

## Product Summary

The GESDBM3V3Y1 is designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD.

The combination of small size, low capacitance, and high level of ESD protection makes them a flexible solution for applications such as HDMI, Display Port TM, and MDDI interfaces. It is designed to replace multiplayer varistors (MLV) in consumer equipment applications such as mobile phone, notebook, PAD, STB, LCD TV etc.

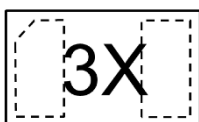
## Feature

- Low Reverse Stand-Off Voltage: 3.3V
- Low Capacitance: 20pf(Typ.)
- Low Reverse Clamping Voltage
- Low Leakage Current
- Fast Response Time
- IEC 61000-4-2 Level 4 ESD Protection

## Application

- Digital Cameras
- Computers And Peripherals
- PAD
- Cellular Handsets And Accessories
- Portable Electronics
- LCD TV
- Other Electronics Equipment Communication Systems

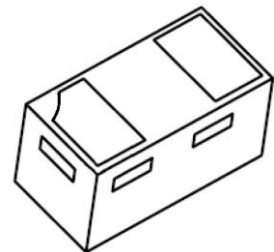
## Marking:



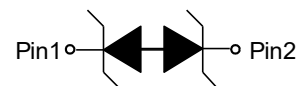
Front Side

3X=Device Code

**DFN1006-2L**



**Schematic diagram**



## Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter                                              | Symbol                | Value     | Unit               |
|--------------------------------------------------------|-----------------------|-----------|--------------------|
| IEC 61000-4-2 ESD Voltage Air Model                    | $V_{\text{ESD}}^{1)}$ | $\pm 25$  | kV                 |
| JESD22-A114-B ESD Voltage Contact Model                |                       | $\pm 25$  |                    |
| ESD Voltage Per Human Body Model                       |                       | $\pm 16$  |                    |
| ESD Voltage Machine Model                              |                       | $\pm 0.4$ |                    |
| Peak Pulse Power                                       | $P_{\text{PP}}^{2)}$  | 63        | W                  |
| Peak Pulse Current                                     | $I_{\text{PP}}^{2)}$  | 7         | A                  |
| Lead Solder Temperature – Maximum (10 Second Duration) | $T_L$                 | 260       | $^{\circ}\text{C}$ |
| Junction Temperature                                   | $T_J$                 | -55~ +150 | $^{\circ}\text{C}$ |
| Storage Temperature Range                              | $T_{\text{stg}}$      | -55~ +150 | $^{\circ}\text{C}$ |

1) Device stressed with ten non-repetitive ESD pulses.

2) Non-repetitive current pulse 8/20 $\mu\text{s}$  exponential decay waveform according to IEC61000-4-5.

