

## SuperESD - PESD3V3Y1BSF-ES

### 1. Description

The PESD3V3Y1BSF-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 PESD3V3Y1BSF-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	Packing	Quantity per reel	Flammability Rating	Reel Size
PESD3V3Y1BSF-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

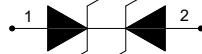
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	IO	Connect to IO		

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	$V_{ESD}$	-	$\pm 15$	kV
ESD (IEC61000-4-2 contact discharge) @25°C	$V_{ESD}$	-	$\pm 15$	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

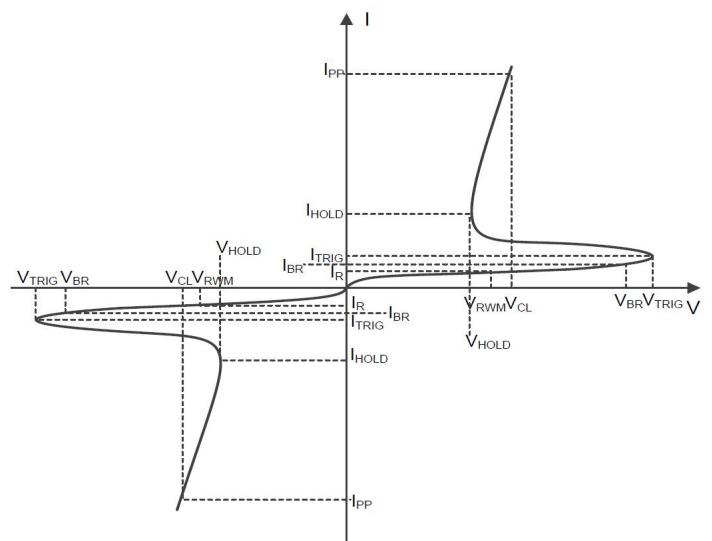
## 6.2. Electrical Characteristics

At TA = 25°C unless otherwise noted

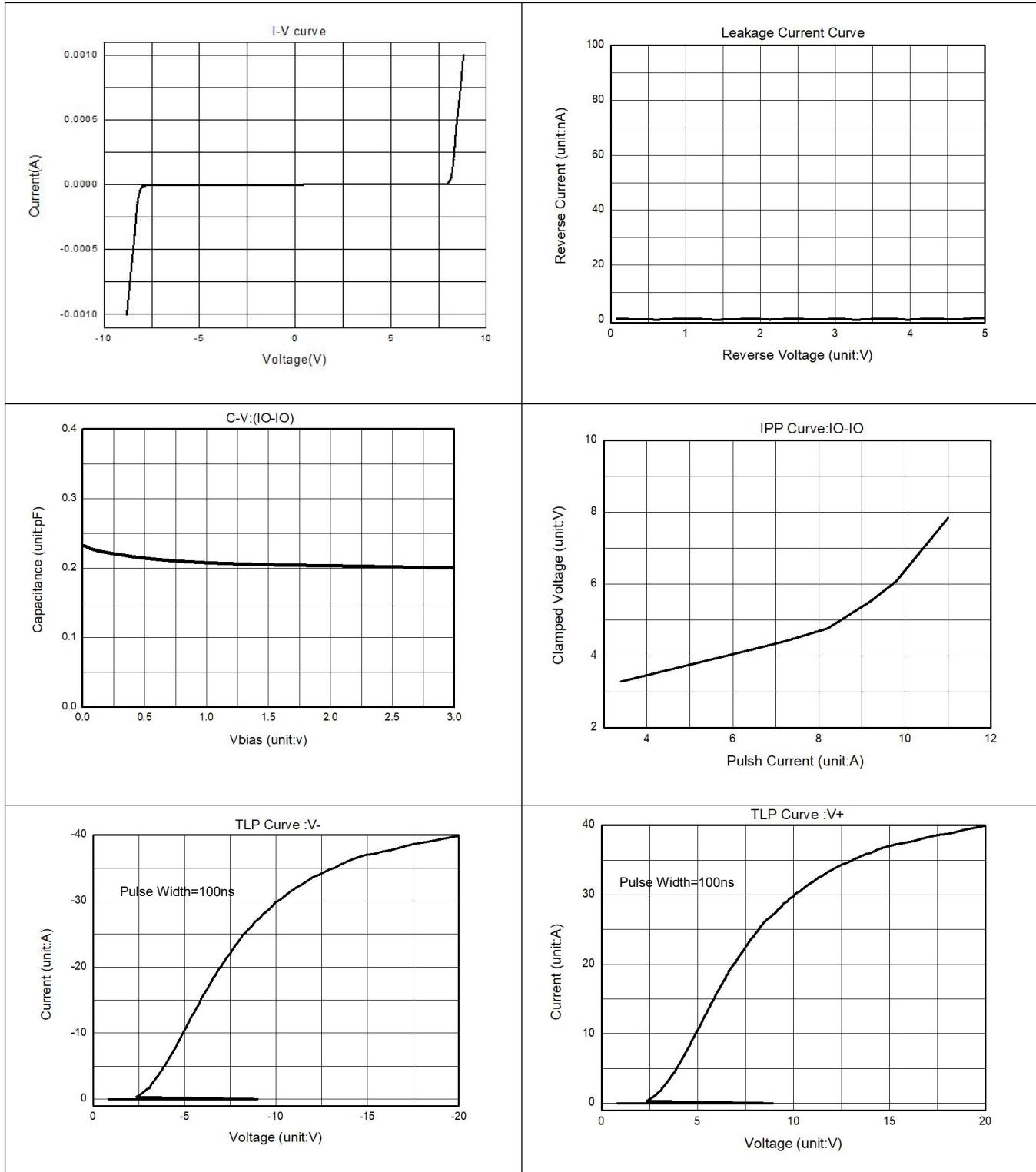
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	$V_{RWM}$				3.3	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=1\text{mA}$	6.0	8.8		V
Reverse Leakage Current	$I_R$	$V_{RWM}=3.3\text{V}$		1	100	nA
Clamping Voltage	$V_C$	$I_{PP}=1\text{A}; tp=8/20\mu\text{s}$		1		V
Clamping Voltage	$V_C$	$I_{PP}=9\text{A}; tp=8/20\mu\text{s}$		5		V
Clamping Voltage	$V_C$	$I_{PP}=16\text{A}, t_{LP}=100\text{ns}$		6		V
Junction Capacitance	$C_J$	$V_R=0\text{V}; f=1\text{MHz}$		0.2	0.25	pF

