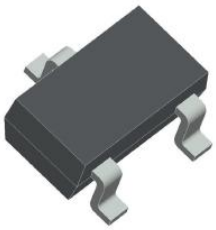
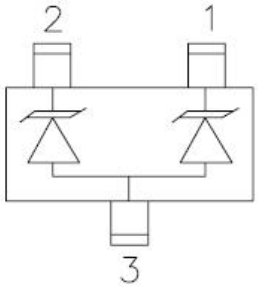
SOT-523



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 (±15kV air, ±8kV 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

Features

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

Mechanical Characteristics

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

Maximum Ratings

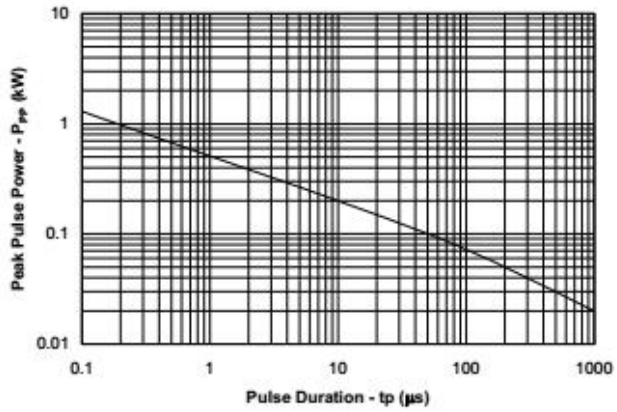
Characteristics	Symbol	Max.	Units
Peak Pulse Power (tp=8/20us)	P_{PK}	125	Watts
Peak Pulse Current (tp=8/20us)	I_{PP}	5	A
ESD per IEC61000-4-2 (air) ESD per IEC61000-4-2 (contact)	V_{ESD}	15 8	KV
Operating Temperature	T_J	-55 to +125	℃
Storage Temperature	T_{STG}	-55 to +150	℃

Electrical Characteristics(T=25℃ unless otherwise specified)

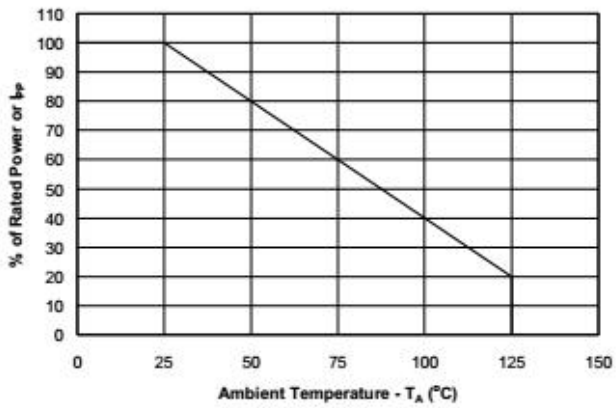
Characteristics	Symbol	Condition	Min.	Typ.	Max.	Units
Reverse Stand-Off Voltage	V_{RWM}	Pin 1 or Pin 2 to Pin 3 and Between Pins 1 and 2	-	-	5	V
Reverse Breakdown Voltage	V_{BR}	@ I_t=1mA Pin 1 or Pin 2 to Pin 3 and Between Pins 1 and 2	6	-	-	V
Reverse Leakage Current	I_R	@V_{RWM} = 5V, T = 25 ℃ Pin 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

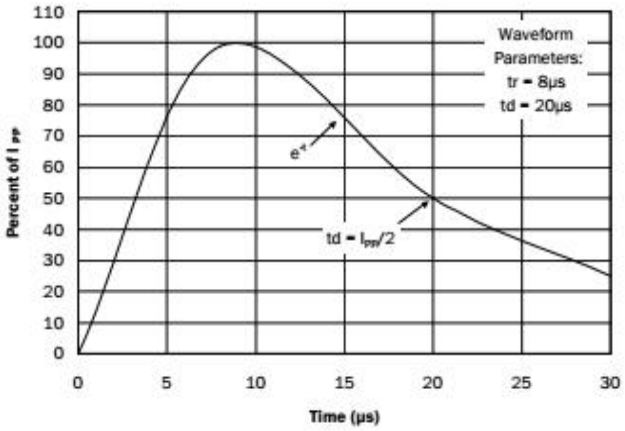
Non-Repetitive Peak Pulse Power vs. Pulse Time



