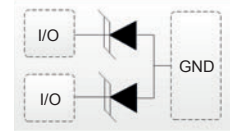


## Features

- 30Watts peak pulse power ( $T_P=8/20\mu s$ )
- DFN1006-3 package
- Unidirectional configurations
- R2R + Zener technology
- Low clamping voltage
- Low Leakage current
- Ultra low capacitance ( $C_J=0.4pF$  typ.)
- Protection one data/power line to:
  - IEC 61000-4-2  $\pm 15kV$  contact  $\pm 20kV$  air
  - IEC 61000-4-4 (EFT) 40A (5/50ns)
  - IEC 61000-4-5 (Lightning) 3A (8/20 $\mu s$ )
- RoHS compliant



**DFN1006-3L**



**Schematic Diagram**

## Applications

- USB3.0, Firewire, DVI, HDMI, S-ATA
- Thunderbolt, Display Port
- Mobile HDMI Link, MDDI, MIPI, SWP / NFC

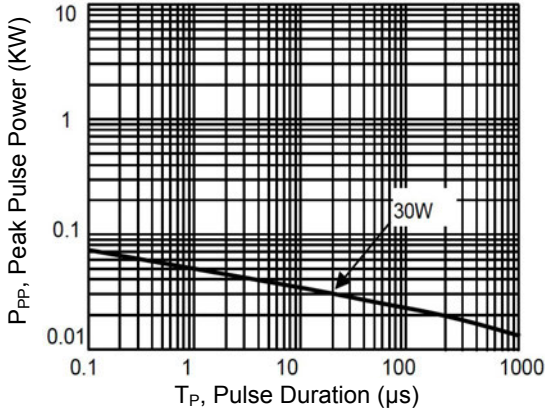
## Absolute Maximum Ratings ( $T_A=25^\circ C$ , unless otherwise specified)

| Parameter  | Symbol    | Value       | Unit       |
|--|-----------|-------------|------------|
| Peak Pulse Power ( $T_P=8/20\mu S$ )                 | $P_{PP}$  | 30          | W          |
| ESD Contact/Air Discharge (IEC-61000-4-2)            | $V_{ESD}$ | 15/20       | kV         |
| Peak Pulse Current ( $T_P=8/20\mu S$ )               | $I_{PP}$  | 3           | A          |
| Junction Temperature                                 | $T_J$     | -55 to +125 | $^\circ C$ |
| Storage Temperature                                  | $T_{STG}$ | -55 to +150 | $^\circ C$ |
| Maximum Lead Solder Temperature (10 Second Duration) | $T_L$     | 260         | $^\circ C$ |

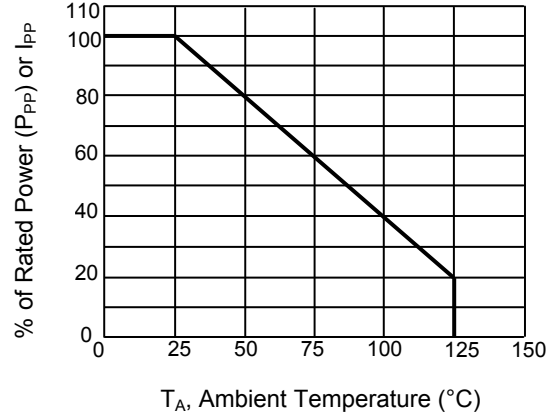
## Electrical Characteristics ( $T_A=25^\circ C$ unless otherwise specified)

| Parameter                        | Symbol    | Condition                    | Min | Typ  | Max | Unit    |
|----------------------------------|-----------|------------------------------|-----|------|-----|---------|
| Reverse Stand-Off Voltage        | $V_{RWM}$ |                              | -   | -    | 5   | V       |
| Reverse Breakdown Voltage        | $V_{BR}$  | $I_T=1mA$                    | 6   | 7.2  | -   | V       |
| Reverse Leakage Current          | $I_R$     | $V_R=5V$                     | -   | 0.01 | 0.5 | $\mu A$ |
| Clamping Voltage (IEC 61000-4-5) | $V_C$     | $I_{PP}=3A, T_P=8/20\mu S$   | -   | 10   | -   | V       |
| Junction Capacitance             | $C_J$     | $V_R=0V, F=1MHz, I/O$ to I/O | -   | 0.4  | -   | pF      |
|                                  | $C_J$     | $V_R=0V, F=1MHz, I/O$ to GND | -   | 0.7  | -   | pF      |

