Accu-Guard®

Introduction

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 KYOCERA 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, 0805, 1206 and 0612 chip sizes
- Taped and reeled
- Completely compatible with all soldering systems used for SMT
- Lead Free Series (F0402G, F0603G, F0402E, F0603E, F0805B, F1206B)

APPLICATIONS

- Two-Way Radios
- Home Appliances
- Battery Management Systems
- Battery Chargers
- Rechargeable Battery Packs
- Computers
- Hard Disk Drives
- PDA's
- LCD Screens
- SCSI Interface
- Digital Cameras
- Video Cameras

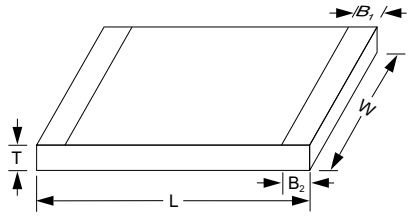
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

APPROVAL FILE NUMBERS

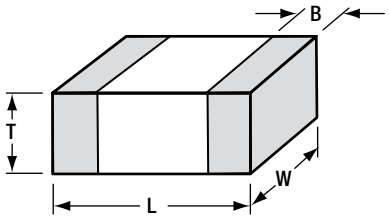
- UL, cUL: RCD#E143842

DIMENSIONS millimeters (inches)

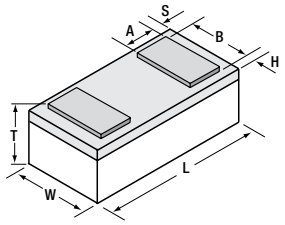
F0805B and F1206B



F0402E and F0603E



F0402G and F0603G



	F0402G	F0603G	F0402E	F0603E	F0805B	F0612D
L	1.00±0.05 (0.039±0.002)	1.60±0.10 (0.063±0.004)	1.00±0.10 (0.039±0.004)	1.60±0.10 (0.063±0.004)	2.10±0.20 (0.083±0.008)	1.65±0.25 (0.065±0.010)
W	0.58 ±0.04 (0.023±0.002)	0.81±0.10 (0.032±0.004)	0.55±0.07 (0.022±0.003)	0.81±0.10 (0.032±0.004)	1.27±0.10 (0.050±0.004)	3.10±0.20 (0.122±0.008)
T	0.35±0.05 (0.014±0.002)	0.61±0.10 (0.024±0.004)	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±0.20 (0.036±0.008)
B	0.48±0.05 (0.019±0.002)	0.71±0.05 (0.028±0.002)	0.20±0.10 (0.008±0.004)	0.35±0.15 (0.014±0.006)	0.30±0.15 (0.012±0.006)	0.35±0.15 (0.014±0.006)
A	0.20±0.05 (0.008±0.002)	0.28±0.05 (0.011±0.002)				
S, H	0.05±0.05 (0.002±0.002)	0.05±0.05 (0.002±0.002)				

HOW TO ORDER

F	1206	A	0R20	F	W	TR
Product **Fuse**	**Size** See table for standard sizes	**Fuse Version** A=Accu-Guard® B=Accu-Guard® II D=Accu-Guard® II 0612 E=Accu-Guard® II 0402, 0603 G=Accu-Guard® II Low Current 0402, 0603	**Rated Current** Current expressed in Amps. Letter R denotes decimal point e.g. 0.20A=0R20 1.75A=1R75	**Fuse Speed** F=Fast	**Termination** S=Nickel/Lead-Free Solder coated (Sn 100), SMD W=Nickel/solder coated (Sn 63, Pb 37) Solder Coated (Sn100) N=Nickel/Lead-Free Solder Coated (Sn100), LGA	**Packaging** TR=Tape and reel

Accu-Guard® II Low Current

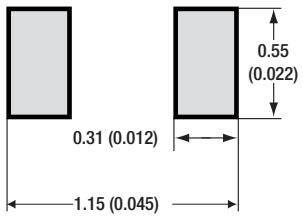
LGA Miniature 0402 and 0603 Size Thin-Film Fuses

The new F0402G and F0603G Accu-Guard® series of fuses is based on thin-film technology which allows precise control of the component electrical and physical characteristics that is not possible with standard fuse technologies. The Accu-Guard Low Current series encompasses the lowest current ratings in compact 0402 and 0603 packages and features LGA terminations.

