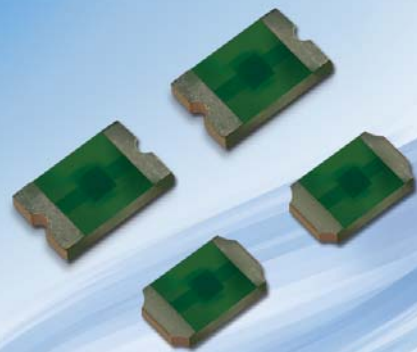


**PRODUCT  
DATASHEET**

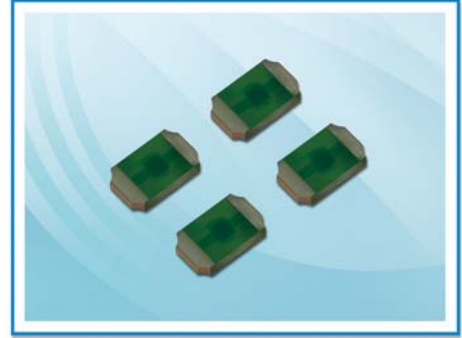


**PTS0402V14T500 Surface Mount Polymeric ESD Suppressors**

## PTS0402V14T500 Surface Mount Polymeric ESD Suppressors

### Description

Polytronics PolyTrans® ESD Suppressor is the leading ESD protection solution to meet IEC61000-4-2 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® 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
- Bi-directional
- Surface mount

### Application

- HDMI 2.0 Hardware
- Set-Top Box
- Desktop / Laptop Computers
- Fingerprint Device
- USB 3.0 / IEEE 1394
- Computer Peripherals
- Network Hardware
- Portable and Handheld Electronics

### Agency Approval and Environmental Compliance

| Regulation   | Standard            |
|--|---------------------|
|  RoHS         | 2011/65/EU          |
|  Halogen Free | IEC 61249-2-21:2003 |

### Electrical Characteristics

| Part Number    | Typical trigger Voltage (IEC) | Typical Clamping Voltage (IEC) | Rated Voltage | Typical Capacitance | Response Time | Leakage Current | ESD Pulse Withstand |
|----------------|-------------------------------|--------------------------------|---------------|---------------------|---------------|-----------------|---------------------|
| PTS0402V14T500 | 500V                          | 50V                            | 14VDC         | 0.1pF               | <1nS          | <10nA           | 1000                |

### Equivalent Circuit



## PTS0402V14T500 Surface Mount Polymeric ESD Suppressors

### Physical Specifications

|                      |   |
|----------------------|---|
| Materials            | Body: Epoxy Fiberglass<br>Terminals: Copper/Tin                             |
| Solderability        | MIL-STD-202, Method 208   |
| Soldering Parameters | Wave Solder: 260°C, 5 seconds max.<br>Reflow Solder: 260°C, 10 seconds max. |

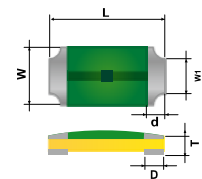
### Environmental Specifications

|                       |   |
|-----------------------|---|
| Operating Temperature | -40°C~125 °C  |
| Moisture Resistance   | 85 °C/85%RH 1000Hr  |
| Thermal Shock         | MIL-STD-202, Method 107<br>-40°C~125 °C, 30min/cycle, 10 cycles |

### Physical Dimensions (mm.)

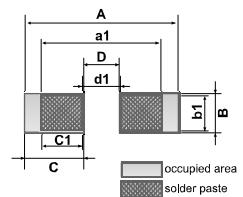
#### Dimensions (mm)

| Part Number    | L    |      | W    |      | T    |      | D    |      | d    |      |
|----------------|------|------|------|------|------|------|------|------|------|------|
|                | min  | max  | min  | max  | min  | max  | min  | max  | min  | max  |
| PTS0402V14T500 | 0.90 | 1.10 | 0.40 | 0.60 | 0.23 | 0.39 | 0.10 | 0.35 | 0.12 | 0.28 |



