

## 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, 0603, 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

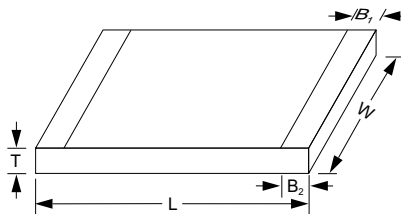


### APPROVAL FILE NUMBERS

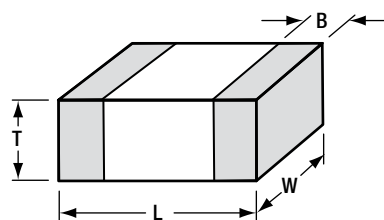
- UL, cUL: RCD#E143842

### DIMENSIONS millimeters (inches)

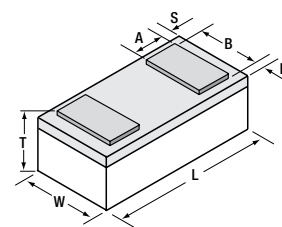
F0603C, F0805B, F1206A and F1206B



F0402E and F0603E



F0402G and F0603G



	F0402G	F0603G	F0402E	F0603E	F0603C	F0805B	F1206A/B	F0612D
<b>L</b>	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)	1.65±0.25 (0.065±0.010)	2.10±0.20 (0.083±0.008)	3.10±0.20 (0.122±0.008)	1.65±0.25 (0.065±0.010)
<b>W</b>	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)	0.80±0.15 (0.031±0.006)	1.27±0.10 (0.050±0.004)	1.60±0.10 (0.063±0.004)	3.10±0.20 (0.122±0.008)
<b>T</b>	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)	0.70±0.15 (0.028±0.006)	0.90±0.2 (0.035±0.008)	1.20±0.20 (0.047±0.008)	0.90±0.20 (0.036±0.008)
<b>B</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)	0.35±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)
<b>A</b>	0.20±0.05 (0.008±0.002)	0.28±0.05 (0.011±0.002)						
<b>S, H</b>	0.05±0.05 (0.002±0.002)	0.06±0.05 (0.002±0.002)						

### HOW TO ORDER

<b>F</b>	<b>1206</b>	<b>A</b>	<b>0R20</b>	<b>F</b>	<b>W</b>	<b>TR</b>
Product Fuse	Size See table for standard sizes	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 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

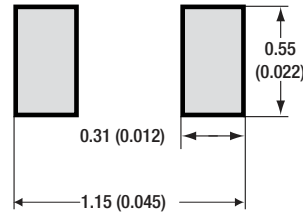
The new F0402G and F0603G Accu-Guard® series of fuses is based on thin-film technology which allows precise control of the component electrical and physical characteristics that is not possible with standard fuse technologies. The Accu-Guard Low Current series encompasses the lowest current ratings in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

### RECOMMENDED PAD LAYOUT

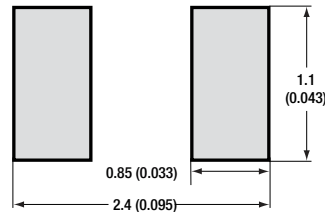
millimeters (inches)



**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 I <sub>2t</sub> @10x I rated A <sup>2</sup> -sec (typ)	Color Code
F0402G0R02FNTR F0603G0R02FNTR	0.028	7.5	290	0.070	6 x 10 <sup>-7</sup>	Green
F0402G0R03FNTR F0603G0R03FNTR	0.0375	4.8	230	0.094	8 x 10 <sup>-7</sup>	Red
F0402G0R05FNTR F0603G0R05FNTR	0.050	3.4	250	0.125	2 x 10 <sup>-6</sup>	Blue
F0402G0R06FNTR F0603G0R06FNTR	0.062	2.5	280	0.155	2 x 10 <sup>-6</sup>	Yellow
F0402G0R07FNTR F0603G0R07FNTR	0.075	2.0	280	0.188	4 x 10 <sup>-6</sup>	Brown
F0402G0R10FNTR F0603G0R10FNTR	0.100	2.4	300	0.250	7 x 10 <sup>-6</sup>	Red
F0402G0R12FNTR F0603G0R12FNTR	0.125	1.6	250	0.312	1 x 10 <sup>-5</sup>	White
F0402G0R15FNTR F0603G0R15FNTR	0.150	1.2	220	0.375	2 x 10 <sup>-5</sup>	Green
F0402G0R20FNTR F0603G0R20FNTR	0.200	0.8	210	0.500	4 x 10 <sup>-5</sup>	Pink

