

# Zener Voltage Regulators

## 500 mW SOD-323 Surface Mount

- We declare that the material of product compliance with RoHS requirements.

### ORDERING INFORMATION

Device*	Package	Shipping
LM3Z5V1PT1G	SOD-323	3000/Tape&Reel
LM3Z5V1PT3G	SOD-323	10000/Tape&Reel

This Zener diode is packaged in a SOD-323 surface mount package that has a power dissipation of 500 mW. The LM3Z5V1PT1G is designed to provide voltage regulation protection and is especially attractive in situations where space is at a premium. It is well suited for applications such as cellular phones, hand held portables, and high density PC boards.

### Specification Features:

- Steady State Power Rating of 500 mW
- Small Body Outline Dimensions: 0.067" x 0.049"(1.7 mm x 1.25 mm)
- Low Body Height: 0.035" (0.9 mm)
- Package Weight: 4.507 mg/unit
- ESD Rating of Class 3 (>16 kV) per Human Body Model
- Pb-Free package is available.

### Mechanical Characteristics:

**CASE:** Void-free, transfer-molded plastic

**FINISH:** All external surfaces are corrosion resistant

### MAXIMUM CASE TEMPERATURE FOR SOLDERING PURPOSES:

260°C for 10 Seconds

**POLARITY:** Cathode indicated by polarity band

**FLAMMABILITY RATING:** UL94 V-0

**MOUNTING POSITION:** Any

### MAXIMUM RATINGS

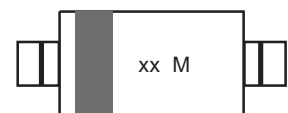
Rating	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (Note 1.) @ TA = 25°C	P <sub>b</sub>	500	mW
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to+150	°C

1. FR-4 Minimum Pad

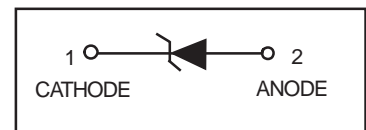
## LM3Z5V1PT1G



### MARKING DIAGRAM



xx = Specific Device Code  
M = Date Code



LM3Z5V1PT1G

**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)

Symbol	Parameter
$V_Z$	Reverse Zener Voltage @ $I_{ZT}$
$I_{ZT}$	Reverse Current
$Z_{ZT}$	Maximum Zener Impedance @ $I_{ZT}$
$I_{ZK}$	Reverse Current
$Z_{ZK}$	Maximum Zener Impedance @ $I_{ZK}$
$I_R$	Reverse Leakage Current @ $V_R$
$V_R$	Reverse Voltage
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$
$\Theta V_Z$	Maximum Temperature Coefficient of $V_Z$
C	Max. Capacitance @ $V_R = 0$ and $f = 1\text{ MHz}$



LM3Z5V1PT1G

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

Device	Device Marking	Zener Voltage (Note 2.)				Zener Impedance			Leakage Current		$\theta V_Z$ (mV/k) @ $I_{ZT}$		C @ $V_R = 0$ f = 1 MHz
		$V_Z$ (Volts)			@ $I_{ZT}$	$Z_{ZT}$ @ $I_{ZT}$	$Z_{ZK}$ @ $I_{ZK}$		$I_R$ @ $V_R$		Min	Max	
		Min	Nom	Max	mA	$\Omega$	$\Omega$	mA	$\mu\text{A}$	Volts			pF
LM3Z5V1PT1G	0A	4.8	5.1	5.4	5	60	800	0.5	2	2.0	-2.7	1.2	225

