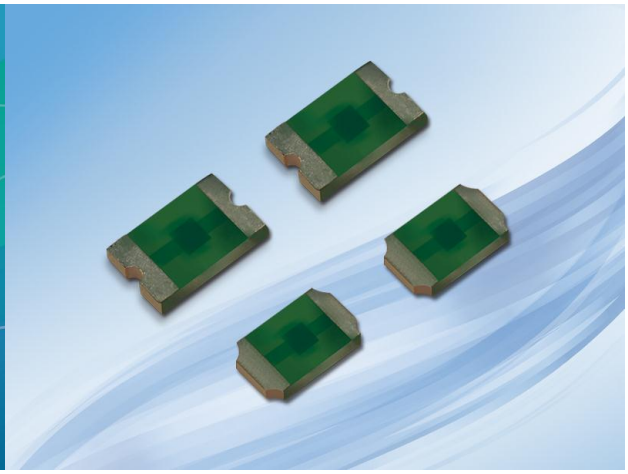
POLYTRONICS
POLYTRONICS TECHNOLOGY CORP.

PRODUCT
DATASHEET



PTS0402V14T500 Surface Mount Polymeric ESD Suppressors

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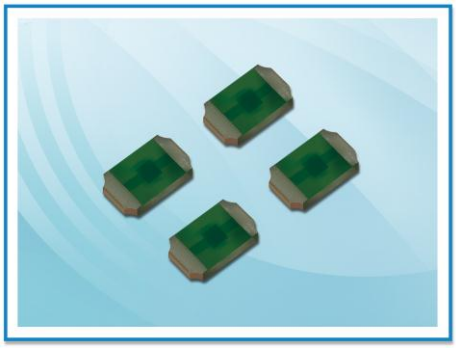


Description

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	

PTS0402V14T500 Surface Mount Polymeric ESD Suppressors

Physical Specifications

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

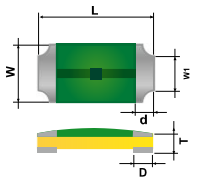
Environmental Specifications

Operating Temperature	-40ºC~125 ºC
Moisture Resistance	85 ºC/85%RH 1000Hr
Thermal Shock	MIL-STD-202, Method 107 -40ºC~125 ºC, 30min/cycle, 10 cycles
Moisture Sensitivity Level	Level 1, J-STD-020C

Physical Dimensions (mm.)

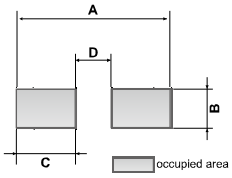
Dimensions (mm)

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
PTS0402V14T500	1.60	0.70	0.60	0.40



Part Number

PT S 0402 V14 T500

- T500 — Typical Trigger Voltage
- V14 — Rated DC voltage
- 0402 — Device Dimension
- S — Single Channel Device
- PT — PolyTrans ESD Suppressors

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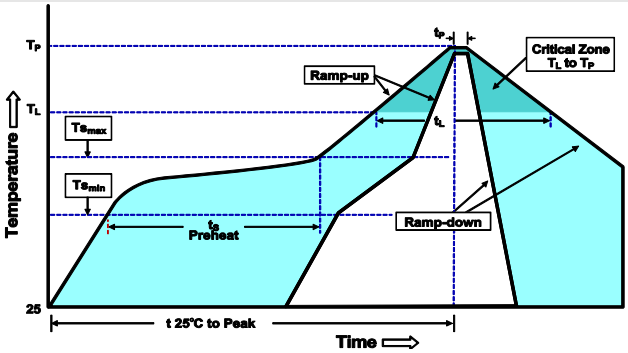
Soldering Parameters

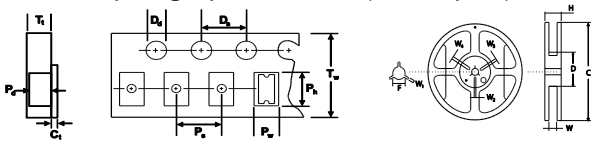


Average Ramp-Up Rate (Ts_{max} to T_P)	3°C/second max.
Preheat	
-Temperature Min (Ts_{min})	150°C
-Temperature Max (Ts_{max})	200°C
-Time (Ts_{min} to Ts_{max})	60-180 seconds
Time maintained above:	
-Temperature (T_L)	217°C
-Time (t_L)	60-150 seconds
Peak Temperature (T_P)	260°C
-Time within 5°C of Actual T_P	10 seconds max
Ramp-Down Rate	3°C /second max.
Time 25°C to Peak Temperature	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)



C_t	0.053 ± 0.01	H	12.0 ± 0.05
D_d	1.50 ± 0.10	W	9.0 ± 0.5
D_s	4.00 ± 0.10	D	60 ± 0.5
P_d	0.41 ± 0.10	F	13.0 ± 0.2
P_h	1.12 ± 0.10	C	178 ± 1.0
P_s	2.00 ± 0.10	W_1	2.2 ± 0.5
P_w	0.62 ± 0.10	W_2	3.0 ± 0.5
T_t	0.61 ± 0.10	W_3	4.0 ± 0.5
T_w	8.00 ± 0.10	W_4	5.5 ± 0.5

Packaging Quantity

Part Number	Tape & Reel Quantity
PTS0402V14T500	10000