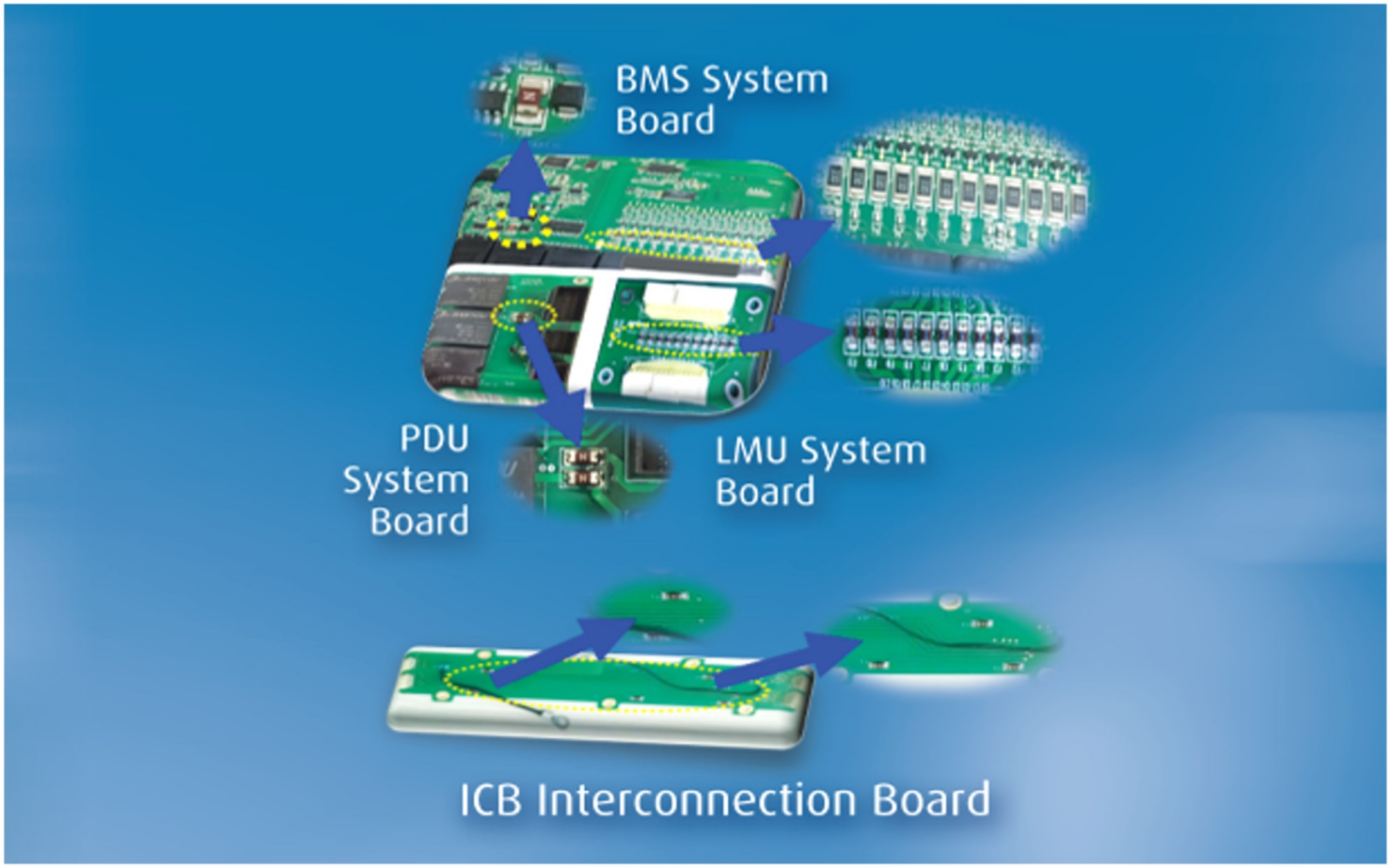
AEM

Innovation to power your vision

Automotive Grade Surface-Mount Fuses

QM2822H Series



AEM
Innovation to power your vision

Revision of Nov. 2024

High Power Surface Mount Fuse
QM2822H Series

Product Identification:

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

(1) Series code: H

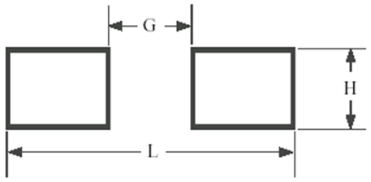
(2) Current rating code: e.g. 60A0: 60.0A

(3) 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)

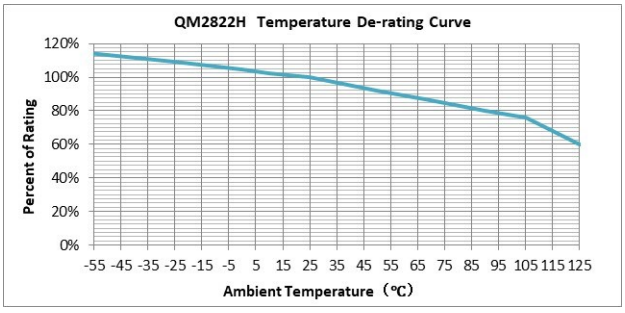


Reliability Tests:

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.



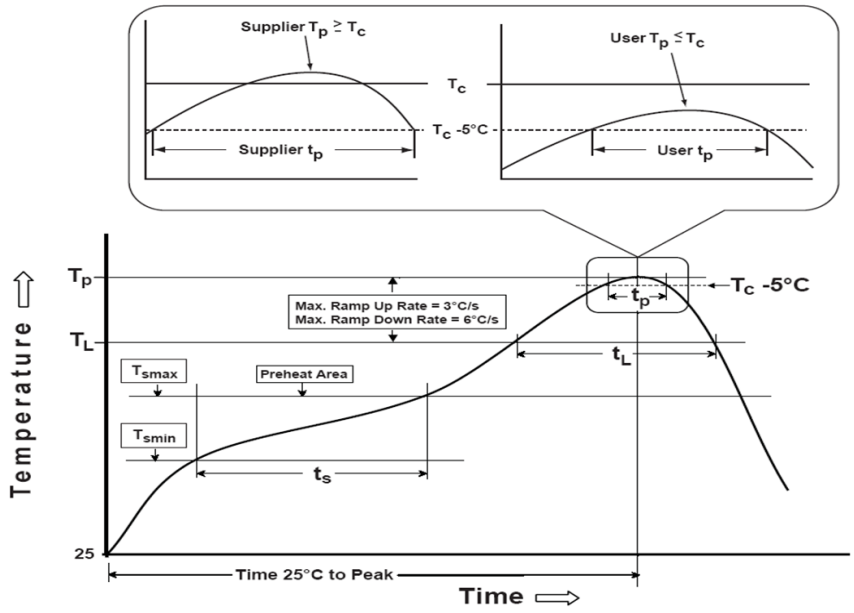
Packaging:

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

AEM
Innovation to power your vision

Revision of Nov. 2024

High Power Surface Mount Fuse
QM2822H Series

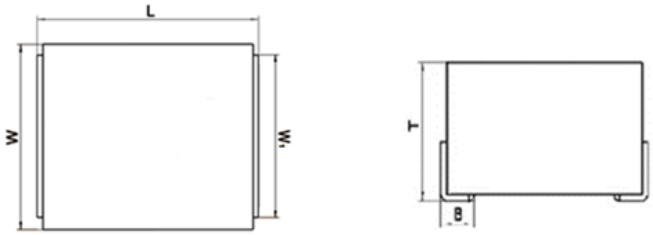
Features:

- 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.

