

# GSE6V8UN

## Ultra Low Capacitance 2-Line ESD Protection Array

### Product Description

The GSE6V8UN is 2-channel very low capacitance ESD transient voltage suppressor which provides a very high level of protection for sensitive electronic components that may be subjected to electrostatic discharge.

It is particularly well-suited to protect systems with high speed communication lines from ESD, EFT, and lighting.

The GSE6V8UN consists of two low capacitance steering diodes and a TVS diode in SOT-353 package.

Each channel of GSE6V8UN could safely dissipate ESD strikes of  $\pm 15\text{kV}$  air discharge as well as  $\pm 8\text{kV}$  contact discharge, meeting the requirement of the IEC 61000-4-2 international standard.

Using the MIL-STD-883 (Method 3015) specification for Human Body Model (HBM) ESD, the device provides protection for contact discharges to greater than  $\pm 15\text{kV}$ .

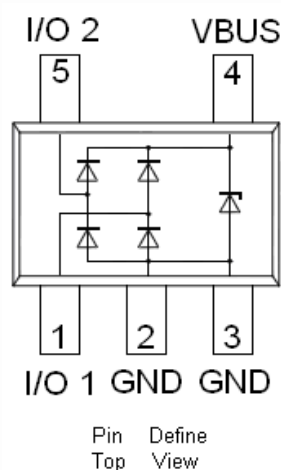
### Features

- Stand\_off Voltage: 5 V
- Peak Power up to 180 Watts @ 8 x 20 us Pulse
- Low Leakage current
- Level 4 ESD Protection IEC61000-4-2
- Level 4 EFT Protection IEC61000-4-4
- Low capacitance: 0.7 pF typical
- SOT-353 Package
- Molding compound flammability rating: UL94V-0
- Packaging: Tape and Reel per EIA 481
- RoHS Compliant, 100%Pb & Halogen Free

### Applications

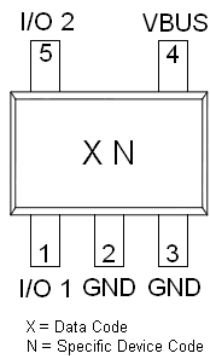
- High Definition Multi-Media Interface Protection
- USB 3.0 Power and Data Line Protection
- Monitors and Flat Panel Displays Notebook Computers
- Video Line Protection & Base Stations
- HD/SD, IDSL Secondary IC Side Protection
- Microcontroller Input Protection
- LCD and camera modules
- 10/100/1000 Ethernet

### Packages & Pin Assignments

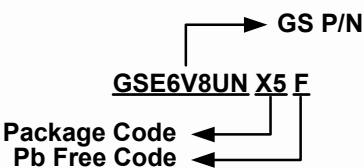


**SOT-353**

Marking Information



Ordering Information



| Part Number | Package | Part Marking | Unit        | Quantity |
|-------------|---------|--------------|-------------|----------|
| GSE6V8UNX5F | SOT-353 | XN           | Tape & Reel | 3000EA   |

Absolute Maximum Ratings

(T<sub>A</sub>=25°C Unless otherwise noted)

