

Product Summary

The GESDS5V0D31 is an uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line.

Feature

- Low reverse stand-off voltage: 5.0V
- Low reverse clamping voltage
- Low leakage current
- Fast response time
- JESD22-A114-B ESD Rating of class 3B per human body model
- IEC 61000-4-2 Level 4 ESD protection

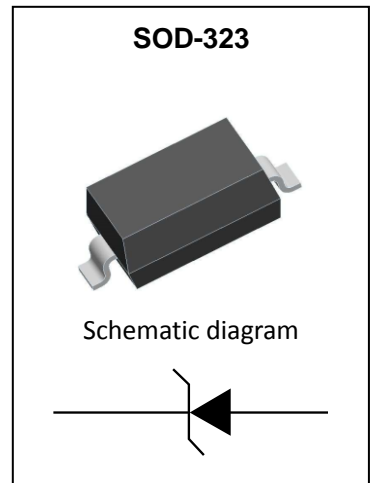
Application

- Computers and peripherals
- Portable electronics
- Power lines
- Audio and video equipment
- Cellular handsets and accessories
- Other electronic equipment communication systems

Marking:



Front Side
D5=Device Code



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

| Parameter | Symbol | Value | Unit |
|--|-----------------------|-----------|--------------------|
| IEC 61000-4-2 ESD Voltage | $V_{\text{ESD}}^{1)}$ | ± 25 | kV |
| IEC 61000-4-2 ESD Voltage | | ± 25 | |
| JESD22-A114-B ESD Voltage | | ± 16 | |
| ESD Voltage | | ± 0.4 | |
| Peak Pulse Power | $P_{\text{PP}}^{2)}$ | 3000 | W |
| Peak Pulse Current | $I_{\text{PP}}^{2)}$ | 150 | A |
| Lead Solder Temperature – Maximum (10 Second Duration) | T_L | 260 | $^{\circ}\text{C}$ |
| Junction Temperature | T_j | 150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{stg} | -55~ +150 | $^{\circ}\text{C}$ |

