

Accu-Guard®



SMD Thin-Film Fuse

ACCU-GUARD® TECHNOLOGY

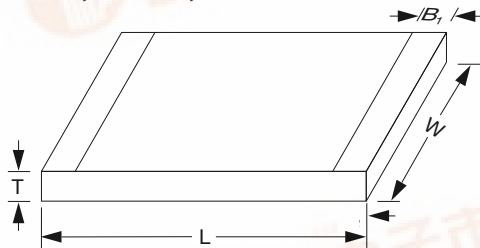
The Accu-Guard® series of fuses is based on thin-film techniques. This technology provides a level of control on the component electrical and physical characteristics that is generally not possible with standard fuse technologies. This has allowed AVX to offer a series of devices which are designed for modern surface mount circuit boards which require protection.

FEATURES

- Accurate current rating
- Fast acting
- Small-standard 0402, 0603, 0805, 1206 and 0612 chip sizes
- Taped and reeled
- Completely compatible with all soldering systems used for SMT
- Lead Free Series (F0402E, F0603E)

DIMENSIONS

F0603C, F0805B, F1206A and F1206B



APPLICATIONS

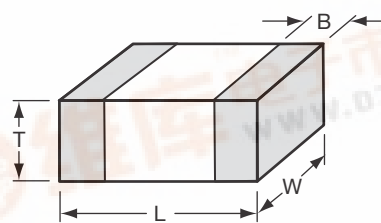
- Cellular Telephones
- Two-Way Radios
- Computers
- Battery Chargers
- Rechargeable Battery Packs
- Hard Disk Drives
- PDA's
- LCD Screens
- SCSI Interface
- Digital Cameras
- Video Cameras

APPROVAL FILE NUMBERS

- UL, cUL: RCD#E143842

DIMENSIONS

F0402E and F0603E



STANDARD SIZES: millimeters (inches)

	F0402E	F0603E	F0603C	F0805B	F1206A/B	F0603D
L	1.00±0.10 (0.039±0.004)	1.60±0.10 (0.063±0.004)	1.65±0.25 (0.065±0.010)	2.1±0.2 (0.083±0.008)	3.1±0.2 (0.122±0.008)	1.65±0.25 (0.065±0.010)
W	0.55±0.07 (0.022±0.003)	0.81±0.10 (0.032±0.004)	0.80±0.15 (0.031±0.006)	1.27±0.1 (0.050±0.004)	1.6±0.1 (0.063±0.004)	3.1±0.2 (0.122±0.008)
T	0.40±0.10 (0.016±0.004)	0.63±0.10 (0.025±0.004)	0.90±0.2 (0.035±0.008)	0.90±0.2 (0.035±0.008)	1.2±0.2 (0.047±0.008)	0.90±0.2 (0.036±0.008)
B	0.20±0.10 (0.008±0.004)	0.35±0.15 (0.014±0.006)	0.35±0.15 (0.014±0.006)	0.30±0.15 (0.012±0.006)	0.43±0.25 (0.017±0.010)	0.35±0.15 (0.014±0.006)

HOW TO ORDER

F
Product Fuse

1206
Size
See table for standard sizes

A
Fuse Version
A=Accu-Guard®
B=Accu-Guard® II
C=Accu-Guard® II 0603
D=Accu-Guard® II 0612
E=Accu-Guard® II 0402, 0603

0R20
Rated Current
Current expressed in Amps. Letter R denotes decimal point. e.g. 0.20A=0R20
1.75A=1R75

F
Fuse Speed
F=Fast

W
Termination
S=Nickel/Lead-Free Solder coated (Sn 100)
W=Nickel/solder coated (Sn 63, Pb 37)

TR
Packaging
TR=Tape and reel



Accu-Guard® II



SMD Thin-Film Fuse

Accu-Guard® II is a version of Accu-Guard® fuses for a wider range of current and voltage ratings. Constructed on alumina substrates, Accu-Guard® II fuses display superior electrical, mechanical and environmental properties. Accu-Guard® II dimensions are standard 0402, 0603, 0805, 1206 and 0612 chip sizes, see page 2.

ELECTRICAL SPECIFICATIONS

Operating temperature: -55°C to +125°C

Current carrying capacity:

For F0402E and F0603E at -55°C 107% of rating, at -25°C 100% of rating, at +125°C 80% of rating. For F0603C at -55°C is 107% of rating, at +25°C 100% of rating, at +85°C 90% of rating, at +125°C 75% of rating.

For F1206B and F0805B at -55°C is 107% of rating, at +25°C 100% of rating, at +85°C 93% of rating, at +125°C 90% of rating. For F0805B 2.50A and 3.00A at +85°C 90% of rating, at +125°C 90% of rating.

Interrupting rating: 50A.

Insulation resistance: >20MΩ guaranteed (after fusing at rated voltage).

For F0612D at -55°C 107% of rating, at +25°C 100% of rating, at +85°C 80% of rating, at +125°C 75% of rating.

Type	Part Number	Current Rating A	Resistance 10% x I rated, 25°C Ω (max.)	Voltage Drop @1 x I rated, 25°C mV (max.)	Fusing Current (within 5 sec), 25°C A	Pre-Arc I ² t @ 50A A ² -sec	Rated Voltage V
F0402E	F0402E0R25FSTR	0.25	0.650	220	0.625	0.00005*	32
	F0402E0R50FSTR	0.50	0.250	180	1.25	0.0003	32
	F0402E0R75FSTR	0.75	0.200	180	1.875	0.003	32
	F0402E1R00FSTR	1.00	0.130	160	2.50	0.008	32
	F0402E1R50FSTR	1.50	0.060	140	3.75	0.03	32
	F0402E2R00FSTR	2.00	0.040	120	5.00	0.06	32
F0603E	F0603E0R25FSTR	0.25	0.650	220	0.625	0.00005*	32
	F0603E0R37FSTR	0.375	0.450	220	0.940	0.0001	32
	F0603E0R50FSTR	0.50	0.250	180	1.25	0.0003	32
	F0603E0R75FSTR	0.75	0.200	180	1.875	0.003	32
	F0603E1R00FSTR	1.00	0.130	160	2.50	0.008	32
	F0603E1R25FSTR	1.25	0.090	140	3.125	0.01	32
	F0603E1R50FSTR	1.50	0.060	140	3.75	0.03	32
	F0603E1R75FSTR	1.75	0.050	120	4.375	0.04	32
	F0603E2R00FSTR	2.00	0.040	120	5.00	0.06	32
	F0603E2R50FSTR	2.50	0.035	100	6.25	0.12	32
F0603C	F0603E3R00FSTR	3.00	0.030	100	7.50	0.25	32
	F0603C0R25FWTR	0.25	0.800	280	0.50	0.00003*	32
	F0603C0R37FWTR	0.375	0.500	280	0.75	0.0001	32
	F0603C0R50FWTR	0.50	0.320	280	1.00	0.0002	32
	F0603C0R75FWTR	0.75	0.300	280	1.50	0.0015	32
	F0603C1R00FWTR	1.00	0.200	240	2.00	0.004	32
	F0603C1R25FWTR	1.25	0.170	240	2.50	0.007	32
	F0603C1R50FWTR	1.50	0.110	240	3.00	0.012	32
	F0603C1R75FWTR	1.75	0.090	240	3.50	0.02	24
	F0603C2R00FWTR	2.00	0.075	240	4.00	0.03	24
F0805B	F0603C2R50FWTR	2.50	0.055	200	5.00	0.05	16
	F0603C3R00FWTR	3.00	0.045	200	6.00	0.1	16
	F0805B0R25FWTR	0.25	0.750	280	0.50	0.00003*	63
	F0805B0R50FWTR	0.50	0.350	280	1.00	0.0002	63
	F0805B0R75FWTR	0.75	0.270	280	1.50	0.001	63
	F0805B1R00FWTR	1.00	0.220	280	2.00	0.003	63
	F0805B1R25FWTR	1.25	0.170	280	2.50	0.007	63
	F0805B1R50FWTR	1.50	0.120	240	3.00	0.010	63
	F0805B2R00FWTR	2.00	0.080	220	4.00	0.030	63
	F0805B2R50FWTR	2.50	0.060	220	5.00	0.050	63
F1206B	F0805B3R00FWTR	3.00	0.050	220	6.00	0.10	63
	F1206B0R25FWTR	0.25	0.750	280	0.50	0.00003	63
	F1206B0R50FWTR	0.50	0.350	280	1.00	0.0002	63
	F1206B1R00FWTR	1.00	0.180	240	2.00	0.003	63
	F1206B1R50FWTR	1.50	0.120	240	3.00	0.010	63
	F1206B2R00FWTR	2.00	0.080	220	4.00	0.030	63
F0612D	F1206B3R00FWTR	3.00	0.050	220	6.00	0.10	63
	F0612D4R00FWTR	4.00	0.040	260	10	0.10	32
	F0612D5R00FWTR	5.00	0.025	200	12.5	0.25	32

*Current is limited to less than 50A at 32V due to internal fuse resistance.

