

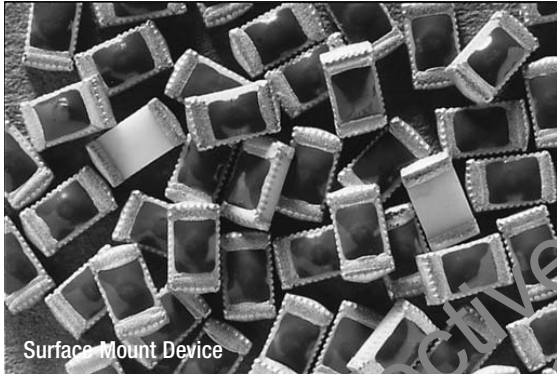


**THE DATASHEET OF
0603ESDA-TR1**



0603ESDA-TR1

ESD suppressor



Product features

- 0603/1608 footprint surface mount device
- Ideal ESD protection for high frequency, low voltage applications
- Provides ESD protection with fast response time (<1ns) allowing equipment to pass IEC 61000-4-2 testing
- Very low leakage current
- Ultra low capacitance (0.15 pF maximum) Bi-directional

Specifications				
Performance Characteristics	Units	Min	Typ	Max
Continuous operating voltage	Vdc	-	-	24
Clamping voltage	V	-	35	40
Trigger voltage ¹	V	-	3.0	-
ESD Threat voltage capability	kV	-	8	15
Capacitance (@ 1 kHz, 10 GHz)	pF	-	-	0.15
Leakage current (@ 2 Vdc)	nA	0.01	<0.1	-
Peak current ²	A	-	30	40
Operating temperature	°C	-56	+125	+105
ESD pulse withstand ³	# pulses	20	>500 ¹	-

1. Some shifting in characteristics may occur when tested over several hundred ESD pulses at very rapid rate of 1 pulse per second or faster.
2. Per IEC 61000-4-2, 30A @ 8 kV, level 4 clamp measurement made 30 ns after initiation of pulse, all tests in contact discharge mode.
3. Trigger measurement made using Transmission Line Pulse (TLP) method.
4. PolySURG™ devices are capable of withstanding up to a 15 kV, 45 A ESD pulse. Device ratings are given at 8 kV per Note 1, unless otherwise specified.

Applications

- Computers and peripherals
- Blu-Ray/DVD players
- Satellite and HD radio
- Set top Boxes
- High speed data ports
 - USB 2.0/3.0
 - High speed Ethernet
 - Infraband® IEEE 1394
 - DVI
 - HDMI
- Laptop/notebook/netbook
- Digital camcorders
- DSL Modems
- HDTV Equipment
- AV Equipment
- Cell phones
- Digital still cameras
- MP3 / Multimedia players
- External storage
- GPS

Catalog Number	Description
0603ESDA-TR1	5,000 pieces in paper tape on 7 inch diameter (178 mm) reel.

Device marking

0603ESDA-TR1 ESD Suppressors are marked on the tape and reel packages, not individually. Since the product is bi-directional and symmetrical, no orientation marking is required.

Design considerations

The location in the circuit for the 0603ESDA-TR1 family has to be carefully determined. For better performance, the device should be placed as close to the signal input as possible and ahead of any other component. Due to the high current associated with an ESD event, it is recommended to use a "0-Stub" pad design (pad directly on the signal/data line and second pad directly on common ground).

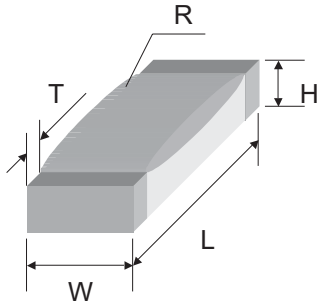
Processing recommendations

The 0603ESDA-TR1 family currently has a convex profile on the top surface of the part. This profile is a result of the construction of the device. They can be processed using standard pick-and-place equipment. The placement and processing techniques for these devices are similar to those used for chip resistors and chip capacitors.