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

ESD standards compliance

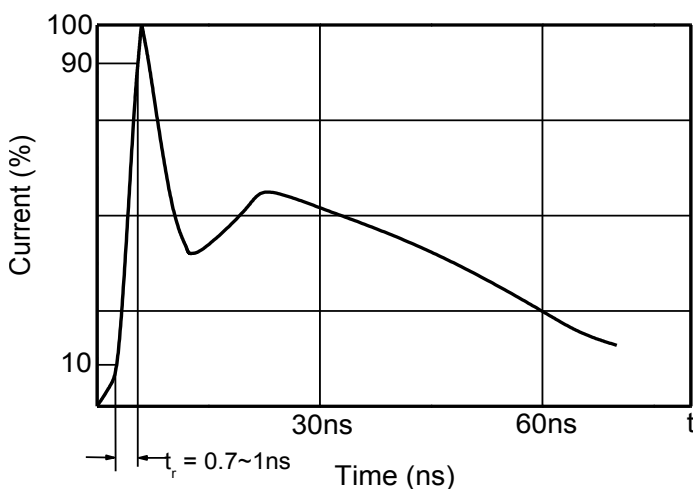
IEC61000-4-2 Standard

| 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 |

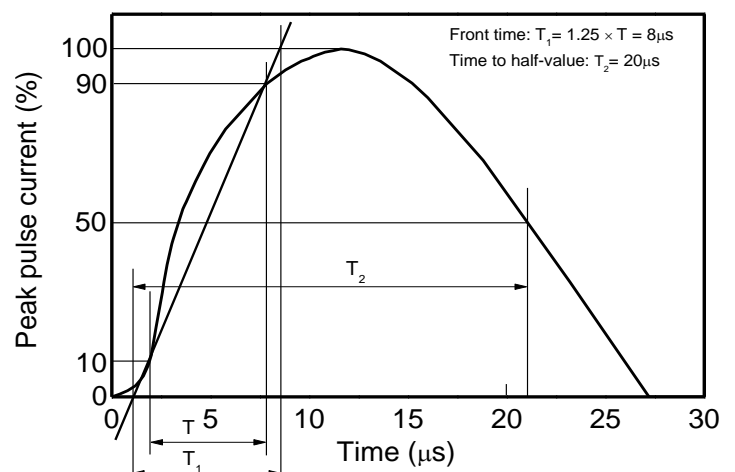
JESD22-A114-B Standard

| 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

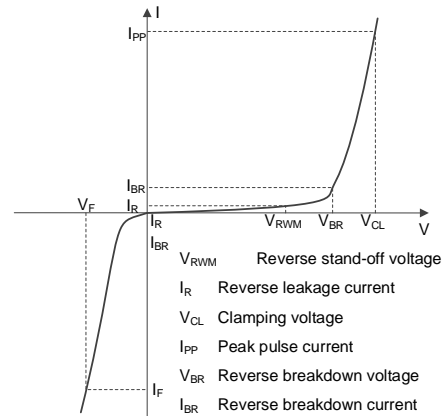


8/20 μs waveform per IEC61000-4-5



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 |



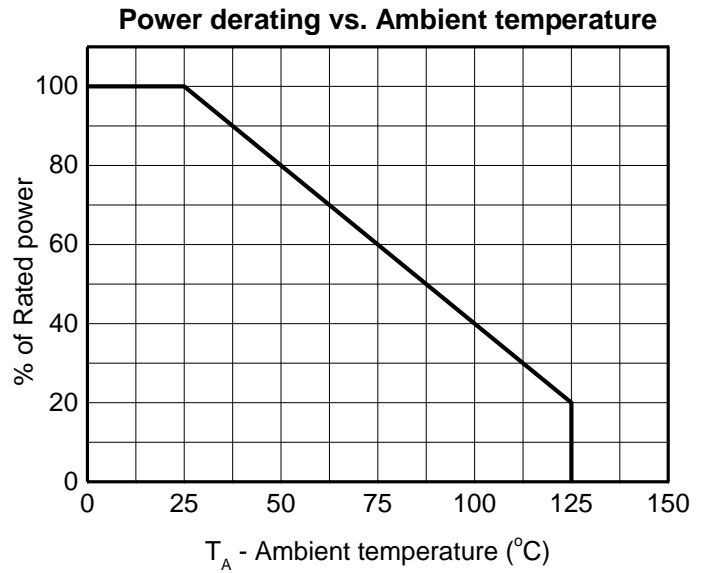
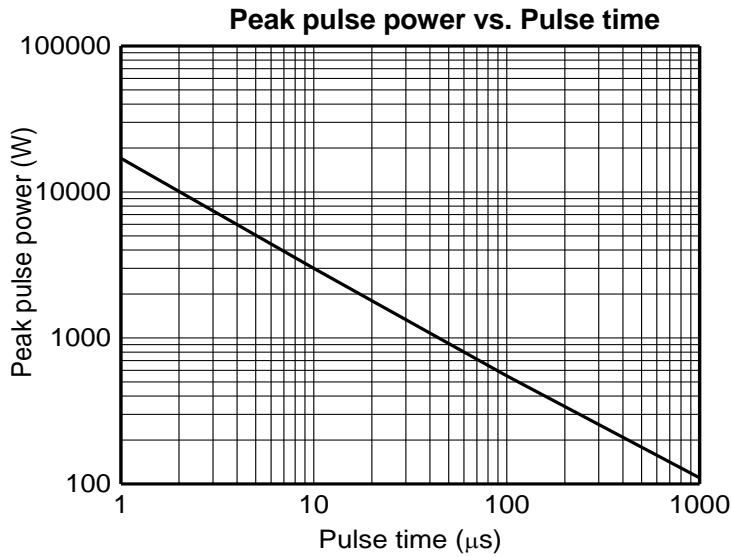
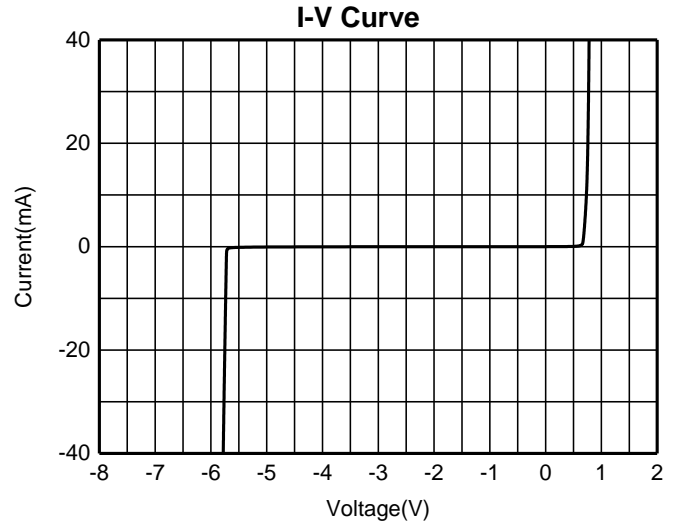
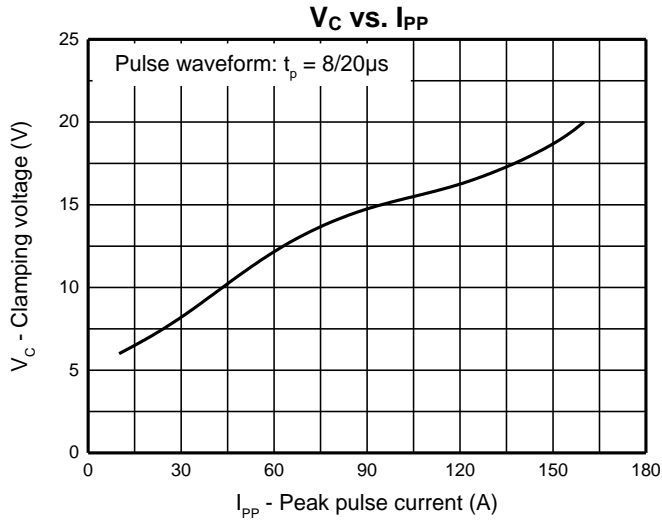
V-I characteristics for a Uni-directional TVS

