Surface Mount Zener Diode

MM5Z Series

RoHS Compliant Product

A suffix of "-C" specifies halogen & lead-free

Electrical Characteristics (T_A = 25℃ unless otherwise specified)

100mW, SOD-523

Type Number	Marking Code	Zener Voltage Range (Note 2)				Maximum Zener Impedance (Note 3)			Maximum Reverse Current (Note 2)		Temperature Coefficient of Zener Voltage @ I_{ZT} = 10 mA	
		V_Z			@I_{ZT}	Z_{ZT}@I_{ZT}	Z_{ZK}@I_{ZK}		I_R @ V_R		mV / ℃	
		Min	Nom	Max								
		V	V	V	mA	Ω	Ω	mA	μA	V	Min	Max
MM5Z2V4	Z11	2.2	2.4	2.6	5.0	100	600	1.0	50	1.0	-3.5	0
MM5Z2V7	Z12	2.5	2.7	2.9	5.0	100	600	1.0	20	1.0	-3.5	0
MM5Z3V0	Z13	2.8	3.0	3.2	5.0	95	600	1.0	10	1.0	-3.5	0
MM5Z3V3	Z14	3.1	3.3	3.5	5.0	95	600	1.0	5.0	1.0	-3.5	0
MM5Z3V6	Z15	3.4	3.6	3.8	5.0	90	600	1.0	5.0	1.0	-3.5	0
MM5Z3V9	Z16	3.7	3.9	4.1	5.0	90	600	1.0	3.0	1.0	-3.5	0
MM5Z4V3	Z17	4.0	4.3	4.6	5.0	90	600	1.0	3.0	1.0	-3.5	0
MM5Z4V7	Z1	4.4	4.7	5.0	5.0	80	500	1.0	3.0	2.0	-3.5	0.2
MM5Z5V1	Z2	4.8	5.1	5.4	5.0	60	480	1.0	2.0	2.0	-2.7	1.2
MM5Z5V6	Z3	5.2	5.6	6.0	5.0	40	400	1.0	1.0	2.0	-2.0	2.5
MM5Z6V2	Z4	5.8	6.2	6.6	5.0	10	150	1.0	3.0	4.0	0.4	3.7
MM5Z6V8	Z5	6.4	6.8	7.2	5.0	15	80	1.0	2.0	4.0	1.2	4.5
MM5Z7V5	Z6	7.0	7.5	7.9	5.0	15	80	1.0	1.0	5.0	2.5	5.3
MM5Z8V2	Z7	7.7	8.2	8.7	5.0	15	80	1.0	0.7	5.0	3.2	6.2
MM5Z9V1	Z8	8.5	9.1	9.6	5.0	15	100	1.0	0.5	6.0	3.8	7.0
MM5Z10V	Z9	9.4	10	10.6	5.0	20	150	1.0	0.2	7.0	4.5	8.0
MM5Z11V	Y1	10.4	11	11.6	5.0	20	150	1.0	0.1	8.0	5.4	9.0
MM5Z12V	Y2	11.4	12	12.7	5.0	25	150	1.0	0.1	8.0	6.0	10.0
MM5Z13V	Y3	12.4	13	14.1	5.0	30	170	1.0	0.1	8.0	7.0	11.0
MM5Z15V	Y4	13.8	15	15.6	5.0	30	200	1.0	0.1	10.5	9.2	13.0
MM5Z16V	Y5	15.3	16	17.1	5.0	40	200	1.0	0.1	11.2	10.4	14.0
MM5Z18V	Y6	16.8	18	19.1	5.0	45	225	1.0	0.1	12.6	12.4	16.0
MM5Z20V	Y7	18.8	20	21.2	5.0	55	225	1.0	0.1	14.0	14.4	18.0
MM5Z22V	Y8	20.8	22	23.3	5.0	55	250	1.0	0.1	15.4	16.4	20.0
MM5Z24V	Y9	22.8	24	25.6	5.0	70	250	1.0	0.1	16.8	18.4	22.0
MM5Z27V	Y10	25.1	27	28.9	2.0	80	300	0.5	0.1	18.9	21.4	25.3
MM5Z30V	Y11	28.0	30	32.0	2.0	80	300	0.5	0.1	21.0	24.4	29.4
MM5Z33V	Y12	31.0	33	35.0	2.0	80	325	0.5	0.1	23.1	27.4	33.4
MM5Z36V	Y13	34.0	36	38.0	2.0	90	350	0.5	0.1	25.2	30.4	37.4
MM5Z39V	Y14	37.0	39	41.0	2.0	130	350	0.5	0.1	27.3	33.4	41.2
MM5Z43V	Y15	40.0	43	46.0	2.0	150	375	0.5	0.1	30.1	10.0	12.0
MM5Z47V	Y16	44.0	47	50.0	2.0	170	375	0.5	0.1	32.9	10.0	12.0
MM5Z51V	Y17	48.0	51	54.0	2.0	180	500	0.5	0.1	35.7	10.0	12.0

