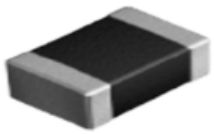
## Description

The PVS series are designed to protect sensitive electronic equipment against extreme ESD conditions, in very small 0402 and 0603 footprints. This product series is specifically designed to suppress fast-rising ESD trainsients up to 30KV while adding virtually no capacitance to the circuit,which helps preserve signal integrity and minimize data loss.



## Features

- IEC 61000-4-2 (ESD)
  - ±8kV Contact Discharge
  - ±15kV Air Discharge
- ISO 10605(ESD)
  - ±25kV Contact Discharge
  - ±25kV Air Discharge
- Halogen free and RoHS compliant
- Protects one directional I/O line
- Transient protection for high-speed data lines
- Ultra-low capacitance: 0.05pF(typ.)
- Low leakage current

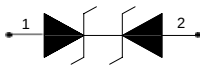
## Mechanical Data

- USB3.0/3.1
- HDMI 1.3/1.4/2.0
- RF Antenna
- SATA and eSATA Interface

## Order Information

| Part Number | Package | Material | Packing | Quantity per reel | Flammability Rating | Reel Size |
|---|---|---|---|---|---|---|
| PVS0402T-SERIES | 0402 T | Halogen free | Tape & Reel | 10,000 PCS | UL 94V-0 | 7 inches |
| PVS0603T-SERIES | 0603 | Halogen free | Tape & Reel | 5,000 PCS | UL 94V-0 | 7 inches |

## Pin Configuration and Functions

| Pin | Name | Description | Circuit Diagram |
|---|---|---|---|
| 1 | IO1 | Connect to IO |  |
| 2 | IO2 | Connect to IO | |



## Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

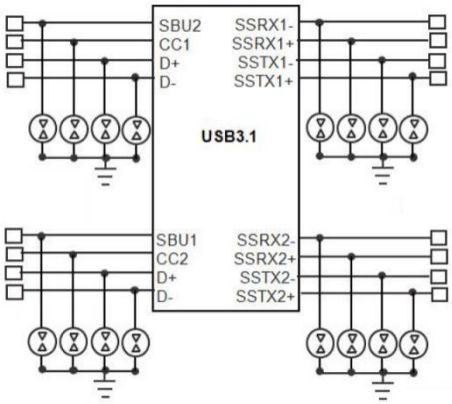
| Parameters | Symbol | Value | Unit |
|---|---|---|---|
| Response time | $T_{rise}$ | <0.5 | ns |
| Operating temperature | $T_{OP}$ | -50~85 | ℃ |
| Storage temperature | $T_{STG}$ | -50~125 | ℃ |
| Lead temperature | $T_L$ | 260 | ℃ |

## Electrical Characteristics ($T_A$=25°C unless otherwise specified)

| Part Number | $V_{DC}$ (max.) | $V_{trigger}$ (typ.) | $V_{CL}$@ 30ns (typ.) | $I_{R@}$ Initia State (max.) | $I_{R@}$ after ESD Test (max.) | $C_J$ (typ.) |
|---|---|---|---|---|---|---|
| | (V) | (V) | (V) | (uA) | (uA) | (pF) |
| PVS0402T060P0R05 | 6 | 300 | 30 | <0.05 | <10 | 0.05 |
| PVS0402T120P0R05 | 12 | 300 | 30 | <0.05 | <10 | 0.05 |
| PVS0402T240P0R05 | 24 | 300 | 30 | <0.05 | <10 | 0.05 |
| PVS0603T060P0R05 | 6 | 400 | 30 | <0.05 | <10 | 0.05 |
| PVS0603T120P0R05 | 12 | 400 | 30 | <0.05 | <10 | 0.05 |
| PVS0603T240P0R05 | 24 | 400 | 30 | <0.05 | <10 | 0.05 |