## ESD Standards Compliance

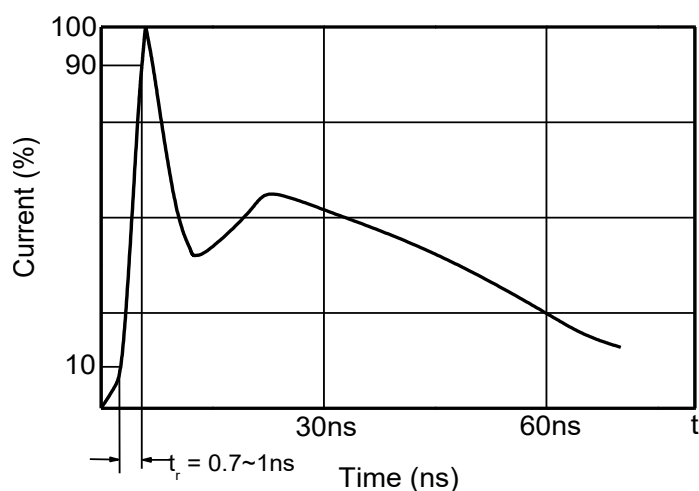
### IEC61000-4-2 Standard

| 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              |

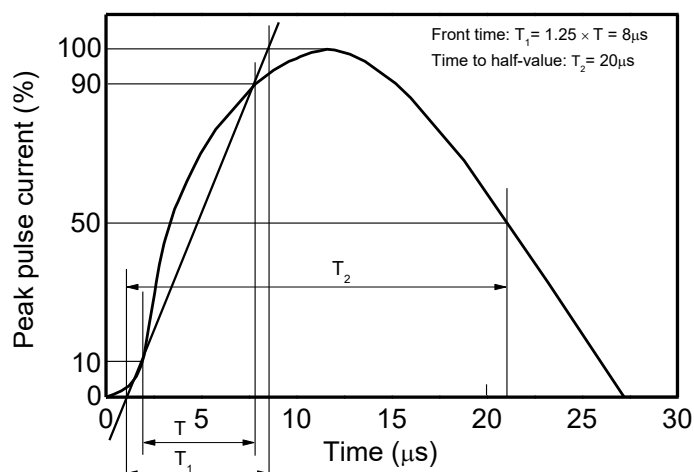
### JESD22-A114-B Standard

| 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

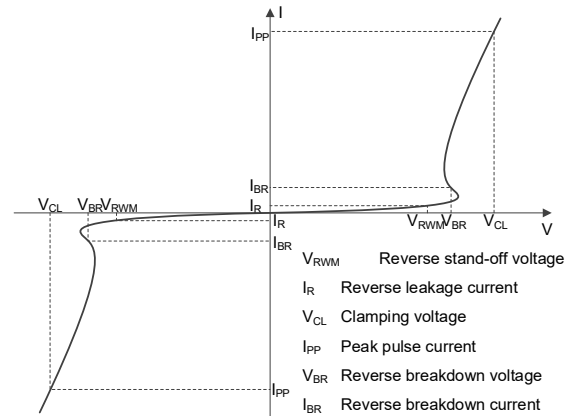


### 8/20 $\mu\text{s}$ waveform per IEC61000-4-5



## Electrical Parameter

| Symbol    | Parameter                           |
|-----------|-------------------------------------|
| $V_C$     | Clamping Voltage @ $I_{PP}$         |
| $I_{PP}$  | Peak Pulse Current                  |
| $V_{BR}$  | Breakdown Voltage @ $I_T$           |
| $I_T$     | 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)

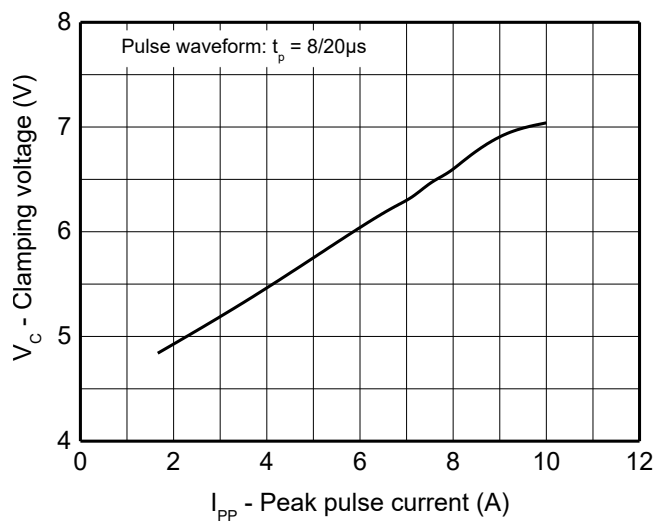
| Parameter                 | Symbol         | Test conditions                | Min | Typ | Max | Unit          |
|---------------------------|----------------|--------------------------------|-----|-----|-----|---------------|
| Reverse Stand-Off Voltage | $V_{RWM}^{1)}$ |                                |     |     | 3.3 | V             |
| Reverse Leakage Current   | $I_R$          | $V_{RWM}=3.3\text{V}$          |     |     | 0.1 | $\mu\text{A}$ |
| Breakdown Voltage         | $V_{BR}$       | $I_T=1\text{mA}$               | 3.6 |     | 4.8 | V             |
| Clamping Voltage          | $V_C^{2)}$     | $I_{PP}=7\text{A}$             |     | 6.5 | 9   | V             |
| Junction Capacitance      | $C_J$          | $V_R=0\text{V}, f=1\text{MHz}$ |     | 20  |     | pF            |

1) Other voltages available upon request.

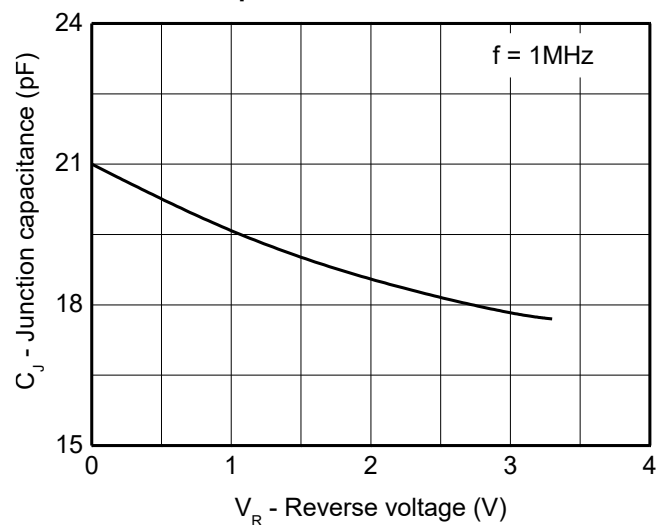
2) Non-repetitive current pulse 8/20 $\mu\text{s}$  exponential decay waveform according to IEC61000-4-5.

