

# NZL5V6ATT1

## SC75 Dual Common Anode Zener for ESD Protection

This dual monolithic silicon voltage suppressor is designed for applications requiring transient overvoltage protection capability. It is intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment, and other applications. Its dual junction common anode design protects four separate lines using only one package.

These devices are ideal for situations where board space is at a premium.

### Specification Features

- SC-75 Package Allows Two Separate Unidirectional Configurations
- Low Leakage < 1  $\mu\text{A}$  @ 3 V
- Breakdown Voltage: 5.3 – 5.9 V @ 1 mA
- Low Capacitance (40 pF typical between terminals)
- ESD Protection Meeting IEC61000-4-2
- Pb-Free Package is Available

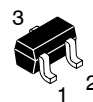
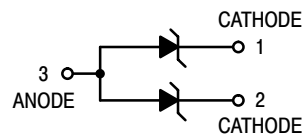
### Mechanical Characteristics

- Void Free, Transfer-Molded, Thermosetting Plastic Case
- Corrosion Resistant Finish, Easily Solderable
- Package Designed for Optimal Automated Board Assembly
- Small Package Size for High Density Applications



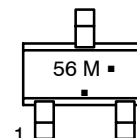
ON Semiconductor®

<http://onsemi.com>



SC-75  
CASE 463  
STYLE 4

### MARKING DIAGRAM



- 56 = Device Code
- M = Date Code\*
- = Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation may vary depending upon manufacturing location.

### ORDERING INFORMATION

Device	Package	Shipping†
NZL5V6ATT1	SC-75	3000/Tape & Reel
NZL5V6ATT1G	SC-75 (Pb-Free)	3000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

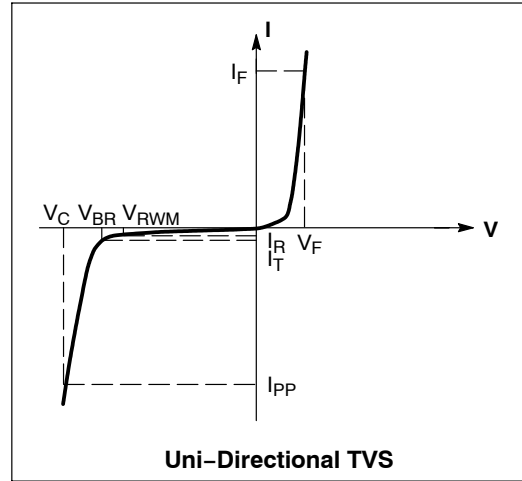
# NZL5V6ATT1

## ELECTRICAL CHARACTERISTICS

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

### UNIDIRECTIONAL (Circuit tied to Pins 1 and 3, or 2 and 3)

Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$\Theta V_{BR}$	Maximum Temperature Coefficient of $V_{BR}$
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$
$Z_{ZT}$	Maximum Zener Impedance @ $I_{ZT}$
$I_{ZK}$	Reverse Current
$Z_{ZK}$	Maximum Zener Impedance @ $I_{ZK}$



### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Value	Unit
Steady State Power – 1 Diode (Note 1)	$P_D$	150	mW
Maximum Junction Temperature	$T_{Jmax}$	150	$^\circ\text{C}$
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$
ESD Discharge IEC61000-4-2, Air Discharge IEC61000-4-2, Contact Discharge	$V_{PP}$	$\pm 15$ $\pm 8$	kV
Lead Solder Temperature (10 seconds duration)	$T_L$	260	$^\circ\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. Only 1 diode under power. For all 4 diodes under power,  $P_D$  will be 25%. Mounted on FR-4 board with min pad.

## ELECTRICAL CHARACTERISTICS

Device	Breakdown Voltage $V_{BR}$ @ 1 mA (V)			Leakage Current $I_{RM}$ @ $V_{RM} = 3.0$ V ( $\mu\text{A}$ )	$V_C$ @ $I_{PP}$ (Note 2)		Typical Capacitance @ 0 V Bias @ 1 MHz (pF)	Max $V_F$ @ $I_F = 10$ mA (V)
	Min	Nom	Max		$V_C$ (V)	$I_{PP}$ (A)		
NZL5V6	5.3	5.6	5.9	1.0	9.97	6.11	40	1.25

