

### Surface Mount Zener Diodes

#### Features:

- \*200mw Power Dissipation
- \*Ideal for Surface Mount Application
- \*Zener Breakdown Voltage Range 2.4V to 75V

#### Mechanical Data:

- \*Case : SOD-323 Molded plastic
- \*Terminals: Solderable per MIL-STD-202, Method 208
- \*Polarity: Cathode Indicated by Polarity Band
- \*Marking: Marking Code (See Table on Page 3)
- \*Weigh: 0.004grams(approx)

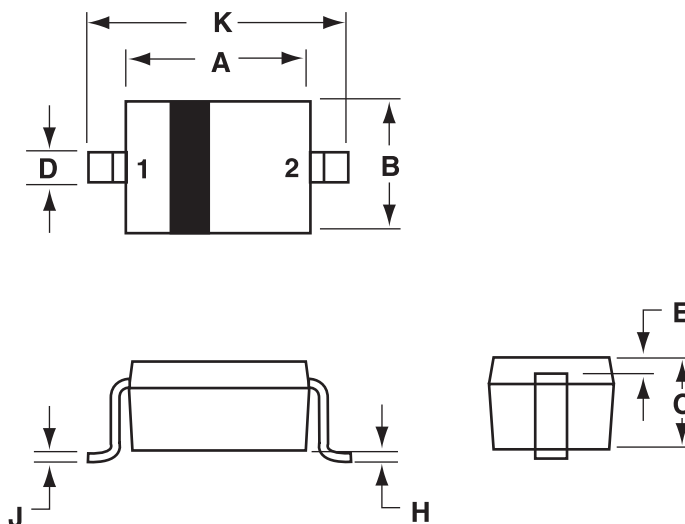
**SMALL SIGNAL  
ZENER DIODES  
200m WATTS**



**SOD-323**

### SOD-323 Outline Dimensions

Unit:mm



Dim	MILLMETERS	
	Min	Max
A	1.60	1.80
B	1.15	1.35
C	0.80	1.00
D	0.25	0.40
E	0.15REF	
H	0.00	0.10
J	0.089	0.377
K	2.30	2.70

**PIN 1.CATHODE  
2.ANODE**

### Maximum Ratings and Electrical Characteristics (TA=25 °C Unless Otherwise Noted)

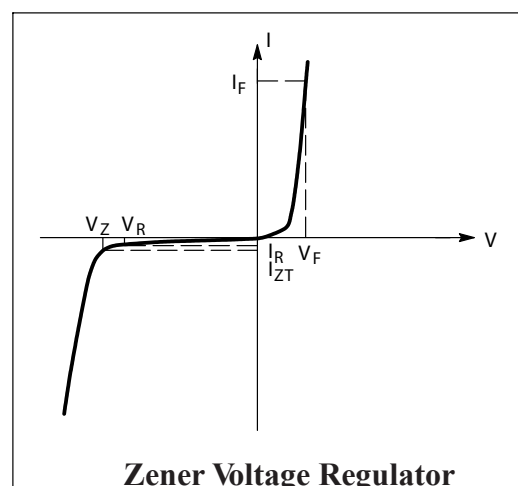
Characteristics	Symbol	Value	Unit
Total Power Dissipation on FR-5 Board <sup>(1)</sup> @TA=25°C	PD	200	mW
Thermal Resistance Junction to Ambient Air <sup>(1)</sup>	RθJA	625	°C/W
Forward Voltage @ IF=10mA	VF	0.9	V
Junction and Storage Temperature Range	Tj,TSTG	-65 to+150	°C

NOTES:1.FR-4 Minimun Pad

### ELECTRICAL CHARACTERISTICS

(Pinout: 1-Anode, 2-No Connection, 3-Cathode) (TA = 25 °C unless otherwise noted, VF = 0.9 V Max. @ IF = 10 mA)

Symbol	Parameter
VZ	Reverse Zener Voltage @ IZT
IZT	Reverse Current
ZZT	Maximum Zener Impedance @ IZT
IR	Reverse Leakage Current @ VR
VR	Reverse Voltage
IF	Forward Current
VF	Forward Voltage @ IF
θVZ	Maximum Temperature Coefficient of VZ
C	Max. Capacitance @ VR = 0 and f = 1 MHz



### Device Marking

Item	Marking	Equivalent Circuit Diagram
MM3Z Series	XX=Specific Device Code (See Table on page3)	