Notes: 1. Valid provided that device terrminals are kept at ambient temperature.
2. Test with pulses. period = 5 ms, pulse width = 300 μs
3. f = 1 K Hz

● **Maximum Ratings @ T_A = 25** ℃

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1), Derate above 25 ℃	P_d	100 1.5	mW mW / ℃
Forward Voltage (Note 2) @ I_F = 10 mA	V_F	0.9	V
Thermal Resistance from Junction to Ambient (Note 1)	$R_{\theta JA}$	625	℃ / W
Operating and Storage Temperature Range	T_j , T_{STG}	-65 ~ +150	℃

Note: 1. Valid provided that device terminals are kept at ambient temperature.
2. Short duration test pulse used in minimize self-heating effect.
3. f = 1 K Hz

● Features

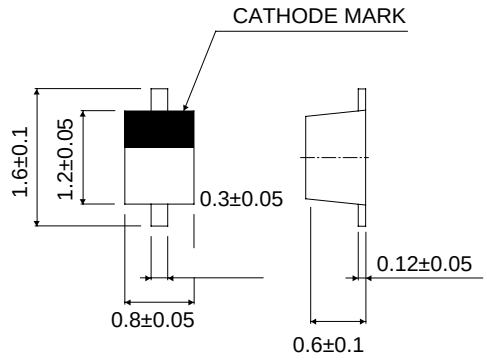
. Standard Zener Breakdown Voltage Range -2.0V to 75V
. Steady State Power Rating of 100 mW
. Small Body Outline Dimensions: 1.2 mm x 0.80 mm
. Low Body Height: 0.7 mm
. Package Weight: 4.507 mg/unit
. ESD Rating of Class 3 (>16 KV) per Human Body Model

● Mechanical Data

. Case: SOD-523, Void-free, transfer-molded plastic
. Finish: All external surfaces are corrosion resistant
. Maximum Case Temperature For Soldering Purposes: 260 ℃ for 10 Seconds
. Polarity: Cathode indicated by polarity band
. Flammability Rating: UL94 V–0
. Mounting Position: Any

