

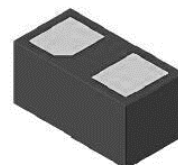
## Product Summary

The GESDBL5V0AE1 is designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in digital cameras, cellular phones, MP3 players and many other portable applications where board space is at a premium.

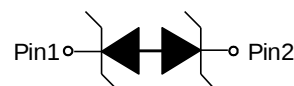
## Feature

- Low reverse stand-off voltage: 5V Max.
- Low reverse clamping voltage
- Ultra-low leakage current
- Fast response time
- IEC 61000-4-2 Level 4 ESD protection

**DFN0603-2L**



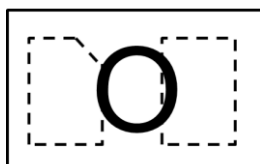
Schematic diagram



## Application

- Digital cameras
- Portable applications
- Audio and video equipment
- MP3 players
- Mobile phone

## Marking:



Front Side

O=Device Code

## Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

| Parameter                                      | Symbol         | Value     | Unit |
|------------------------------------------------|----------------|-----------|------|
| IEC 61000-4-2 ESD Voltage Air Model            | $V_{ESD}^{1)}$ | $\pm 30$  | kV   |
| IEC 61000-4-2 ESD Voltage Contact Model        |                | $\pm 30$  |      |
| JESD22-A114-B ESD Voltage Per Human Body Model |                | $\pm 16$  |      |
| ESD Voltage Machine Model                      |                | $\pm 0.4$ |      |
| Peak Pulse Power (8/20 $\mu$ s)                | $P_{pk}^{2)}$  | 100       | W    |
| Peak Pulse Current (8/20 $\mu$ s)              | $I_{pp}^{2)}$  | 8         | A    |
| Junction Temperature                           | $T_J$          | -55~ +125 | °C   |
| Storage Temperature                            | $T_{stg}$      | -55~ +150 | °C   |

- 1) Device stressed with ten non-repetitive ESD pulses.
- 2) Non-repetitive current pulse 8/20 $\mu$ s exponential decay waveform according to IEC61000-4-5.

## ESD standards compliance

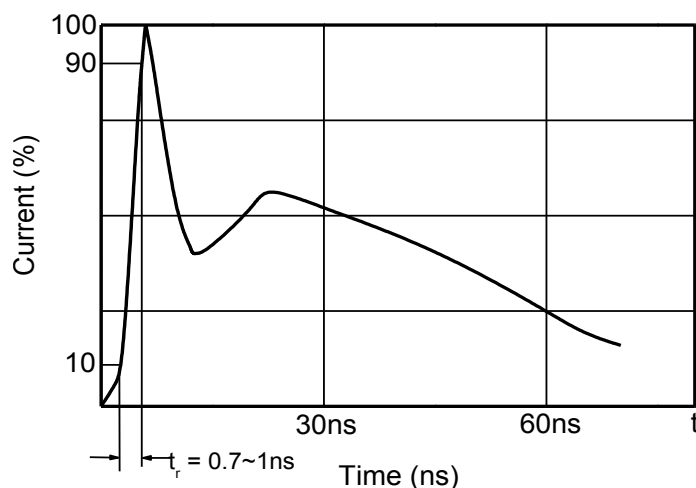
### IEC61000-4-2 Standard

| Contact Discharge |                 | Air Discharge |                 |
|-------------------|-----------------|---------------|-----------------|
| Level             | Test Voltage kV | Level         | Test Voltage kV |
| 1                 | 2               | 1             | 2               |
| 2                 | 4               | 2             | 4               |
| 3                 | 6               | 3             | 8               |
| 4                 | 8               | 4             | 15              |

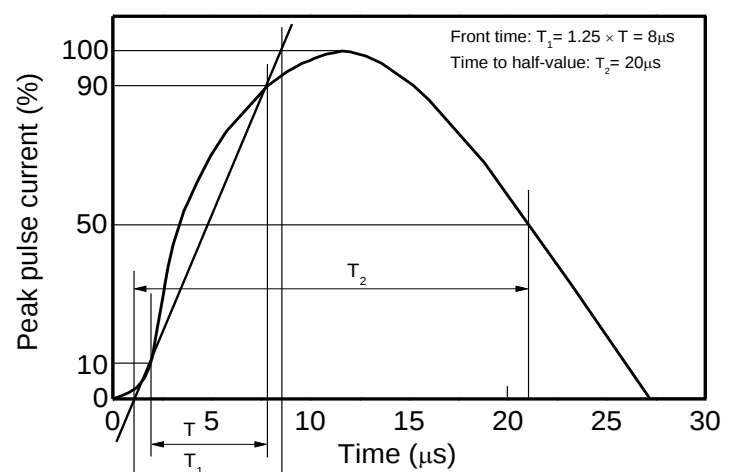
### JESD22-A114-B Standard

| ESD Class | Human Body Discharge V |
|-----------|------------------------|
| 0         | 0~249                  |
| 1A        | 250~499                |
| 1B        | 500~999                |
| 1C        | 1000~1999              |
| 2         | 2000~3999              |
| 3A        | 4000~7999              |
| 3B        | 8000~15999             |

