TF-FUSE® Thin Film Surface Mount Fuses

HI Series (High Inrush), 0603 Size

Features:

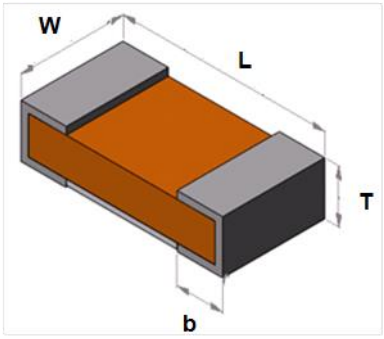
- Low DCR
- High inrush current withstanding capability
- Fiberglass enforced epoxy fuse body
- Copper termination with nickel and tin plating
- Halogen free, RoHS compliance and lead-free

Applications:

- Consumer Electronics
- Notebook Computers and Tablets
- Telecom Devices
- Mobile Phone
- Battery Pack
- Digital Camera

Shape and Dimensions:

Unit	Inch	mm
Length (L)	0.063 ± 0.004	1.60 ± 0.10
Width (W)	0.032 ± 0.004	0.81 ± 0.10
Thickness (T)	0.014 ± 0.004	0.36 ± 0.10
Termination bandwidth (b)	0.014 ± 0.004	0.36 ± 0.10



Clearing Time Characteristics:

% of Current Rating	Opening Time at 25°C	
100%	4 hours min.	
200%	1 second min.	60 seconds max.
300%	0.0002 second min.	0.02 second max.

Agency Approval:

Recognized Under the Components Program of UL.
File Number: E232989.

Typical Ratings and Characteristics:

Operating temperature: -55 to +90°C

Part Number	Current Rating (A)	Voltage Rating (VDC)	Interrupting Rating	Nominal Cold DCR (Ω)[1]	Nominal I^2t $(A^2s)^2$	Marking
T0603HI0500TM	0.50	65	50A@35V DC/AC 13A@65V DC	0.1550	0.019	C
T0603HI0750TM	0.75	65		0.0830	0.036	D
T0603HI1000TM	1.00	65		0.0500	0.052	E
T0603HI1500TM	1.50	65		0.0290	0.110	T
T0603HI2000TM	2.00	35	35A@35V DC/AC 50A@24V DC/AC	0.0200	0.310	F
T0603HI2500TM	2.50	35		0.0165	0.400	J
T0603HI3000TM	3.00	35		0.0140	0.600	L
T0603HI3500TM	3.50	35		0.0120	0.800	N
T0603HI4000TM	4.00	35		0.0095	1.200	P

[1] Measured at ≤ 10% of rated current and 25°C ambient .
[2] Melting I^2t at 0.001 sec.