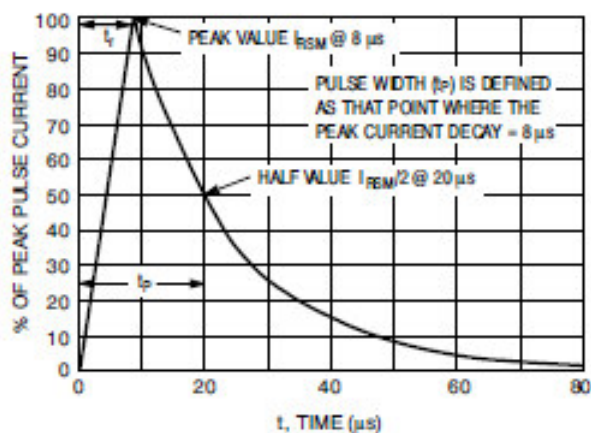
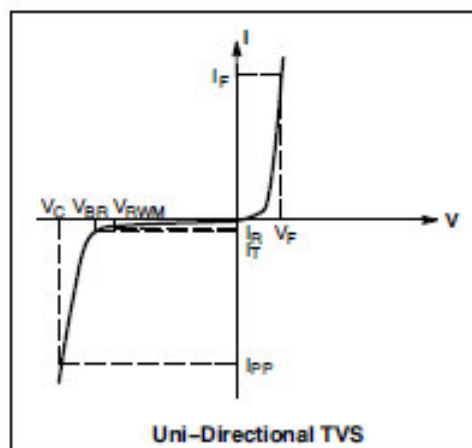
| Symbol           | Parameter                                     | Typical       | Unit |
|------------------|-----------------------------------------------|---------------|------|
| P <sub>PP</sub>  | Peak Pulse Power ( t <sub>p</sub> = 8/20 μs ) | 180           | W    |
| V <sub>PP</sub>  | ESD per IEC 61000 – 4 – 2 (Air )              | ±15           | KV   |
|                  | ESD per IEC 61000 – 4 – 2 (Contact )          | ±8            | KV   |
| T <sub>J</sub>   | Operating Junction Temperature                | -55 ~ 125     | °C   |
| T <sub>STG</sub> | Storage Temperature Range                     | -55 ~ 125     | °C   |
| T <sub>L</sub>   | Lead Soldering Temperature                    | 260 ( 10sec ) | °C   |

## Electrical Characteristics

( $T_A=25^\circ\text{C}$  Unless otherwise noted)

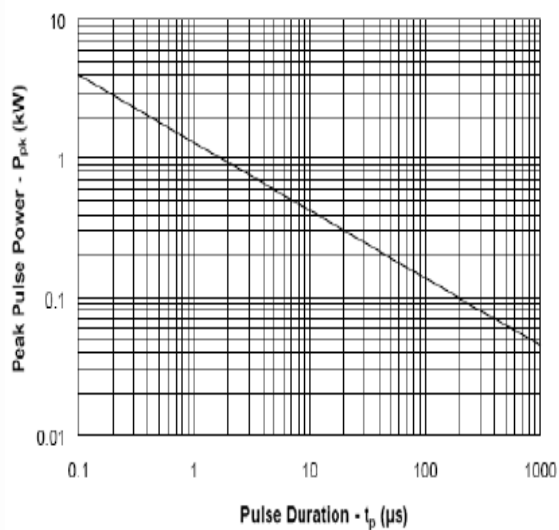
| Symbol    | Parameter                         | Conditions                                                                  | Min | Typ | Max  | Unit          |
|-----------|-----------------------------------|-----------------------------------------------------------------------------|-----|-----|------|---------------|
| $V_{RWM}$ | Reverse Stand – Off Voltage       |                                                                             |     |     | 5.0  | V             |
| $V_F$     | Forward Voltage @ $I_F$           | $I_F=10\text{mA}$                                                           | 0.4 | 0.8 | 1.5  | V             |
| $V_{BR}$  | Reverse Breakdown Voltage @ $I_T$ | $I_T=1\text{mA}$                                                            | 6.0 | 7.0 |      | V             |
| $I_R$     | Reverse Leakage Current           | $V_{RWM}=5\text{V}, T_A=25^\circ\text{C}$ ,<br>Pin5 to 2                    |     |     | 1.0  | $\mu\text{A}$ |
| $V_C$     | Clamping Voltage @ $I_{PP}$       | $I_{PP} = 1\text{A}$ , $t_P = 8/20\ \mu\text{s}$ ,<br>Any I/O pin to Ground |     |     | 15.0 | V             |
| $C_J$     | Junction Capacitance              | $V_R = 0\text{V}$ , $f = 1\text{MHz}$<br>Any I/O pin to Ground              |     | 1.4 | 1.5  | pF            |
|           |                                   | $V_R = 0\text{V}$ , $f = 1\text{MHz}$<br>Between I/O pins                   |     | 0.7 |      |               |

