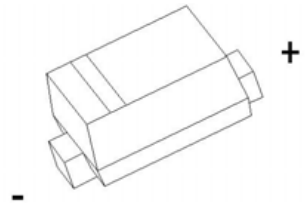
MM5Zxxx Series Zener Diode

SOD-523

RoHS COMPLIANT

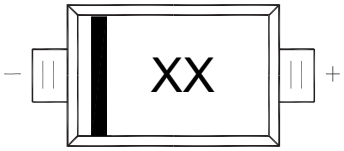


Features

- Standard Zener Breakdown Voltage Range - 2.0 V to 75 V
- Steady State Power Rating of 200 mW
- General purpose, medium current
- Ideally suited for automated assembly processes

Equivalent circuit

Marking



XX= Device code, see table on page2 the marking code

The marking bar indicates the cathode

Maximum Ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Forward voltage (Note 2) @ IF = 10mA	V_F	0.9	V
Power dissipation (Note 1)	P_D	200	mW
Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	625	℃/W
Operating Junction Temperature Range	T_J	-65 ~ +150	℃
Storage Temperature Range	T_{stg}	-65 ~ +150	℃

Electrical Characteristics(T_a=25℃ unless otherwise specified)

Device	Device Marking	Zener Voltage (Note 1) V_Z (Volts) Min	Nom	Max	@ I_{ZT} mA	Zener Impedance Z_{ZT} @ I_{ZT} Ω	Z_{ZK} @ I_{ZK} Ω	mA	Leakage Current I_R @ V_R µA	Volts	ΘV_Z (mV/k) @ I_{ZT} Min	Max	C @ V_R = 0 f = 1 MHz pF
MM5Z2V0	WY	1.91	2.0	2.09	5	100	600	1.0	150	1.0	−3.5	0	450
MM5Z2V4	00	2.2	2.4	2.6	5	100	1000	1.0	50	1.0	−3.5	0	450
MM5Z2V7	01	2.5	2.7	2.9	5	100	1000	1.0	20	1.0	−3.5	0	450
MM5Z3V0	02	2.8	3.0	3.2	5	100	1000	1.0	10	1.0	−3.5	0	450
MM5Z3V3	05	3.1	3.3	3.5	5	95	1000	1.0	5	1.0	−3.5	0	450
MM5Z3V6	06	3.4	3.6	3.8	5	90	1000	1.0	5	1.0	−3.5	0	450
MM5Z3V9	07	3.7	3.9	4.1	5	90	1000	1.0	3	1.0	−3.5	−2.5	450
MM5Z4V3	08	4.0	4.3	4.6	5	90	1000	1.0	3	1.0	−3.5	0	450
MM5Z4V7	09	4.4	4.7	5.0	5	80	800	1.0	3	2.0	−3.5	0.2	260
MM5Z5V1	0A	4.8	5.1	5.4	5	60	500	1.0	2	2.0	−2.7	1.2	225
MM5Z5V6	0C	5.2	5.6	6.0	5	40	400	1.0	1	2.0	−2.0	2.5	200
MM5Z6V2	0E	5.8	6.2	6.6	5	10	100	1.0	3	4.0	0.4	3.7	185
MM5Z6V8	0F	6.4	6.8	7.2	5	15	160	1.0	2	4.0	1.2	4.5	155
MM5Z7V5	0G	7.0	7.5	7.9	5	15	160	1.0	1	5.0	2.5	5.3	140
MM5Z8V2	0H	7.7	8.2	8.7	5	15	160	1.0	0.7	5.0	3.2	6.2	135
MM5Z9V1	0K	8.5	9.1	9.6	5	15	160	1.0	0.2	7.0	3.8	7.0	130
MM5Z10	0L	9.4	10	10.6	5	20	160	1.0	0.1	8.0	4.5	8.0	130
MM5Z11	0M	10.4	11	11.6	5	20	160	1.0	0.1	8.0	5.4	9.0	130
MM5Z12	0N	11.4	12	12.7	5	25	80	1.0	0.1	8.0	6.0	10	130
MM5Z13	0P	12.4	13.25	14.1	5	30	80	1.0	0.1	8.0	7.0	11	120
MM5Z15	0T	14.3	15	15.8	5	30	200	1.0	0.05	10.5	9.2	13	110
MM5Z16	0U	15.3	16.2	17.1	2	40	200	1.0	0.05	11.2	10.4	14	105
MM5Z18	0W	16.8	18	19.1	2	45	225	1.0	0.05	12.6	12.4	16	100
MM5Z20	0Z	18.8	20	21.2	2	55	225	1.0	0.05	14.0	14.4	18	85
MM5Z22	10	20.8	22	23.3	2	55	250	1.0	0.05	15.4	16.4	20	85
MM5Z24	11	22.8	24.2	25.6	2	70	120	1.0	0.05	16.8	18.4	22	80
MM5Z27	12	25.1	27	28.9	2	80	300	1.0	0.05	18.9	21.4	25.3	70
MM5Z30	14	28	30	32	2	80	300	1.0	0.05	21.0	24.4	29.4	70
MM5Z33	18	31	33	35	2	80	300	1.0	0.05	23.2	27.4	33.4	70
MM5Z36	19	34	36	38	2	90	500	1.0	0.05	25.2	30.4	37.4	70
MM5Z39	20	37	39	41	2	130	500	1.0	0.05	27.3	33.4	41.2	45
MM5Z43	21	40	43	46	2	150	500	1.0	0.05	30.1	37.6	46.6	40
MM5Z47	1A	44	47	50	2	170	500	1.0	0.05	32.9	42.0	51.8	40
MM5Z51	1C	48	51	54	2	180	500	1.0	0.05	35.7	46.6	57.2	40
MM5Z56	1D	52	56	60	2	200	500	1.0	0.05	39.2	52.2	63.8	40
MM5Z62	1E	58	62	66	2	215	500	1.0	0.05	43.4	58.8	71.6	35
MM5Z68	1F	64	68	72	2	240	500	1.0	0.05	47.6	65.6	79.8	35
MM5Z75	1G	70	75	79	2	255	500	1.0	0.05	52.5	73.4	88.6	35