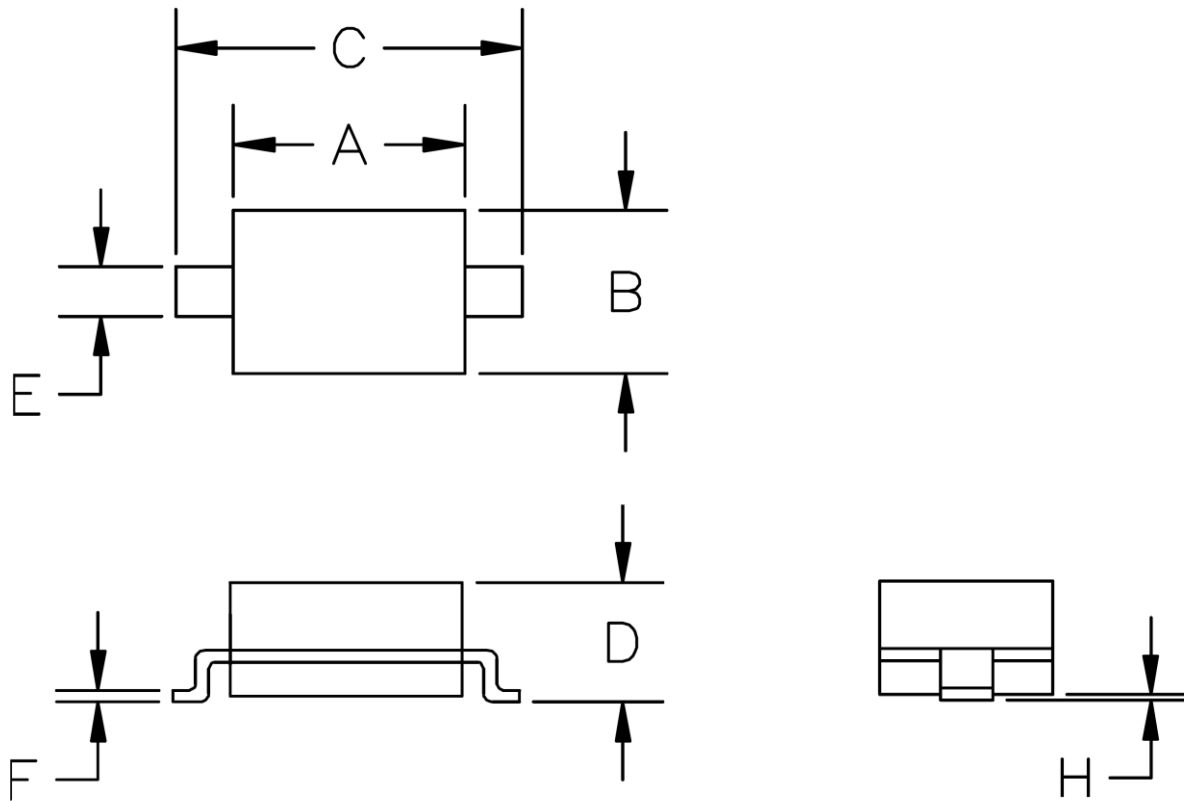
Electrical Characteristics (Ta=25°C unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---------------------------|--------------------------------|----------------------------|-----|------|-----|------|
| Reverse stand-off voltage | V _{RWM} ¹⁾ | | | | 5 | V |
| Reverse leakage current | I _R | V _{RWM} =4.5V | | | 20 | uA |
| Breakdown voltage | V _{BR} | I _T =1mA | 5.3 | | 6.0 | V |
| Clamping voltage | V _C ²⁾ | I _{PP} =150A | | 20 | | V |
| Junction capacitance | C _J | V _R =0V, f=1MHz | | 1300 | | pF |

- 1) Other voltages available upon request.
- 2) Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5

Typical Characteristics



SOD-323 Package Outline Dimensions


| | Dimensions In Millimeters | | |
|---|---------------------------|------|------|
| | Min. | Typ. | Max. |
| A | 1.50 | | 1.80 |
| B | 1.20 | | 1.40 |
| C | 2.30 | | 2.70 |
| D | | | 1.10 |
| E | 0.30 | | 0.40 |
| F | 0.10 | | 0.25 |
| H | | | 0.10 |