### Contact discharge current waveform per IEC61000-4-2

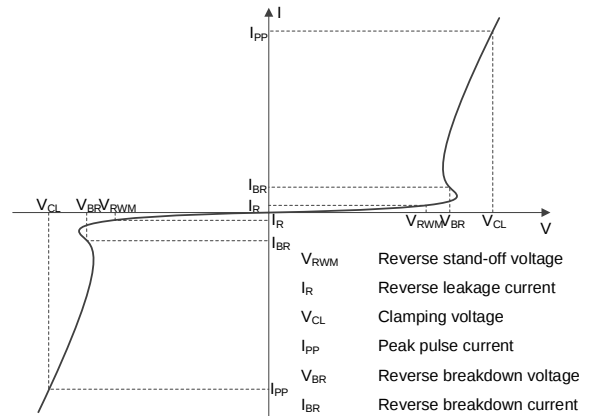


### 8/20 $\mu$ s waveform per IEC61000-4-5



## Electrical Parameter

| Symbol    | Parameter                           |
|-----------|-------------------------------------|
| $V_C$     | Clamping Voltage @ $I_{PP}$         |
| $I_{PP}$  | Peak Pulse Current                  |
| $V_{BR}$  | Breakdown Voltage @ $I_{BR}$        |
| $I_{BR}$  | Test Current                        |
| $I_R$     | Reverse Leakage Current @ $V_{RWM}$ |
| $V_{RWM}$ | Reverse Standoff Voltage            |

