

SuperESD - PESD4V0Y1BSFYL-ES

1. Description

The PESD4V0Y1BSFYL-ES ESD protector is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook computers, and PDA's. They feature large cross-sectional area junctions for conducting high transient currents, offer desirable electrical characteristics for board level protection, such as fast response time, lower operating voltage, lower clamping voltage and no device degradation when compared to MLVs. The PESD4V0Y1BSFYL-ES protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events.

2. Features

- IEC 61000-4-2 Level 4 ESD Protection
 - ±15kV Contact Discharge
 - ±15kV Air Discharge
- 50W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 3.3V
- Low leakage current
- RoHS compliant
- Protecting one bi-directional lines
- Low Junction capacitance: 0.2pF Typ.

3. Applications

- Cell phone handsets and accessories
- Personal digital assistants
- Cordless phones
- Notebooks, desktops, and servers
- Portable instrumentation
- Digital cameras

4. Ordering Information

| Part Number | Package | Marking | Material | Packaging | Quantity per reel | Flammability Rating | Reel Size |
|-------------------|------------|---------|--------------|-------------|-------------------|---------------------|-----------|
| PESD4V0Y1BSFYL-ES | CSP0603-2L | H | Halogen free | Tape & Reel | 10,000 PCS | UL 94V-0 | 7 inches |

Table-1 Ordering information

5. Pin Configuration and Functions


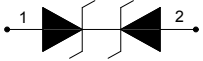
| Pin | Name | Description | Outline | Circuit Diagram |
|-----|------|---------------|---|---|
| 1 | IO | Connect to IO |  |  |
| 2 | IO | Connect to IO | | |

Table-2 Pin configuration

6. Specification

6.1. Absolute Maximum rating

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

| Parameters | Symbol | Min. | Max. | Unit |
|--|------------------|------|------|------|
| Peak pulse power (tp=8/20us)@25°C | P _{pk} | - | 50 | W |
| Peak pulse current (tp=8/20us)@25°C | I _{PP} | - | 9 | A |
| ESD (IEC61000-4-2 air discharge) @25°C | V _{ESD} | - | ±15 | kV |
| ESD (IEC61000-4-2 contact discharge) @25°C | V _{ESD} | - | ±15 | kV |
| Junction temperature | T _J | - | 150 | °C |
| Operating temperature | T _{OP} | -50 | 125 | °C |
| Storage temperature | T _{STG} | -55 | 150 | °C |
| Lead temperature | T _L | - | 260 | °C |