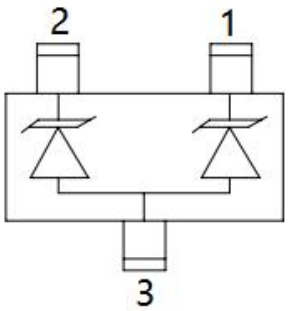
Power Derating Curve



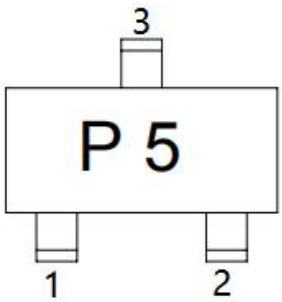
Pulse Waveform



Pin Configuration



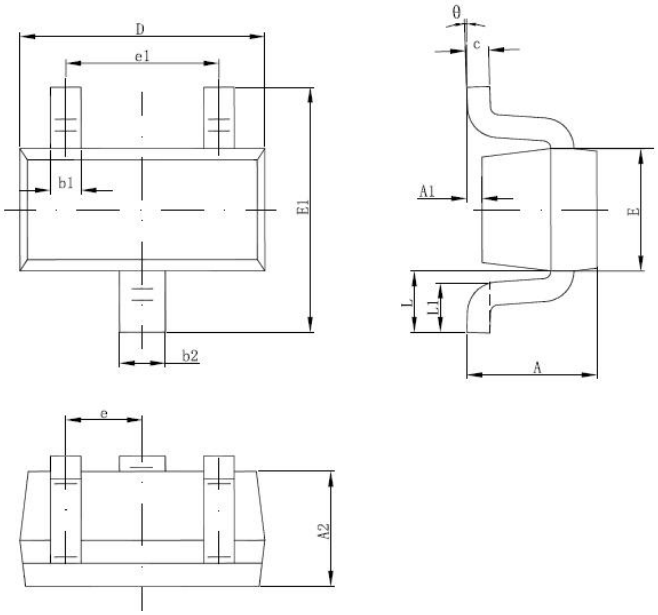
Marking Diagram



Ordering Information

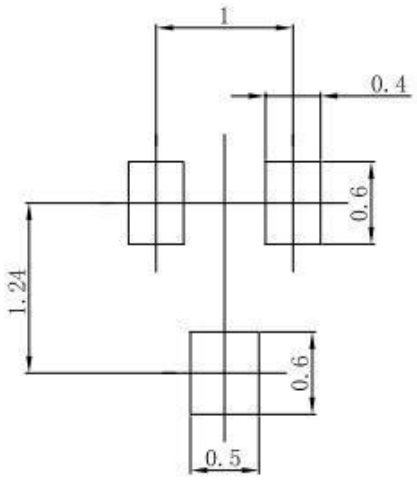
Device	Package	Shipping
NZL6V8AXV3T1G-CN	SOT-523	3000 pcs/reel

Mechanical Dimensions SOT-523

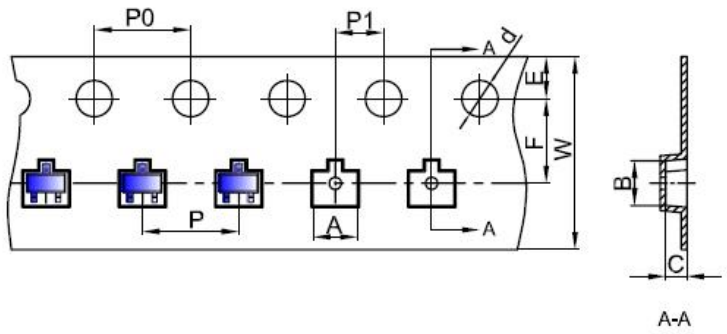


SYMBOL	Millimeters		Inches	
	MIN.	MAX.	MIN.	MAX.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		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