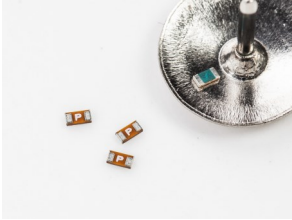


TF-FUSE® Thin Film Surface Mount Fuses

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

Clearing Time Characteristics:

% of Current Rating	Opening Time at 25°C	
	100%	4 hours min.
200%	1 second min.	60 seconds max.
1000%	0.0002 second min.	0.02 second max.

Shape and Dimensions:

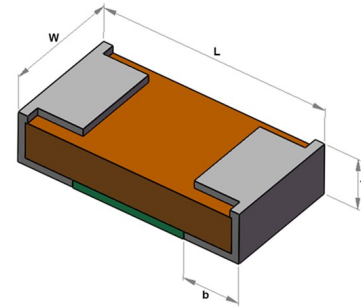
Unit	Inch	mm
Length (L)	0.063 ± 0.004	1.60 ± 0.10
Width (W)	0.032 ± 0.004	0.81 ± 0.10
Thickness (T)	0.014 ± 0.004	0.36 ± 0.10
Termination bandwidth (b)	0.014 ± 0.004	0.36 ± 0.10

Applications:

- Power tools
- DC-DC convert
- Panel
- PC
- Server
- Battery pack
- Set top box

Agency Approval:

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



Typical Ratings and Characteristics:

Operating temperature: -55 to +90°C

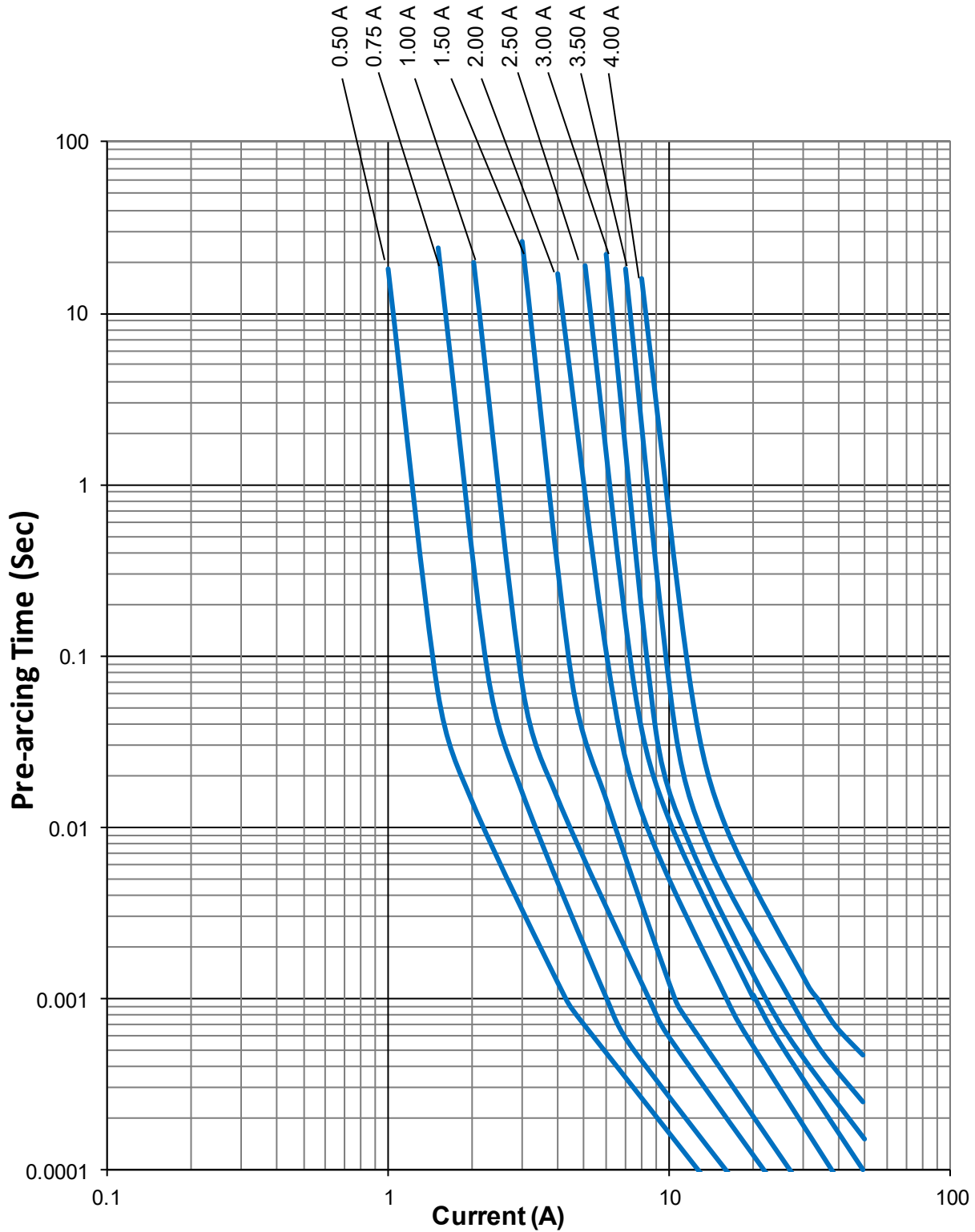
Part Number	Current	Voltage	Interrupting Rating	Nominal Cold	Nominal I ² t (A ² s) ²	Marking
T0603HI0500TM	0.50	65	50A@35Vdc/ac 13A@65Vdc	0.1550	0.019	C
T0603HI0750TM	0.75	65		0.0830	0.036	D
T0603HI1000TM	1.00	65		0.0500	0.052	E
T0603HI1500TM	1.50	65		0.0290	0.110	T
T0603HI2000TM	2.00	35	35A@35Vdc/ac 50A@24Vdc/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 I²t at 0.001 sec.