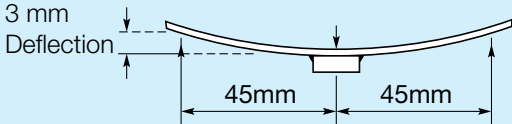


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SMD Thin-Film Fuse



ENVIRONMENTAL CHARACTERISTICS

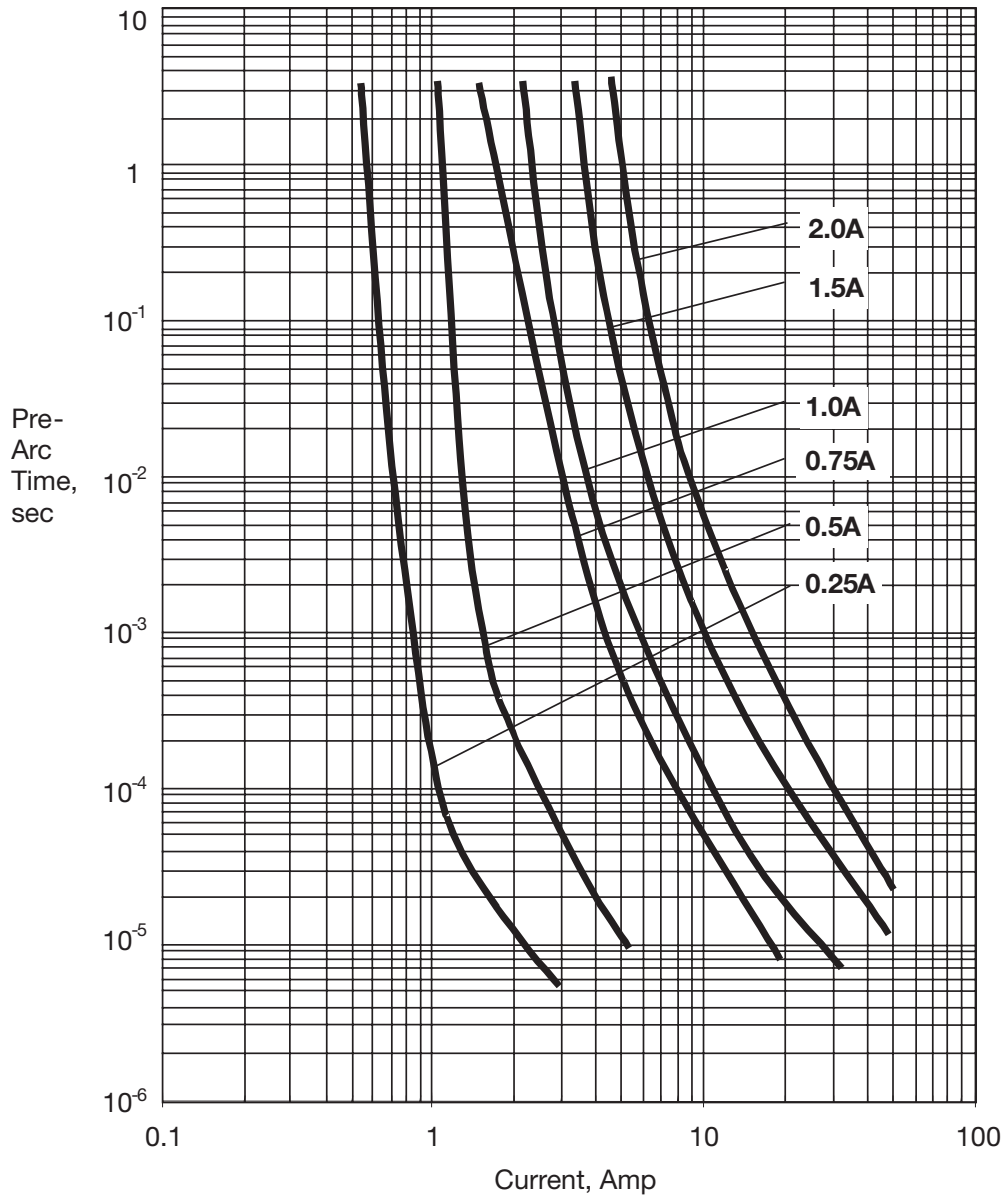
Test	Conditions	Requirement
Solderability	Components completely immersed in a solder bath at 235 ±5°C for 2 secs.	Terminations to be well tinned No visible damage
Leach Resistance	Completely immersed in a solder bath at 260 ±5°C for 60 secs.	Dissolution of termination ≤ 25% of area $\Delta R/R < 10\%$
Storage	12 months minimum with components stored in "as received" packaging.	Good solderability
Shear	Components mounted to a substrate. A force of 5N applied normal to the line joining the terminations and in a line parallel to the substrate.	No visible damage
Rapid Change of Temperature	Components mounted to a substrate. 50 cycles -55°C to +125°C.	No visible damage $\Delta R/R < 10\%$
Vibration	Per Mil-Std-202F Method 201A and Method 204D Condition D.	No visible damage $\Delta R/R < 10\%$
Bend	Tested as shown in diagram 	No visible damage $\Delta R/R < 10\%$
Load Life F0805B, F1206B	25°C, rated current, 20,000 hrs.	No visible damage $\Delta R/R < 10\%$

Accu-Guard[®] II



Lead-Free SMD Thin-Film Fuse

FUSE TIME – CURRENT CHARACTERISTICS FOR TYPE F0402E (TYPICAL)