Table-3 Absolute Maximum rating

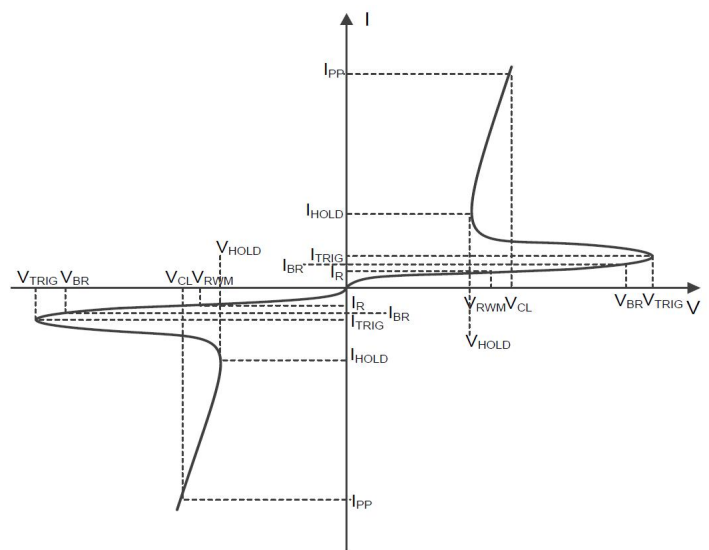
6.2. Electrical Characteristics

At TA = 25°C unless otherwise noted

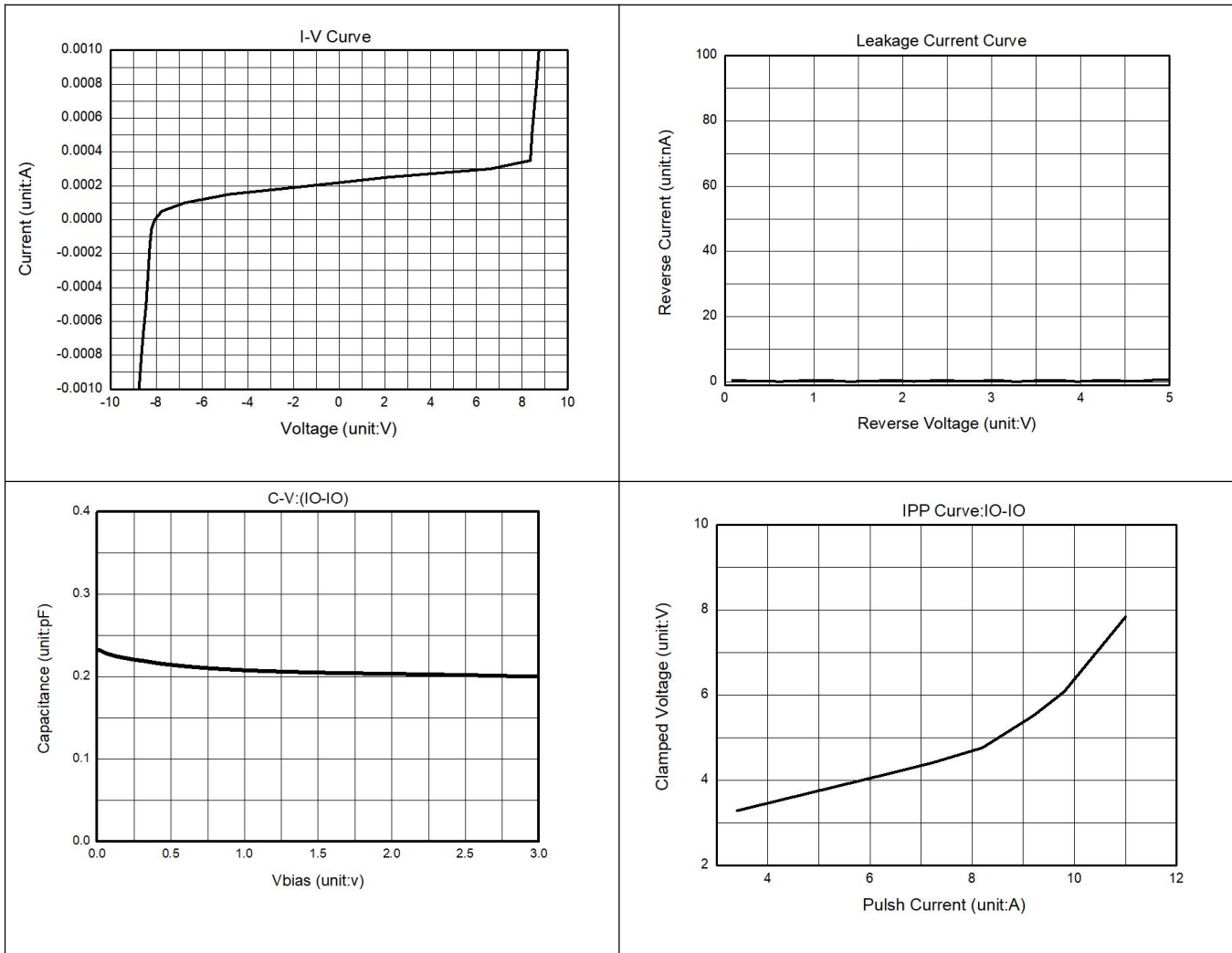
| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Units |
|---------------------------|-----------|----------------------------|------|------|------|-------|
| Reverse Stand-off Voltage | V_{RWM} | | | | 3.3 | V |
| Reverse Breakdown Voltage | V_{BR} | $I_T=1mA$ | 5 | 5.8 | | V |
| Reverse Leakage Current | I_R | $V_{RWM}=3.3$ | | 1 | 100 | nA |
| Clamping Voltage | V_C | $I_{PP}=1A; t_p=8/20\mu s$ | | 1 | | V |
| Clamping Voltage | V_C | $I_{PP}=9A; t_p=8/20\mu s$ | | 5 | | V |
| Clamping Voltage | V_C | $I_{pp}=16A, t_p=100ns$ | | 6 | | V |
| Junction Capacitance | C_J | $V_R=0V; f=1MHz$ | | 0.2 | 0.25 | pF |