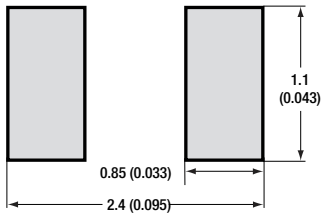
RECOMMENDED PAD LAYOUT

millimeters (inches)

F0402G



F0603G



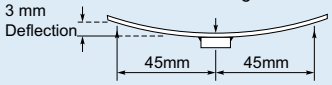
ELECTRICAL SPECIFICATIONS

Operating temperature: -55°C to +125°C
Current carrying capacity:
-55°C to -11°C 107% of rating
-10°C to +60°C 100% of rating
+61°C to +100°C 85% of rating
+101°C to +125°C 80% of rating
Rated voltage: 63V (F0603G), 32V (F0402G)
Post-fusing resistance: >1MΩ
Interrupt rating: 50A

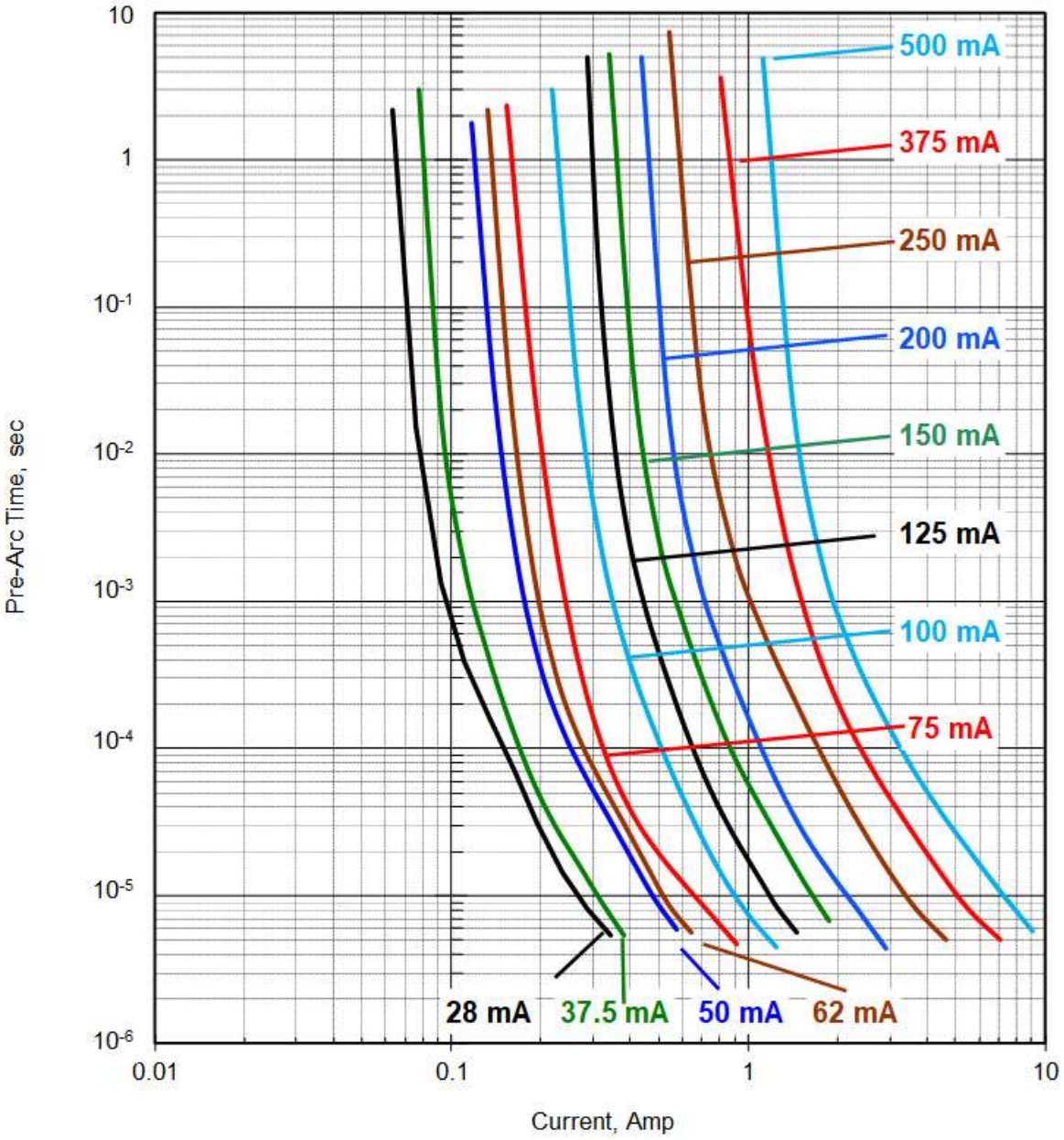
Part Number	Current Rating A	Resistance @0.1 x I rated Ω (max.)	Voltage Drop @ I rated mV (max.)	Fusing Current (within 5 sec) A	Pre-Arc I2t @10x I rated A^2-sec (typ)	Color Code
F0402G0R02FNTR F0603G0R02FNTR	0.028	7.5	290	0.070	6×10^{-7}	Green