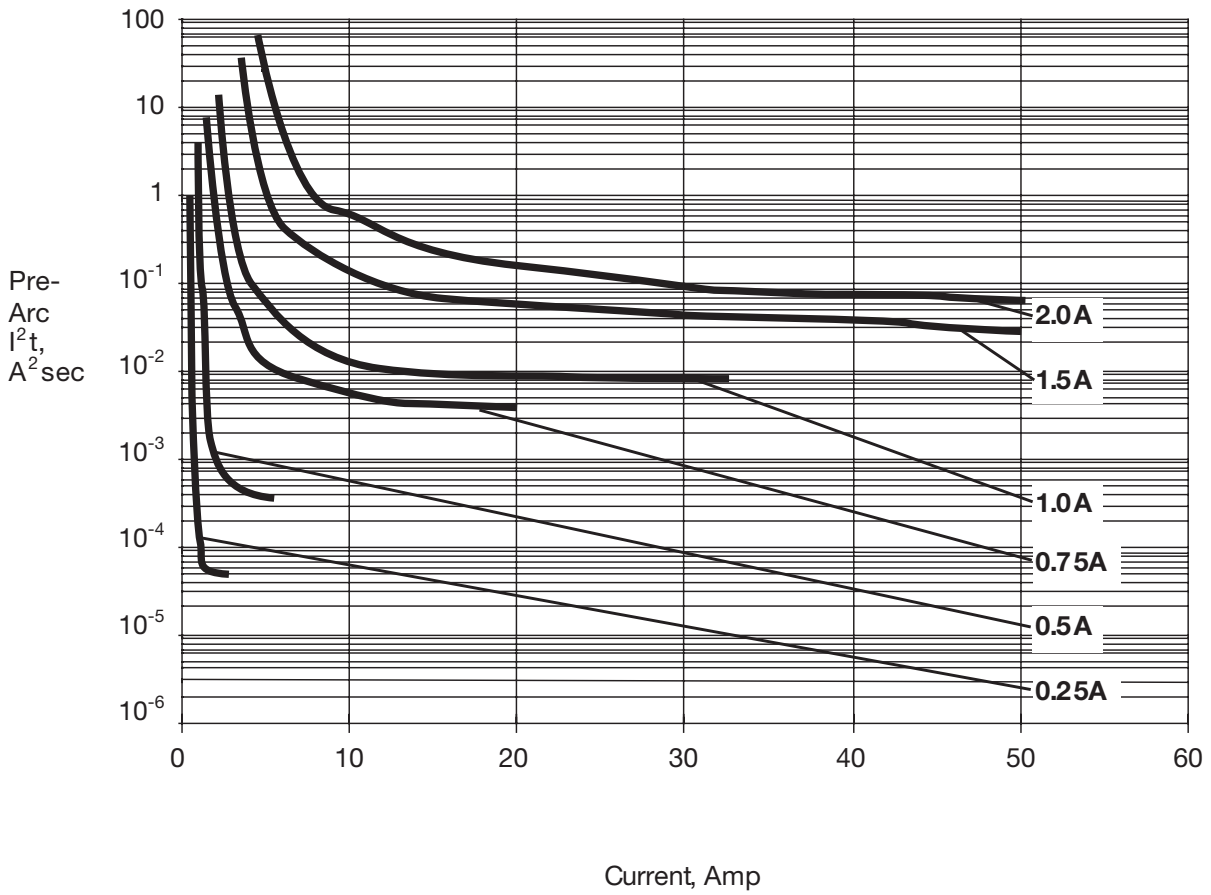


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Lead-Free SMD Thin-Film Fuse

FUSE PRE-ARC JOULE INTEGRALS VS CURRENT FOR TYPE F0402E (TYPICAL)

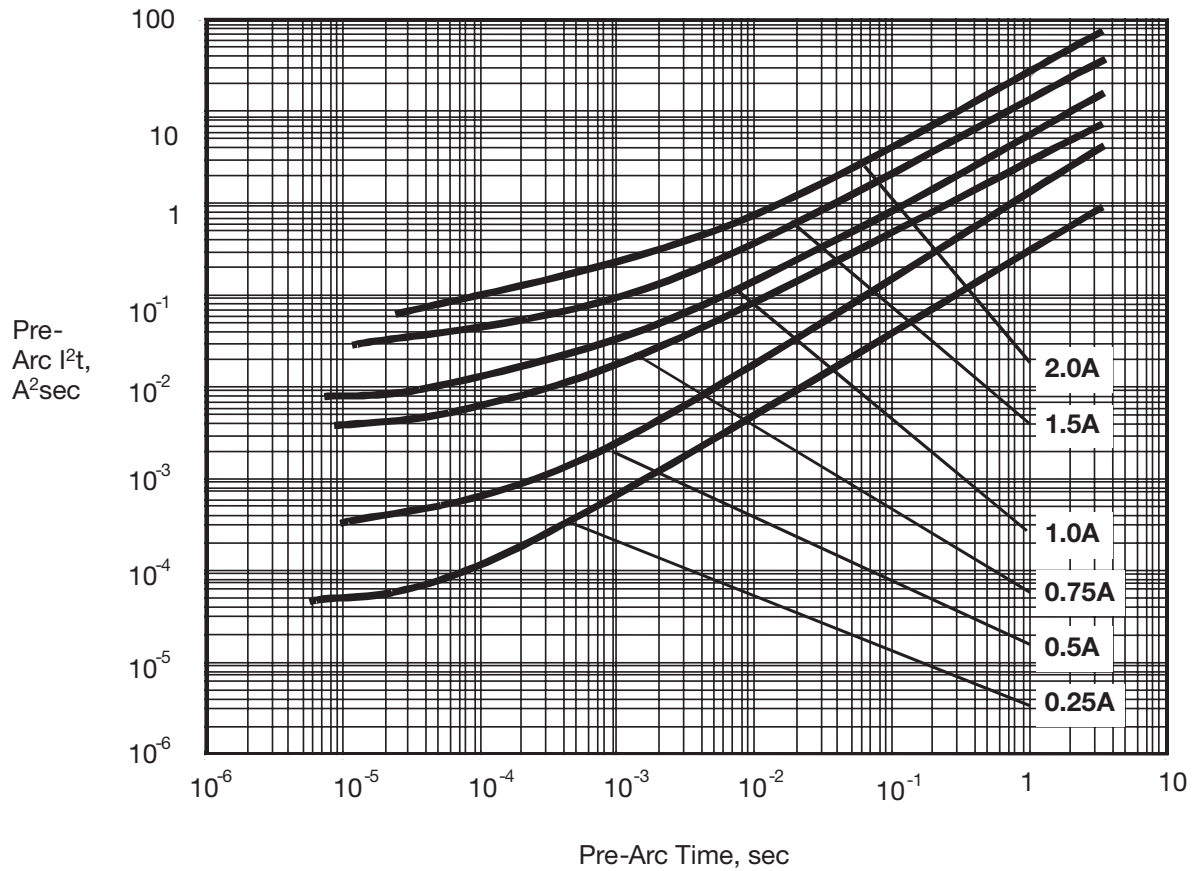


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Lead-Free SMD Thin-Film Fuse

FUSE PRE-ARC JOULE INTEGRALS VS PRE-ARC TIME FOR TYPE F0402E (TYPICAL)