## Electrical Parameter

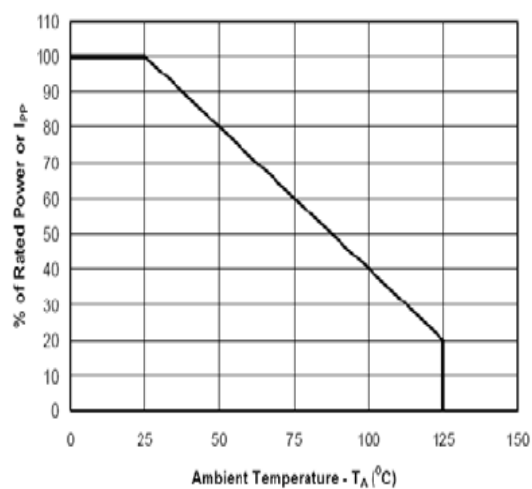


## Typical Performance Characteristics

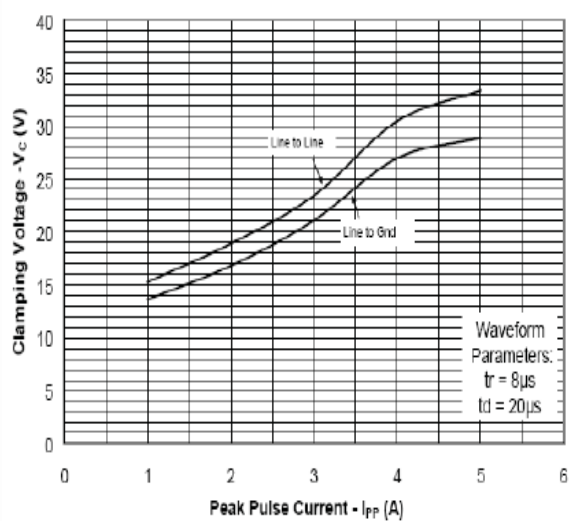
### Non-Repetitive Peak Pulse Power vs. Pulse Time



