

NZL5V6AM3T5G Series

Preferred Devices

Product Preview

Zener Voltage Regulators

SOT-723 Dual Common Anode Zeners for ESD Protection

These dual monolithic silicon Zener diodes are designed for applications requiring ESD protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment and other applications. Their dual junction common anode design protects two separate lines using only one package. These devices are ideal for situations where board space is at a premium.

Specification Features:

- SOT-723 Package Allows Either Two Separate Unidirectional Configurations or a Single Bidirectional Configuration
- Standard Zener Breakdown Voltage Ranges
- ESD Rating of Class N (exceeding 16 kV) per the Human Body Model and IEC61000-4-2 – Level 4
- Low Leakage < 5.0 μ A
- These are Pb-Free Devices

Mechanical Characteristics:

CASE: Void-free, transfer-molded, thermosetting plastic
Epoxy Meets UL 94, V-0

LEAD FINISH: 100% Matte Sn (Tin)

MOUNTING POSITION: Any

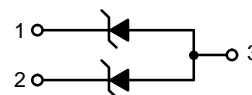
QUALIFIED MAX REFLOW TEMPERATURE: 260°C
Device Meets MSL 1 Requirements



ON Semiconductor®

<http://onsemi.com>

PIN 1. CATHODE
2. CATHODE
3. ANODE



SOT-723
CASE 631AA
STYLE 4

MARKING DIAGRAM



xx = Device Code
M = Date Code

ORDERING INFORMATION

Device	Package	Shipping†
NZL5V6AM3T5G	SOT-723	8000/Tape & Reel
NZL6V8AM3T5G	SOT-723	8000/Tape & Reel
NZL7V5AM3T5G	SOT-723	8000/Tape & Reel

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

DEVICE MARKING INFORMATION

See specific marking information in the device marking column of the table on page 2 of this data sheet.

Preferred devices are recommended choices for future use and best overall value.

This document contains information on a product under development. ON Semiconductor reserves the right to change or discontinue this product without notice.

NZL5V6AM3T5G Series

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Total Power Dissipation on FR-5 Board (Note 1) @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	240 1.9	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	525	$^\circ\text{C/W}$
Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260	$^\circ\text{C}$

1. FR-5 board with minimum recommended mounting pad.

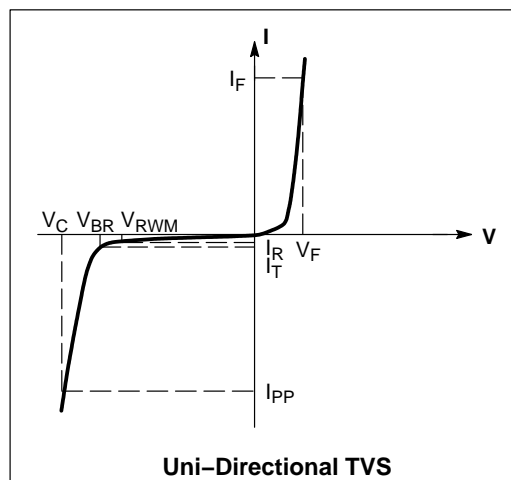
*Other voltages may be available upon request

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
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
ΘV_{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}



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 0.9\text{ V Max}$ @ $I_F = 10\text{ mA}$ for all types)

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

Device	Device Marking	V_{RWM} Volts	I_R @ V_{RWM} μA	Breakdown Voltage			Zener Impedance			
				V_{BR} (Note 2) (V)			@ I_{ZT} mA	Z_{ZT} @ I_{ZT} Ω	Z_{ZK} @ I_{ZK} Ω	Z_{ZK} @ I_{ZK} mA
				Min	Nom	Max				
NZL5V6AM3T5G	L0	3.0	1.0	5.32	5.6	5.88	5.0	50	100	0.5
NZL6V8AM3T5G	L2	4.0	0.1	6.46	6.8	7.14	5.0	30	100	0.5
NZL7V5AM3T5G	L3	5.0	0.1	7.12	7.5	7.88	5.0	30	60	0.5

2. V_{BR} measured at pulse test current I_T at an ambient temperature of 25°C .

3. Z_{ZT} and Z_{ZK} are measured by dividing the AC voltage drop across the device by the AC current applied. The specified limits are for $I_{Z(AC)} = 0.1 I_{Z(DC)}$, with the AC frequency = 1.0 kHz.

