity recommended for storage is 75%. High humidity with high temperature can accelerate the oxidation of the solder plating on the termination and reduce the solderability of the components.
3. The products shall not be stored in areas where harmful gases containing sulfur or chlorine are present.
4. MSL=1

Disclaimer

Specifications are subject to change without notice. AEM products are designed for specific applications and should not be used for any purpose (including, without limitation, automotive, aerospace, medical, life-saving applications, or any other application which requires especially high reliability for the prevention of such defect as may directly cause damage to the third party's life, body or property) not expressly set forth in applicable AEM product documentation. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Warranties granted by AEM shall be deemed void for products used for any purpose not expressly set forth in applicable AEM product documentation. AEM shall not be liable for any claims or damages arising out of products used in applications not expressly intended by AEM as set forth in applicable AEM product documentation. The sale and use of AEM products is subject to AEM terms and conditions of sale. Please refer to AEM's website for updated catalog and terms and conditions of sale.

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