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)

Device	Device Marking	Zener Voltage (Note )				Zener Impedance			Leakage Current		ΘV <sub>Z</sub> (mV/k) @ I <sub>ZT</sub>		C @ V <sub>R</sub> =0 f=1MHz
		V <sub>Z</sub> (Volts)			@ I <sub>ZT</sub>	Z <sub>ZT</sub> @ I <sub>ZT</sub>	Z <sub>ZK</sub> @ z <sub>k</sub>		I <sub>R</sub> @ V <sub>R</sub>				
		Min	Nom	Max	mA	Ω	Ω	mA	uA	Volts	Min	Max	
MM3Z2V4T1	00	2.2	2.4	2.6	5	100	1000	0.5	50	1.0	±3.5	0	450
MM3Z2V7T1	01	2.5	2.7	2.9	5	100	1000	0.5	20	1.0	±3.5	0	450
MM3Z3V0T1	02	2.8	3.0	3.2	5	100	1000	0.5	10	1.0	±3.5	0	450
MM3Z3V3T1	05	3.1	3.3	3.5	5	95	1000	0.5	5	1.0	±3.5	0	450
MM3Z3V6T1	06	3.4	3.6	3.8	5	90	1000	0.5	5	1.0	±3.5	0	450
MM3Z3V9T1	07	3.7	3.9	4.1	5	90	1000	0.5	3	1.0	±3.5	±2.5	450
MM3Z4V3T1	08	4.0	4.3	4.6	5	90	1000	0.5	3	1.0	±3.5	0	450
MM3Z4V7T1	09	4.4	4.7	5.0	5	80	800	0.5	3	2.0	±3.5	0.2	260
MM3Z5V1T1	0A	4.8	5.1	5.4	5	60	500	0.5	2	2.0	±2.7	1.2	225
MM3Z5V6T1	0C	5.2	5.6	6.0	5	40	200	0.5	1	2.0	±2.0	2.5	200
MM3Z6V2T1	0E	5.8	6.2	6.6	5	10	100	0.5	3	4.0	0.4	3.7	185
MM3Z6V8T1	0F	6.4	6.8	7.2	5	15	160	0.5	2	4.0	1.2	4.5	155
MM3Z7V5T1	0G	7.0	7.5	7.9	5	15	160	0.5	1	5.0	2.5	5.3	140
MM3Z8V2T1	0H	7.7	8.2	8.7	5	15	160	0.5	0.7	5.0	3.2	6.2	135
MM3Z9V1T1	0K	8.5	9.1	9.6	5	15	160	0.5	0.2	7.0	3.8	7.0	130
MM3Z10VT1	0L	9.4	10	10.6	5	20	160	0.5	0.1	8.0	4.5	8.0	130
MM3Z11VT1	0M	10.4	11	11.6	5	20	160	0.5	0.1	8.0	5.4	9.0	130
MM3Z12VT1	0N	11.4	12	12.7	5	25	80	0.5	0.1	8.0	6.0	10	130
MM3Z13VT1	0P	12.4	13.25	14.1	5	30	80	0.5	0.1	8.0	7.0	11	120
MM3Z15VT1	0T	14.3	15	15.8	5	30	80	0.5	0.05	10.5	9.2	13	110
MM3Z16VT1	0U	15.3	16.2	17.1	5	40	80	0.5	0.05	11.2	10.4	14	105
MM3Z18VT1	0W	16.8	18	19.1	5	45	80	0.5	0.05	12.6	12.4	16	100
MM3Z20VT1	0Z	18.8	20	21.2	5	55	100	0.5	0.05	14.0	14.4	18	85
MM3Z22VT1	10	20.8	22	23.3	5	55	100	0.5	0.05	15.4	16.4	20	85
MM3Z24VT1	11	22.8	24.2	25.6	5	70	120	0.5	0.05	16.8	18.4	22	80
MM3Z27VT1	12	25.1	27	28.9	2	80	300	0.5	0.05	18.9	21.4	25.3	70
MM3Z30VT1	14	28	30	32	2	80	300	0.5	0.05	21.0	24.4	29.4	70
MM3Z33VT1	18	31	33	35	2	80	300	0.5	0.05	23.2	27.4	33.4	70
MM3Z36VT1	19	34	36	38	2	90	500	0.5	0.05	25.2	30.4	37.4	70
MM3Z39VT1	20	37	39	41	2	130	500	0.5	0.05	27.3	33.4	41.2	45
MM3Z43VT1	21	40	43	46	2	150	500	0.5	0.05	30.1	37.6	46.6	40
MM3Z47VT1	1A	44	47	50	2	170	500	0.5	0.05	32.9	42.0	51.8	40
MM3Z51VT1	1C	48	51	54	2	180	500	0.5	0.05	35.7	46.6	57.2	40
MM3Z56VT1	1D	52	56	60	2	200	500	0.5	0.05	39.2	52.2	63.8	40
MM3Z62VT1	1E	58	62	66	2	215	500	0.5	0.05	43.4	58.8	71.6	35
MM3Z68VT1	1F	64	68	72	2	240	500	0.5	0.05	47.6	65.6	79.8	35
MM3Z75VT1	1G	70	75	79	2	255	500	0.5	0.05	52.5	73.4	88.6	35