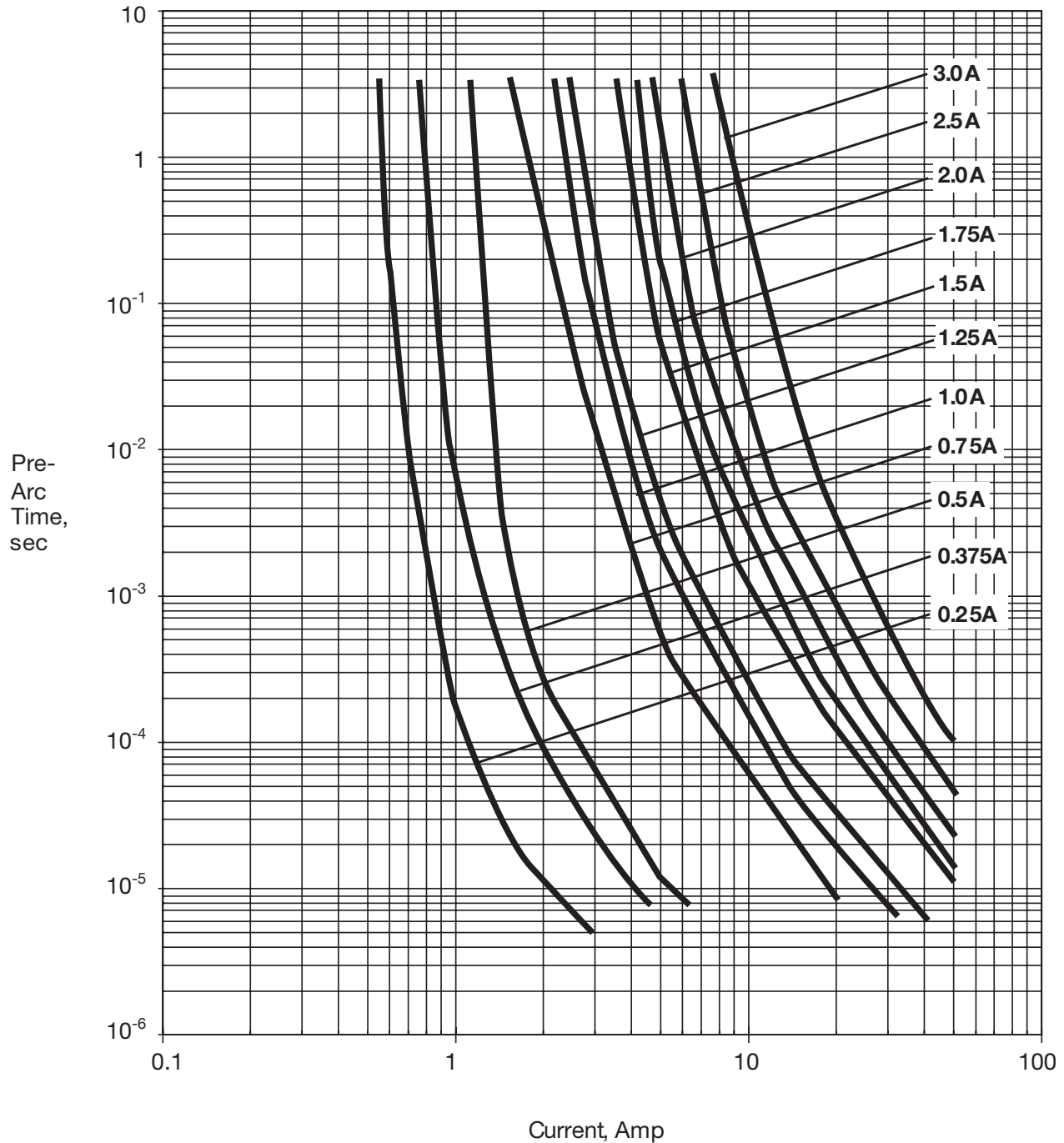


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Lead-Free SMD Thin-Film Fuse

FUSE TIME – CURRENT CHARACTERISTICS FOR TYPE F0603E (TYPICAL)

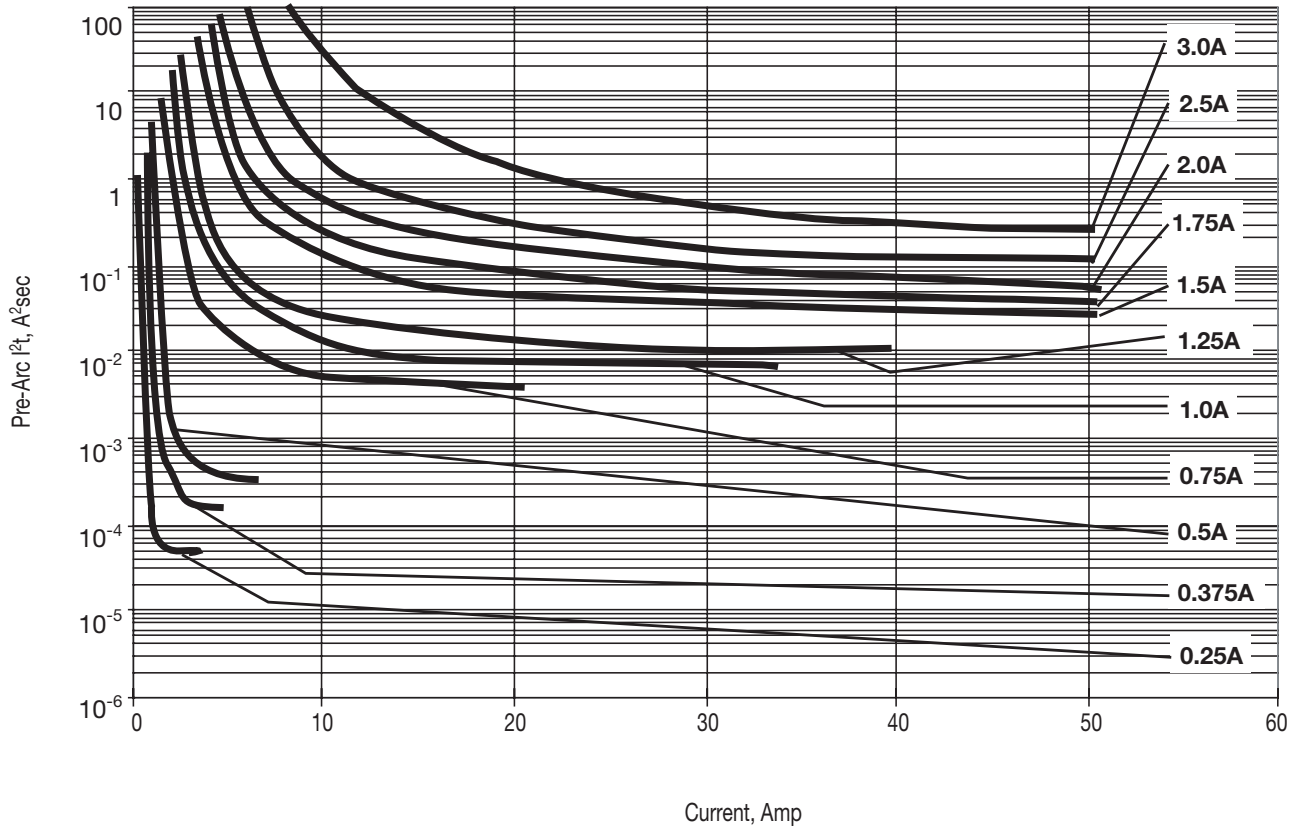


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Lead-Free SMD Thin-Film Fuse

FUSE PRE-ARC JOULE INTEGRALS VS CURRENT FOR TYPE F0603E (TYPICAL)

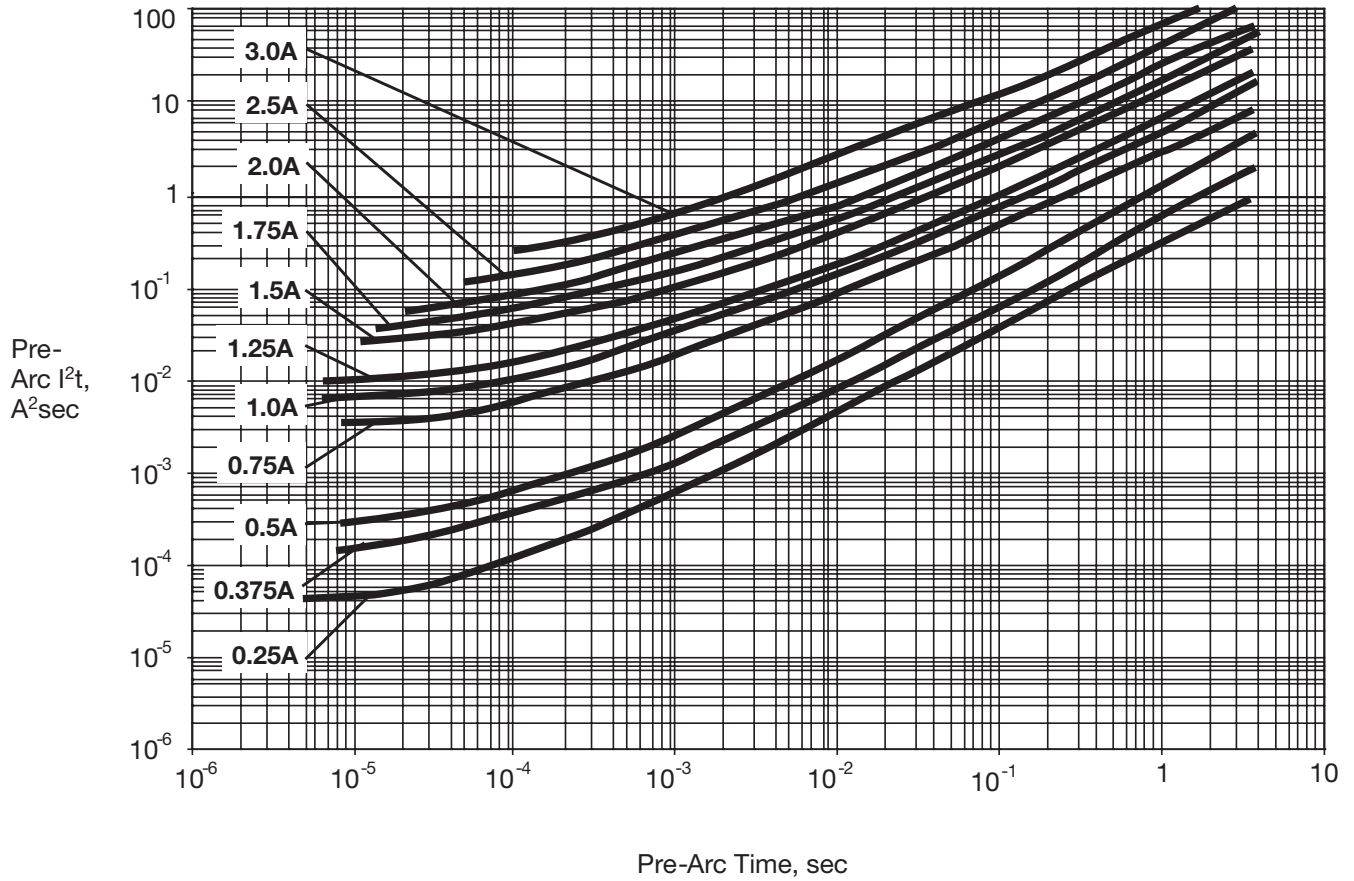


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Lead-Free SMD Thin-Film Fuse

