

Surface Mount Zener Diodes

(Pb) Lead(Pb)-Free

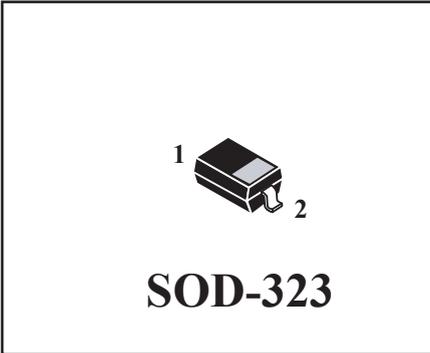
Features:

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

Mechanical Data:

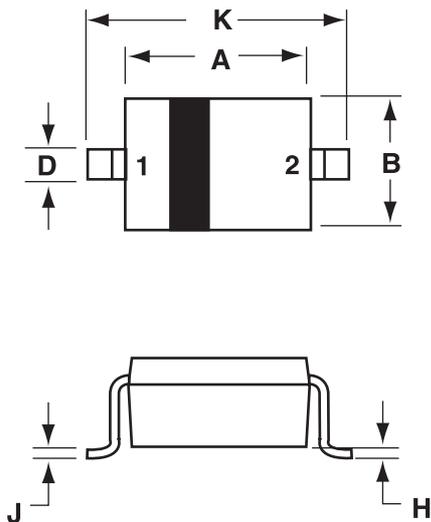
- *Case : SOD-323 Molded plastic
- *Terminals: Solderable per MIL-STD-202, Method 208
- *Polarity: Cathode Indicated by Polarity Band
- *Marking: Marking Code (See Table on Page 3)
- *Weigh: 0.004grams(approx)

**SMALL SIGNAL
 ZENER DIODES
 200m WATTS**



SOD-323 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)

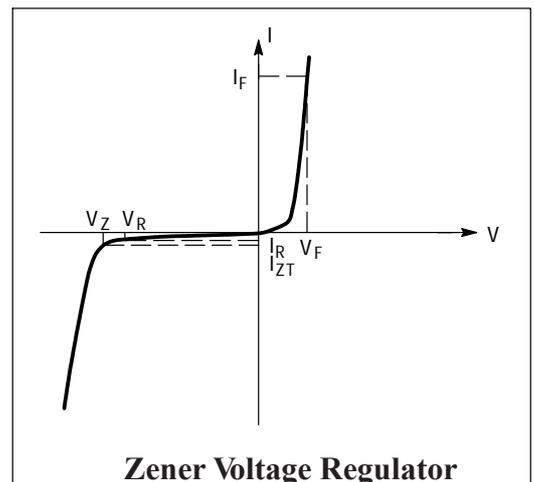
Characteristics	Symbol	Value	Unit
Total Power Dissipation on FR-5 Board ⁽¹⁾ @TA=25 °C	PD	200	mW
Thermal Resistance Junction to Ambient Air ⁽¹⁾	RθJA	625	°C/W
Forward Voltage @ IF=10mA	VF	0.9	V
Junction and Storage Temperature Range	Tj,TSTG	-65 to+150	°C