F0402G0R03FNTR F0603G0R03FNTR	0.0375	4.8	230	0.094	8×10^{-7}	Red
F0402G0R05FNTR F0603G0R05FNTR	0.050	3.4	250	0.125	2×10^{-6}	Blue
F0402G0R06FNTR F0603G0R06FNTR	0.062	2.5	280	0.155	2×10^{-6}	Yellow
F0402G0R07FNTR F0603G0R07FNTR	0.075	2.0	280	0.188	4×10^{-6}	Brown
F0402G0R10FNTR F0603G0R10FNTR	0.100	2.4	300	0.250	7×10^{-6}	Red
F0402G0R12FNTR F0603G0R12FNTR	0.125	1.6	250	0.312	1×10^{-5}	White
F0402G0R15FNTR F0603G0R15FNTR	0.150	1.2	220	0.375	2×10^{-5}	Green
F0402G0R20FNTR F0603G0R20FNTR	0.200	0.8	210	0.500	4×10^{-5}	Pink
F0402G0R25FNTR F0603G0R25FNTR	0.25	0.55	180	0.625	2×10^{-4}	Blue
F0402G0R37FNTR F0603G0R37FNTR	0.375	0.30	150	0.938	3×10^{-4}	Red
F0402G0R50FNTR F0603G0R50FNTR	0.5	0.20	140	1.25	7×10^{-4}	Green

*0603 size fuses with higher current rating will be launched soon.