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TYPICAL CHARACTERISTICS

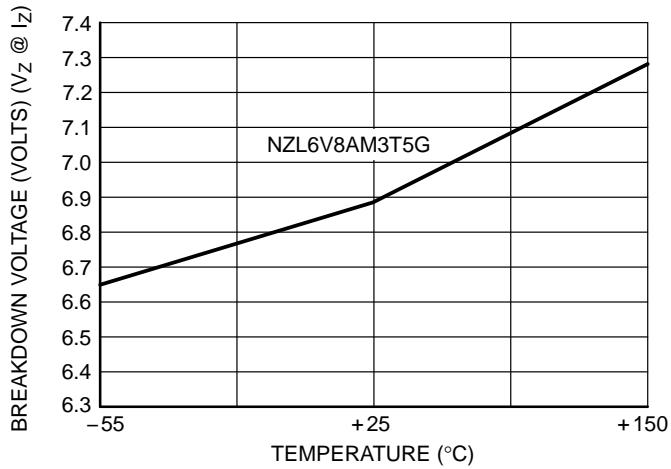


Figure 1. Typical Breakdown Voltage versus Temperature

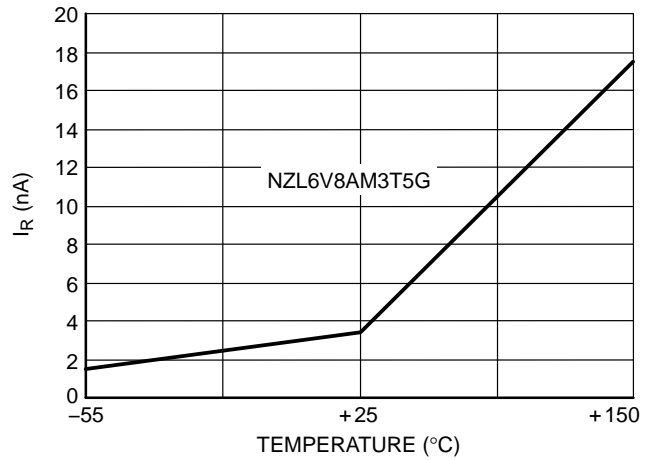


Figure 2. Typical Leakage Current versus Temperature

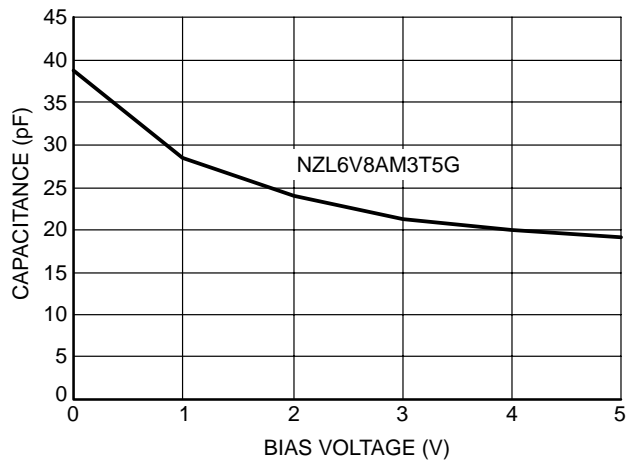


Figure 3. Typical Capacitance versus Bias Voltage

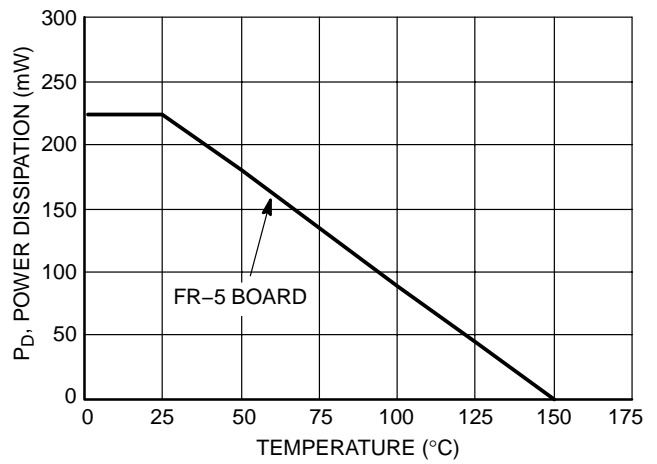


Figure 4. Steady State Power Derating Curve

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TYPICAL COMMON ANODE APPLICATIONS

A dual junction common anode design in an SOT-723 package protects two separate lines using only one package. This adds flexibility and creativity to PCB design especially when board space is at a premium. Two simplified examples of TVS applications are illustrated below.

