

Thin Film Surface Mount Fuses

FF Series, 0603 Size



Features:

- Very fast acting at 200% overload current levels
- 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:

- Notebook computers and tablets
- Digital cameras
- Memory cards
- Toys
- Bluetooth earphones
- Portable electronic devices

Shape and Dimensions:

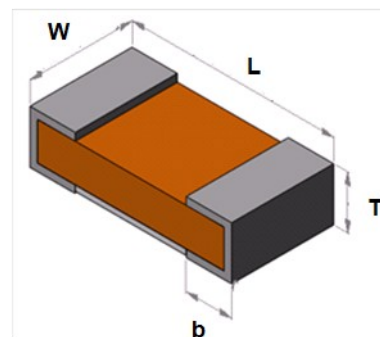
Unit	Inch	mm
Length (L)	0.063 ± 0.004	1.60 ± 0.10
Width (W)	0.032 ± 0.004	0.81 ± 0.10
Thickness (T)	0.012 ± 0.004	0.30 ± 0.10
Termination bandwidth (b)	0.014 ± 0.004	0.36 ± 0.10

Clearing Time Characteristics:

% of Current Rating	Opening Time at 25°C
100%	4 hours min.
200%	5 seconds max.
300%	0.2 second max.

Agency Approval:

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



Product Identification:

T 0603 FF 1000 T M

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

(1) Product code

(2) Size code: Standard EIA chip sizes

(3) Series code:

FF: FF series

(4) Current rating code:

0500: 0.5A

1000: 1.0A

(5) Package code:

T: Tape & Reel

(6) Marking code:

M: With mark (option)

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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
T0603FF0150TM	0.150	65	50A@35V DC/AC 13A@65V DC	2.200	0.0006	
T0603FF0200TM	0.200	65		1.300	0.0014	
T0603FF0250TM	0.250	65		1.100	0.0016	
T0603FF0375TM	0.375	65		0.480	0.0040	
T0603FF0500TM	0.50	65		0.185	0.0120	
T0603FF0750TM	0.75	65		0.112	0.0210	
T0603FF1000TM	1.00	65		0.069	0.0420	
T0603FF1250TM	1.25	65	35A@35V DC/AC 13A@65V DC	0.048	0.0520	
T0603FF1500TM	1.50	65		0.037	0.0710	
T0603FF1750TM	1.75	35	35A@35V DC/AC 50A@24V DC/AC	0.031	0.1000	
T0603FF2000TM	2.00	35		0.0260	0.1400	
T0603FF2500TM	2.50	35		0.0210	0.2400	
T0603FF3000TM	3.00	35		0.0176	0.3300	
T0603FF3500TM	3.50	35		0.0148	0.4900	
T0603FF4000TM	4.00	35		0.0125	0.6300	
T0603FF5000TM	5.00	35		0.0095	1.1000	

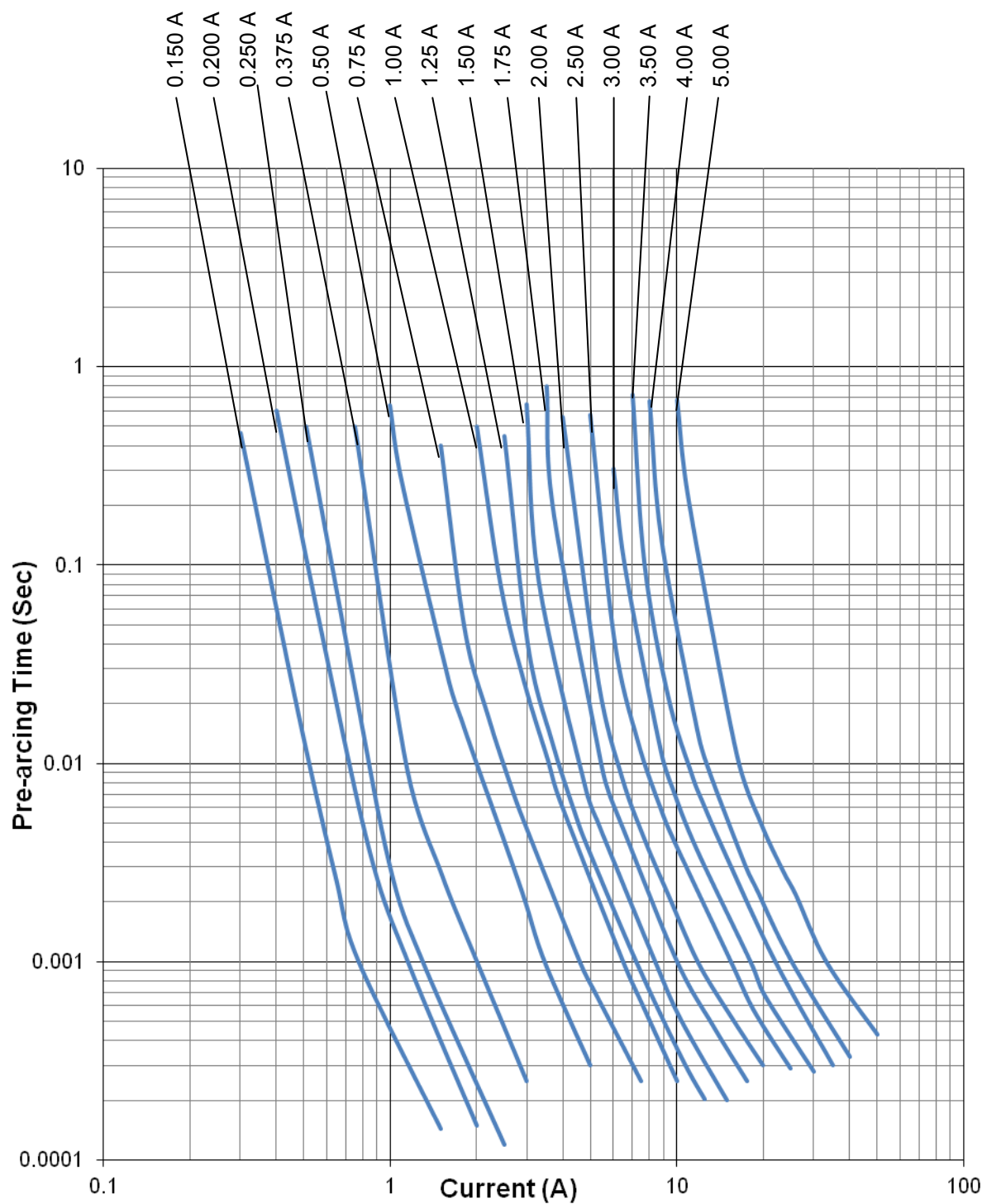
¹ Measured at $\leq 10\%$ of rated current and 25°C ambient .