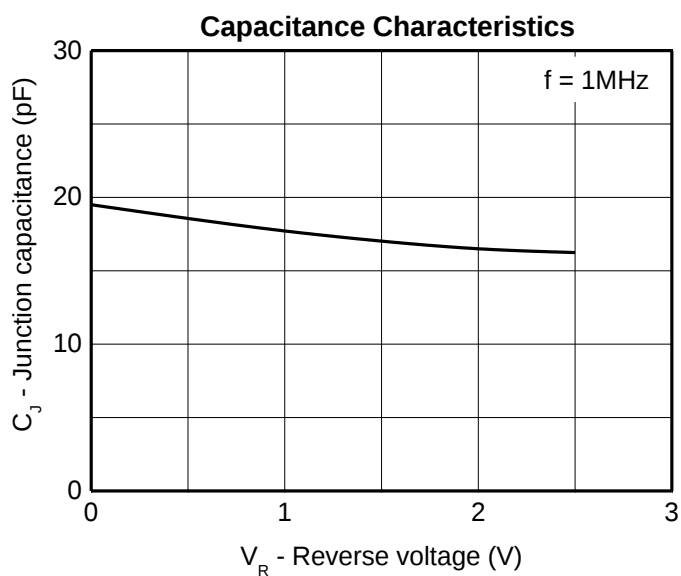
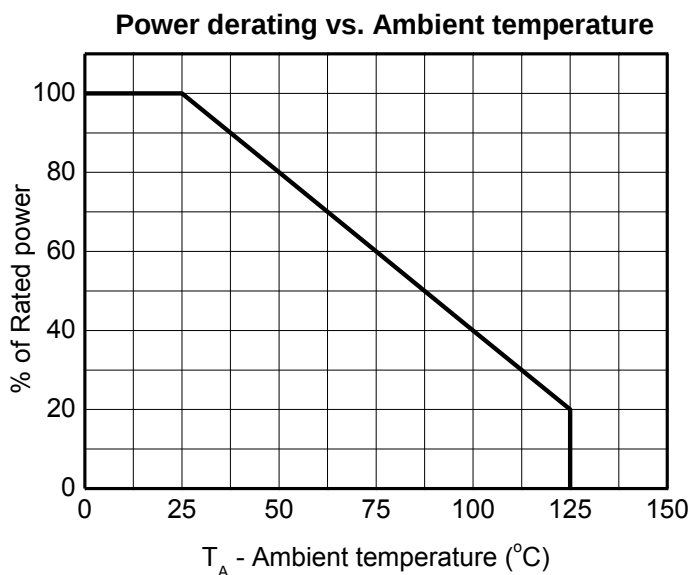
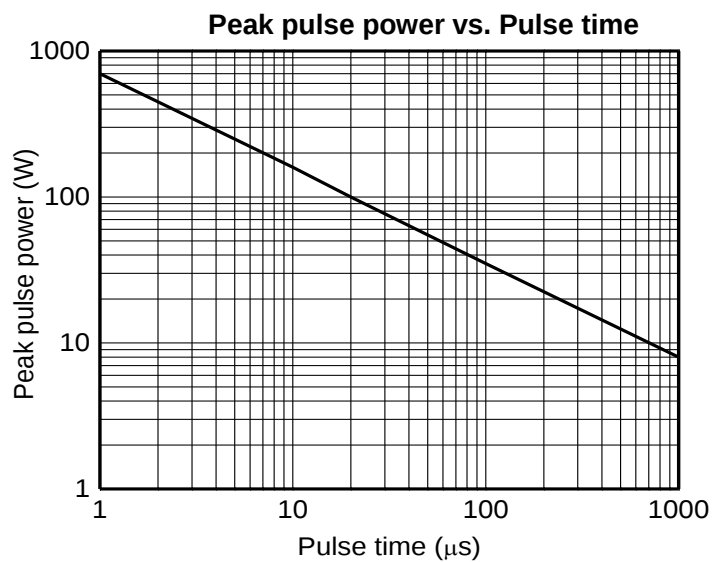
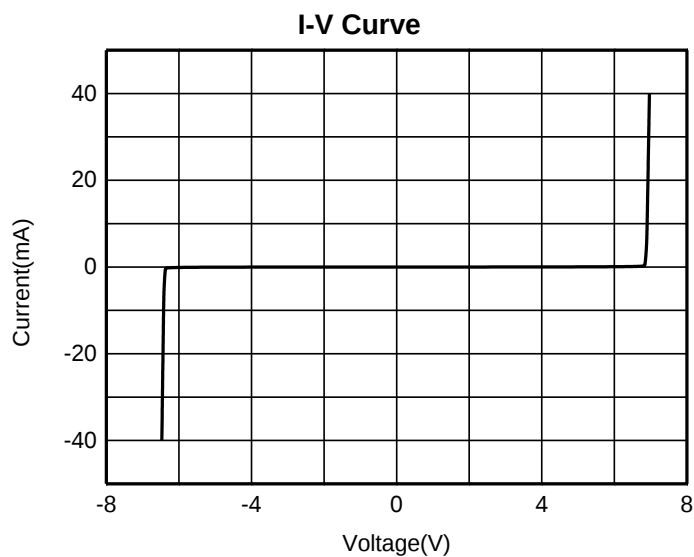
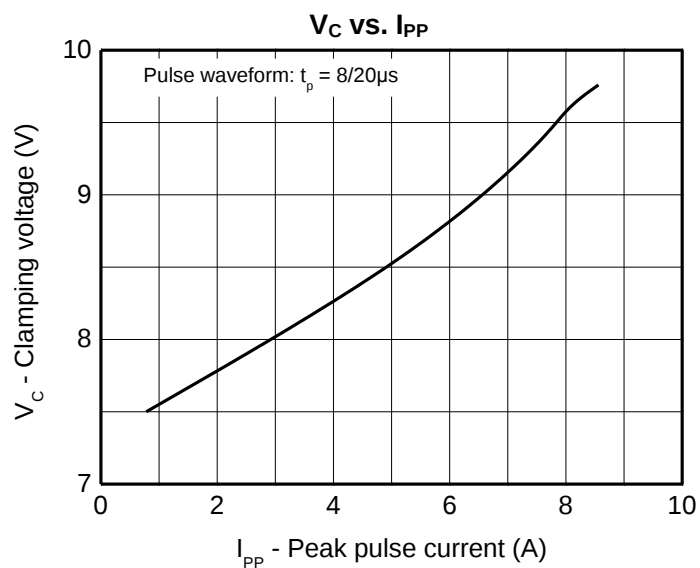


