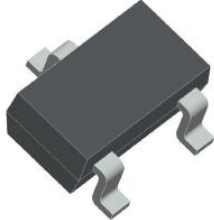
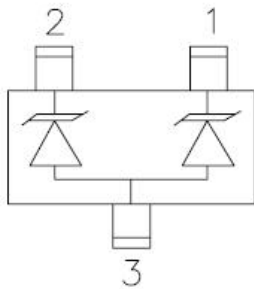


SOT-523



Circuit Diagram



Description

The NZL6V8AXV3T1G-CN is ultra low capacitance TVS arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from over voltage caused by ESD (electrostatic discharge), CD(Cable Discharge Events), and EFT (electrical fast transients).

The NZL6V8AXV3T1G-CN has a typical capacitance of only 0.50pF (pin 1 to 2). This means it can be used on circuits operating in excess of 3GHz without signal attenuation. They may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge). Each device can be configured to protect 1 bidirectional line or two unidirectional lines.

These devices are in a small SOT-523 package. They are designed for use in applications where board space is at a premium.

Applications

- High Definition Multi-Media Interface (HDMI)
- Mobile Display Digital Interface (MDDI)
- RF/Antenna Circuits
- USB 2.0 & Firewire Ports
- GaAs Photodetector Protection
- HBT Power Amp Protection
- Infiniband Transceiver Protection

Mechanical Characteristics

- SOT-523 package
- RoHS/WEEE Compliant
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel per EIA 481

Features

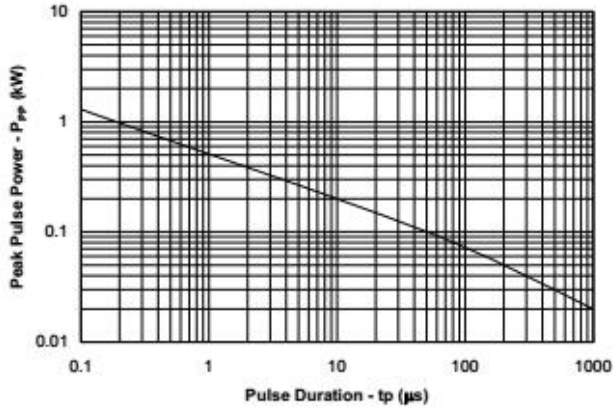
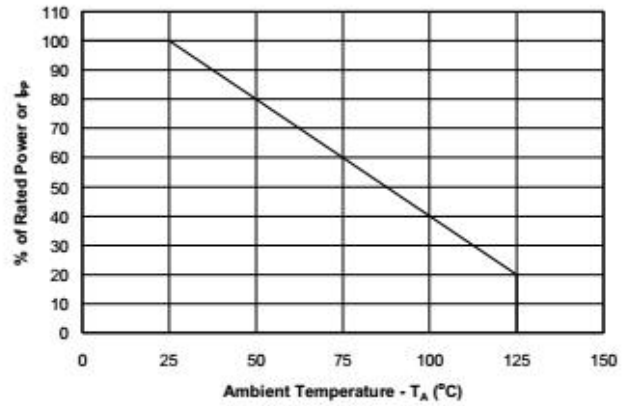
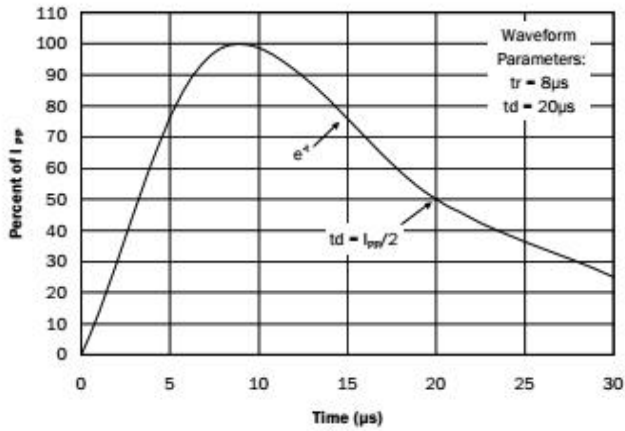
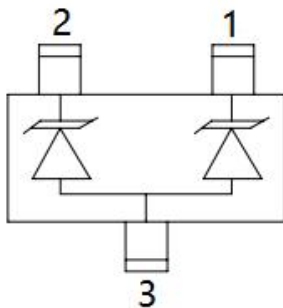
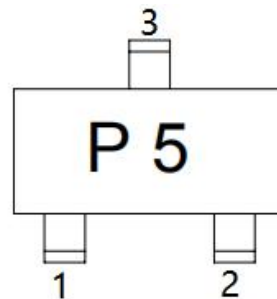
- Transient protection for high-speed data lines to IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact) IEC 61000-4-4 (EFT) 40A (5/50ns)
- Designed to replace polymer TVS
- Protects up to two I/O lines
- Ultra-Low capacitance ($< 1\text{pF}$)
- No insertion loss to $> 3.0\text{GHz}$
- Low profile ($< 1\text{mm}$)
- Low leakage current and clamping voltage
- Low operating voltage: 5.0V