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_Z (mV/k) @ I_{ZT}		C @ $V_R=0$ f=1MHz pF	
		V_Z (Volts)			$@ I_{ZT}$	Z_{ZT} @ I_{ZT}	Z_{ZK} @ z_k		I_R @ V_R		Min		Max
		Min	Nom	Max	mA	Ω	Ω	mA	μA	Volts			
MM3Z2V4	00	2.2	2.4	2.6	5	100	1000	0.5	50	1.0	± 3.5	0	450
MM3Z2V7	01	2.5	2.7	2.9	5	100	1000	0.5	20	1.0	± 3.5	0	450
MM3Z3V0	02	2.8	3.0	3.2	5	100	1000	0.5	10	1.0	± 3.5	0	450
MM3Z3V3	05	3.1	3.3	3.5	5	95	1000	0.5	5	1.0	± 3.5	0	450
MM3Z3V6	06	3.4	3.6	3.8	5	90	1000	0.5	5	1.0	± 3.5	0	450
MM3Z3V9	07	3.7	3.9	4.1	5	90	1000	0.5	3	1.0	± 3.5	± 2.5	450
MM3Z4V3	08	4.0	4.3	4.6	5	90	1000	0.5	3	1.0	± 3.5	0	450
MM3Z4V7	09	4.4	4.7	5.0	5	80	800	0.5	3	2.0	± 3.5	0.2	260
MM3Z5V1	0A	4.8	5.1	5.4	5	60	500	0.5	2	2.0	± 2.7	1.2	225
MM3Z5V6	0C	5.2	5.6	6.0	5	40	200	0.5	1	2.0	± 2.0	2.5	200
MM3Z6V2	0E	5.8	6.2	6.6	5	10	100	0.5	3	4.0	0.4	3.7	185
MM3Z6V8	0F	6.4	6.8	7.2	5	15	160	0.5	2	4.0	1.2	4.5	155
MM3Z7V5	0G	7.0	7.5	7.9	5	15	160	0.5	1	5.0	2.5	5.3	140
MM3Z8V2	0H	7.7	8.2	8.7	5	15	160	0.5	0.7	5.0	3.2	6.2	135
MM3Z9V1	0K	8.5	9.1	9.6	5	15	160	0.5	0.2	7.0	3.8	7.0	130
MM3Z10	0L	9.4	10	10.6	5	20	160	0.5	0.1	8.0	4.5	8.0	130
MM3Z11	0M	10.4	11	11.6	5	20	160	0.5	0.1	8.0	5.4	9.0	130
MM3Z12	0N	11.4	12	12.7	5	25	80	0.5	0.1	8.0	6.0	10	130
MM3Z13	0P	12.4	13.25	14.1	5	30	80	0.5	0.1	8.0	7.0	11	120
MM3Z15	0T	14.3	15	15.8	5	30	80	0.5	0.05	10.5	9.2	13	110
MM3Z16	0U	15.3	16.2	17.1	5	40	80	0.5	0.05	11.2	10.4	14	105
MM3Z18	0W	16.8	18	19.1	5	45	80	0.5	0.05	12.6	12.4	16	100
MM3Z20	0Z	18.8	20	21.2	5	55	100	0.5	0.05	14.0	14.4	18	85
MM3Z22	10	20.8	22	23.3	5	55	100	0.5	0.05	15.4	16.4	20	85
MM3Z24	11	22.8	24.2	25.6	5	70	120	0.5	0.05	16.8	18.4	22	80
MM3Z27	12	25.1	27	28.9	2	80	300	0.5	0.05	18.9	21.4	25.3	70
MM3Z30	14	28	30	32	2	80	300	0.5	0.05	21.0	24.4	29.4	70
MM3Z33	18	31	33	35	2	80	300	0.5	0.05	23.2	27.4	33.4	70
MM3Z36	19	34	36	38	2	90	500	0.5	0.05	25.2	30.4	37.4	70
MM3Z39	20	37	39	41	2	130	500	0.5	0.05	27.3	33.4	41.2	45
MM3Z43	21	40	43	46	2	150	500	0.5	0.05	30.1	37.6	46.6	40
MM3Z47	1A	44	47	50	2	170	500	0.5	0.05	32.9	42.0	51.8	40
MM3Z51	1C	48	51	54	2	180	500	0.5	0.05	35.7	46.6	57.2	40
MM3Z56	1D	52	56	60	2	200	500	0.5	0.05	39.2	52.2	63.8	40
MM3Z62	1E	58	62	66	2	215	500	0.5	0.05	43.4	58.8	71.6	35
MM3Z68	1F	64	68	72	2	240	500	0.5	0.05	47.6	65.6	79.8	35
MM3Z75	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°C .