FUSE PRE-ARC JOULE INTEGRALS VS PRE-ARC TIME FOR TYPE F0603E (TYPICAL)

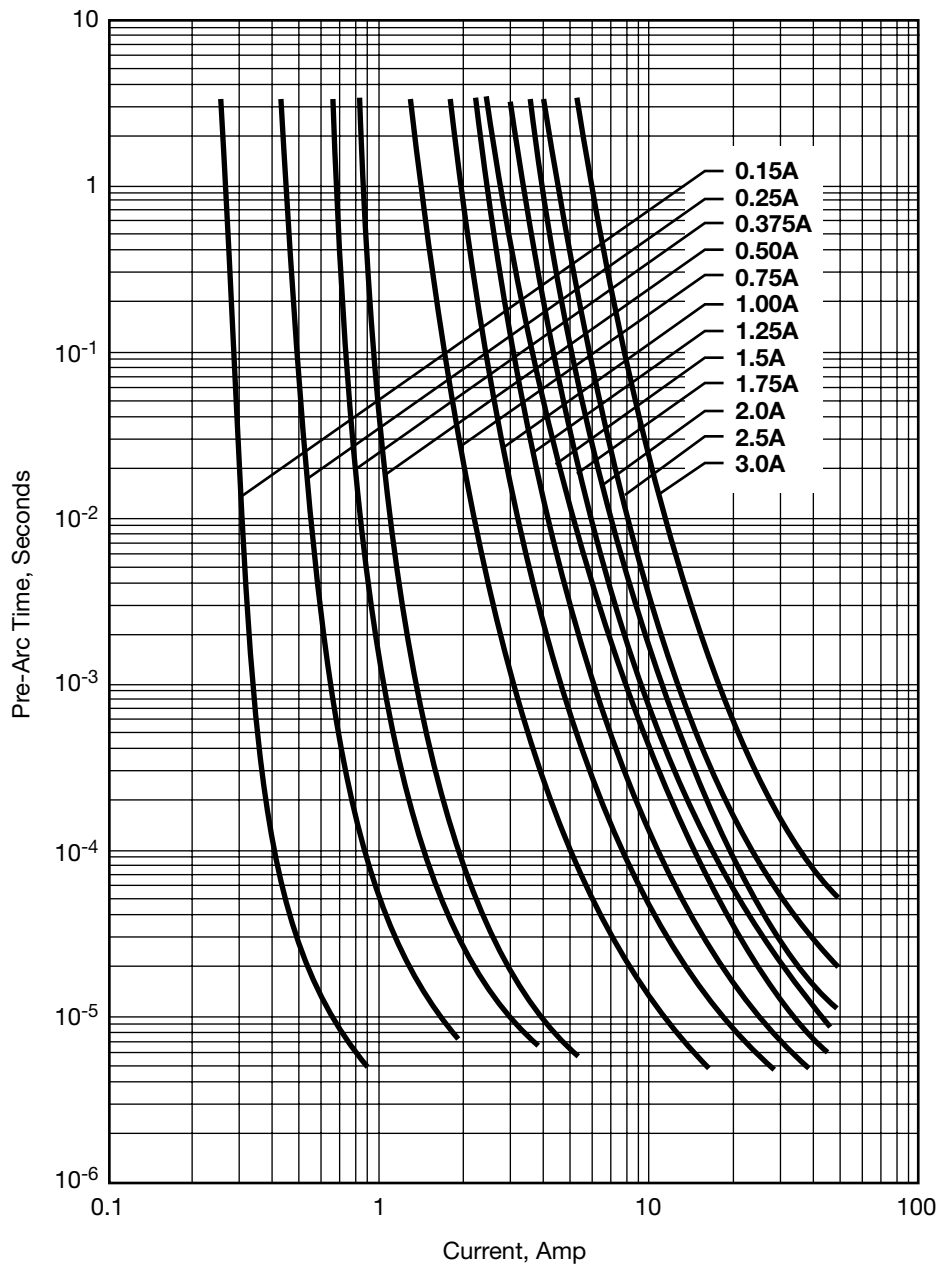


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SMD Thin-Film Fuse



FUSE TIME - CURRENT CHARACTERISTICS FOR TYPE F0603C (TYPICAL)

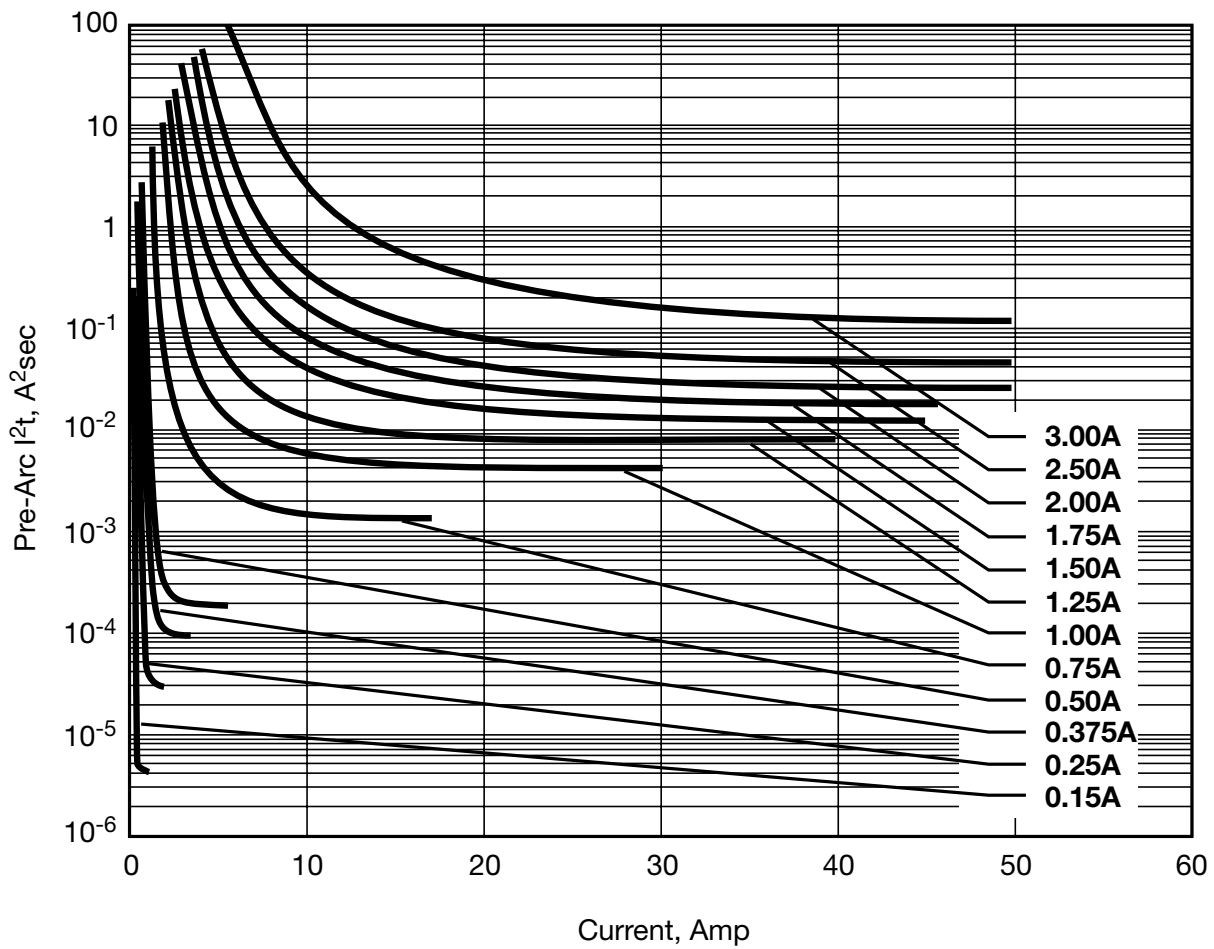


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SMD Thin-Film Fuse



FUSE PRE-ARC JOULE INTEGRALS VS. CURRENT FOR TYPE F0603C (TYPICAL)

