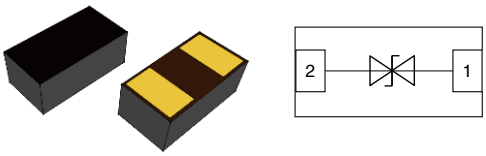
# PESD0342U005

## Ultal Low Capacitance ESD Protection Diode in 0402

## Features

- ESD protection for high speed data lines to IEC61000-4-2
- ESD contact discharge typical 8KV, max 15KV
- ESD air discharge typical 15KV, max 25KV
- Surface mount
- Extremely low capacitance
- Very low leakage current
- Fast response time
- Bi-directional ESD protection
- Lead free solder termination
- The best ESD protection for high frequency, low voltage applications




## Mechanical Data

- **Case:** 0402 (plastic package). Lead free; RoHS compliant
- **Molding Compound Flammability Rating:** UL 94 V-0
- **Terminals:** High temperature soldering guaranteed: 260 °C/10 sec. at terminals

## Applications

- USB3.0, Firewire, DVI, HDMI, S-ATA
- Thunderbolt, Display Port
- Mobile HDMI Link, MDDI, MIPI, SWP / NFC

## Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Maximum Contact discharge voltage Per IEC61000-4-2 | --- | 15KV | V |
| Maximum Air discharge voltage Per IEC61000-4-2 | --- | 25KV | V |
| Maximum Operating temperature | $T_{OPER}$ | -40 to +90 | ℃ |
| Maximum Storage temperature | $T_{STG}$ | -55 to +125 | ℃ |
| Maximum lead temperature for soldering during 10s | $T_L$ | 260 | ℃ |

## Electrical Characteristics

($T_A$ = 25 °C unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| Rated Voltage | $V_R$ | --- | --- | --- | 3.3 | V |
| Trigger voltage | $V_T$ | IEC61000-4-2 8KV contact discharge | --- | 350 | --- | V |
| Clamping voltage | $V_C$ | IEC61000-4-2 8KV contact discharge | --- | 35 | --- | V |
| Leakage current | $I_L$ | DC 12V shall be applied on component | --- | | 0.10 | uA |
| Capacitance | $C_P$ | $V_R$ = 0V, f = 1MHz | --- | 0.05 | | pF |

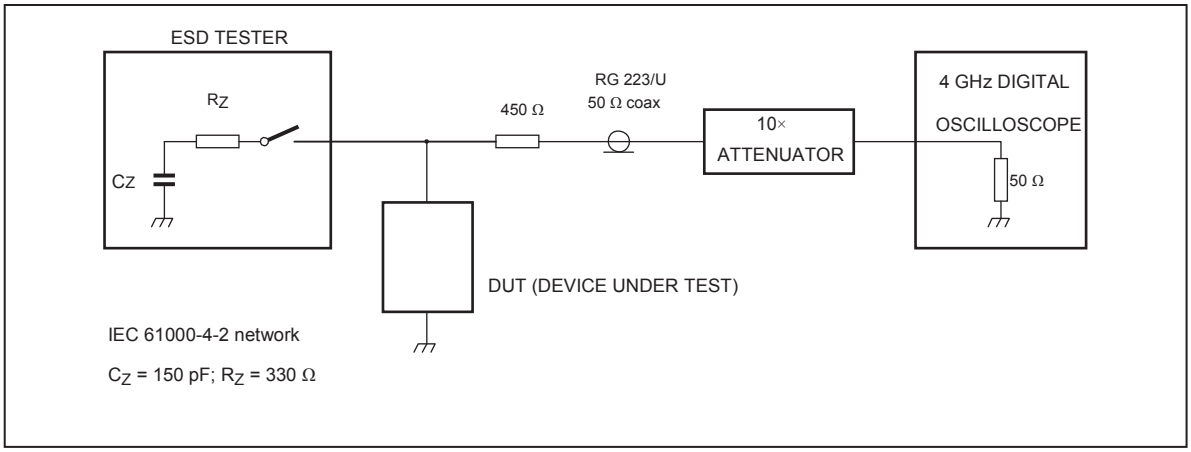
Note: 1 Trigger and clamping voltage are measured per IEC 61000-4-2, 8KV contact discharge method.