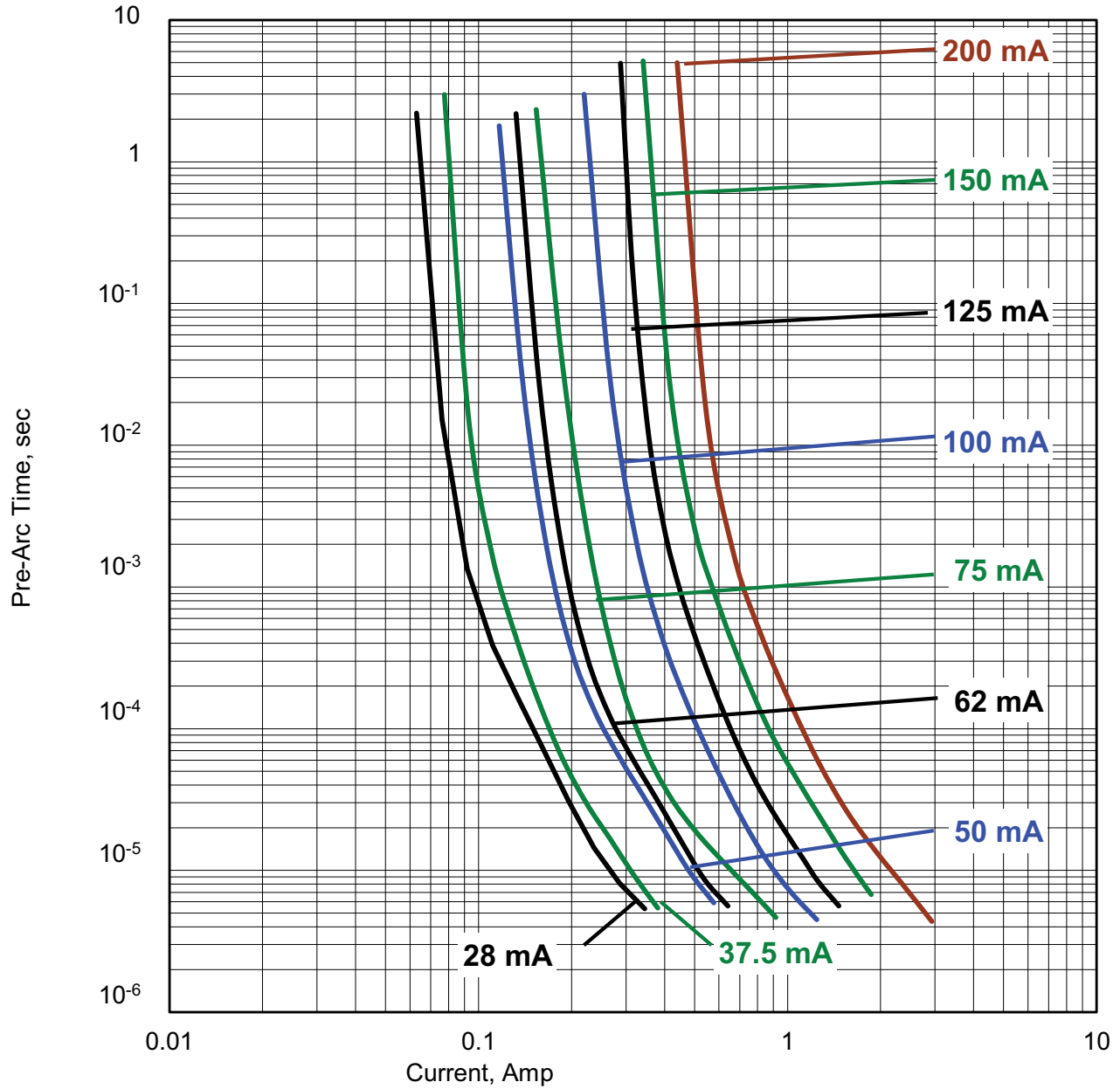
### ENVIRONMENTAL CHARACTERISTICS

Test	Conditions	Required
Solderability	Components completely immersed in a solder bath at 245 ±5°C for 3 secs.	Total area of imperfections in solder coating to 5% of the land surface 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 parallel to the substrate 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%