Notes: 1. Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm^2.
2. Short duration test pulse used to minimize self-heating effect.
3. f = 1kHz.

Typical Characteristics

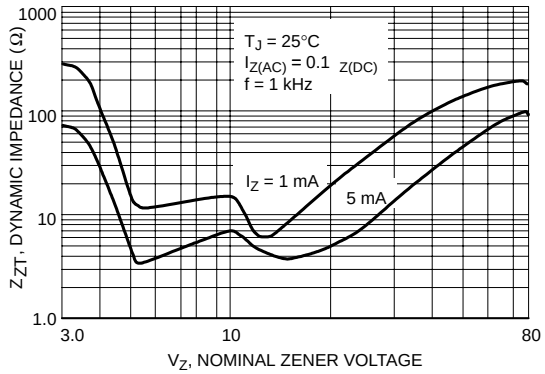


Figure 1. Effect of Zener Voltage on Zener Impedance

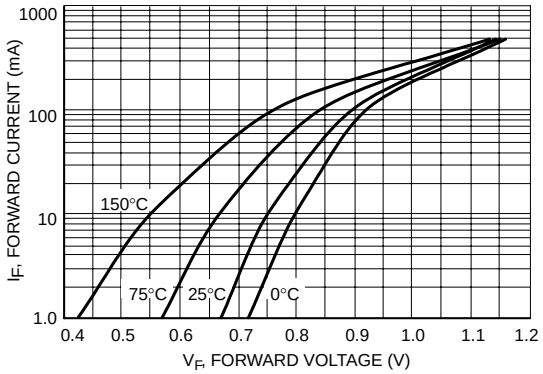


Figure 2. Typical Forward Voltage

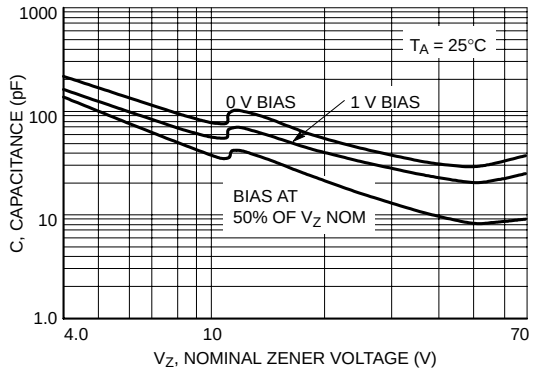


Figure 3. Typical Capacitance

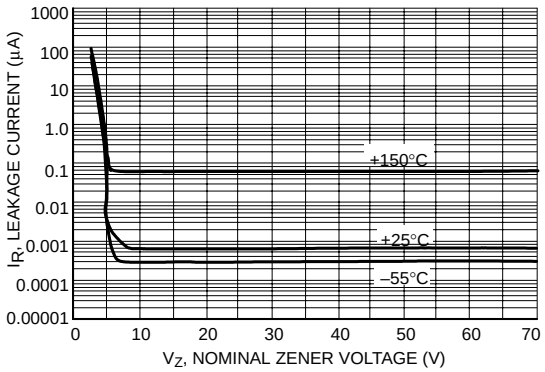


Figure 4. Typical Leakage Current

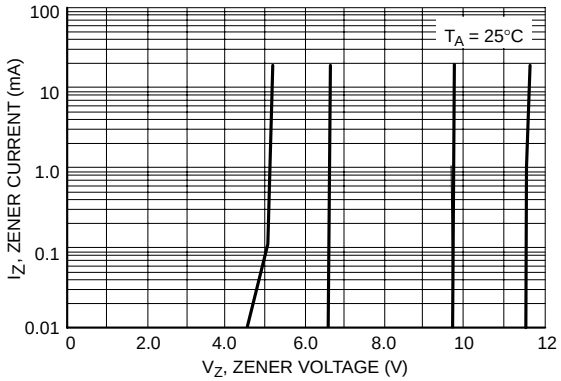


Figure 5. Zener Voltage versus Zener Current (V_Z Up to 12 V)

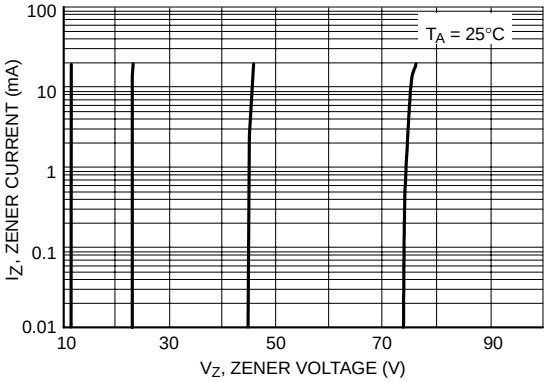


Figure 6. Zener Voltage versus Zener Current (12 V to 75 V)