Typical Characteristics

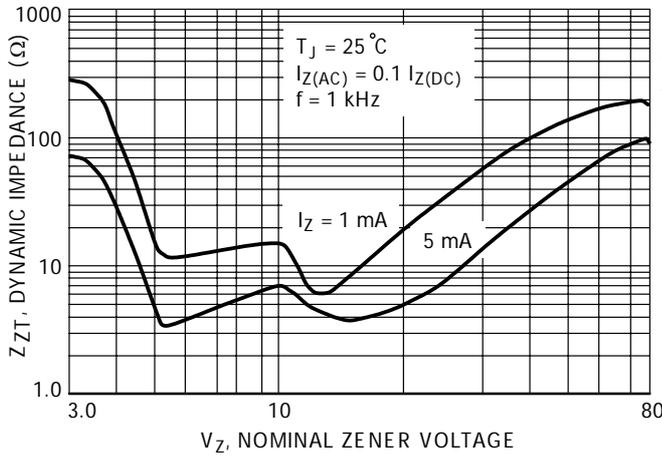


Figure 1. Effect of Zener Voltage on Zener Impedance

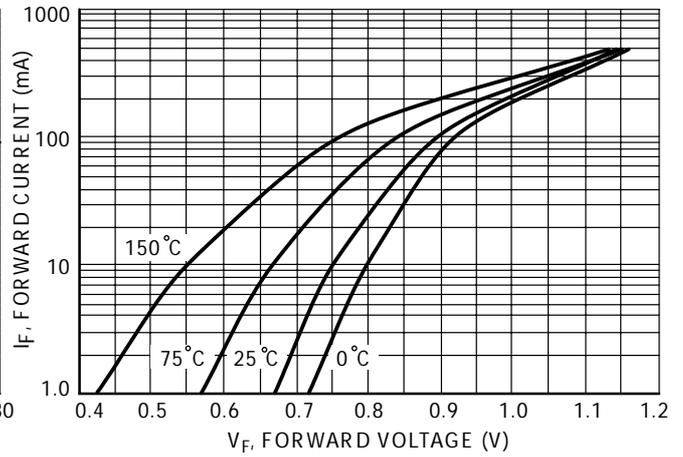


Figure 2. Typical Forward Voltage

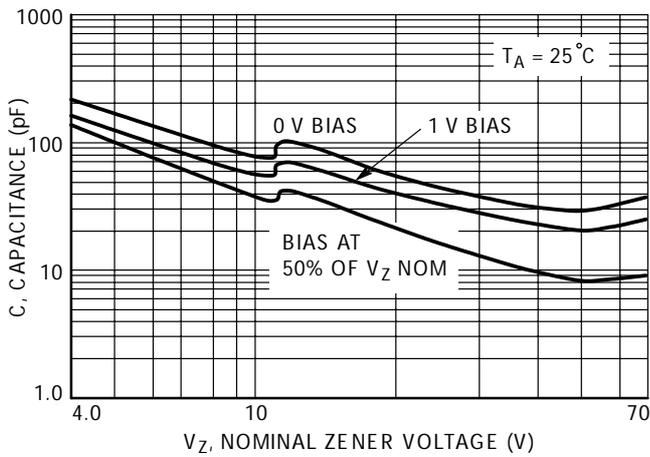


Figure 3. Typical Capacitance

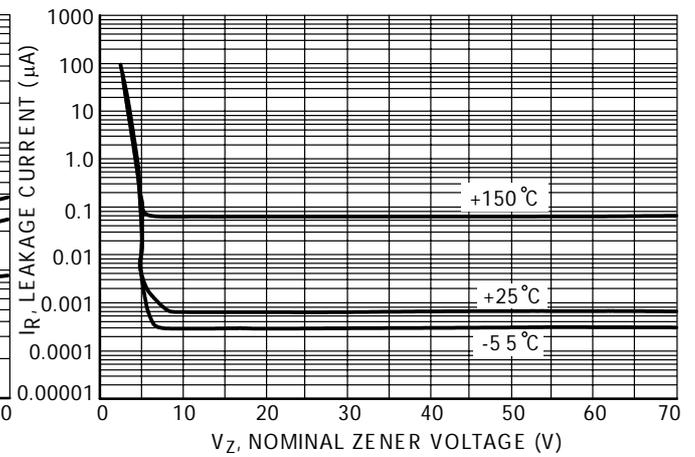