2 After reliability tests such as high temp storage, temp cycles, continuous ESD strike etc, the maximum leakage current is less than 10uA.

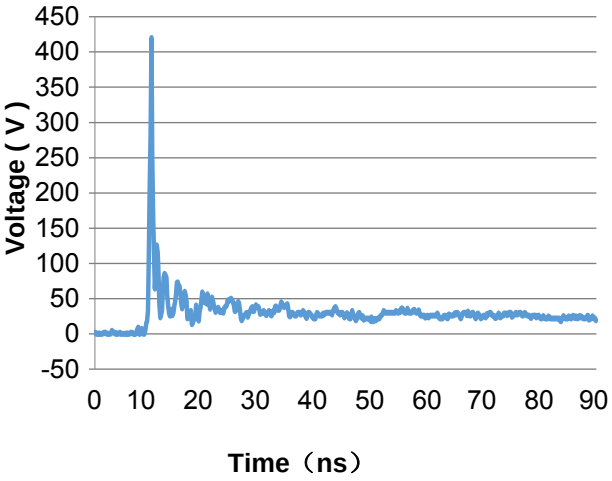


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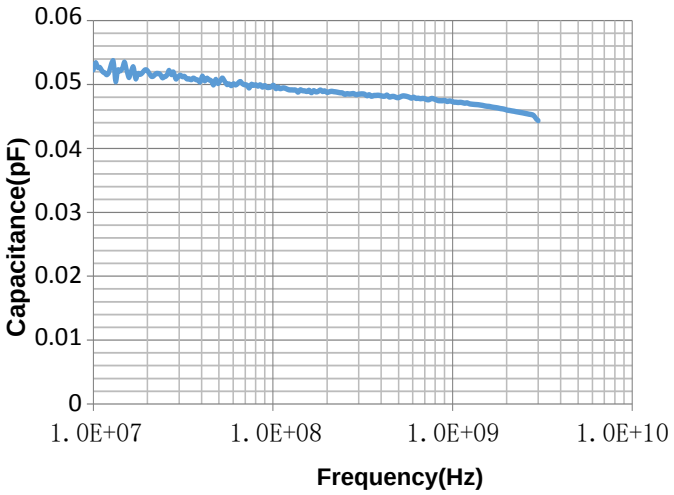
## ESD Clamping Test