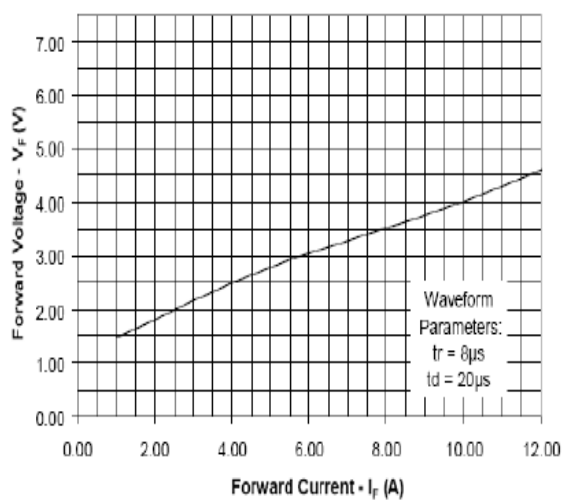
### Power Derating Curve



### Clamping Voltage vs. Peak Pulse Current

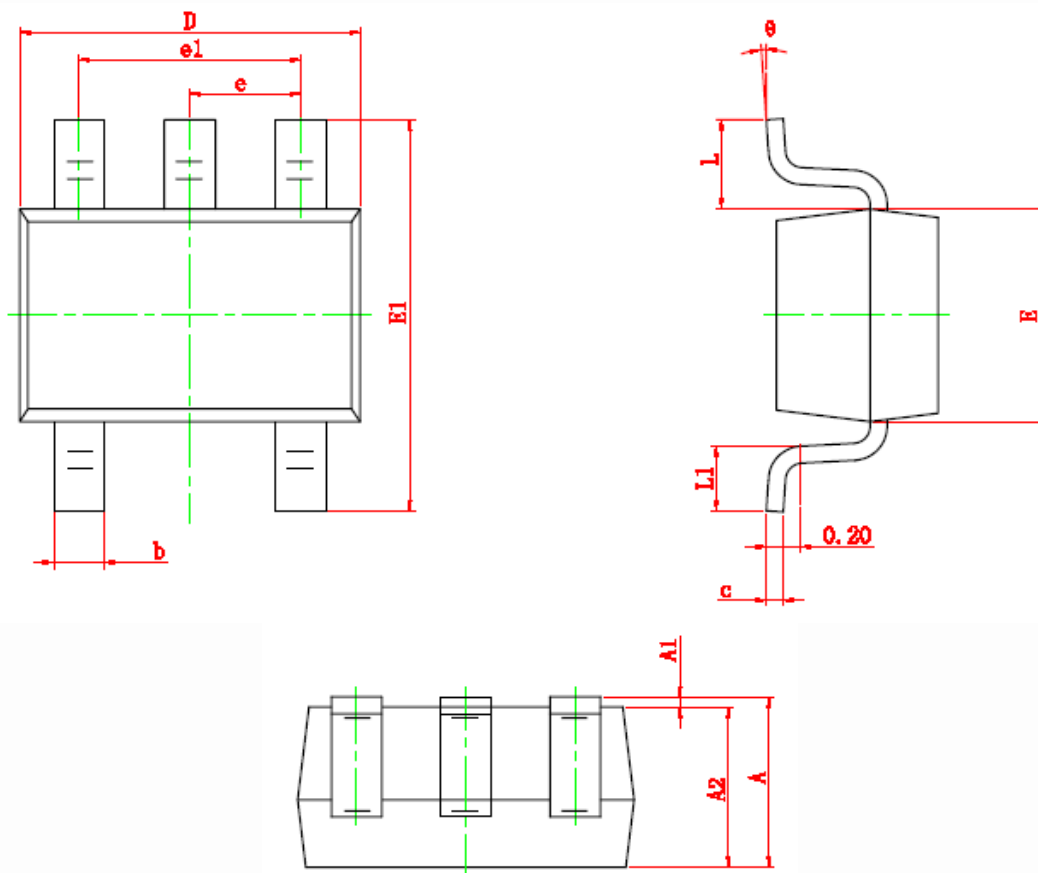


### Forward Voltage vs. Forward Current



## Package Dimension

### SOT-353



| Dimensions                 |             |       |           |       |
|----------------------------|-------------|-------|-----------|-------|
| Symbol                     | Millimeters |       | Inches    |       |
|                            | Min         | Max   | Min       | Max   |
| <b>A</b>                   | 0.900       | 1.100 | 0.035     | 0.043 |
| <b>A1</b>                  | 0.000       | 0.100 | 0.000     | 0.004 |
| <b>A2</b>                  | 0.900       | 1.000 | 0.035     | 0.039 |
| <b>b</b>                   | 0.150       | 0.350 | 0.006     | 0.014 |
| <b>c</b>                   | 0.080       | 0.150 | 0.003     | 0.006 |
| <b>D</b>                   | 2.000       | 2.200 | 0.079     | 0.087 |
| <b>E</b>                   | 1.150       | 1.350 | 0.045     | 0.053 |
| <b>E1</b>                  | 2.150       | 2.450 | 0.085     | 0.096 |
| <b>e</b>                   | 0.650 TYP   |       | 0.026 TYP |       |
| <b>e1</b>                  | 1.200       | 1.400 | 0.047     | 0.055 |
| <b>L</b>                   | 0.525 REF   |       | 0.021 REF |       |
| <b>L1</b>                  | 0.260       | 0.460 | 0.010     | 0.018 |
| <b><math>\theta</math></b> | 0°          | 8°    | 0°        | 8°    |

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