2. Surge current waveform per Figure 2 and clamping voltage ( $V_C$ ) per Figure 6.

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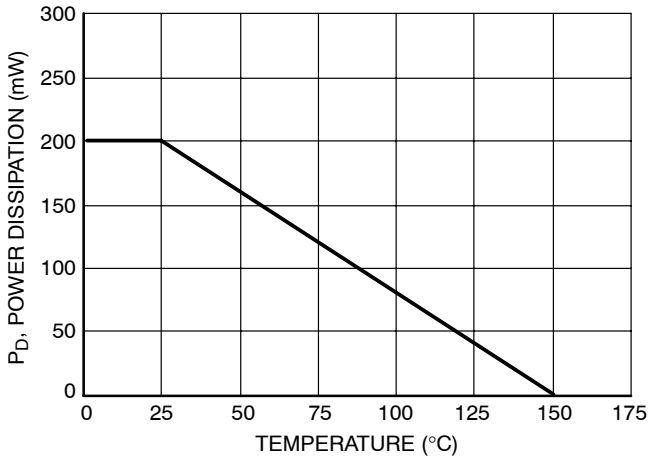


Figure 1. Steady State Power Derating Curve

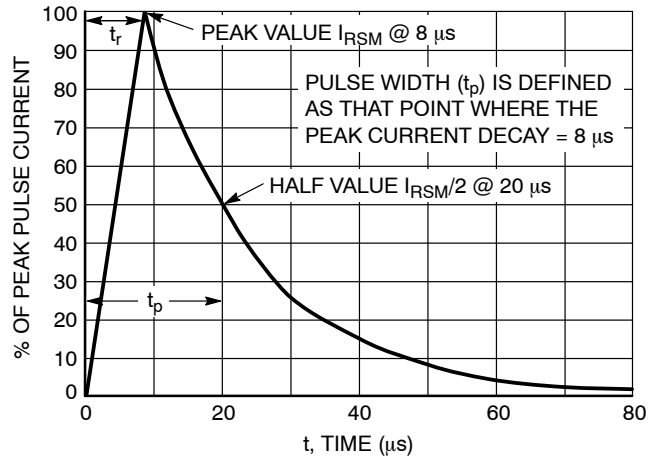


Figure 2. 8 X 20  $\mu$ s Pulse Waveform

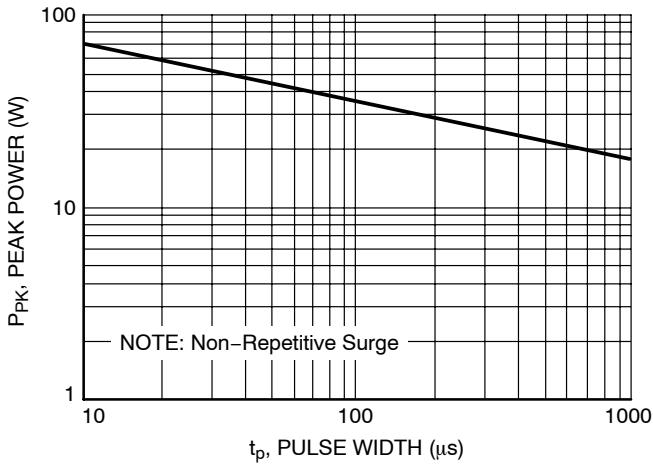


Figure 3. Pulse Rating Curve

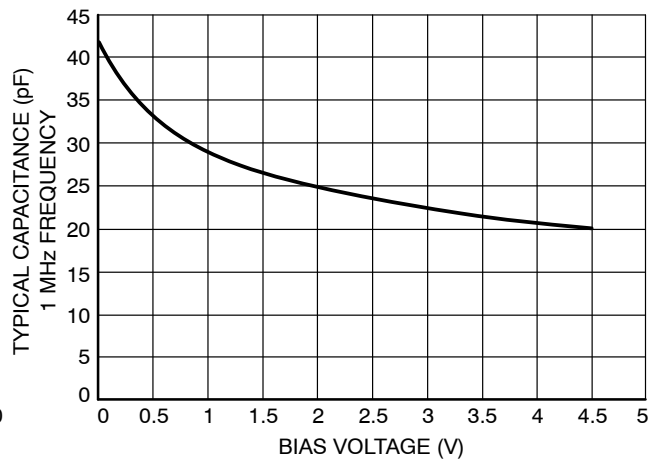


Figure 4. Capacitance

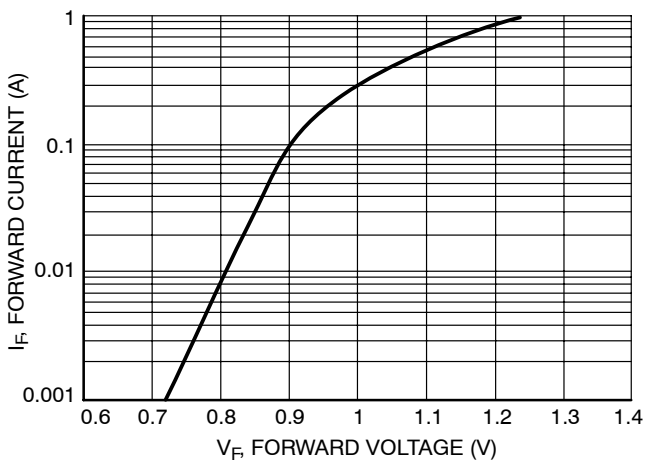


Figure 5. Forward Current versus Forward Voltage

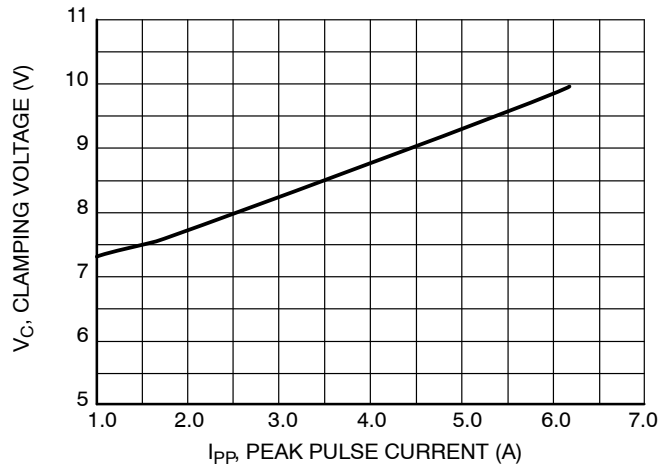
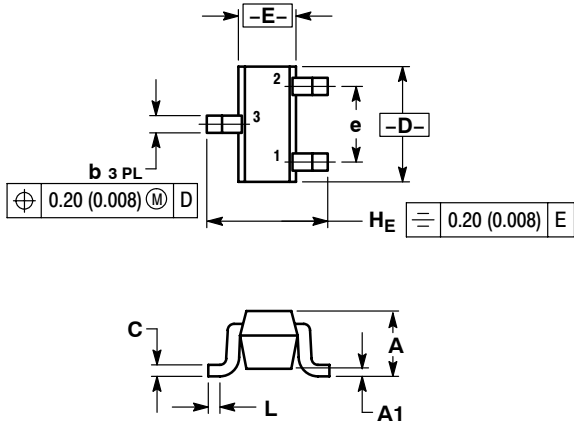


Figure 6. Clamping Voltage versus Peak Pulse Current (8 x 20  $\mu$ s Pulse)

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## PACKAGE DIMENSIONS