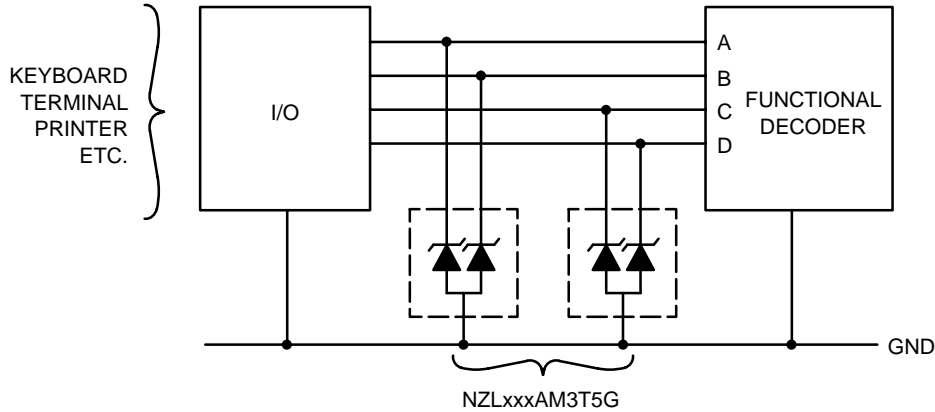


Figure 5. Computer Interface Protection

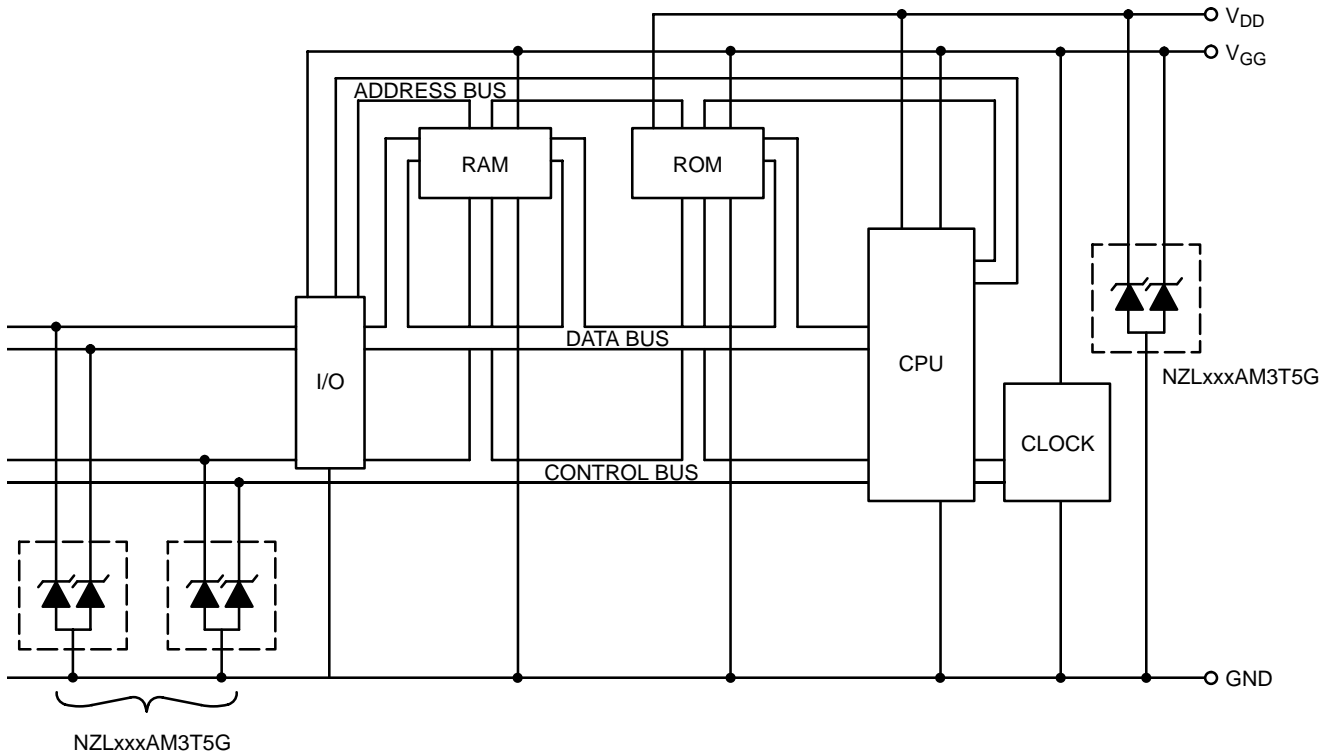
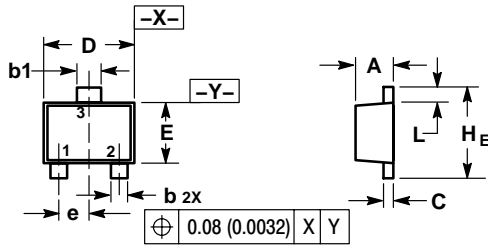


Figure 6. Microprocessor Protection

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PACKAGE DIMENSIONS

SOT-723
CASE 631AA-01
ISSUE A



NOTES:

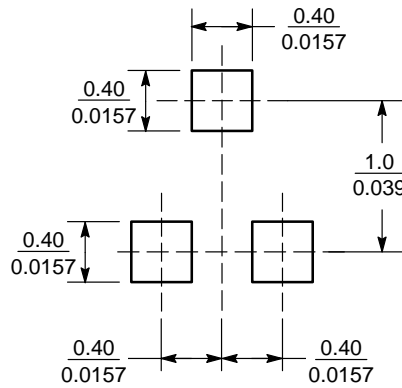
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
b	0.15	0.20	0.27	0.0059	0.0079	0.0106
b1	0.25	0.3	0.35	0.010	0.012	0.014
C	0.07	0.12	0.17	0.0028	0.0047	0.0067
D	1.15	1.20	1.25	0.045	0.047	0.049
E	0.75	0.80	0.85	0.03	0.032	0.034
e	0.40 BSC			0.016 BSC		
H E	1.15	1.20	1.25	0.045	0.047	0.049
L	0.15	0.20	0.25	0.0059	0.0079	0.0098

STYLE 4:

- PIN 1. CATHODE
- CATHODE
- ANODE

SOLDER FOOTPRINT*




SCALE 20:1 (mm / inches)

SOT-723

*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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