

ESD Protector PESD0603-140

www.circuitprotection.com

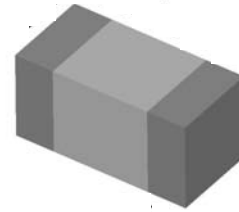
Document: SCD 26107
Status: Released
Rev. E Date: JULY 14, 2005

BENEFITS

- Suitable for high speed data transmission applications
- Longer battery life, due to low leakage current
- Board space savings
- Help to protect sensitive electronic circuits against electrostatic discharge (ESD) events
- Assist equipment to pass IEC 61000-4-2, level 4 testing

FEATURES

- Thick film technology
- Low capacitance (0.25 pF typical)
- Low leakage current
- Low trigger voltage
- Low clamping voltage
- Capable of withstanding numerous ESD strikes
- Compatible with standard reflow installation procedures
- Bi-directional protection



APPLICATIONS

- Cellular phones
- Antennas (cell phones, GPS...)
- Portable devices (PDA, DSC, BlueTooth...)
- Printer ports
- High speed Ethernet
- USB 2.0 and IEEE 1394 interfaces
- DVI and HDMI interfaces

MATERIALS INFORMATION

ROHS Compliant

Directive 2002/95/EC
Compliant

ELV Compliant

Directive 2000/53/EC
Compliant

PART NUMBERING

Series **PESD 0603 - 140** Operating Voltage Designator
 $14 \times 10^0 = 14V_{DC}$
 EIA Size

**ESD Protector
PESD0603-140**

www.circuitprotection.com

Document: SCD 26107
Status: Released
Rev. E Date: JULY 14, 2005

TYPICAL DEVICE RATINGS AND CHARACTERISTICS

	Continuous Max Operating Voltage	Typical IEC Trigger Voltage ¹	Typical IEC Clamping Voltage ¹ after 30ns	Typical TLP Trigger Voltage ²	Typical TLP Clamping Voltage ² after 30ns	Typical TLP Clamping Voltage ² after 60ns	Typical Capacitance, @ 1 MHz, 1V _{rms}	Typical Leakage Current @14V _{DC}	Max Leakage Current @14V _{DC}
Symbol	V _{DC}	V _{T(IEC)}	V _{C(IEC)}	V _{T(TLP)}	V _{C(TLP 30)}	V _{C(TLP 60)}	C _p	I _{L(Typ)}	I _{L(MAX)}
Unit	V	V	V	V	V	V	pF	μA	μA
Value	14	350	30	320	75	65	0.25	<0.001	0.01

Note 1: IEC61000-4-2, level 4, 8kV contact test method
Note 2: TLP test method at 500V (refer to graph on next page)

GENERAL CHARACTERISTICS

Storage temperature: -40°C ... +85°C

Operating temperature: -40°C ... + 85°C

ESD voltage capability (tested per IEC 61000-4-2)

- Contact discharge mode: typical 8kV, max 15kV
- Air discharge mode: typical 15kV, max 25kV

ESD pulse withstand: Typically 1,000 pulses (tested per IEC 61000-4-2, level 4, contact method)