² Melting I^2t at 0.001 sec.

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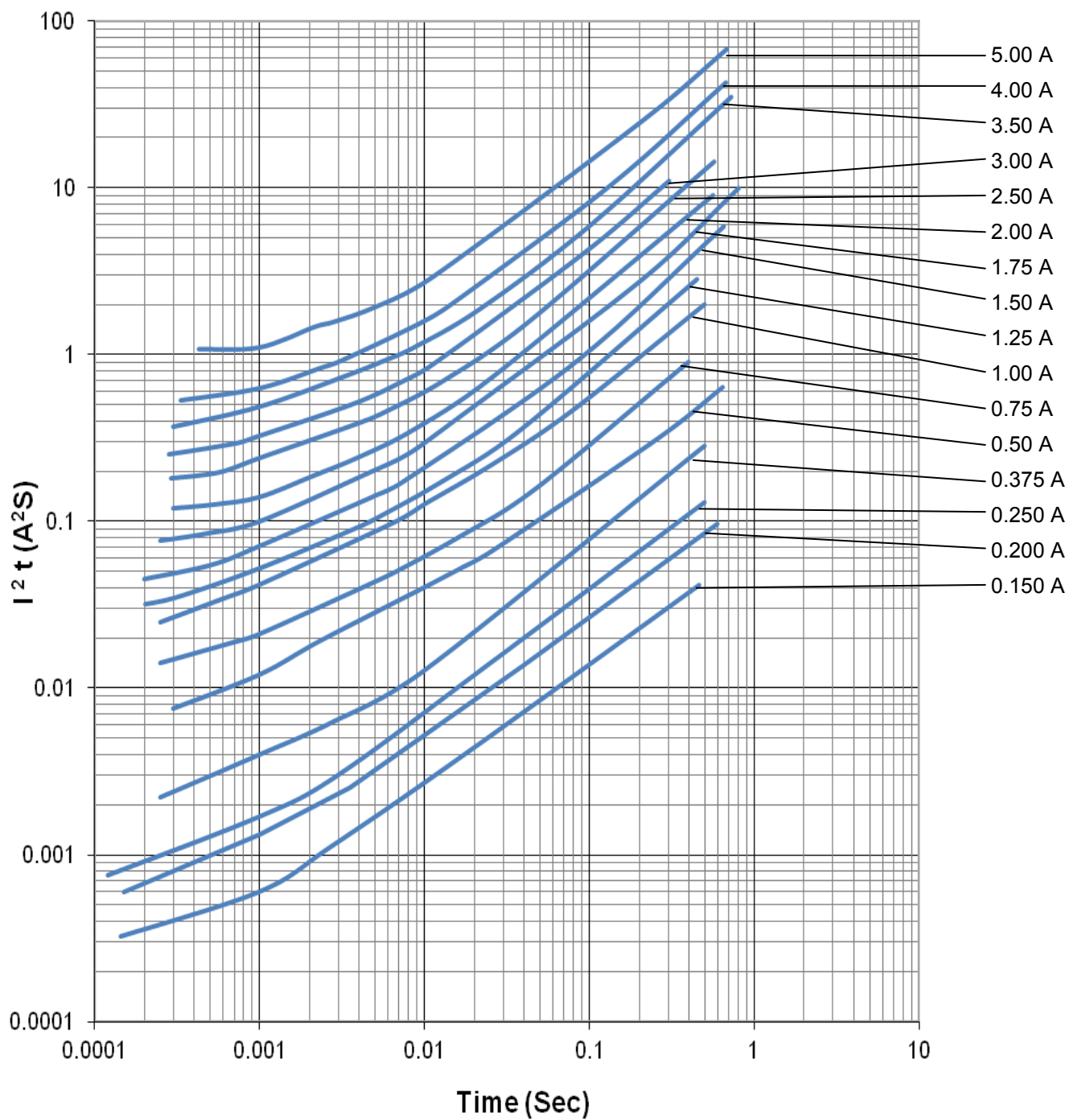
Average Pre-arcing Time Curves:



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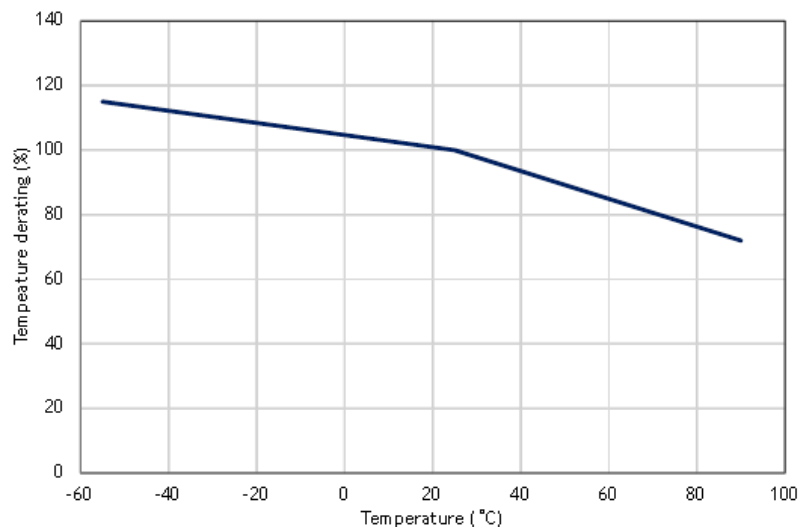
Average I^2t vs. t Curves:



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Temperature Effect on Current Rating:



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°C 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

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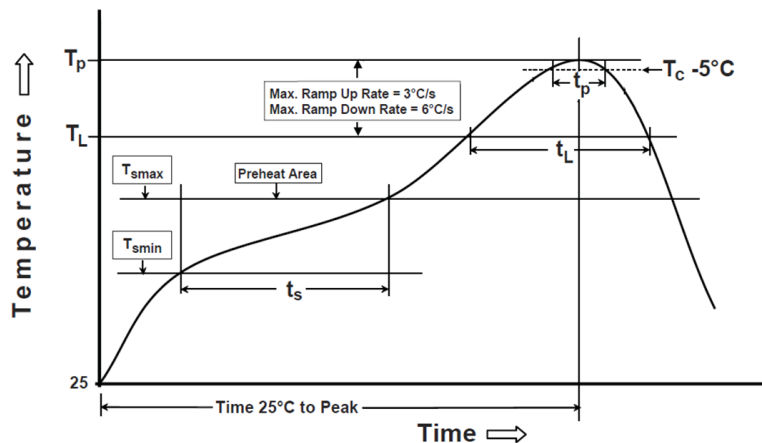
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Packaging:

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

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-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	



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.

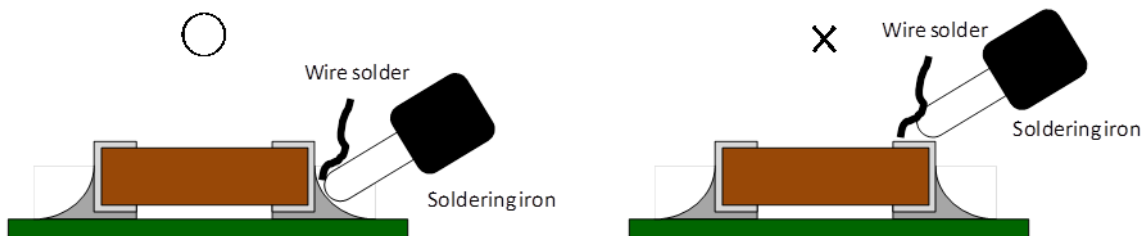


Fig 3 Correct handling method of soldering iron

Mouser Electronics

Authorized Distributor

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[T0603FF2000TM](#) [T0603FF1750TM](#) [T0603FF1500TM](#) [T0603FF2500TM](#) [T0603FF0500TM](#) [T0603FF4000TM](#)
[T0603FF0150TM](#) [T0603FF0200TM](#) [T0603FF0250TM](#) [T0603FF0375TM](#) [T0603FF1250T](#) [T0603FF0500T](#)
[T0603FF2000T](#) [T0603FF1750T](#) [T0603FF5000T](#) [T0603FF4000T](#) [T0603FF1000T](#) [T0603FF2500T](#) [T0603FF3000T](#)
[T0603FF1500T](#) [T0603FF0750T](#) [T0603FF3500T](#)