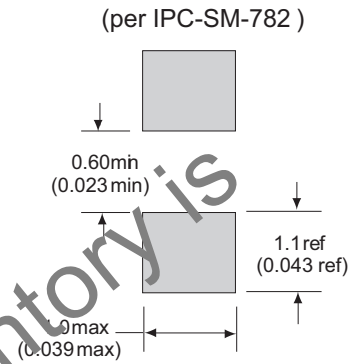
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Dimensions - mm (in)

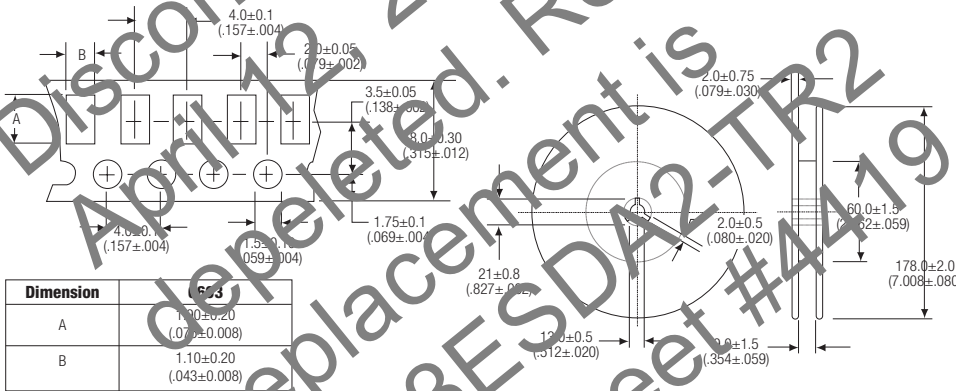


EIA Size	L	W	H	T	R
0603ESDA	1.60±0.10 (0.063±0.004)	0.80±0.10 (0.031±0.004)	0.50±0.10 (0.020±0.004)	0.30±0.20 (0.012±0.008)	0.70±0.10 (0.028±0.004)

Recommended Pad Layout - in (mm)



Packaging- mm (in)

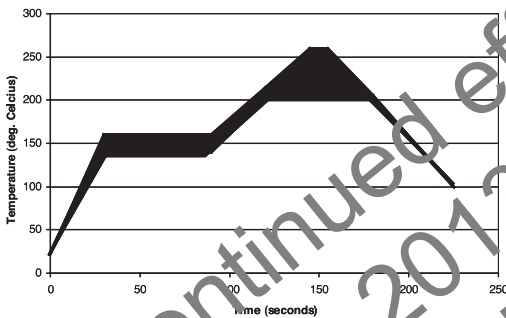


Environmental Specifications:

- Moisture Resistance per EIA/IS-722 Paragraph 4.4.2. This standard is based upon MIL-STD-202G Method 103B but with temperature and relative humidity at +85 °C and 85% RH respectively. Test condition 'A' (240 Hours) per MIL-STD-202G.
- Thermal shock: MIL-STD-202, Method 107G, -55 °C to +125 °C, 30 min. cycle, 10 cycles.
- Vibration: MIL-STD-202F, Method 201A, (10 to 55 to 10 Hz, 1 min. cycle, 2 hours each in X-Y-Z).
- Chemical resistance: ASTM D-543, 4 hrs @ +40 °C, 3 solutions (H₂O, detergent solution, defluxer).
- Operating temperature characteristics, measurement at +25 °C, +105 °C and -56 °C.
- Full load voltage: 14.4 Vdc, 18 Vdc & 24 Vdc for 1000 hours, +25 °C.
- Solder leach resistance and terminal adhesion: Per EIA-576.
- Solderability: MIL-STD-202, Method 208 (95% coverage).

Soldering Recommendations

- Compatible with lead and lead-free solder reflow processes
- Peak reflow temperatures and durations:
 - IR Reflow = +260 °C max for 10 sec. max.
 - Wave Solder = +260 °C max. for 10 sec. max.
- Recommended IR Reflow Profile:



Discontinued effective
April 12, 2013 or until inventory is
depleted. Recommended
replacement is
0603ESDA2-TR2
data sheet #4419.

Life Support Policy: Eaton does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

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