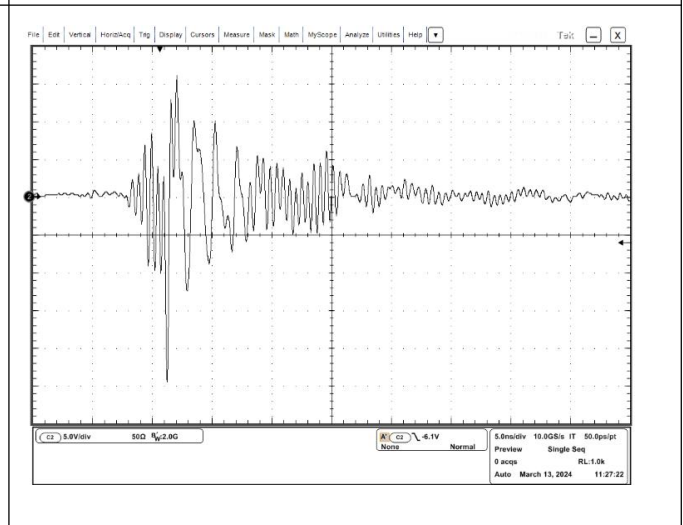
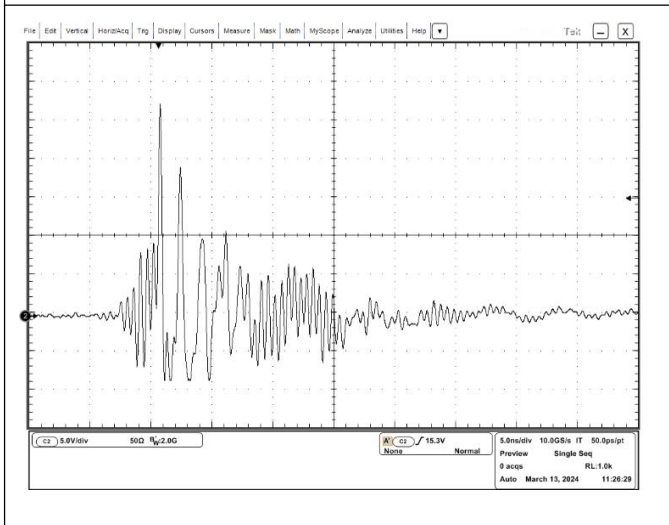
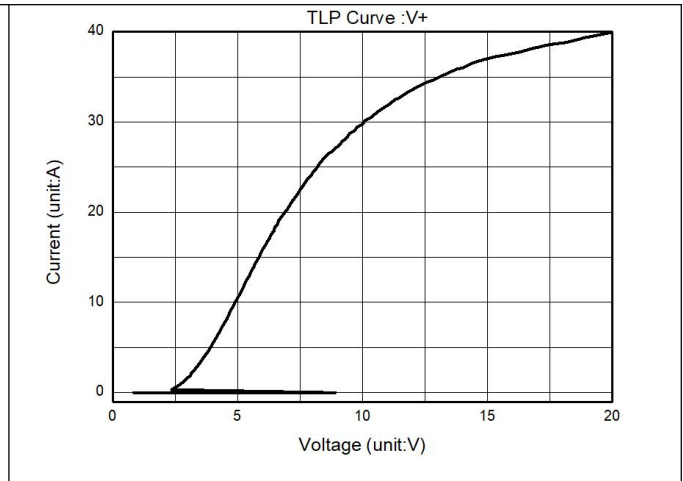
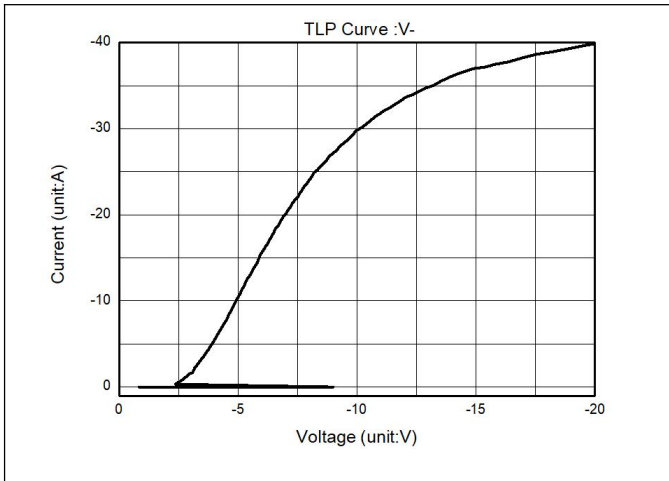
Table-4 Electrical Characteristics