Figure 4. Typical Leakage Current

Typical Characteristics

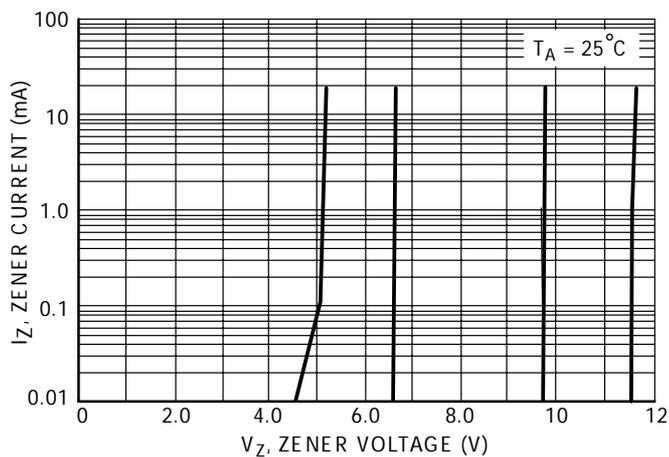


Figure 5. Zener Voltage versus Zener Current (V_Z Up to 12 V)

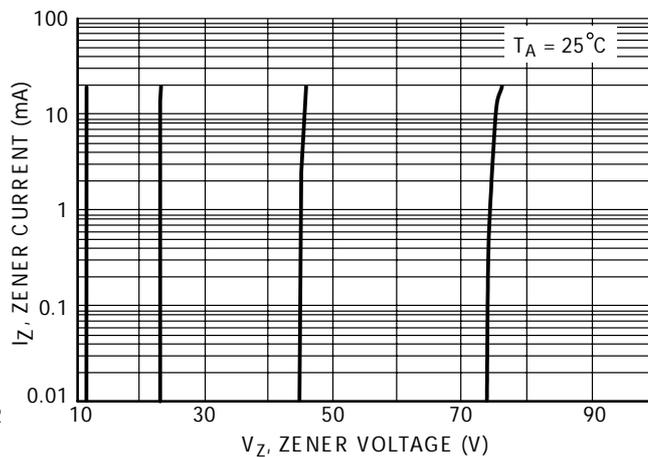


Figure 6. Zener Voltage versus Zener Current (12 V to 75 V)

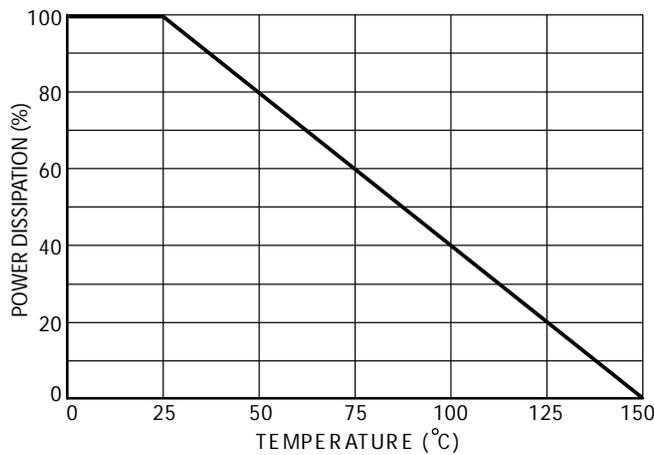


Figure 7. Steady State Power Derating