**Accu-Guard® II Low Current**  
**LGA Miniature 0402 and 0603 Size Thin-Film Fuses**



**FUSE TIME-CURRENT CHARACTERISTICS**

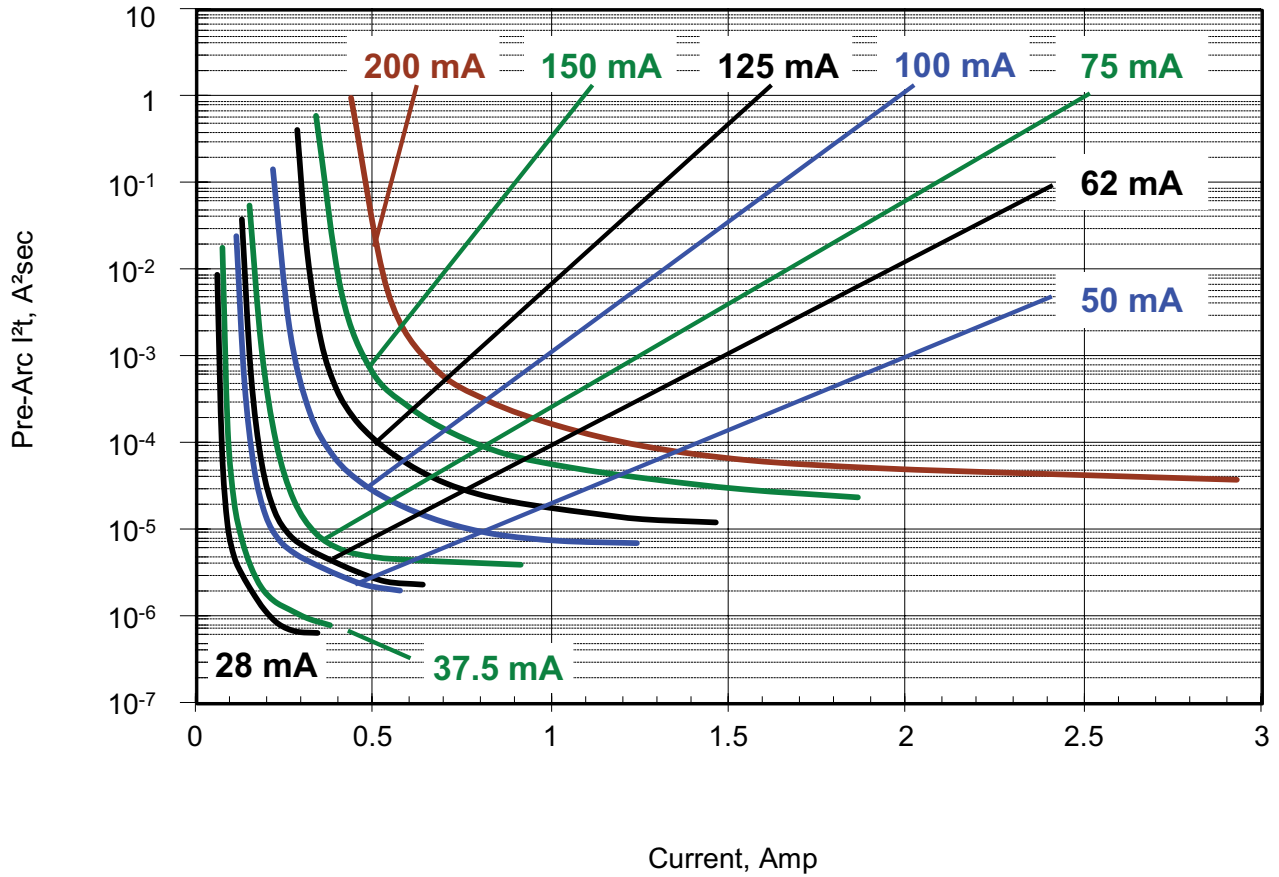


# Accu-Guard® II Low Current

## LGA Miniature 0402 and 0603 Size Thin-Film Fuses



### FUSE PRE-ARC JOULE INTEGRALS VS CURRENT



# Accu-Guard® II Low Current

## LGA Miniature 0402 and 0603 Size Thin-Film Fuses



### FUSE PRE-ARC JOULE INTEGRALS VS PRE-ARC TIME