ENVIRONMENTAL SPECIFICATIONS

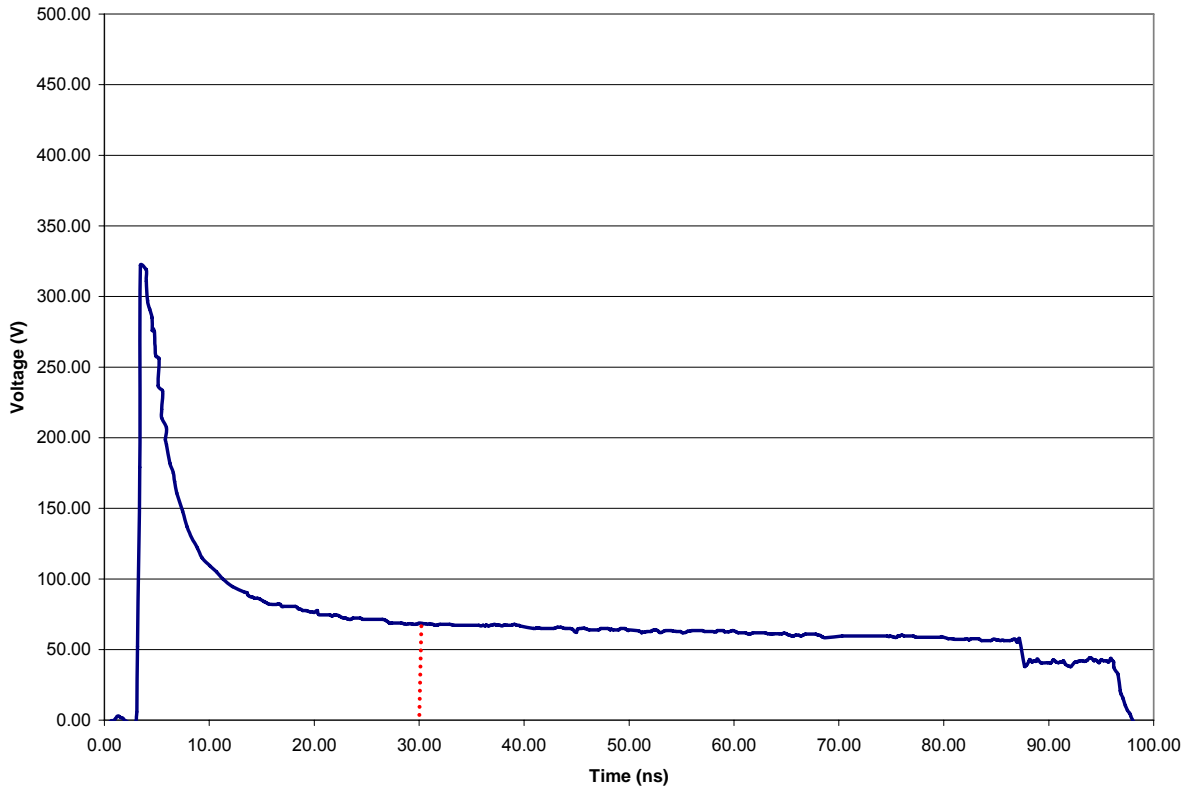
	Bias Humidity Test	Thermal Shock	Bias Heat Test	Bias Low Temp Test	Solderability	Solder Heat	Vibration	Solvent Resistance
Test Conditions	40°C, 90% RH, MAX V _{DC} , 1000 hrs	-40°C to 85°C, 30 min dwell, 5 cycles	85°C, MAX V _{DC} , 1000 hrs	-40°C, MAX V _{DC} , 1000 hrs	230°C ± 5°C, 3 ± 1s	260°C, 10s	10 to 50Hz, 60s cycle, 2hrs each in X-Y-Z-direction	IPA ultrasonic 300s
Pass / Fail Criteria	I _L ≤ 10 μA	I _L ≤ 10 μA	I _L ≤ 10 μA	I _L ≤ 10 μA	95% coverage	90% coverage	No Physical Damage	No Physical Damage

**ESD Protector
PESD0603-140**

www.circuitprotection.com

Document: SCD 26107
Status: Released
Rev. E Date: JULY 14, 2005

TYPICAL TRANSMISSION LINE PULSE RESPONSE GRAPH

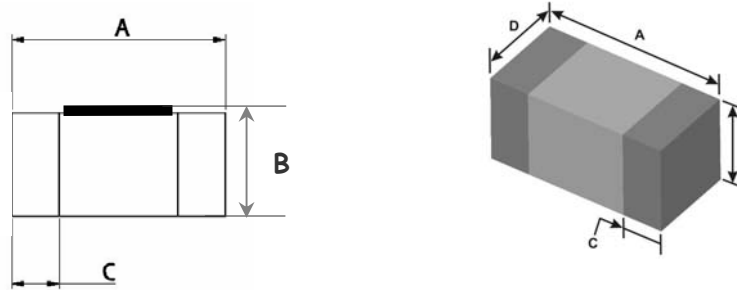


**ESD Protector
PESD0603-140**

www.circuitprotection.com

Document: SCD 26107
Status: Released
Rev. E Date: JULY 14, 2005

DIMENSIONS



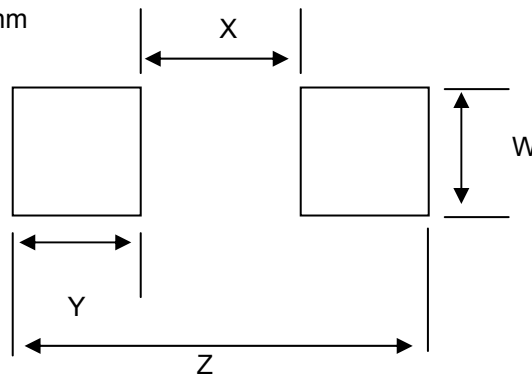
Drawing Not To Scale

	length A		Height B		Terminal Width C		Width D	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
mm:	1.4	1.8	0.38	0.58	0.1	0.5	0.6	1.0
in*:	(0.06)	(0.07)	(0.01)	(0.02)	(0.004)	(0.02)	(0.02)	(0.04)

*Rounded off approximation

RECOMMENDED LAND PATTERN:

Solder thickness 0.15 to 0.2mm



	W		X		Y (Ref)		Z	
	Min	Max	Min	Max	Min	Max	Min	Max
mm:	0.9	1.0	0.5	0.6	1.0	1.1	2.7	2.8
in: *	(0.035)	(0.039)	(0.020)	(0.024)	(0.039)	(0.043)	(0.106)	(0.110)

*Rounded off approximation.