● Outline

SOD-523



Dimensions in millimeters

● Typical Characteristics

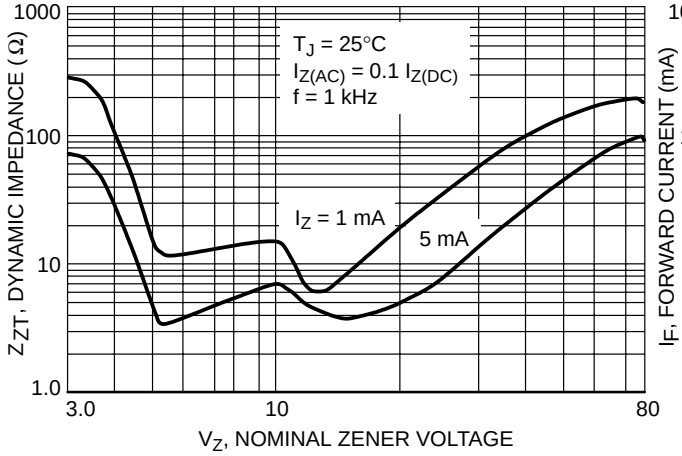


Figure 1. Effect of Zener Voltage on Zener Impedance

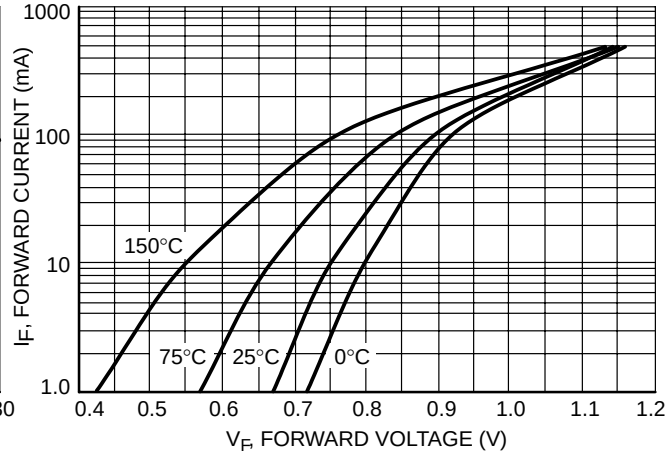


Figure 2. Typical Forward Voltage

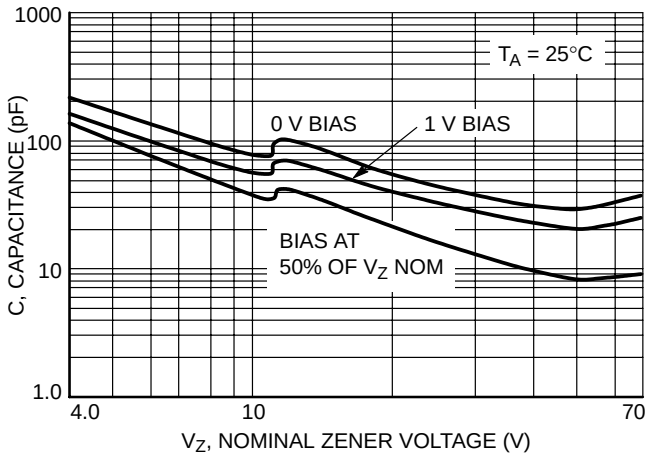


Figure 3. Typical Capacitance

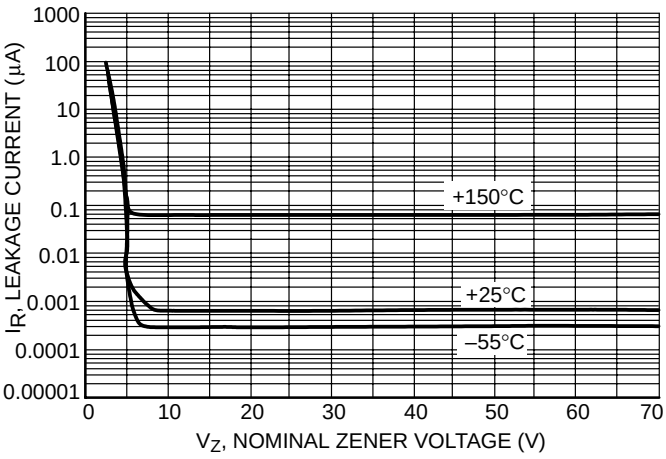


Figure 4. Typical Leakage Current

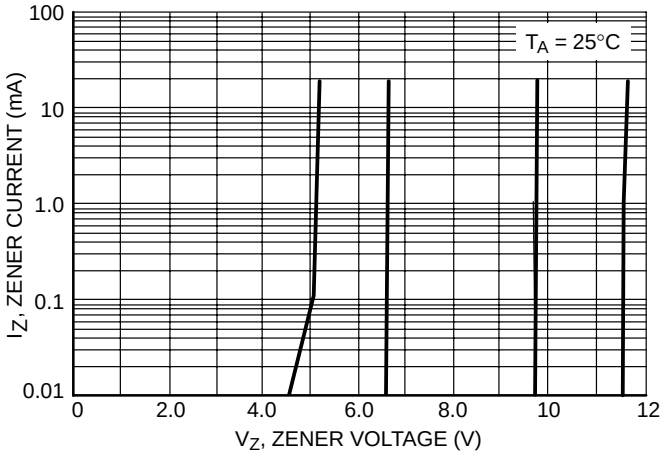


Figure 5. Zener Voltage versus Zener Current (V_Z Up to 12 V)

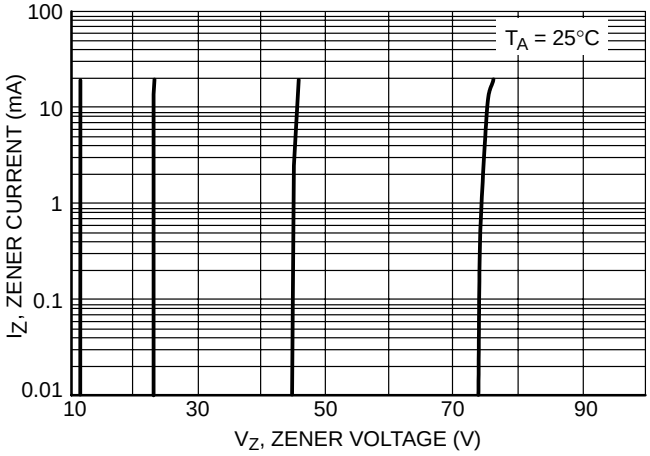


Figure 6. Zener Voltage versus Zener Current (12 V to 75 V)

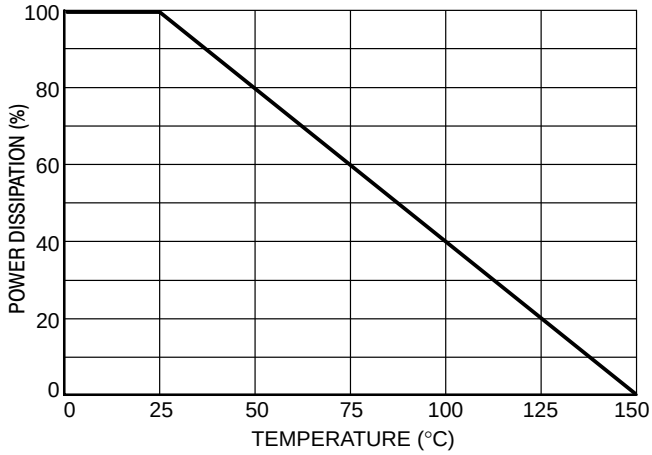


Figure 7. Steady State Power Derating