| Symbol | Parameters |
|------------|---------------------------|
| V_{RWM} | Reverse stand-off voltage |
| I_R | Reverse leakage current |
| V_{BR} | Reverse breakdown voltage |
| I_{BR} | Reverse breakdown current |
| V_{CL} | Clamping voltage |
| V_{TRIG} | Reverse trigger voltage |
| I_{TRIG} | Reverse trigger current |
| V_{HOLD} | Reverse holding voltage |
| I_{HOLD} | Reverse holding current |
| I_{PP} | Peak pulse current |



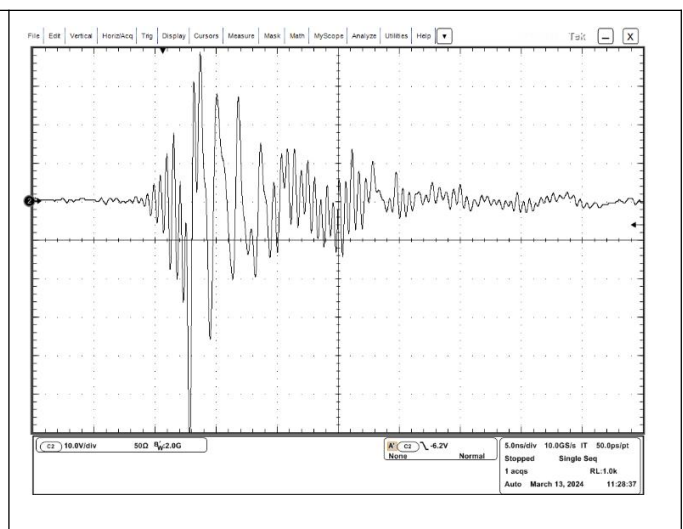
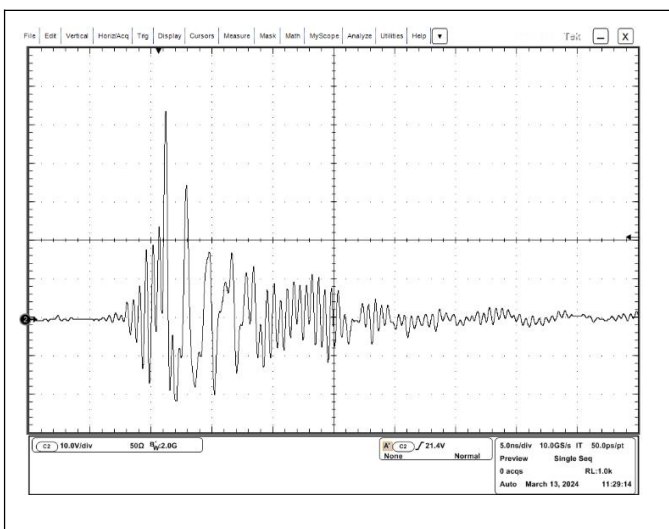
7. Typical Characteristic