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

### Typical Characteristics

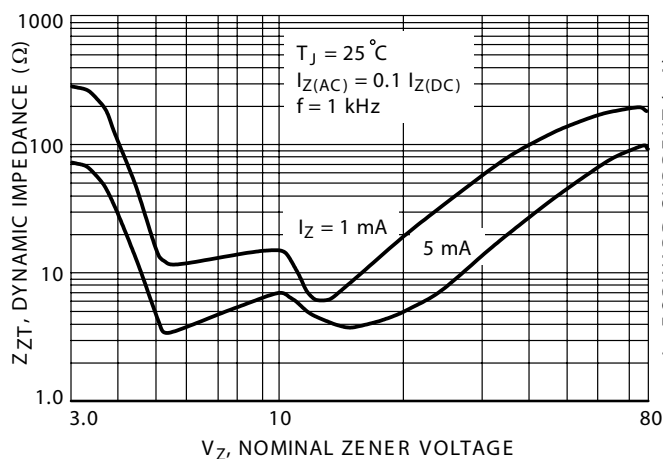


Figure 1. Effect of Zener Voltage on Zener Impedance

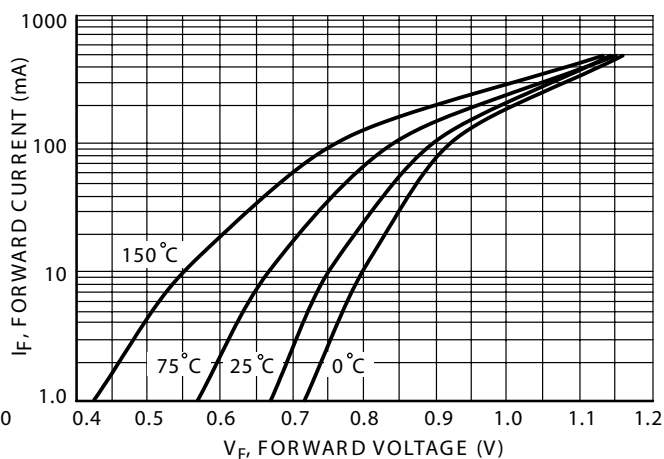


Figure 2. Typical Forward Voltage

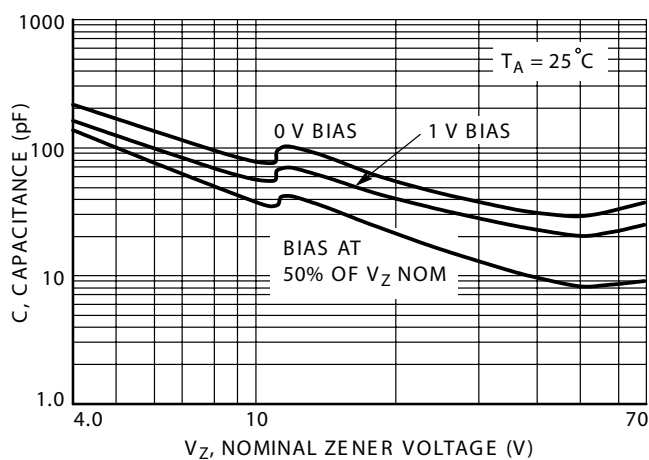


Figure 3. Typical Capacitance

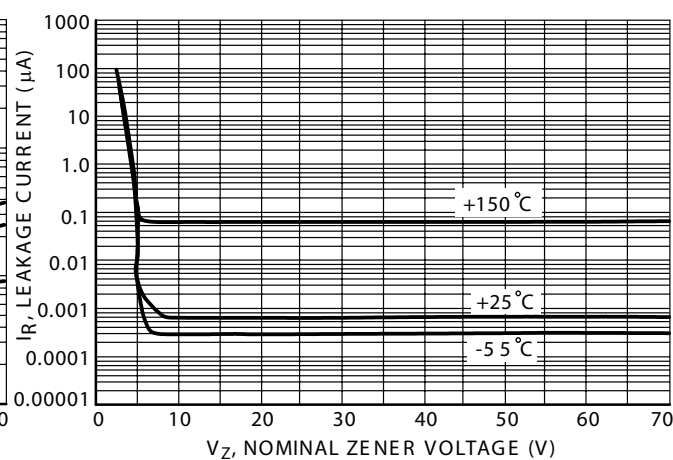