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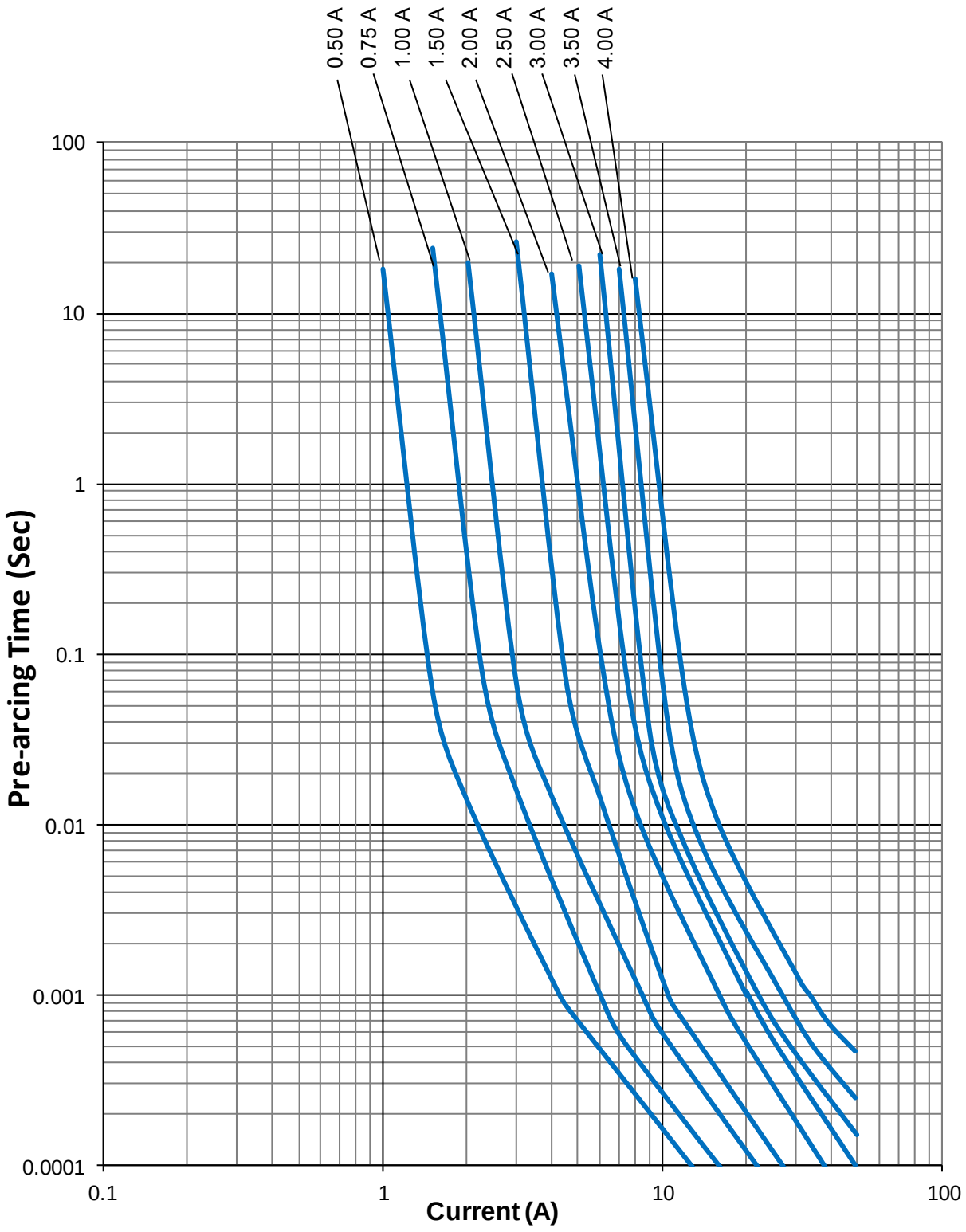
Average Pre-arcing Time Curves:



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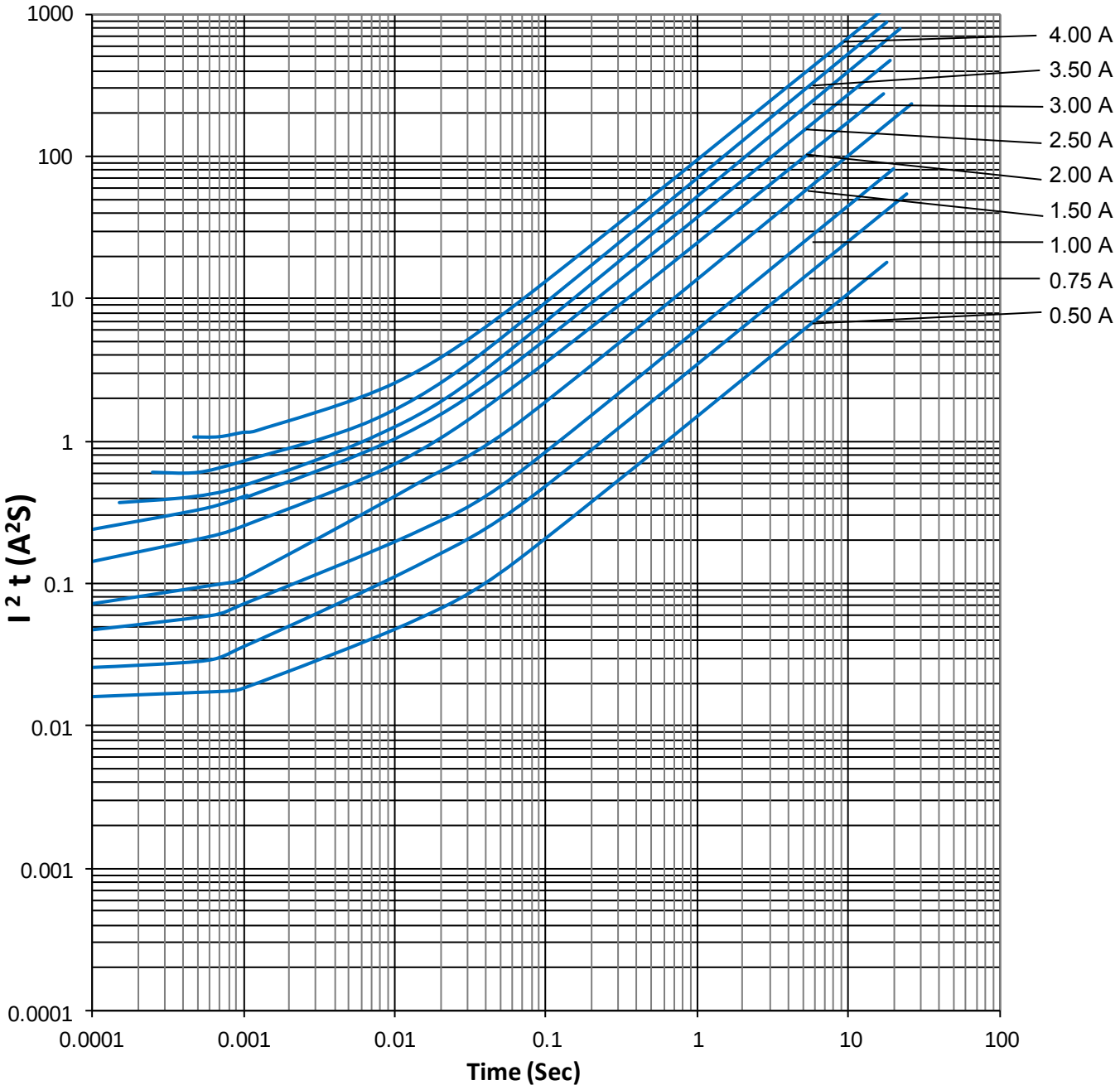
Average I^2t vs. t Curves:



Revision of January 2018

TF-FUSE® Thin Film Surface Mount Fuses

Product Identification:

T 0603 FF 1000 T M

(1) (2) (3) (4) (5) (6)

(1) Product Code: T-Thin Film

(2) Size Code: Standard EIA chip sizes

(3) Series Code: FF—Very Fast Acting, HI—High Inrush

(4) Current Rating Code: 0500—0.5A, 1000—1.0A

(5) Package Code: T—Tape & Reel; B—Bulk

(6) Marking Code: M—With mark (optional)

Environmental Tests:

No.	Test item	Requirement	Test condition	Reference
1	Bending	≤1A: 10% DCR change max. >1A: 20% DCR change max.	2mm	Refer to AEM QIQ034
2	Solderability	95% coverage min.	One dip at 255℃ for 5 seconds	MIL-STD-202 Method 208
3	Thermal shock	DCR change within ±10% No mechanical damage	100 cycles between -55°C and +125°C	MIL-STD-202 Method 107
4	Moisture resistance	DCR change within ±10% No excessive corrosion	10 cycles	MIL-STD-202 Method 106
5	Salt spray	DCR change within ≤ ±10% No excessive corrosion	5% salt solution, 48 hour exposure	MIL-STD-202 Method 101
6	Mechanical vibration	DCR change within ≤ ±10% No mechanical damage	0.4” D.A. or 30G between 5 and 3000 Hz	MIL-STD-202 Method 204
7	Mechanical shock	DCR change within ≤ ±10% No mechanical damage	1500G, 0.5 ms, half sine shocks	MIL-STD-202 Method 213
8	Life	Change of voltage drop within ±10%, no open circuit	75% rated current, 2000 hours, ambient temperature +20°C to 30°C	Refer to AEM QIQ106