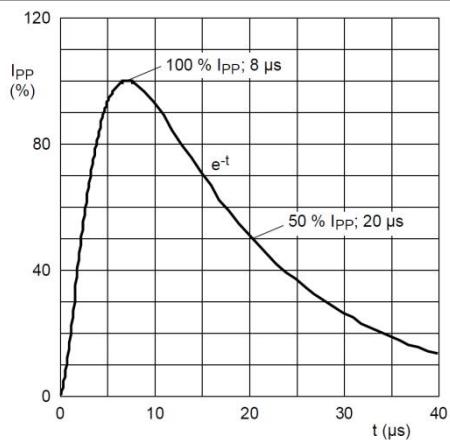
Table-4 Electrical Characteristics

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

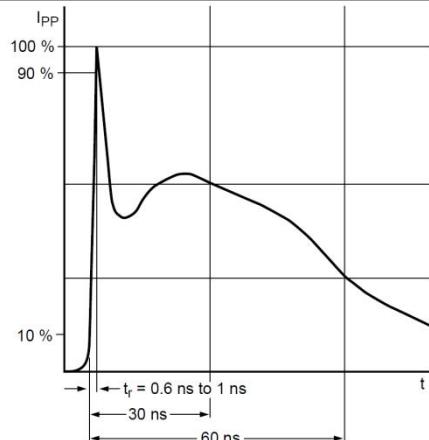


## 7. Typical Characteristic



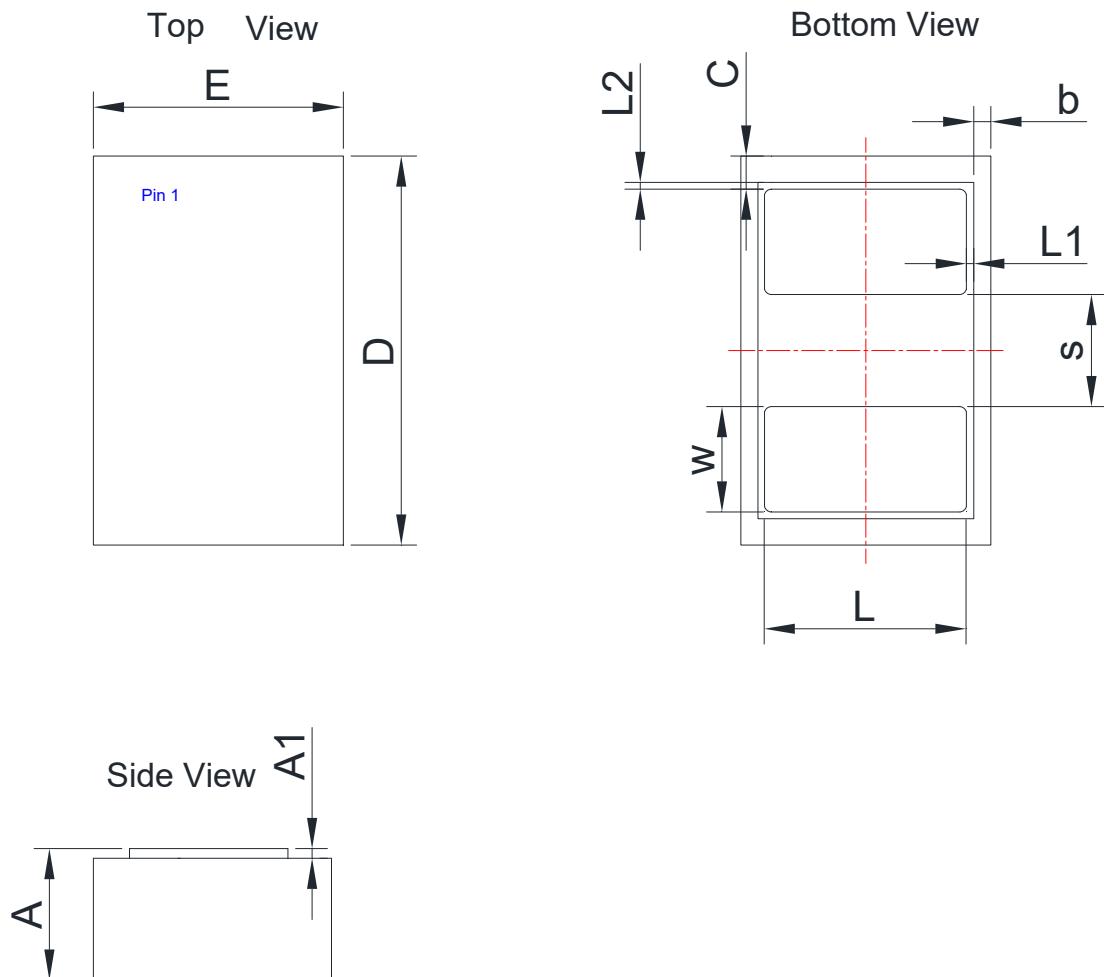
**Measurement Wave According to IEC Standard**

8/20  $\mu$ s pulse waveform according to  
IEC 61000-4-5



ESD pulse waveform according to  
IEC 61000-4-2

## 8. Dimension



Symbol	Dimensions in Millimeters		Symbol	Dimensions in Millimeters	
	NOM	Toler		NOM	Toler
A	0.202	$\pm 0.0305$	L1	0.0075	NA
A1	0.011	$\pm 0.003$	L2	0.005	NA
D	0.600	$\pm 0.025$	C	0.0375	NA
E	0.300	$\pm 0.025$	b	0.0375	NA
W	0.1425	$\pm 0.008$			
L	0.210	$\pm 0.008$			
S	0.230	NA			

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