

200 mW SOD323  
Zener Voltage Regulator Diodes  
**GENERAL DATA APPLICABLE TO ALL  
SERIES IN THIS GROUP**  
**Zener Voltage  
Regulator Diodes**

**Manufacturing Locations:**

**WAFER FAB:** Phoenix, Arizona

**ASSEMBLY:** Leshan, China

**TEST:** Leshan, China

**MAXIMUM CASE TEMPERATURE FOR SOLDERING**

**PURPOSES:** 260°C for 10 seconds

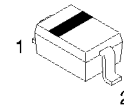
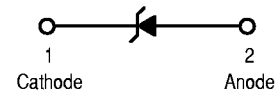
**ESD RATING:** Exceeding 16 kV per the Human Body Model

**AVAILABLE IN 8 MM TAPE AND REEL:**

3000 Unit per Reel for All Devices with T1 Suffix

**MM3Z2V4T1 SE-  
RIES**

200 MILLIWATTS  
SOD323



**CASE 477-02, STYLE 1  
SOD323**

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,* T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	200 1.57	mW mW/°C
Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	635	°C/W
Junction and Storage Temperature	T <sub>J</sub> , T <sub>stg</sub>	150	°C

\*FR-4 Minimum Pad

# GENERAL DATA — 200 mW SOD323

## ELECTRICAL CHARACTERISTICS ( $V_F = 0.9\text{ V Max @ } I_F = 10\text{ mA}$ for all types.)

Device	Marking	Test Current $I_{ZT}$ mA	Zener Voltage $V_Z (\pm 5\%)$ Nominal (Note 1)	$Z_{ZK}$ $I_Z = 0.5\text{ mA}$ $\Omega$ Max	$Z_{ZT}$ $I_Z = I_{ZT}$ @ 10% Mod $\Omega$ Max	Max $I_R$ @ $V_R$ $\mu\text{A}$ V		$dy/dt$ (mV/k) @ $I_{ZT1} = 5\text{ mA}$		C pF Max @ $V_R = 0$ f = 1 MHz
								Min	Max	
MM3Z2V4T1	00	5	2.4	1000	100	50	1	-3.5	0	450
MM3Z3V9T1	07	5	3.9	1000	90	3	1	-3.5	-2.5	450
MM3Z4V3T1	08	5	4.3	1000	90	3	1	-3.5	0	450
MM3Z4V7T1	09	5	4.7	800	80	3	2	-3.5	0.2	260
MM3Z5V1T1	0A	5	5.1	500	60	2	2	-2.7	1.2	225
MM3Z5V6T1	0C	5	5.6	200	40	1	2	-2.0	2.5	200
MM3Z6V2T1	0E	5	6.2	100	10	3	4	0.4	3.7	185
MM3Z6V8T1	0F	5	6.8	60	15	2	4	1.2	4.5	155
MM3Z7V5T1	0G	5	7.5	60	15	1	5	2.5	5.3	140
MM3Z8V2T1	0H	5	8.2	60	15	0.7	5	3.2	6.2	135
MM3Z9V1T1	0K	5	9.1	60	15	0.5	6	3.8	7.0	130
MM3Z10VT1	0L	5	10	60	20	0.2	7	4.5	8.0	130
MM3Z11VT1	0M	5	11	60	20	0.1	8	5.4	9.0	130
MM3Z12VT1	0N	5	12	80	25	0.1	8	6.0	10.0	130
MM3Z13VT1	0P	5	13	80	30	0.1	8	7.0	11.0	120
MM3Z15VT1	0T	5	15	80	30	0.05	10.5	9.2	13.0	110
MM3Z16VT1	0U	5	16	80	40	0.05	11.2	10.4	14.0	105
MM3Z18VT1	0W	5	18	80	45	0.05	12.6	12.4	16.0	100
MM3Z20VT1	0Z	5	20	100	55	0.05	14	14.4	18.0	85
MM3Z22VT1	10	5	22	100	55	0.05	15.4	16.4	20.0	85
MM3Z24VT1	11	5	24	120	70	0.05	16.8	18.4	22.0	80
Device	Marking	Test Current $I_{ZT}$ mA	Zener Voltage $V_Z (\pm 5\%)$ Nominal (Note 1)	$Z_{ZK}$ $I_Z = 0.5\text{ mA}$ $\Omega$ Max	$Z_{ZT}$ $I_Z = I_{ZT}$ @ 10% Mod $\Omega$ Max	Max $I_R$ @ $V_R$ $\mu\text{A}$ V		$dy/dt$ (mV/k) Below @ $I_{ZT1} = 2\text{ mA}$		C pF Max @ $V_R = 0$ f = 1 MHz
								Min	Max	
MM3Z27VT1	12	2	27	300	80	0.05	18.9	21.4	25.3	70
MM3Z75VT1	1G	2	75	500	255	0.05	52.5	73.4	88.6	35

NOTE 1. Zener voltage is measured with a pulse test current ( $I_{ZT}$ ) applied at an ambient temperature of 25°C.