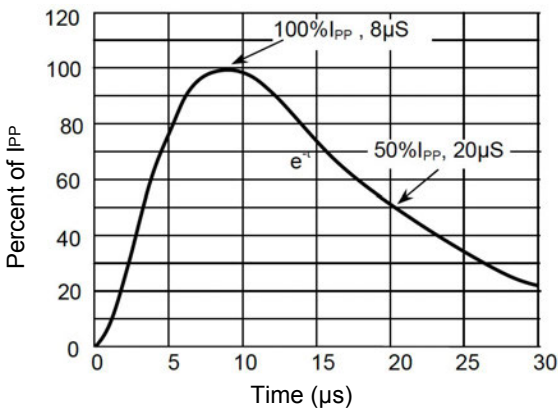
**Typical Characteristic Curves**



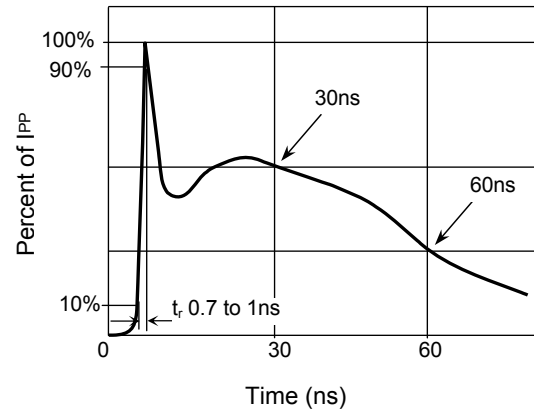
**Figure 1. Peak Pulse Power Rating Curve**