Maximum Ratings

| Characteristics | Symbol | Max. | Units |
|--------------------------------|------------------|-------------|-------|
| Peak Pulse Power (tp=8/20us) | P _{PK} | 125 | Watts |
| Peak Pulse Current (tp=8/20us) | I _{PP} | 5 | A |
| ESD per IEC61000-4-2 (air) | V _{ESD} | 15 | KV |
| ESD per IEC61000-4-2 (contact) | | 8 | |
| Operating Temperature | T _J | -55 to +125 | °C |
| Storage Temperature | T _{STG} | -55 to +150 | °C |

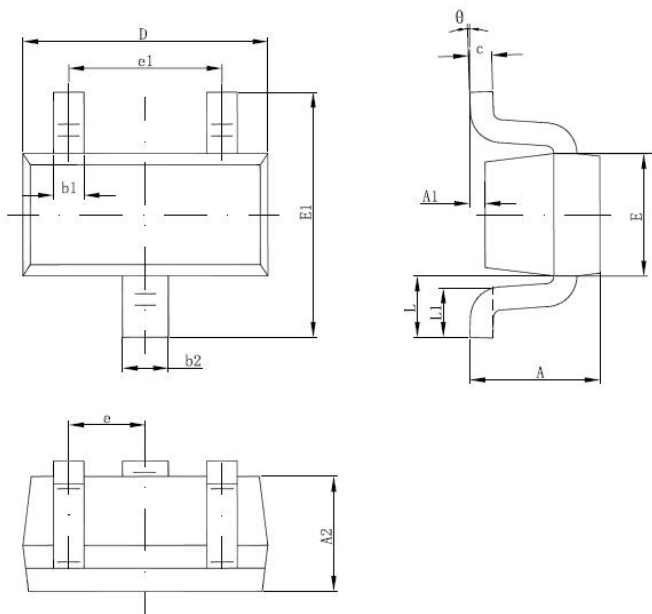
Electrical Characteristics(T=25°C unless otherwise specified)

| Characteristics | Symbol | Condition | Min. | Typ. | Max. | Units |
|---------------------------|------------------|--|------|------|------|-------|
| Reverse Stand-Off Voltage | V _{RWM} | Pin 1 or Pin 2 to Pin 3 and Between Pins 1 and 2 | - | - | 5 | V |
| Reverse Breakdown Voltage | V _{BR} | @ I _t =1mA Pin 1 or Pin 2 to Pin 3 and Between Pins 1 and 2 | 6 | - | - | V |
| Reverse Leakage Current | I _R | @V _{RWM} = 5V, T = 25 °C Pin 1 or Pin 2 to Pin 3 and Between Pins 1 and 2 | - | - | 1 | μA |
| Clamping Voltage | V _C | @I _{PP} = 1A, tp=8/20μs Pin 1 and Pin 2 | - | - | 15 | V |
| Clamping Voltage | V _C | @I _{PP} = 5A, tp=8/20μs Pin 1 or Pin 2 to Pin 3 | - | - | 22 | V |
| Clamping Voltage | V _C | @I _{PP} = 5A, tp=8/20μs Pin 1 to Pin 2 | - | - | 25 | V |
| Junction Capacitance | C _j | @V _R = 0V, f _{SIG} = 1MHz Pin 1 to Pin 2 | - | 0.6 | 0.9 | pF |
| Junction Capacitance | C _j | @V _R = 0V, f _{SIG} = 1MHz Pin 1 or Pin 2 to Pin 3 | - | - | 1.2 | pF |