IEC6100-4-2 +8KV IO-IO

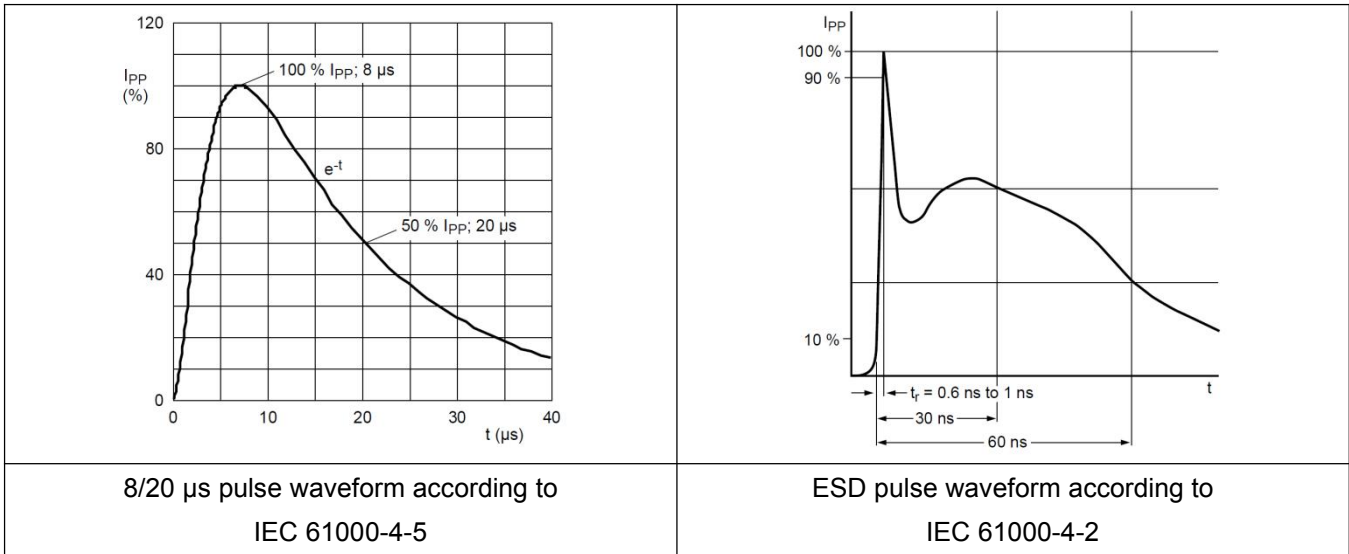
IEC6100-4-2 -8KV IO-IO



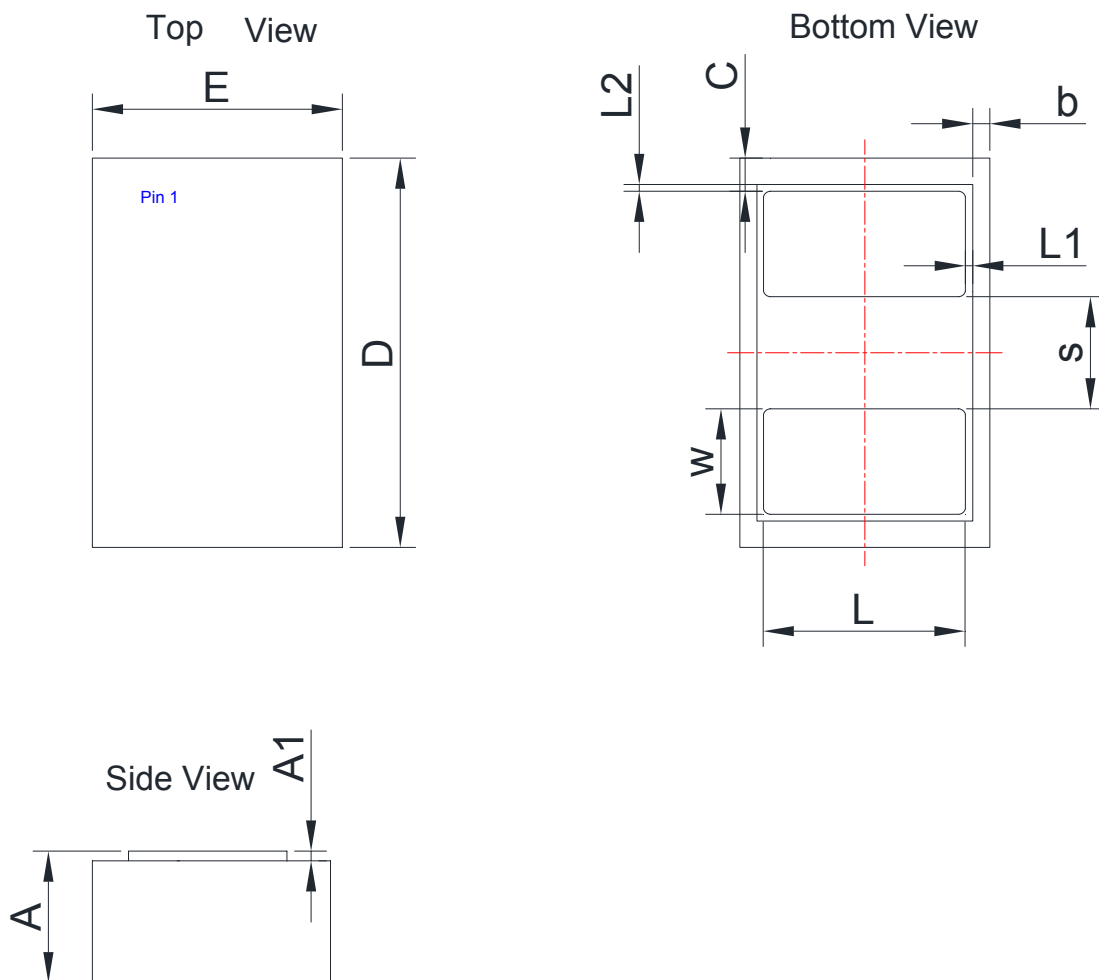
IEC6100-4-2 +15KV IO-IO

IEC6100-4-2 -15KV IO-IO

Measurement Wave According to IEC Standard



8. Dimension



| Symbol | Dimensions in Millimeters | Symbol | Dimensions in Millimeters |
|--------|---------------------------|--------|---------------------------|
|--------|---------------------------|--------|---------------------------|

| | NOM | Toler | | NOM | Toler |
|----|--------|--------------|----|--------|-------|
| A | 0.202 | ± 0.0305 | L1 | 0.0075 | NA |
| A1 | 0.011 | ± 0.003 | L2 | 0.005 | NA |
| D | 0.600 | ± 0.025 | C | 0.0375 | NA |
| E | 0.300 | ± 0.025 | b | 0.0375 | NA |
| W | 0.1425 | ± 0.008 | | | |
| L | 0.210 | ± 0.008 | | | |
| S | 0.230 | NA | | | |

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