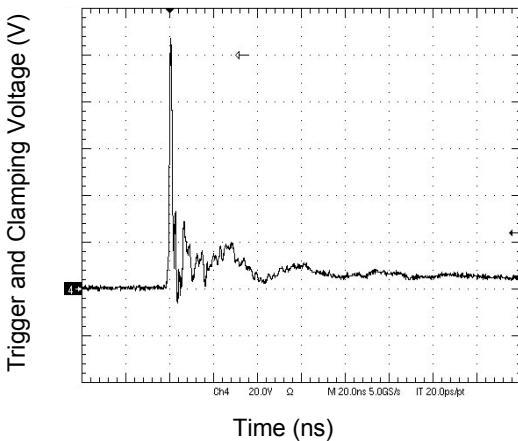
**Figure 2. Pulse Derating Curve**



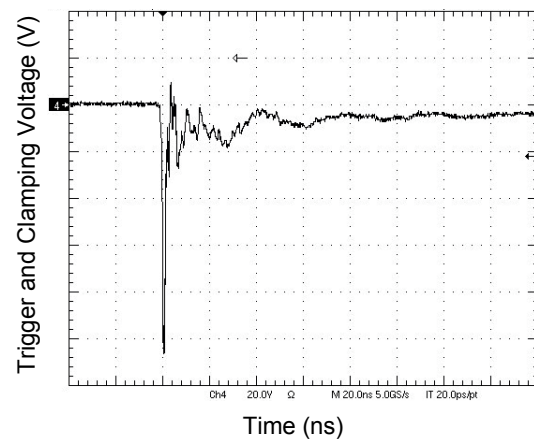
**Figure 3. Pulse Waveform - 8/20 µs**



**Figure 4. Pulse Waveform - ESD (IEC61000-4-2)**

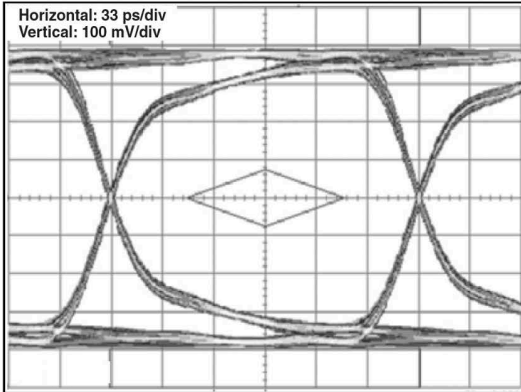


**Figure 5. IEC61000-4-2 +8kV Contact Discharge**

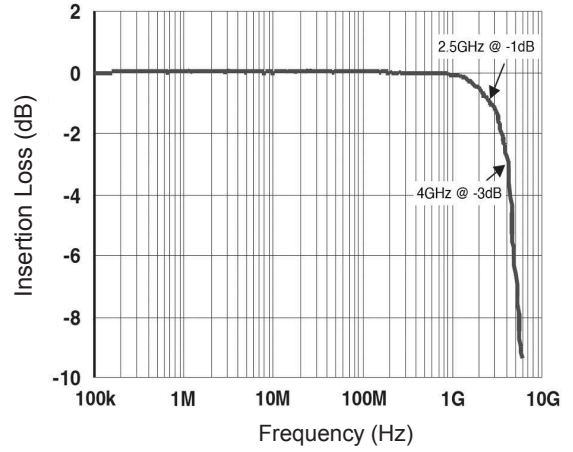


**Figure 6. IEC61000-4-2 -8kV Contact Discharge**

**Typical Characteristic Curves**

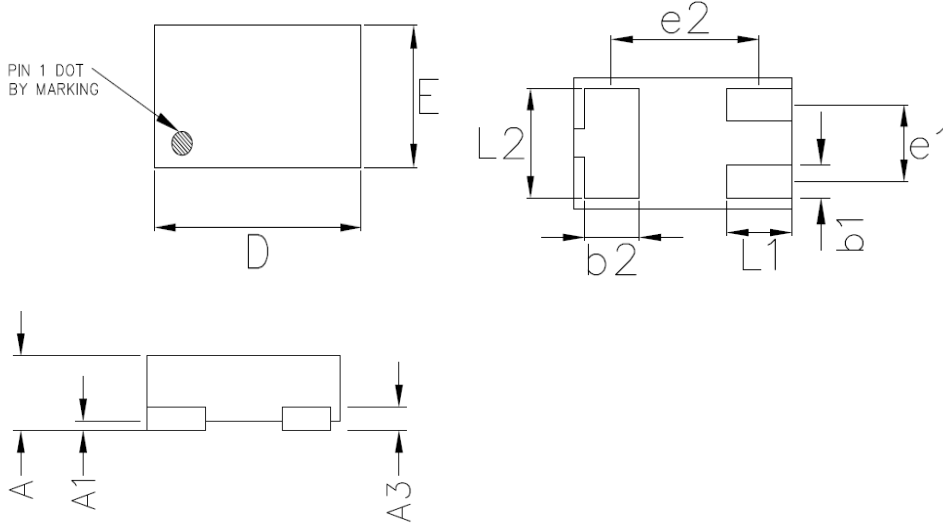


**Figure 7. Eye Diagram - USB3.0 mask at 5.0Gbps per channel (with GSEZ5U004)**



**Figure 8. Insertion Loss S21 - I/O to GND**

**Package Outline Dimensions (DFN1006-3L)**



| Symbol | Dimensions in millimeter |      | Dimensions in Inches |      |
|--------|--------------------------|------|----------------------|------|
|        | Min.                     | Max. | Min.                 | Max. |
| A      | 0.40                     | 0.50 | 0.02                 | 0.02 |
| A1     | 0.00                     | 0.05 | 0.00                 | 0.00 |
| A3     | 0.125 REF                |      | 0.005 REF            |      |
| D      | 0.95                     | 1.05 | 0.04                 | 0.04 |
| E      | 0.55                     | 0.65 | 0.02                 | 0.03 |
| b1     | 0.10                     | 0.20 | 0.01                 | 0.01 |
| b2     | 0.20                     | 0.30 | 0.01                 | 0.01 |
| L1     | 0.20                     | 0.40 | 0.01                 | 0.02 |
| L2     | 0.40                     | 0.60 | 0.02                 | 0.02 |
| e1     | 0.350 BSC                |      | 0.014 BSC            |      |
| e2     | 0.675 BSC                |      | 0.027 BSC            |      |

**Order Information**

| Device    | Package    | Marking | Carrier     | Quantity         |
|-----------|------------|---------|-------------|------------------|
| GSEZ5U004 | DFN1006-3L | L       | Tape & Reel | 10,000pcs / Reel |