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## TYPICAL CHARACTERISTICS

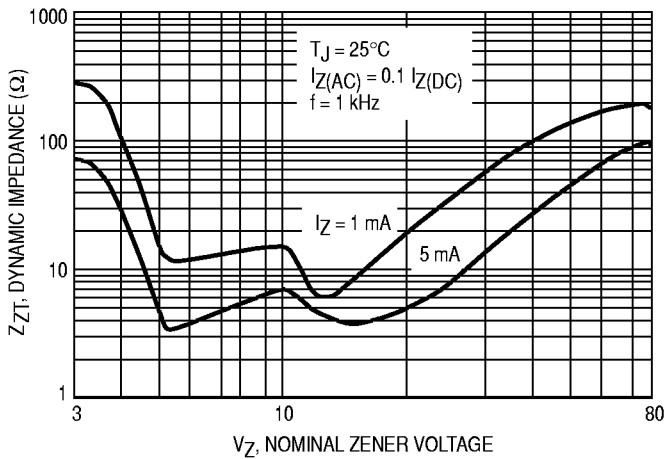


Figure 1. Effect of Zener Voltage on Zener Impedance

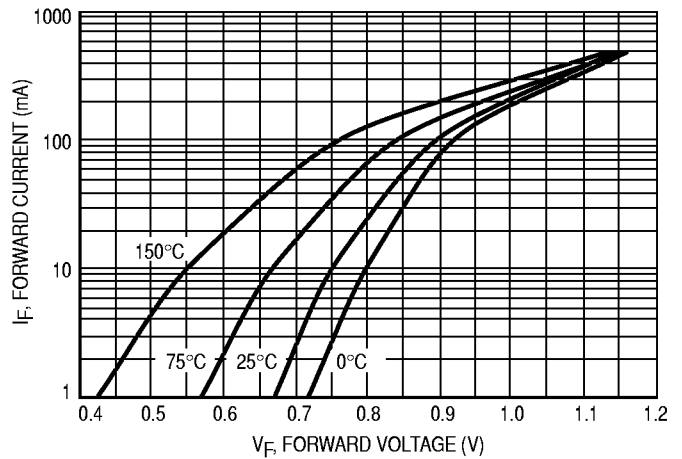


Figure 2. Typical Forward Voltage

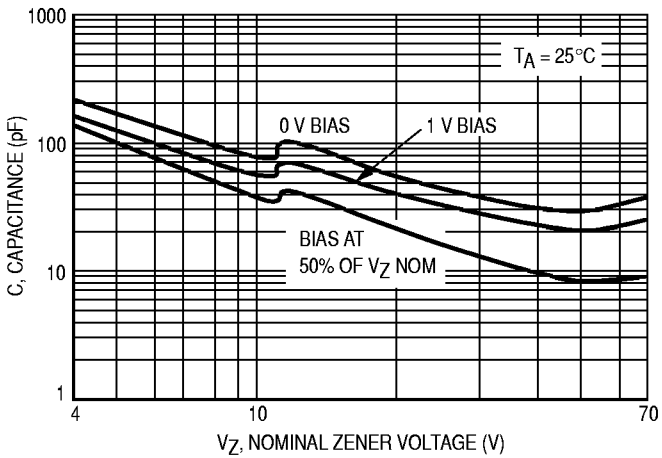


Figure 3. Typical Capacitance

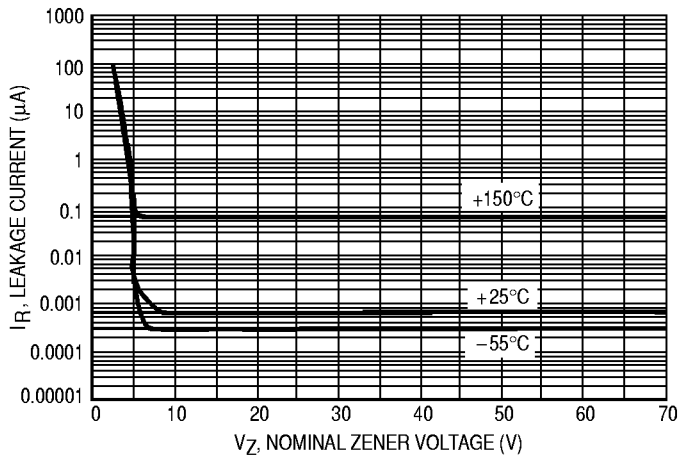


Figure 4. Typical Leakage Current

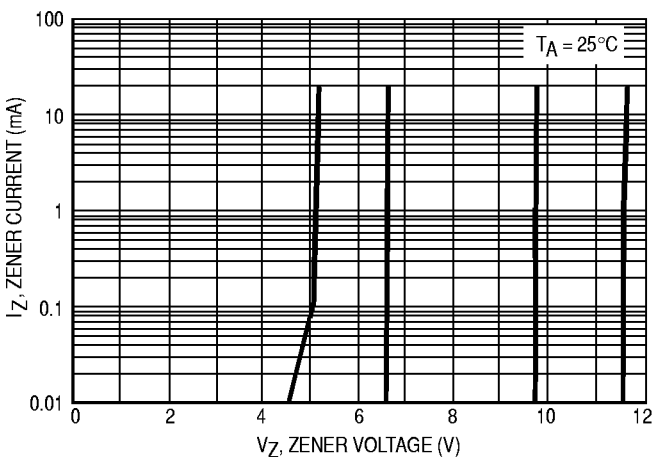


Figure 5. Zener Voltage versus Zener Current ( $V_Z$  Up to 12 V)

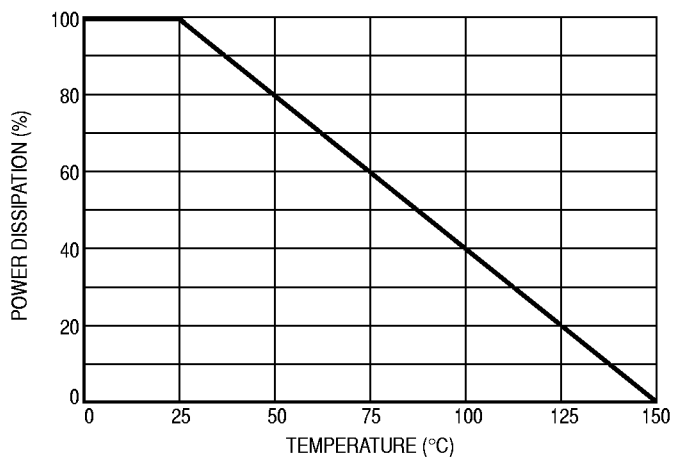
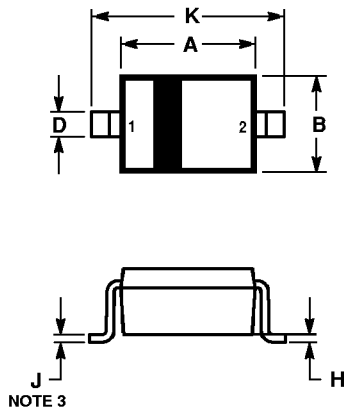


Figure 6. Steady State Power Derating

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## OUTLINE DIMENSIONS

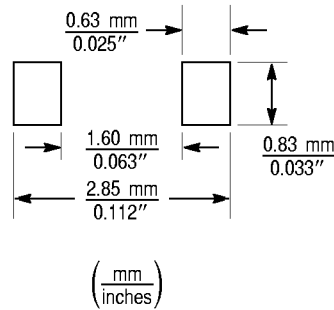


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: MILLIMETERS.
  3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.60	1.80	0.063	0.071
B	1.15	1.35	0.045	0.053
C	0.80	1.00	0.031	0.039
D	0.25	0.40	0.010	0.016
E	0.15 REF		0.006 REF	
H	0.00	0.10	0.000	0.004
J	0.089	0.177	0.0035	0.0070
K	2.30	2.70	0.091	0.106

STYLE 1:  
PIN 1. CATHODE  
2. ANODE

### CASE 477-02 ISSUE A SOD323



### SOD-323

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