2. Zener voltage is measured with a pulse test current  $I_Z$  at an ambient temperature of  $25^\circ\text{C}$ .

Typical Characteristics

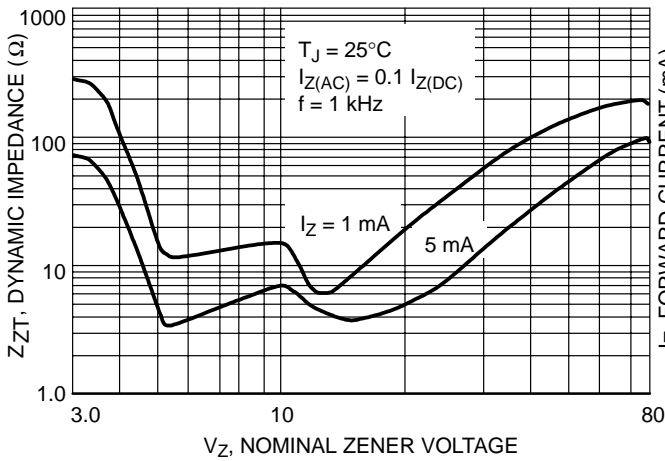


Figure 1. Effect of Zener Voltage on Zener Impedance

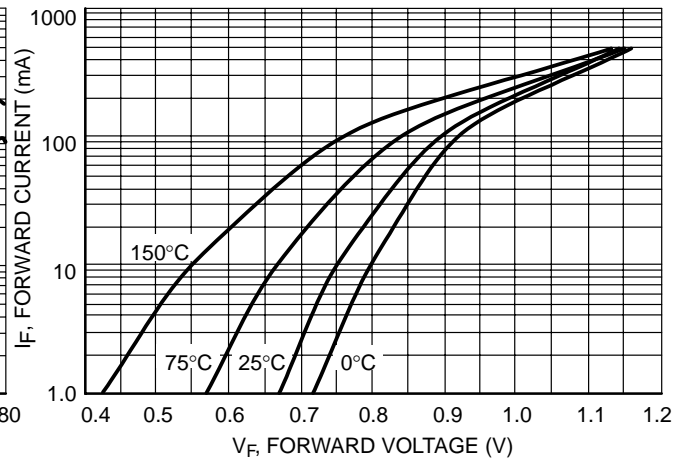


Figure 2. Typical Forward Voltage

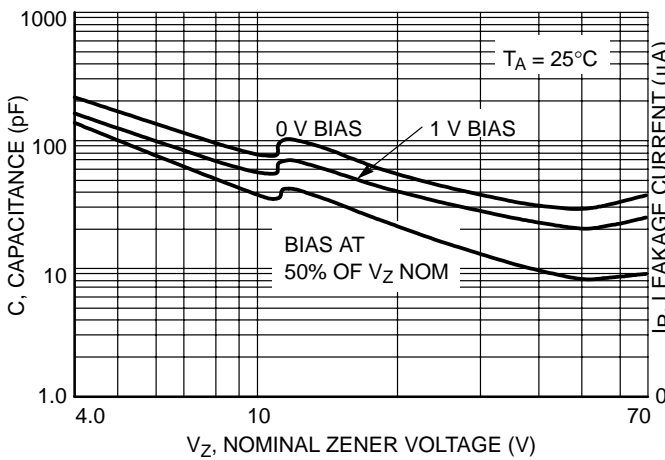


Figure 3. Typical Capacitance

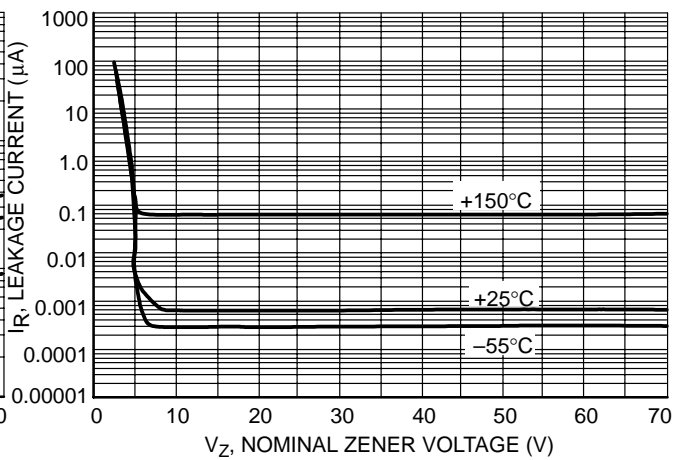
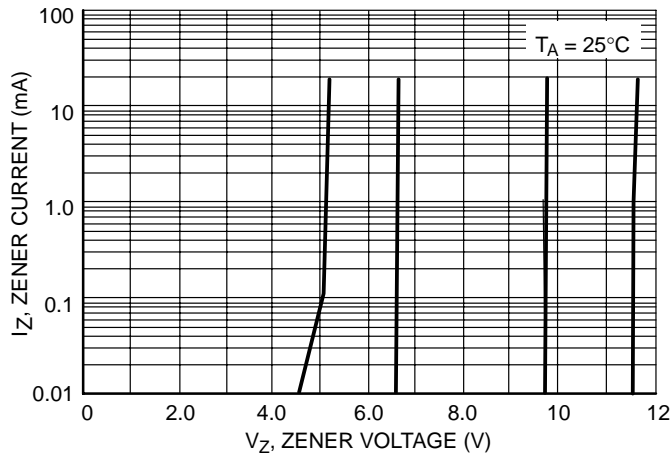


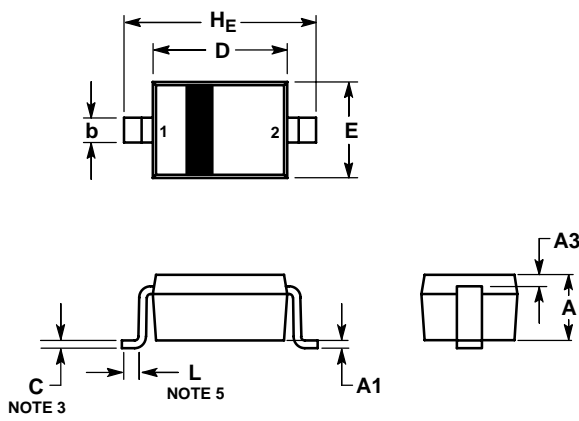
Figure 4. Typical Leakage Current

**Typical Characteristics**

**Figure 5. Zener Voltage versus Zener Current  
( $V_Z$  Up to 12 V)**

LM3Z5V1PT1G

PACKAGE DIMENSIONS  
SOD-323



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: MILLIMETERS.
  3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
  4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
  5. DIMENSION L IS MEASURED FROM END OF RADIUS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.031	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A3	0.15 REF			0.006 REF		
b	0.25	0.32	0.4	0.010	0.012	0.016
C	0.089	0.12	0.177	0.003	0.005	0.007
D	1.60	1.70	1.80	0.062	0.066	0.070
E	1.15	1.25	1.35	0.045	0.049	0.053
L	0.08			0.003		
HE	2.30	2.50	2.70	0.090	0.098	0.105

SOLDERING FOOTPRINT\*