## Typical Application

Typical Interface Application




## Ratings and Characteristic Curves (TA=25°C unless otherwise Specified)

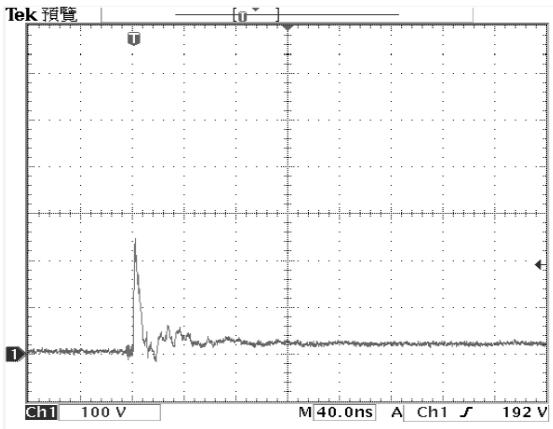



Fig.1 Typical ESD Response
（IEC 61000-4-2, 8kV contact discharge）

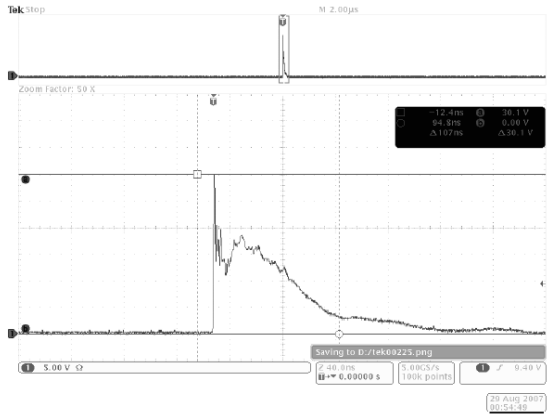


Fig.2 Typical ESD Clamping Voltage at 30ns

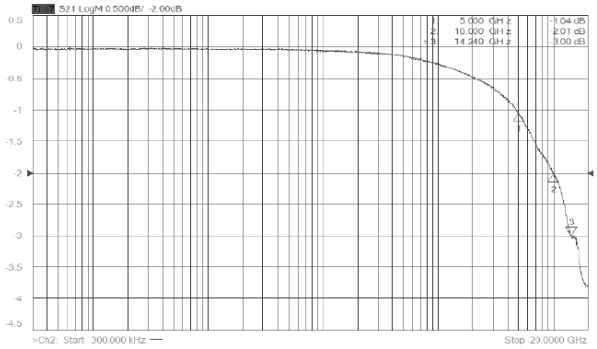


Fig.3 Insertion loss

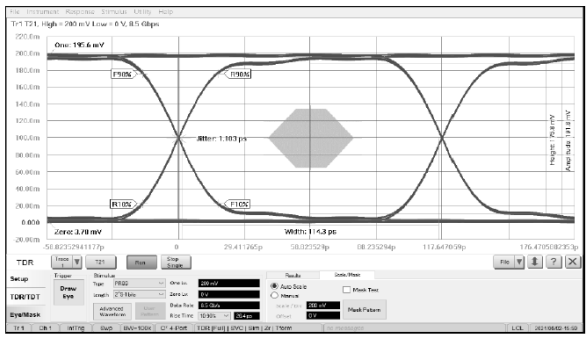
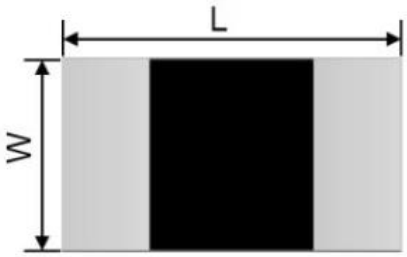


Fig.4 Eye pattern

## Dimension



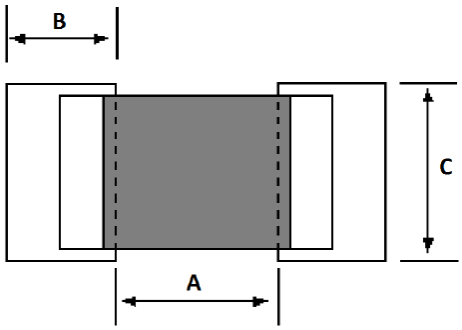

Top View（Bottom View）


Side View

Units in millimeters

| Symbol | 0402 | 0603 |
|---|---|---|
| Length(L) | 1.00±0.10 | 1.60±0.10 |
| Width(W) | 0.60±0.10 | 0.80±0.10 |
| Thickness(T) | 0.60 max. | 0.90 max. |
| Termination(a) | 0.25±0.10 | 0.30±0.10 |

## Recommended Land Pattern




| Symbol | A | B | C |
|---|---|---|---|
| 0402 | 0.4~0.6 | 0.6~0.9 | 0.6~0.7 |
| 0603 | 0.9~1.2 | 0.9~1.2 | 0.8~1.0 |

Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference only

## Revision history of Specification

| Version | Change Items | Effective Date |
|---|---|---|
| 1.0 | Initial Release(R&D) | 14-December -2022 |