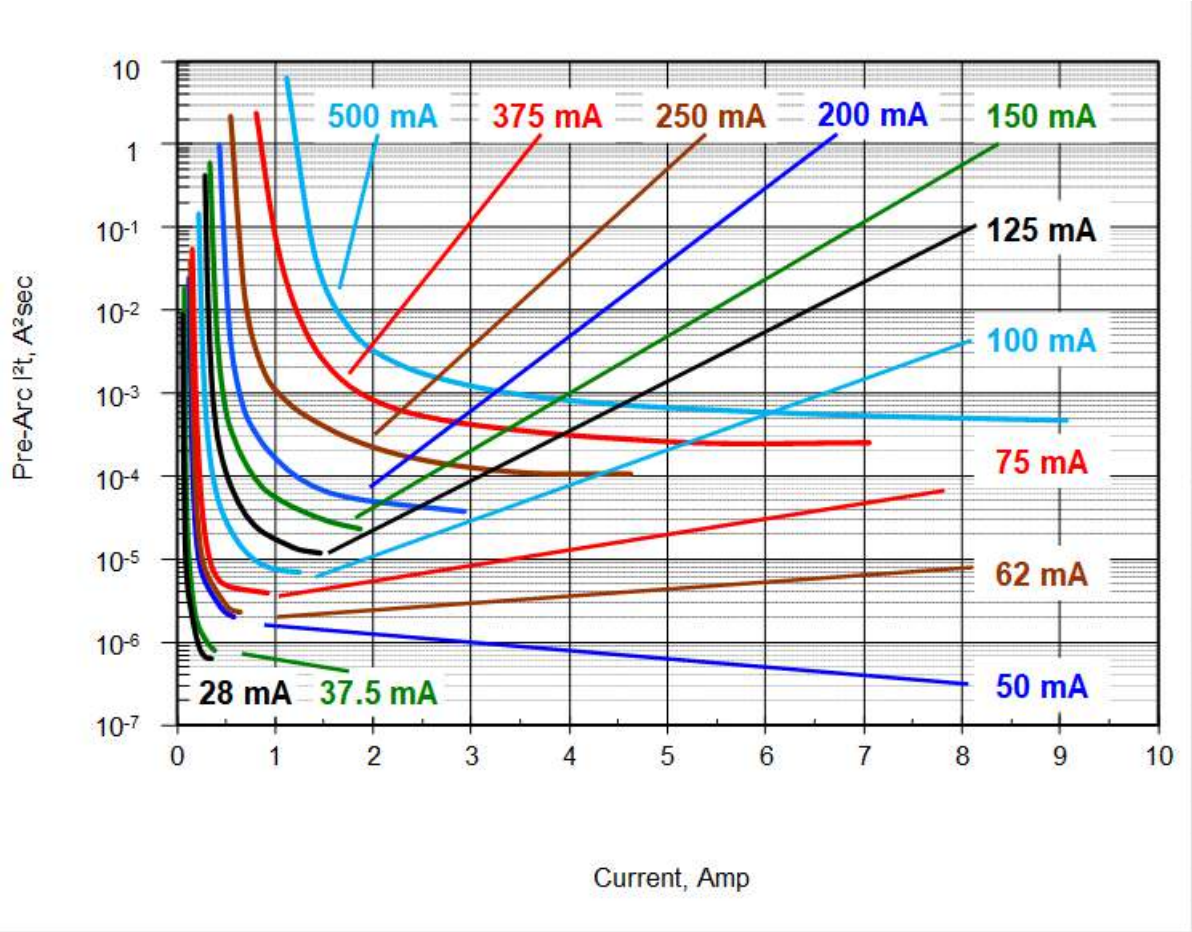
ENVIRONMENTAL CHARACTERISTICS

Test	Conditions	Required
Solderability	Components completely immersed in a solder bath at 245 ±5°C for 3 secs.	Total area of imperfections in solder coatup to 5% of the land suface area
Leach Resistance	Components completely immersed in a solder bath at 255 ±5°C for 60 secs.	Dissolution of termination ≤ 15% of the land surface area
Storage	12 months minimum with components stored in "as received" packaging.	Good solderability
Shear	Components mounted to a substrate. Increasing shearing force applied paralled to the sufstrate till destruction.	Destruction at 5N force minimum
Temperature Cycling	Components mounted to a flexible substrate (e.g. FR – 4). 1000 cycles -55°C to +125°C.	No Visible damage ΔR/R<10%
Bend	Tested as shown in diagram 	No visible damage ΔR/R<10%

FUSE TIME–CURRENT CHARACTERISTICS



FUSE PRE–ARC JOULE INTEGRALS VS CURRENT



FUSE PRE–ARC JOULE INTEGRALS VS PRE–ARC TIME