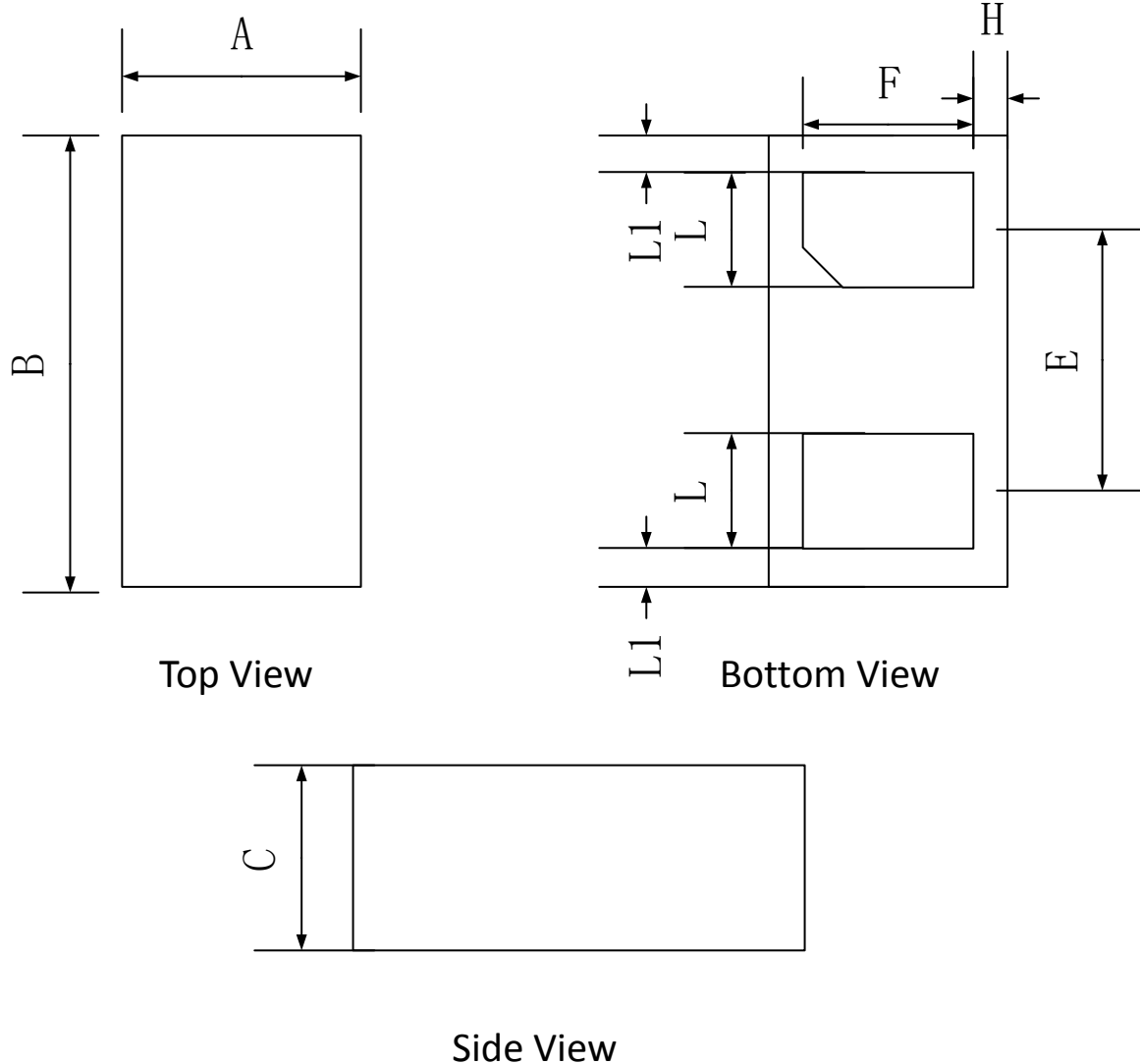
V-I characteristics for a Bi-directional TVS

## Electrical Characteristics ( $T_a=25^\circ\text{C}$ unless otherwise specified)

| Parameter                 | Symbol     | Test conditions                                   | Min | Typ | Max  | Unit          |
|---------------------------|------------|---------------------------------------------------|-----|-----|------|---------------|
| Reverse stand-off voltage | $V_{RWM}$  |                                                   |     |     | 5    | V             |
| Reverse leakage current   | $I_R$      | $V_{RWM}=5\text{V}$                               |     |     | 0.5  | $\mu\text{A}$ |
| Breakdown voltage         | $V_{(BR)}$ | $I_T=1\text{mA}$                                  | 5.6 | 7.1 |      | V             |
| Clamping voltage          | $V_{C1}$   | $I_{PP} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse) |     | 7   | 8    | V             |
|                           | $V_{C2}$   | $I_{PP} = 8\text{A}$ (8 x 20 $\mu\text{s}$ pulse) |     | 10  | 12.5 | V             |
| Junction capacitance      | $C_J$      | $V_R=0\text{V}, f=1\text{MHz}$                    |     | 17  | 22   | pF            |

## Typical Characteristics



**DFN0603-2L Package Outline Dimensions**


|    | Dimensions In Millimeters |      |      |
|----|---------------------------|------|------|
|    | Min.                      | Typ. | Max. |
| A  | 0.25                      | 0.30 | 0.35 |
| B  | 0.55                      | 0.60 | 0.65 |
| C  | 0.27                      | 0.30 | 0.34 |
| E  | -                         | 0.35 | -    |
| F  | 0.20                      | 0.25 | 0.35 |
| H  | 0.045 REF                 |      |      |
| L  | 0.13                      | 0.18 | 0.23 |
| L1 | 0.045REF                  |      |      |