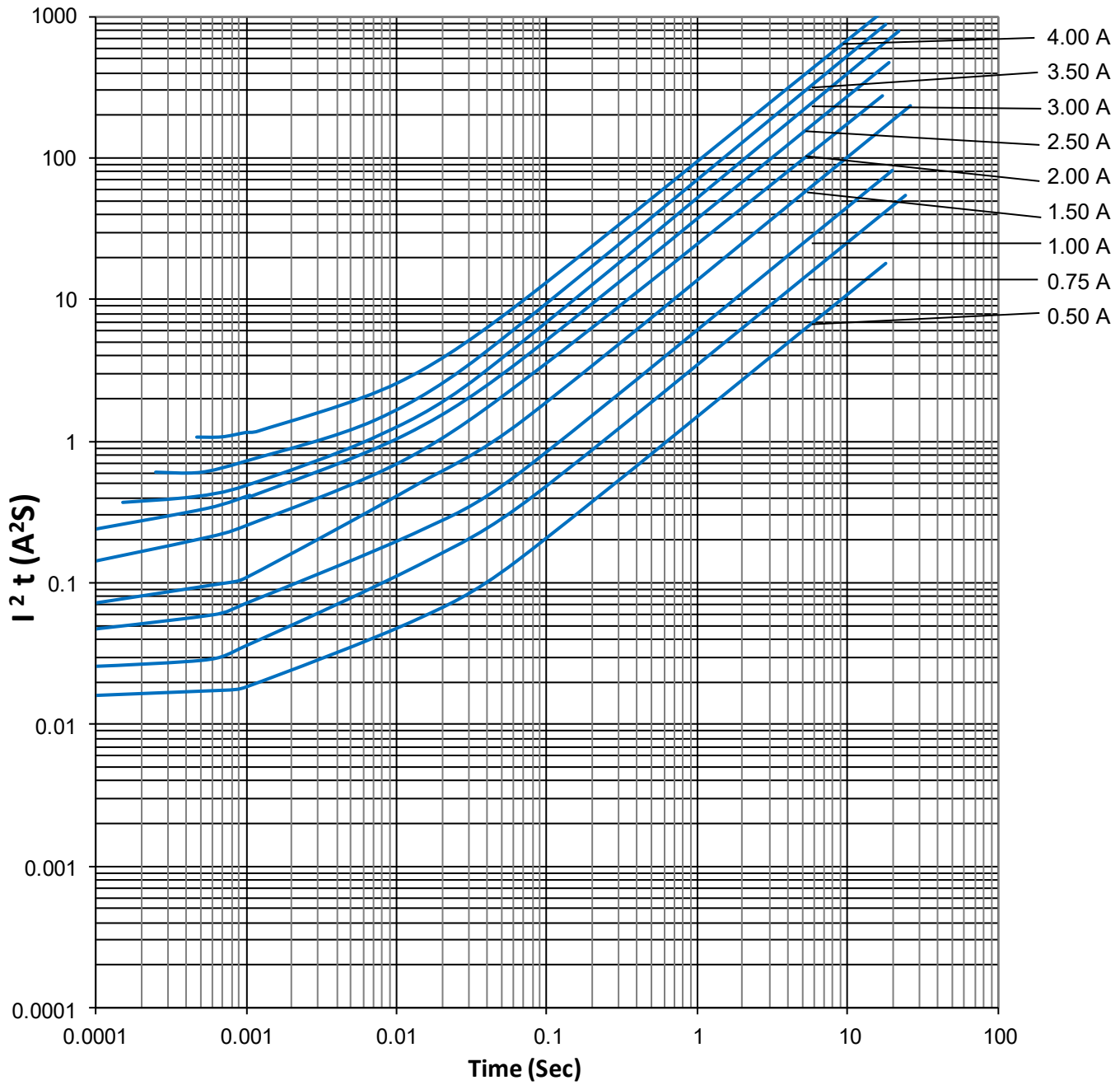
TF-FUSE® Thin Film Surface Mount Fuses
HI Series (High Inrush), 0603 Size

Average Pre-arcing Time Curves:



TF-FUSE® Thin Film Surface Mount Fuses
HI Series (High Inrush), 0603 Size

Average I^2t vs. t Curves:



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	Test Condition and Requirement	Reference
1	Bend	2 mm bend, DCR change within $\pm 20\%$. ($\pm 10\%$ for $\leq 1A$), no mechanical damage	IEC60068-2-21
2	Solderability	245°C, 5 seconds, new solder coverage $\geq 95\%$	MIL-STD-202 Method 208
3	Thermal shock	DCR change $\leq \pm 10\%$. No mechanical damage. 100 cycles between -55°C and +125°C	MIL-STD-202 Method 107
4	Moisture resistance	10 cycles, DCR change within $\pm 10\%$, no excessive corrosion	MIL-STD-202 Method 106
5	Salt spray	DCR change $\leq \pm 10\%$. No excessive corrosion. 5% salt solution, 48 hour exposure	MIL-STD-202 Method 101
6	Mechanical vibration	DCR change $\leq \pm 10\%$. No mechanical damage. 0.4" D.A. or 30G between 5 and 3000 Hz	MIL-STD-202 Method 204
7	Mechanical shock	DCR change $\leq \pm 10\%$. No mechanical damage. 1500G, 0.5 ms, half sine shocks	MIL-STD-202 Method 213
8	Life	75% rated current, 2000 hours at ambient temperature from +20°C to 30 °C, no open circuit, voltage drop change within $\pm 10\%$	Refer to AEM QIQ106

Moisture Sensitivity Level 1

Packaging:

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

TF-FUSE® Thin Film Surface Mount Fuses

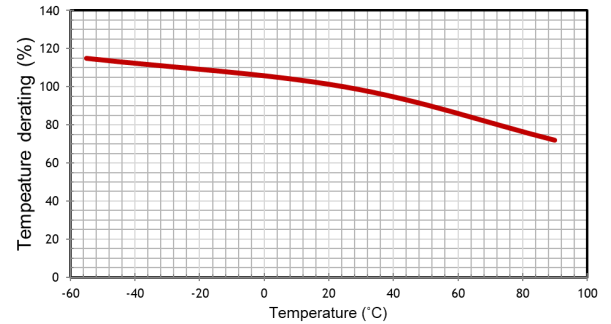
Fuse Selection and Temperature De-rating Guideline:

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:

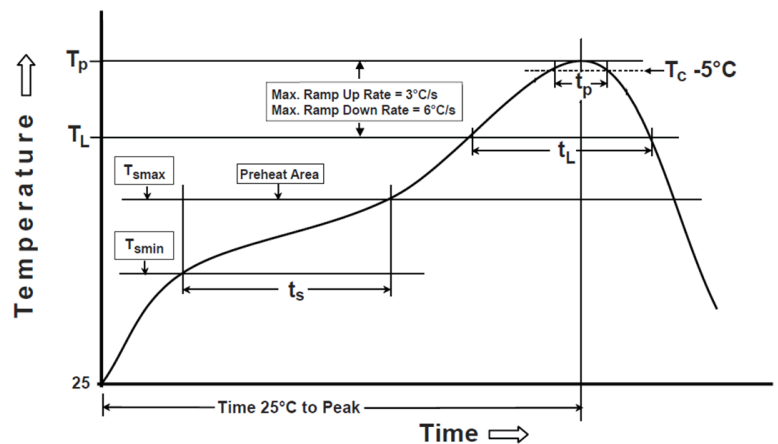
Catalog Fuse Current Rating = Nominal Operating Current / 0.75 / % De-rating at the maximum operating temperature.

Example: At maximum operating temperature of 50°C, % De-rating is 90%. The nominal operating current is 2 A. The current rating for fuse selected from the catalog shall be: $2 / 0.75 / 90\% = 2.96$ or 3 A. Specifications and descriptions in this literature are as accurate as known at the time of publish, but are subject to change without notice.



Recommended Reflow Soldering Profile:

Profile Feature	Pb-Free Assembly
Preheat/Soak	
Temperature Min (T_{smin})	150°C
Temperature Max (T_{smax})	200°C
Time (t_s) from (T_{smin} to T_{smax})	60~120 seconds
Ramp-uprate (T_L to T_p)	3°C/second max.
Liquidous temperature (T_L)	217°C
Time (t_L) maintained above T_L	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.

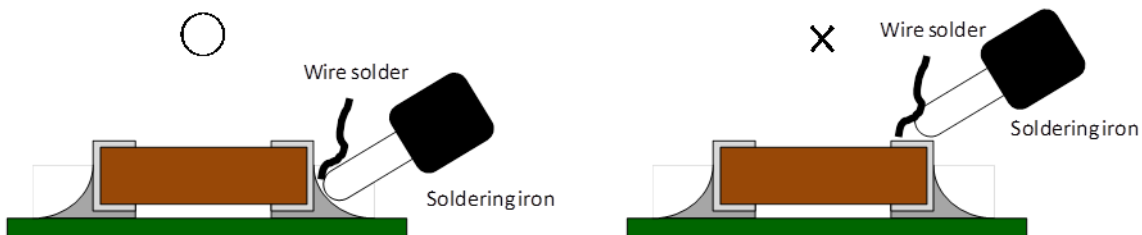


Fig 3 Correct handling method of soldering iron

Disclaimer

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