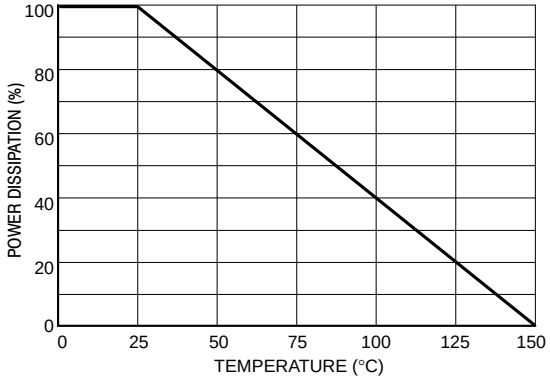
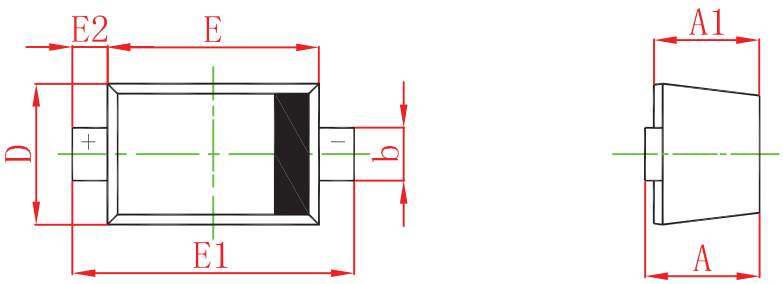
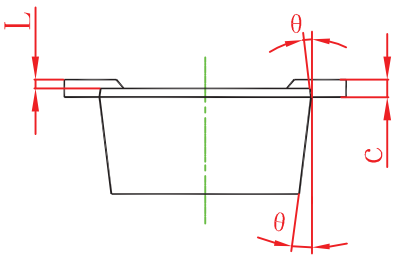


Figure 7. Steady State Power Derating

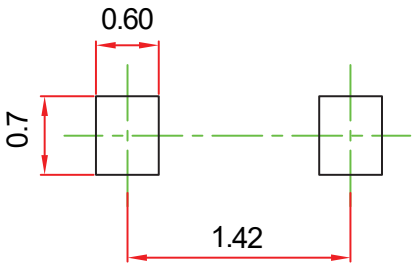
SOD-523 Package Outline Dimensions





Sym ol	imensions In Millimeters		imensions In Inches	
	Min	Max	Min	Max
A	0.510	0.770	0.020	0.031
A1	0.500	0.700	0.020	0.028
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	0.750	0.850	0.030	0.033
E	1.100	1.300	0.043	0.051
E1	1.500	1.700	0.059	0.067
E2	0.200 REF		0.008 REF	
L	0.010	0.070	0.001	0.003
θ	7° REF		7° REF	

Suggested Pad Layout



Note:
1. Controlling dimension:in/millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purposes only.