Figure 4. Typical Leakage Current

Typical Characteristics

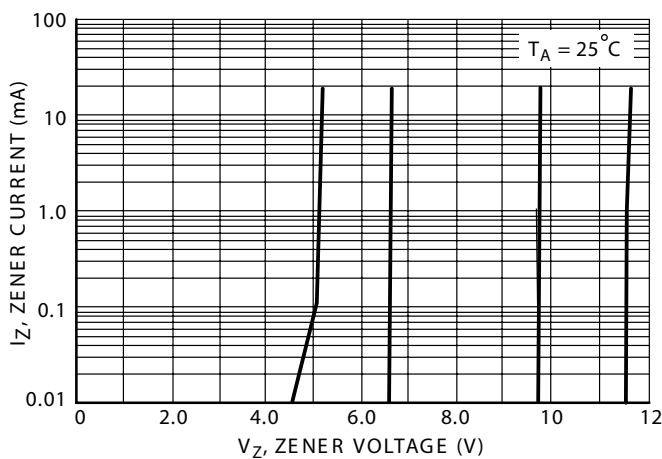


Figure 5. Zener Voltage versus Zener Current  
( $V_Z$  Up to 12 V)

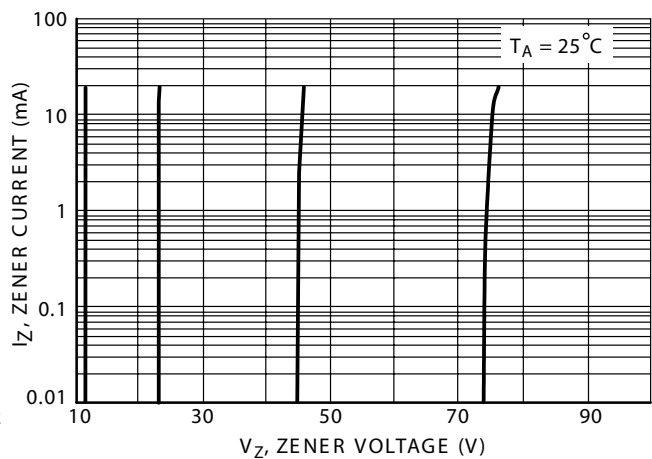


Figure 6. Zener Voltage versus Zener Current  
(12 V to 75 V)

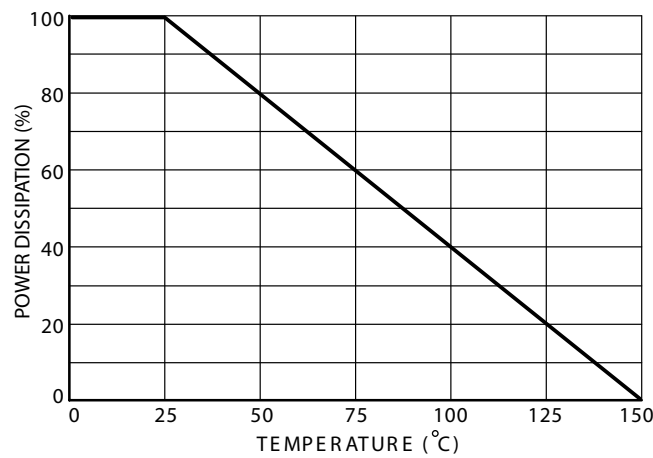


Figure 7. Steady State Power Derating