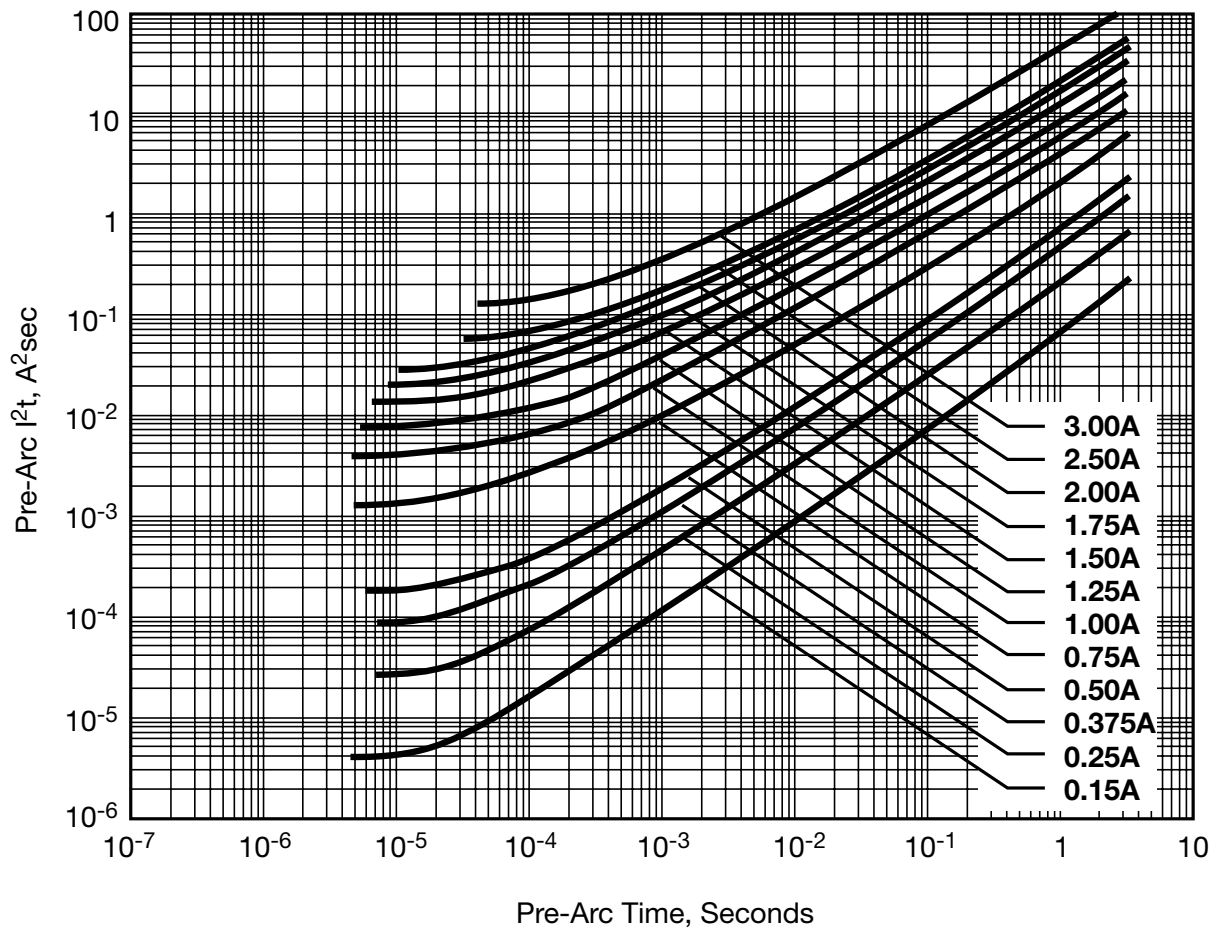


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SMD Thin-Film Fuse



FUSE PRE-ARC JOULE INTEGRALS VS. PRE-ARC TIME FOR TYPE F0603C (TYPICAL)

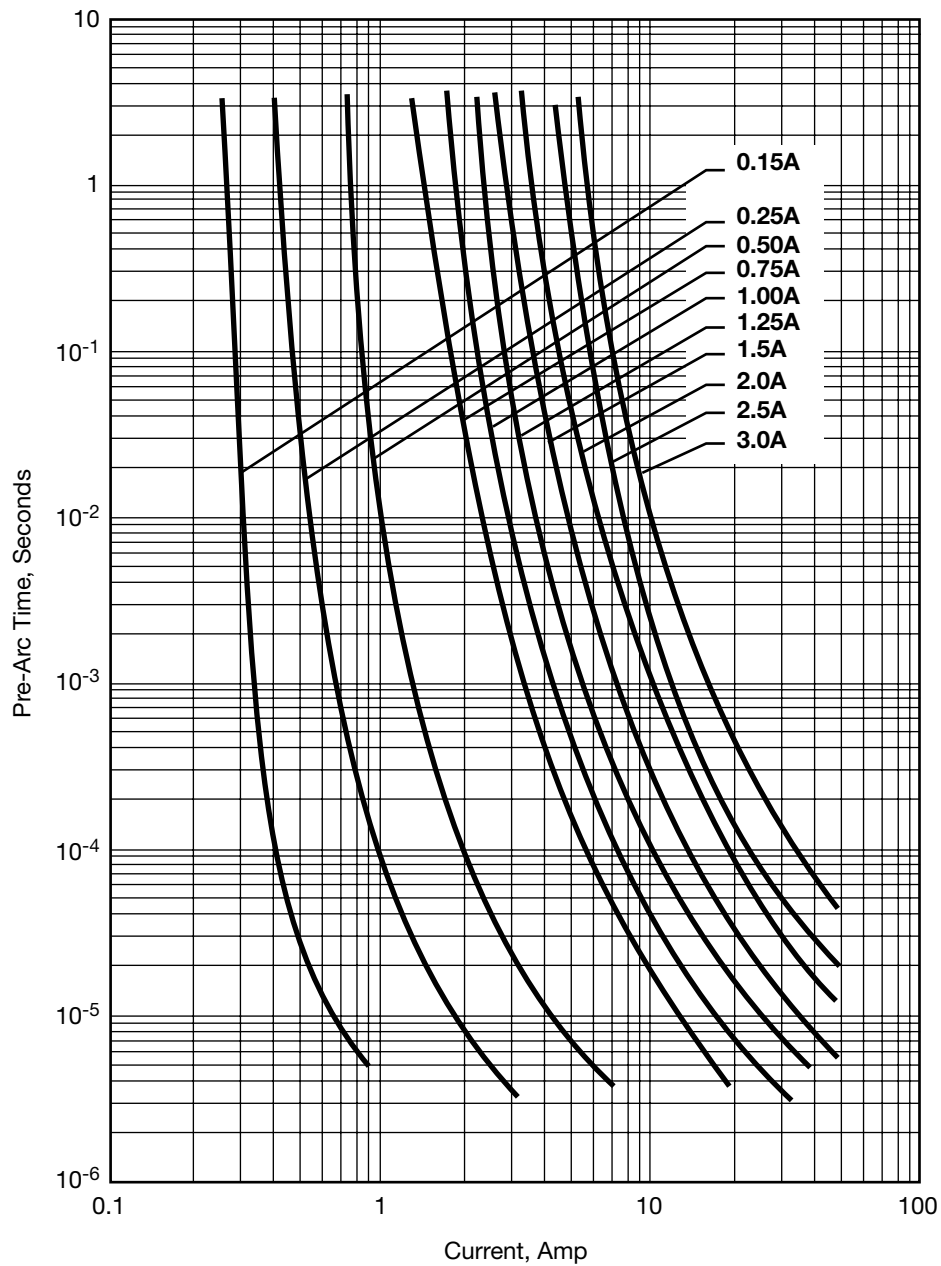


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SMD Thin-Film Fuse



FUSE TIME - CURRENT CHARACTERISTICS FOR TYPES F0805B AND F1206B (TYPICAL)