Packaging:

Chip Size	Parts on 7 inch (178mm) Reel
0603(1608)	8,000
0402(1005)	20,000

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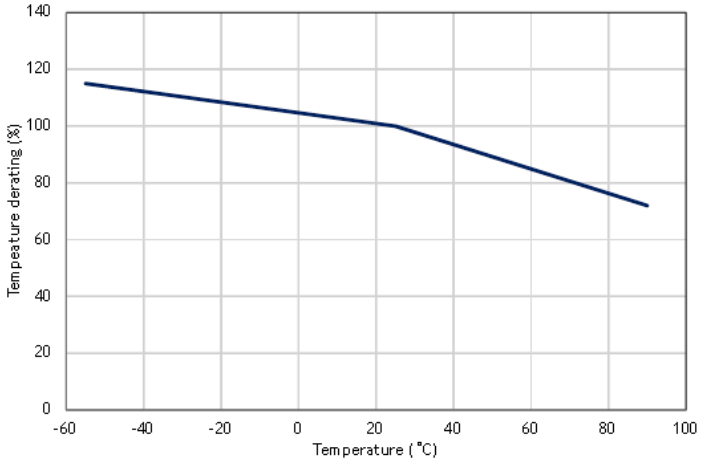
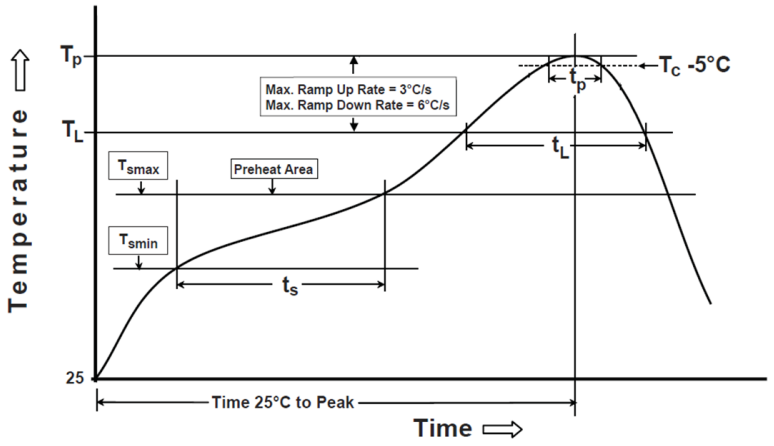
Temperature Effect on Current Rating:



Recommended Reflow Soldering Profile:

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	



Thermal Shock When Making Correction with a Soldering Iron:

The temperature of solder iron tip should be controlled under 350°C and soldering time should be less than 3 sec.
The soldering iron tip should not directly touch the top side termination of the component.

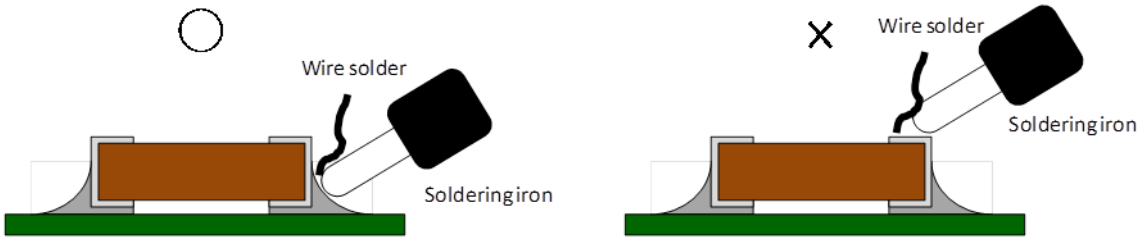


Fig 3 Correct handling method of soldering iron

Disclaimer

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