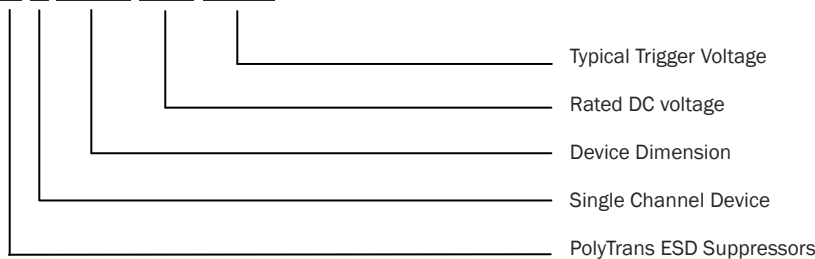
#### Recommended Solder Pad Dimension (mm)

| Part Number    | A    | B    | C    | D    | a1   | b1   | c1   | d1   |
|----------------|------|------|------|------|------|------|------|------|
| PTS0402V14T500 | 1.55 | 0.56 | 0.58 | 0.38 | 1.45 | 0.54 | 0.52 | 0.41 |



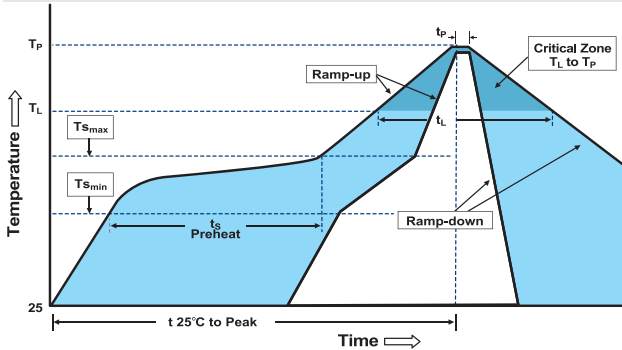
### Part Number

#### PT S 0402 V14 T500



# PTS0402V14T500 Surface Mount Polymeric ESD Suppressors

## Soldering Parameters



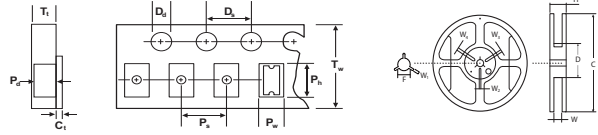
|   |                  |
|---|------------------|
| <b>Average Ramp-Up Rate (T<sub>Smax</sub> to T<sub>P</sub>)</b> | 3°C/second max.  |
| <b>Preheat</b>  |                  |
| -Temperature Min (T <sub>Smin</sub> )                           | 150°C            |
| -Temperature Max (T <sub>Smax</sub> )                           | 200°C            |
| -Time (T <sub>Smin</sub> to T <sub>Smax</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 (T<sub>P</sub>)</b>                         | 260°C            |
| -Time within 5°C of Actual T <sub>P</sub>                       | 10 seconds max   |
| <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.

## Tape & Reel Specification (mm.)

Devices are packaged per EIA-RS481-1 (IEC 286, part3)



|                      |              |                      |             |
|----------------------|--------------|----------------------|-------------|
| <b>C<sub>t</sub></b> | 0.053 ± 0.01 | <b>H</b>             | 12.0 ± 0.05 |
| <b>D<sub>d</sub></b> | 1.50 ± 0.10  | <b>W</b>             | 9.0 ± 0.5   |
| <b>D<sub>s</sub></b> | 4.00 ± 0.10  | <b>D</b>             | 60 ± 0.5    |
| <b>P<sub>d</sub></b> | 0.41 ± 0.10  | <b>F</b>             | 13.0 ± 0.2  |
| <b>P<sub>h</sub></b> | 1.12 ± 0.10  | <b>C</b>             | 178 ± 1.0   |
| <b>P<sub>s</sub></b> | 2.00 ± 0.10  | <b>W<sub>1</sub></b> | 2.2 ± 0.5   |
| <b>P<sub>w</sub></b> | 0.62 ± 0.10  | <b>W<sub>2</sub></b> | 3.0 ± 0.5   |
| <b>T<sub>t</sub></b> | 0.61 ± 0.10  | <b>W<sub>3</sub></b> | 4.0 ± 0.5   |
| <b>T<sub>w</sub></b> | 8.00 ± 0.10  | <b>W<sub>4</sub></b> | 5.5 ± 0.5   |

## Packaging Quantity

| Part Number    | Tape & Reel Quantity |
|----------------|----------------------|
| PTS0402V14T500 | 10000                |