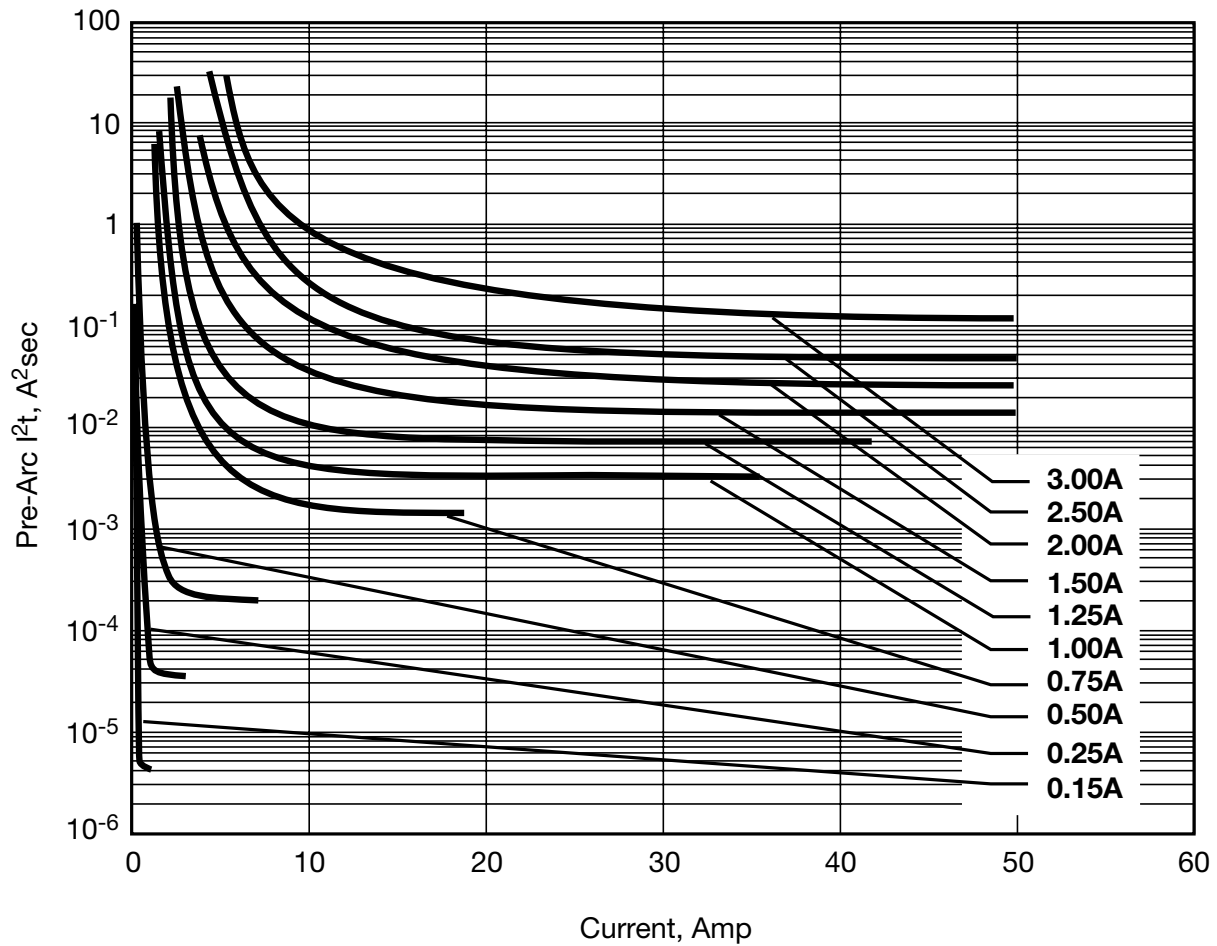


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SMD Thin-Film Fuse



FUSE PRE-ARC JOULE INTEGRALS VS. CURRENT TIME FOR TYPES F0805B AND F1206B (TYPICAL)

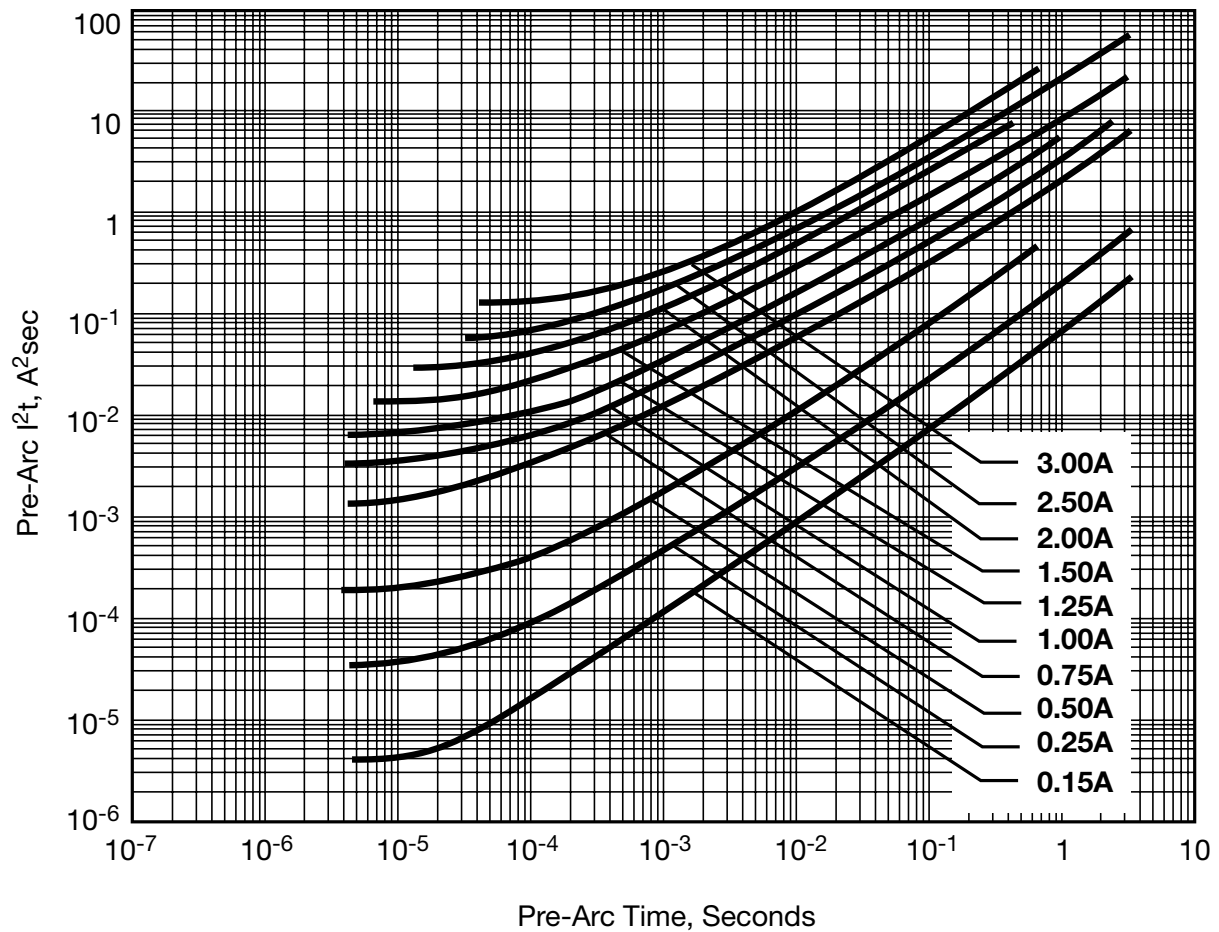


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SMD Thin-Film Fuse



FUSE PRE-ARC JOULE INTEGRALS VS. PRE-ARC TIME FOR TYPES F0805B AND F1206B (TYPICAL)