SC-75/SOT-416  
CASE 463-01  
ISSUE F

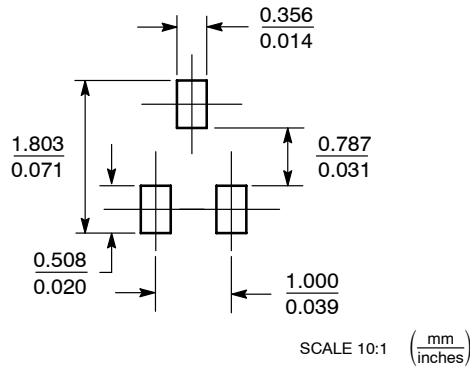


- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: MILLIMETER.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.80	0.90	0.027	0.031	0.035
A1	0.00	0.05	0.10	0.000	0.002	0.004
b	0.15	0.20	0.30	0.006	0.008	0.012
C	0.10	0.15	0.25	0.004	0.006	0.010
D	1.55	1.60	1.65	0.059	0.063	0.067
E	0.70	0.80	0.90	0.027	0.031	0.035
e	1.00 BSC			0.04 BSC		
L	0.10	0.15	0.20	0.004	0.006	0.008
H <sub>E</sub>	1.50	1.60	1.70	0.061	0.063	0.065

- STYLE 4:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE

### SOLDERING FOOTPRINT\*



\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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