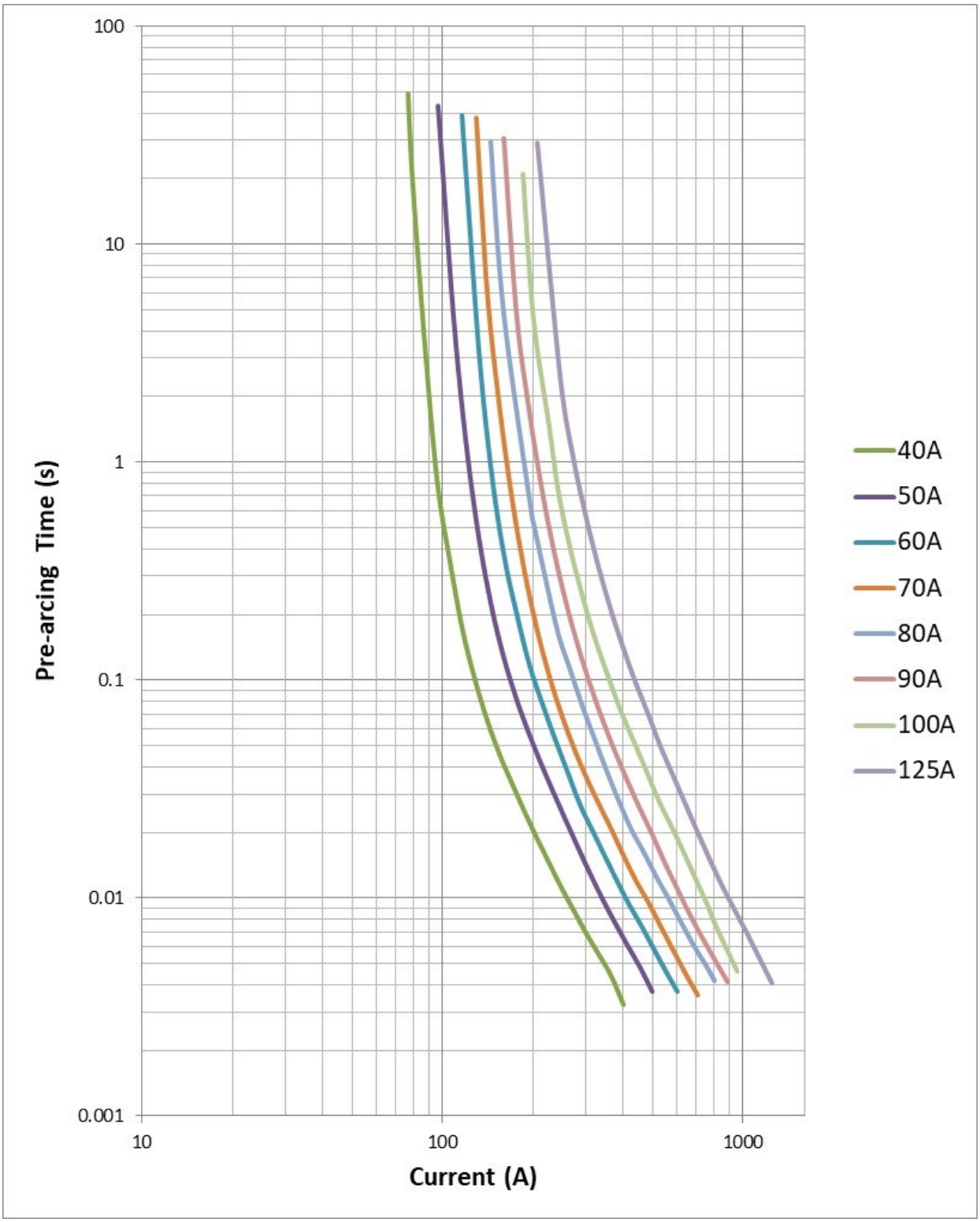
Ordering Information:

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

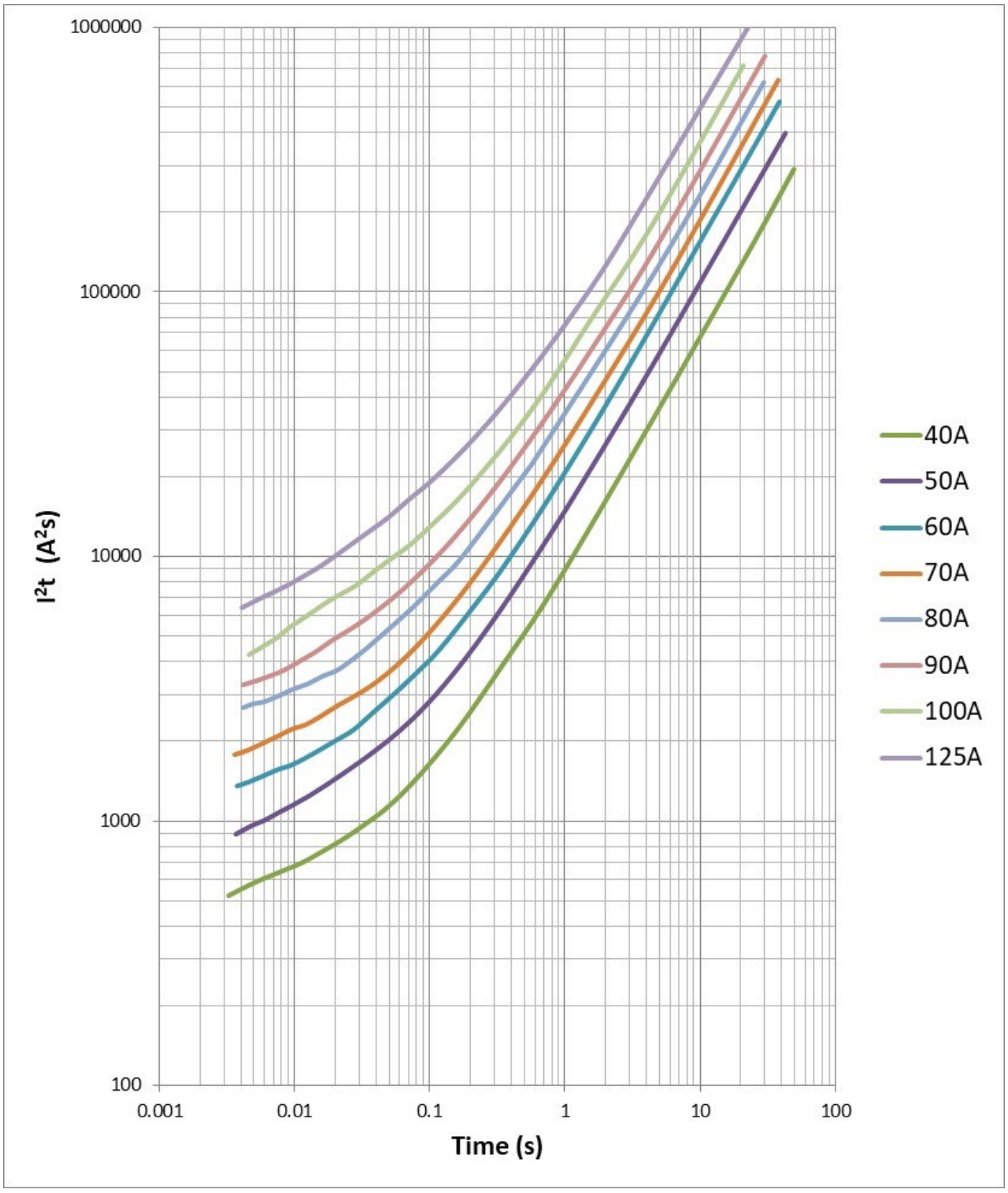
High Power Surface Mount Fuse
QM2822H Series

Clearing Time vs. Current Curves:



High Power Surface Mount Fuse
QM2822H Series

Average I^2t vs. t Curves:



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.

AEM Components (Suzhou) Co., Ltd

461 Zhongnan Street,
China-Singapore Suzhou Industrial Park
Jiangsu, P. R. China, 215026

Tel: 86-512-6258-0028
Fax: 86-512-6258-0018
Email: marketing@aemchina.com

AEM Components (USA), Inc.

6670 Cobra Way, San Diego, CA 92121, USA

Tel: 1-858-750-6100
Fax: 1-858-481-1123
Email: sales@aemcomponents.com