### Typical ESD Response
### （IEC 61000-4-2, 8KV contact discharge）

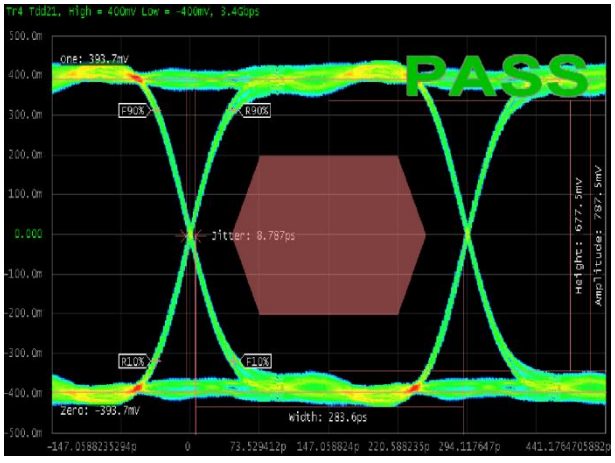



### Typical Device Capacitance VS. Frequency

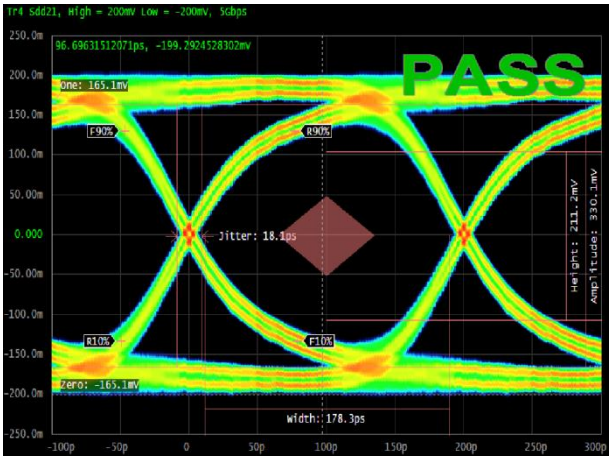



## Eye Diagram Measurement

### HDMI Mask at 3.4 Gbps




### USB3.0 Mask at 5.0 Gbps



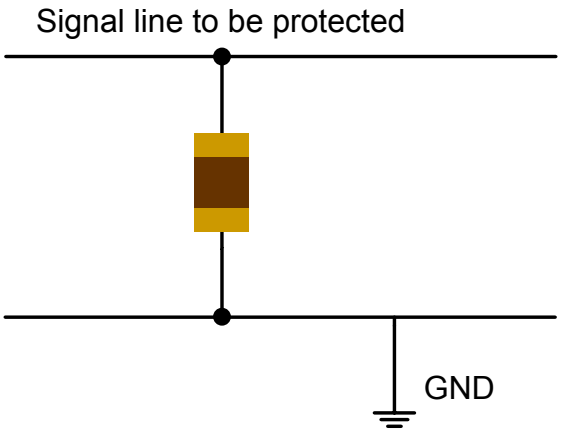


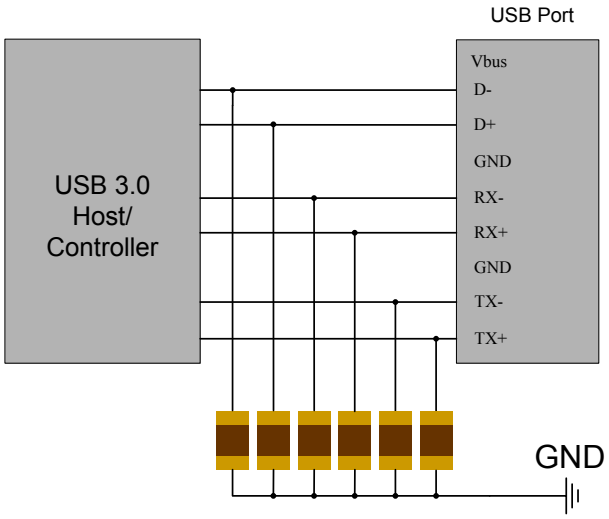

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## ESD Protection for Signal Line

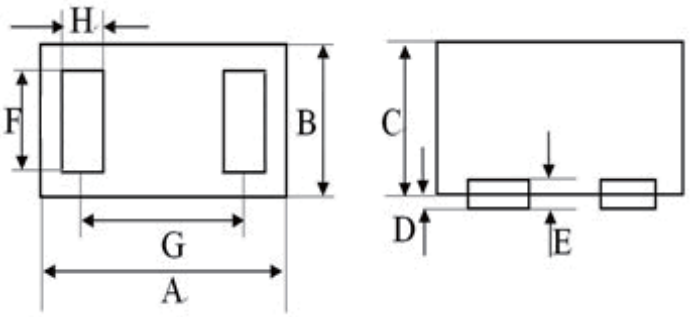
The CESD is designed for the protection of one bidirectional data line from ESD damage.

- Place the CESD as close to the input terminal or connector as possible.
- Minimize the path length between the CESD and the protected signal line.
- Use ground planes whenever possible.




## Product Dimension




| Dim | millmeters | |
|---|---|---|
| | min | max |
| A | 0.90 | 1.20 |
| B | 0.45 | 0.65 |
| C | 0.30 | 0.40 |
| D | 0.00 | 0.05 |
| E | 0.125REF | |
| F | 0.40 | 0.50 |
| G | 0.65BSC | |
| H | 0.25 | 0.35 |

## Ordering inormation

| Order code | Package | Packaging option | Base quantity | Packaging specification |
|---|---|---|---|---|
| PESD0342U005 | 0402 | Tape and reel | 10000pcs / reel | EIA STD RS-481 |

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