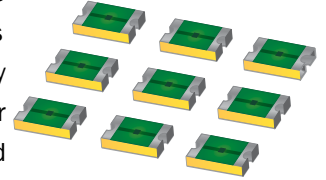


### 0402 Series Specification

#### PRODUCT OVERVIEW

Polytronics PolyTrans<sup>®</sup> ESD Suppressor is the leading ESD protection solution to meet IEC 61000-4-2 level 4 transient and at the same time remain signal integrity above 4.5 Gbps. It is the ideal supplement protection solution for built-in IC protection to improve the overall stability and robustness of the products in the event of an ESD transient. PolyTrans<sup>®</sup> ESD Suppressor utilizes polymeric materials and advanced processes to help reduce the overall cost of added protection and at the same offer low leakage current to maximize battery life of the end product.



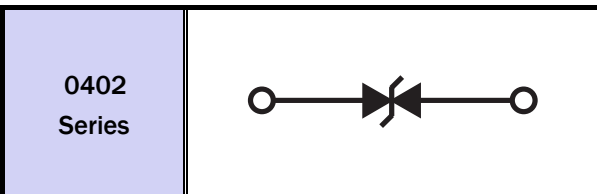
#### FEATURES

- Compact size (1.0 mm x 0.5 mm)
- Fast response time
- Low capacitance
- Low leakage current
- RoHS compliant
- Bi-directional
- Surface mount
- Meet IEC 61000-4-2 level 4

#### APPLICATIONS

- HDMI 1.3 Hardware
- Set-Top Box
- Desktop / Laptop Computers
- Fingerprint Device
- USB 3.0 / IEEE 1394
- Computer Peripherals
- Network Hardware
- Portable and Handheld Electronics

#### EQUIVALENT CIRCUIT



#### ELECTRICAL CHARACTERISTICS

Part Number	Typical Trigger Voltage (IEC)	Typical Clamping Voltage (IEC)	Rated Voltage	Typical Capacitance	Response Time	Leakage Current	ESD Pulse Withstand
PPES0402V06B	350V	35V	6VDC	0.1pF	< 1nS	< 10nA	1000
PPES0402V14B	500V	50V	14VDC	0.1pF	< 1nS	< 10nA	1000

General Explanation of Part Numbering System: P-PPTC.PES - PolyTrans ESD Suppressors. 0402 - Device Dimension.  
V06 /V14 - Rated DC voltage. B-bidirectional

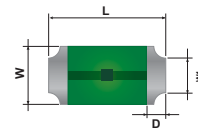
## 0402 Series Specification

### PHYSICAL SPECIFICATION

<b>Materials</b>	Body: Epoxy Fiberglass Terminals: Copper/Tin
<b>Solderability</b>	MIL-STD-202, Method 208
<b>Soldering Parameters</b>	Wave Solder: 206 °C, 10 seconds maximum Reflow Solder: 206 °C, 30 seconds maximum

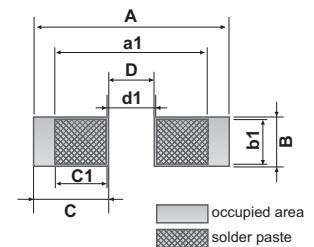
### Dimensions (mm)

Part Number	L		W		T		D		W1	
	min	max	min	max	min	max	min	max	min	max
0402 Series	0.90	1.10	0.40	0.60	0.23	0.39	1.10	0.35	0.12	0.28



### Recommended Solder Pad Dimension (mm)

Part Number	A	B	C	D	a1	b1	c1	d1
0402 Serie	1.55	0.56	0.58	0.38	1.45	0.54	0.52	0.41