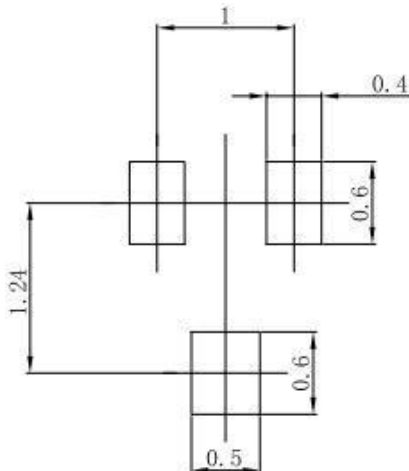
Ratings and Characteristics Curves
Non-Repetitive Peak Pulse Power vs. Pulse Time

Power Derating Curve

Pulse Waveform

Pin Configuration

Marking Diagram


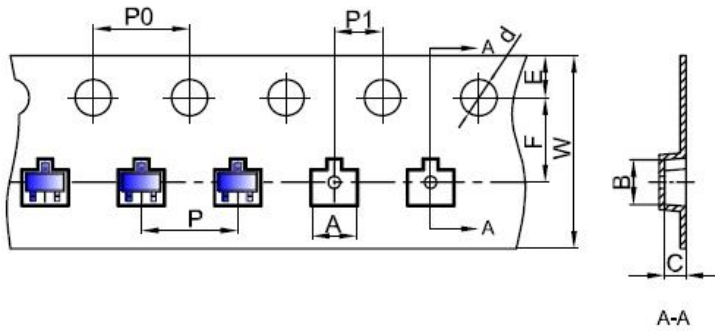
Ordering Information

| Device | Package | Shipping |
|------------------|---------|---------------|
| NZL6V8AXV3T1G-CN | SOT-523 | 3000 pcs/reel |

Mechanical Dimensions SOT-523


| SYMBOL | Millimeters | | Inches | |
|--------|-------------|-------|------------|-------|
| | MIN. | MAX. | MIN. | MAX. |
| A | 0.700 | 0.900 | 0.028 | 0.035 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.700 | 0.800 | 0.028 | 0.031 |
| b1 | 0.150 | 0.250 | 0.006 | 0.010 |
| b2 | 0.250 | 0.350 | 0.010 | 0.014 |
| c | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 1.500 | 1.700 | 0.059 | 0.067 |
| E | 0.700 | 0.900 | 0.028 | 0.035 |
| E1 | 1.450 | 1.750 | 0.057 | 0.069 |
| e | 0.500 TYP. | | 0.020 TYP. | |
| e1 | 0.900 | 1.100 | 0.035 | 0.043 |
| L | 0.400 REF. | | 0.016 REF. | |
| L1 | 0.260 | 0.460 | 0.010 | 0.018 |
| θ | 0° | 8° | 0° | 8° |

Soldering Pad Layout (Millimeters)


Carrier Tape Specification SOT-523


| SYMBOL | Millimeters | |
|--------|-------------|-------|
| | Min. | Max. |
| A | 1.80 | 1.90 |
| B | 1.80 | 1.90 |
| C | 0.825 | 0.925 |
| d | 1.40 | 1.60 |
| E | 1.65 | 1.85 |
| F | 3.40 | 3.60 |
| P | 3.90 | 4.10 |
| P0 | 3.90 | 4.10 |
| P1 | 1.90 | 2.10 |
| W | 7.90 | 8.30 |

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