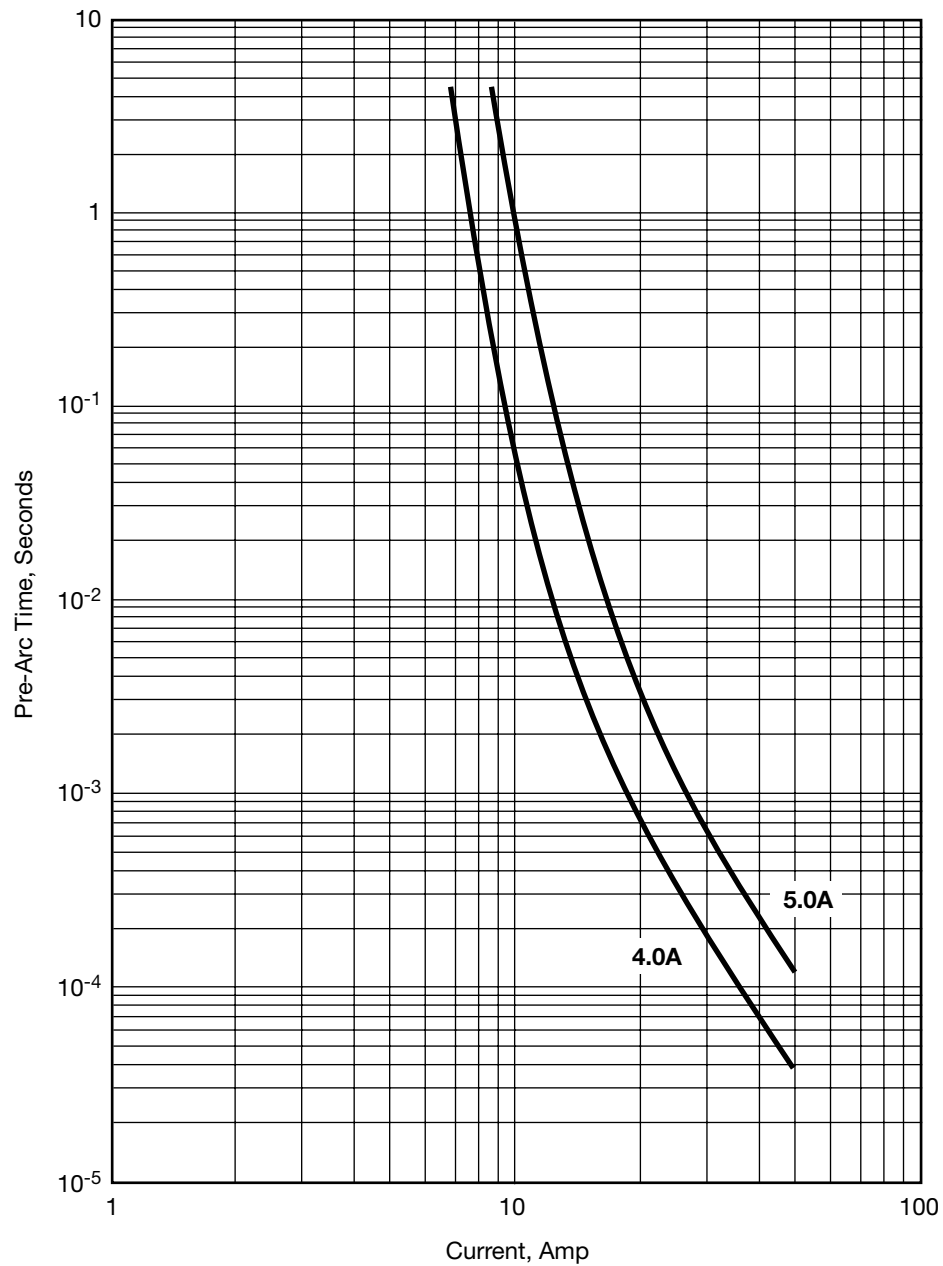


Accu-Guard[®] II

SMD Thin-Film Fuse



FUSE TIME - CURRENT CHARACTERISTICS FOR TYPE F0612D (TYPICAL)

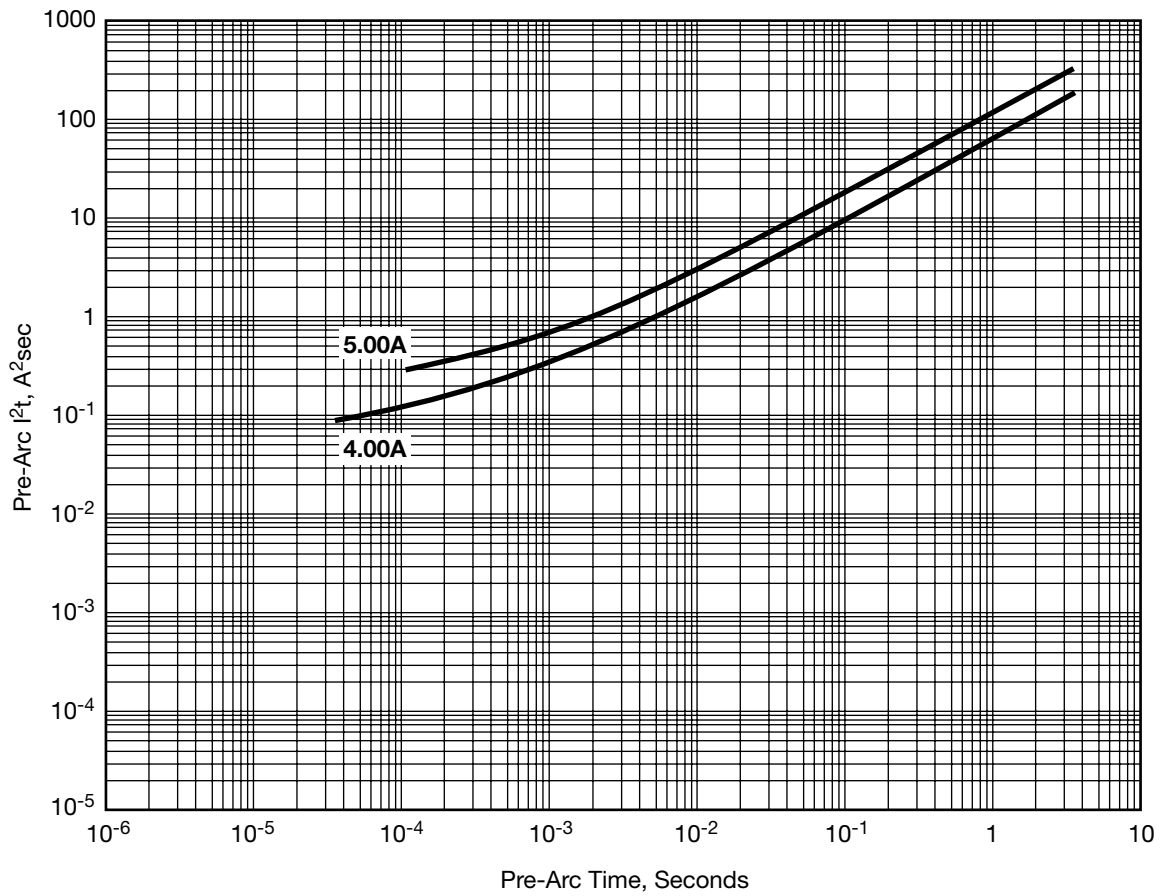


Accu-Guard® II



SMD Thin-Film Fuse

FUSE PRE-ARC JOULE INTEGRALS VS. PRE-ARC TIME FOR TYPE F0612D (TYPICAL)



Accu-Guard[®] II

SMD Thin-Film Fuse



FUSE PRE-ARC JOULE INTEGRALS VS. CURRENT FOR TYPE F0612D (TYPICAL)

