

# ESD Protector PESD0603-140

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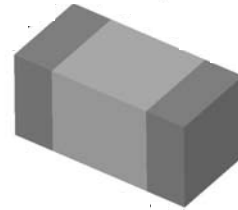
## GENERAL DESCRIPTION

### BENEFITS

- 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
- Suitable for high speed data transmission applications
- Longer battery life, due to low leakage current

### 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



## 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  
EIA Size  $14 \times 10^0 = 14V_{DC}$

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**TYPICAL DEVICE RATINGS AND CHARACTERISTICS**

	Continuous Max Operating Voltage	Typical IEC Trigger Voltage <sup>1</sup>	Typical IEC Clamping Voltage <sup>1</sup> after 30ns	Typical TLP Trigger Voltage <sup>2</sup>	Typical TLP Clamping Voltage <sup>2</sup> after 30ns	Typical TLP Clamping Voltage <sup>2</sup> after 60ns	Typical Capacitance, @ 1 MHz, 1V <sub>rms</sub>	Typical Leakage Current @14V <sub>DC</sub>	Max Leakage Current @14V <sub>DC</sub>
Symbol	V <sub>DC</sub>	V <sub>T(IEC)</sub>	V <sub>C(IEC)</sub>	V <sub>T(TLP)</sub>	V <sub>C(TLP 30)</sub>	V <sub>C(TLP 60)</sub>	Cp	I <sub>L(Typ)</sub>	I <sub>L(MAX)</sub>
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**

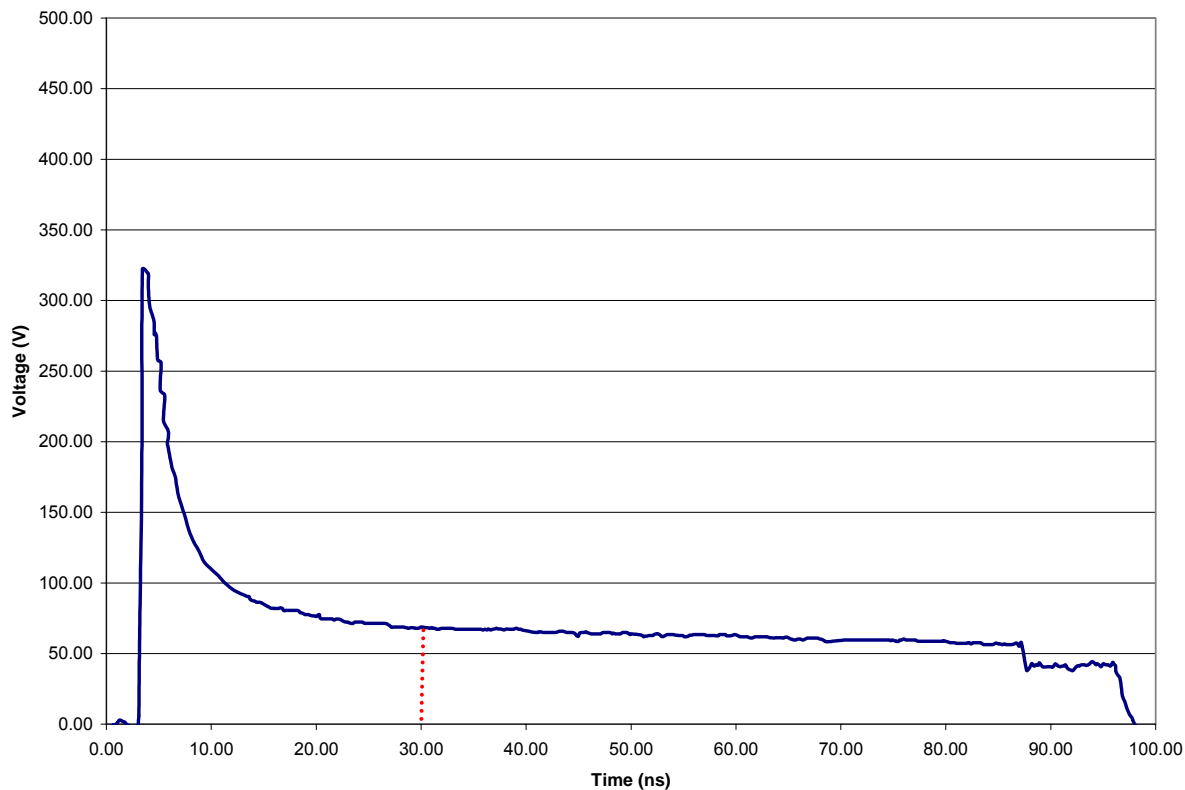
	Bias Humidity Test	Thermal Shock	Bias Heat Test	Bias Low Temp Test	Solderability	Solder Heat	Vibration	Solvent Resistance
Test Conditions	40°C, 90% RH, MAX V <sub>DC</sub> , 1000 hrs	-40°C to 85°C, 30 min dwell, 5 cycles	85°C, MAX V <sub>DC</sub> , 1000 hrs	-40°C, MAX V <sub>DC</sub> , 1000 hrs	230°C ± 5°C, 3 ± 1s, 95% coverage	260°C, 10s	1 to 2kHz, 1.5 min cycle, 2hrs each in X-Y-Z-direction	IPA ultrasonic 300s
Pass / Fail Criteria	I <sub>L</sub> ≤ 10 µA	I <sub>L</sub> ≤ 10 µA	I <sub>L</sub> ≤ 10 µA	I <sub>L</sub> ≤ 10 µA	I <sub>L</sub> ≤ 10 µA	I <sub>L</sub> ≤ 10 µA	I <sub>L</sub> ≤ 10 µA	I <sub>L</sub> ≤ 10 µA