### ENVIRONMENTAL SPECIFICATION

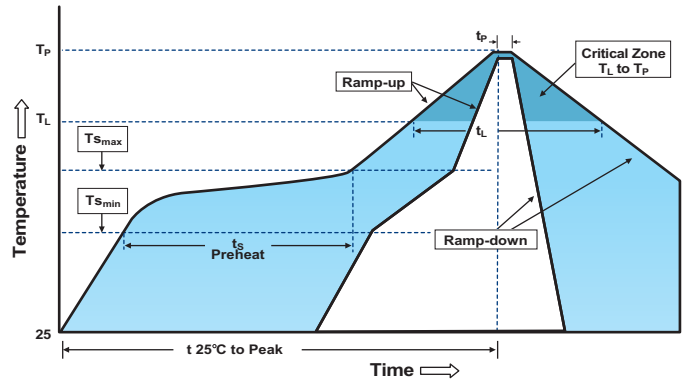
<b>Operation Temperature</b>	-65 °C ~ 125 °C
<b>Moisture Resistance</b>	85 °C/85%RH 1000 Hr.
<b>Thermal Shock</b>	MIL-STD-202, Method 107 -65 °C ~ 125 °C, 30 min. cycle, 10 cycles

### 0402 Series Specification

#### SOLDER REFLOW

##### Recommended Pb-Free Assembly Profile Parameters

Description	Condition
Average Ramp-Up Rate (Ts <sub>max</sub> to Tp)	3 °C/second max.
<b>Preheat</b>	
-Temperature Min (Ts <sub>min</sub> )	150 °C
-Temperature Max (Ts <sub>max</sub> )	200 °C
-Time (Ts <sub>min</sub> to Ts <sub>max</sub> )	60~180 seconds
<b>Time maintained above:</b>	
-Temperature (T <sub>L</sub> )	217 °C
-Time (t <sub>L</sub> )	60~150 seconds
<b>Peak Temperature (Tp)</b>	260 °C
- Time within 5 °C of Actual Tp	10~30 seconds
<b>Ramp-Down Rate</b>	3 °C/second max.
<b>Time 25 °C to Peak Temperature</b>	8 minutes max.



Note 1: All temperature refer to topside of the package, measured on the package body surface.

Note 2: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

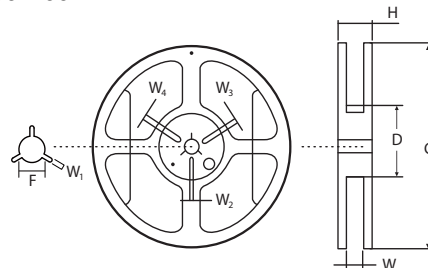
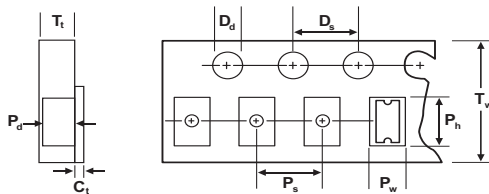
- Recommended reflow methods: IR, vapor phase oven, hot air oven, N<sub>2</sub> environment for lead-free.
- Recommended maximum paste thickness is 0.25mm (0.010 inch).
- Devices can be cleaned using standard industry methods and solvents.
- Devices can be reworked using the standard industry practices.

#### PACKAGING SPECIFICATION

8mm Tape and Reel per EIA-RS481-1 (IEC 286, part3); 5000 pieces per reel.

Parts are delivered on on 7" (178mm) reel, paper carrier tape.

Storage condition: 0 °C ~ 40 °C, ≤70%RH.



Description	Measurement (mm)
C <sub>t</sub>	0.053 ± 0.01
D <sub>d</sub>	1.50 ± 0.1
D <sub>s</sub>	4.00 ± 0.1
P <sub>d</sub>	0.41 ± 0.1
P <sub>h</sub>	1.12 ± 0.1
P <sub>s</sub>	2.00 ± 0.1
P <sub>w</sub>	0.62 ± 0.1
T <sub>t</sub>	0.61 ± 0.1
T <sub>w</sub>	8.00 ± 0.1

Description	Measurement (mm)
H	12.0 ± 0.05
W	9.0 ± 0.5
D	∅ 60 ± 0.5
F	∅ 13.0 ± 0.2
C	∅ 178 ± 1.0
W <sub>1</sub>	2.2 ± 0.5
W <sub>2</sub>	3.0 ± 0.5
W <sub>3</sub>	4.0 ± 0.5
W <sub>4</sub>	5.5 ± 0.5