## Typical Characteristics

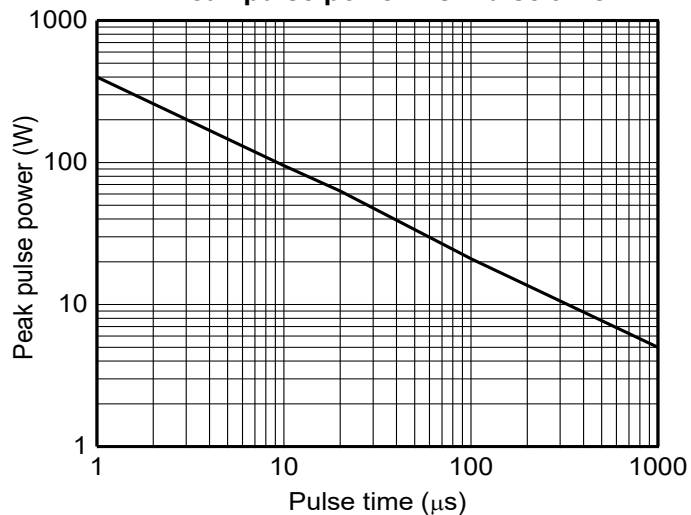
**VC vs. IPP**



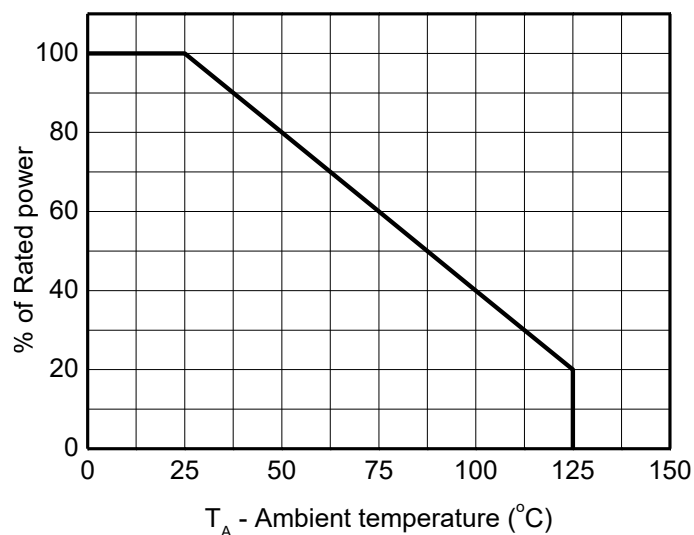
**Capacitance Characteristics**

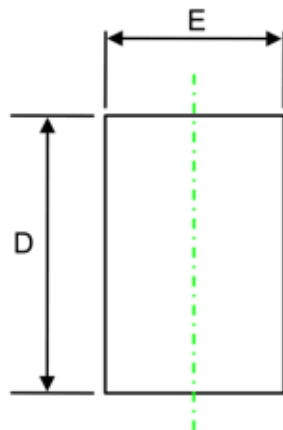


**Peak pulse power vs. Pulse time**

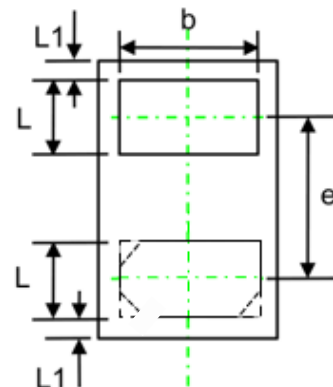


**Power derating vs. Ambient temperature**

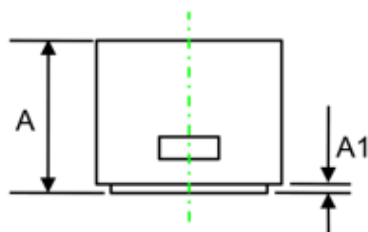


**DFN1006-2L Package Outline Dimension**


**TOP VIEW**  
[顶视图]



**BOTTOM VIEW**  
[底视图]



**SIDE VIEW**  
[侧视图]

| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 0.400                     | 0.550 | 0.016                | 0.022 |
| A1     | 0.000                     | 0.050 | 0.000                | 0.002 |
| D      | 0.950                     | 1.050 | 0.037                | 0.041 |
| E      | 0.550                     | 0.650 | 0.022                | 0.026 |
| b      | 0.400                     | 0.600 | 0.016                | 0.024 |
| e      | 0.65 TYP                  |       | 0.026 TYP            |       |
| L1     | 0.05 REF                  |       | 0.002 REF            |       |
| L      | 0.200                     | 0.300 | 0.008                | 0.012 |

**Attention:**

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.