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**TYPICAL TRANSMISSION LINE PULSE RESPONSE GRAPH**

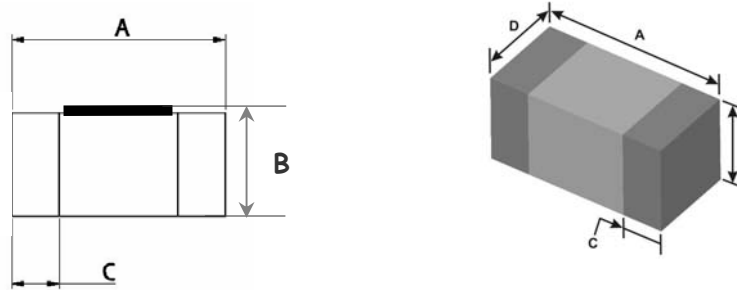


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**DIMENSIONS**



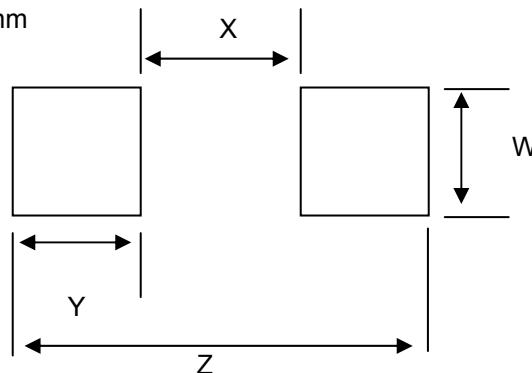
Drawing Not To Scale

	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.

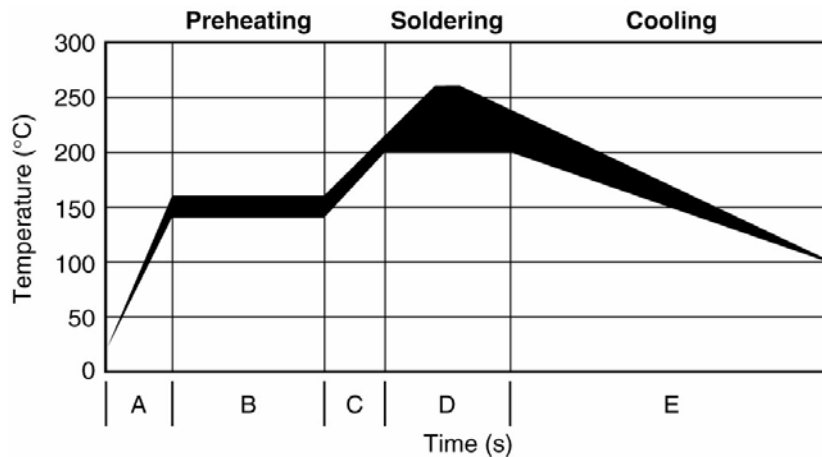
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**SOLDER REFLOW RECOMMENDATIONS:**

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



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