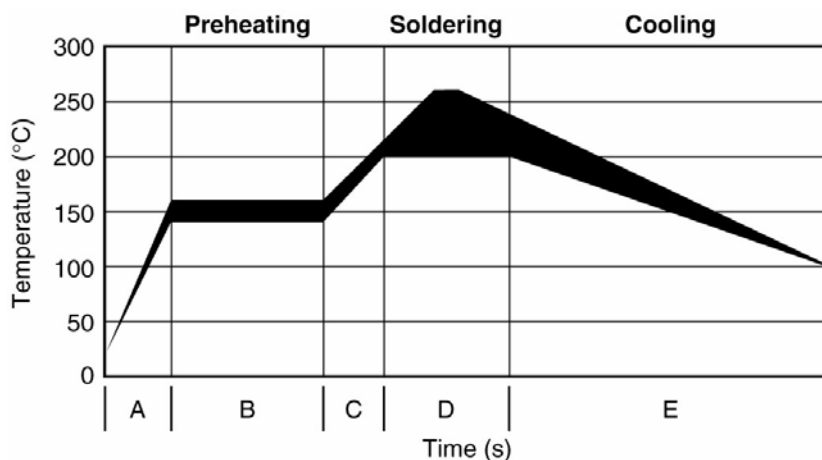
**ESD Protector
PESD0603-140**

www.circuitprotection.com

Document: SCD 26107
Status: Released
Rev. E Date: JULY 14, 2005

SOLDER REFLOW RECOMMENDATIONS:

A	Temperature ramp up 1	From ambient to Preheating temperature	30s to 60s
B	Preheating	140°C - 160°C	60s to 120s
C	Temperature ramp up 2	From Preheating to Main heating temperature	20s to 40s
D	Main heating	at 200°C at 220°C at 240°C at 260°C	60s ~ 70s 50s ~ 60s 30s ~ 40s 5s ~ 10s
E	Cooling	From main heating temperature to 100°C	max 4°C/s



PACKAGING

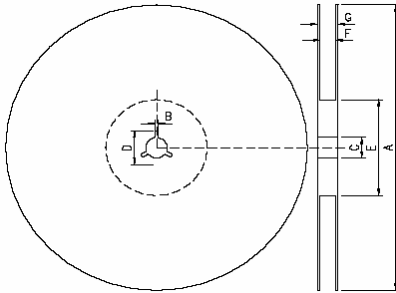
Packaging	Tape & Reel	Standard Box
PESD0603-140	5,000	25,000

**ESD Protector
PESD0603-140**

www.circuitprotection.com

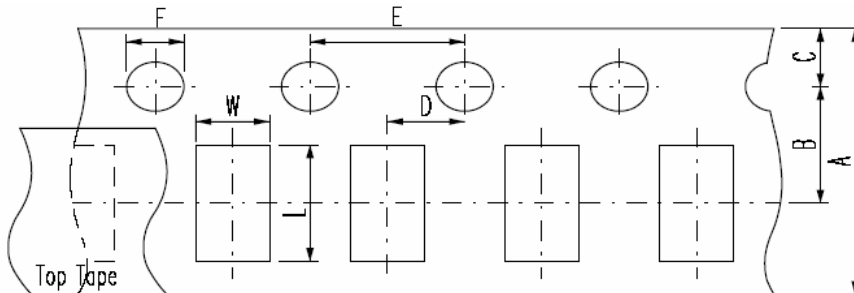
Document: SCD 26107
Status: Released
Rev. E Date: JULY 14, 2005

EIA referenced Reel Dimensions for PESD Devices



Reel Dimensions (mm):

	A	B	C	D	E	F	G
0603 Devices	178.0 ±2.0	2.0 ±0.5	13.0±0.5	21.0±0.8	62.0±1.5	9.0±0.5	13.0±1.0



Carrier Dimensions (mm):

	A	B	C	D	E	F	L	W	T ¹
0603 Devices	8.0±0.3	3.5±0.05	1.75±0.1	2.0±0.05	4.0±0.1	1.5±0.1	1.9±0.2	1.1±0.20	0.60±0.05

Product Orientation – always face up (meaning the substrate is at the bottom), but parts do not have polarity mark.

Leader & Trailer: The leader is 180mm in length & consists of empty cavities with sealed cover tape.
The trailer is 350mm in length & consists of empty cavities with sealed cover tape.

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of each product for their applications. Tyco Electronics Corporation assumes no responsibility for the use of its product or for any infringement of patents or other rights of third parties resulting from the use of its product. No license is granted by implication or otherwise under any patent or proprietary right of Tyco Electronics except the right to use such product for the purpose for which it is sold. Tyco Electronics reserves the right to change or update, without notice, any information contained in this publication; to change, without notice, the design, construction, processing, or specification of any product; and to discontinue or limit production or distribution of any product. This publication supersedes and replaces all information previously supplied. Without express written consent by an officer of Tyco Electronics, Tyco Electronics does not authorize the use of any its products as components in nuclear facility applications, aerospace, or in critical life support devices or systems. Tyco Electronics' only obligations are those in the Tyco Electronics Standard Terms and Conditions of Sale and in no case will Tyco Electronics be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of its products.

Raychem is a trademark of Tyco Electronics Corporation.