

OM SENI

MM5ZxxxT1G Series Zener Voltage Regulators 500 mW SOD-523, Standard Tolerance Series

This series of Zener diodes is packaged in a SOD-523 surface mount package. They are designed to provide voltage regulation protection and are especially attractive in situations where space is at a premium. They are well suited for applications such as cellular phones, hand held portables, and high density PC boards.

Specification Features:

- Standard Zener Breakdown Voltage Range – 2.4 V to 75 V
- Standard Tolerance Series
- Steady State Power Rating of 500 mW
- Small Body Outline Dimensions:
0.047" x 0.032" (1.20 mm x 0.80 mm)
Low Body Height: 0.028" (0.7 mm)
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- These Devices are Pb-Free and are RoHS Compliant*

Mechanical Characteristics:

CASE: Void-free, transfer-molded, thermosetting plastic

LEAD FINISH: 100% Matte Sn (Tin)

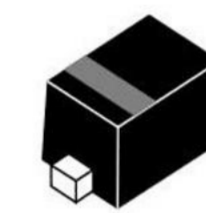
MOUNTING POSITION: Any

QUALIFIED MAX REFLOW TEMPERATURE: 260°C

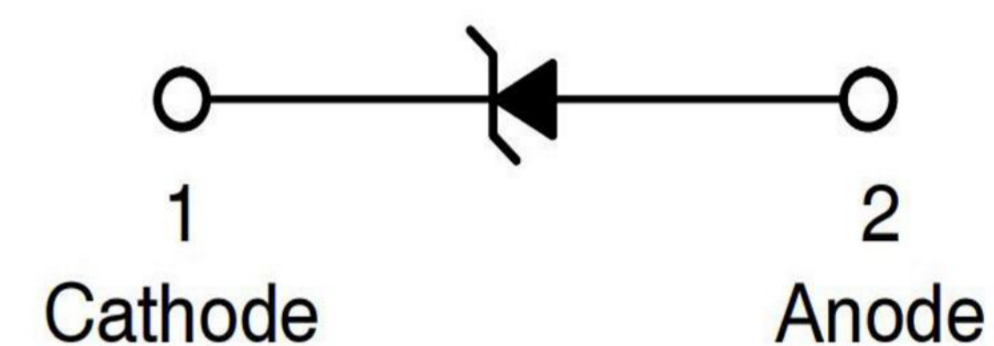
Device Meets MSL 1 Requirements

MAXIMUM RATINGS

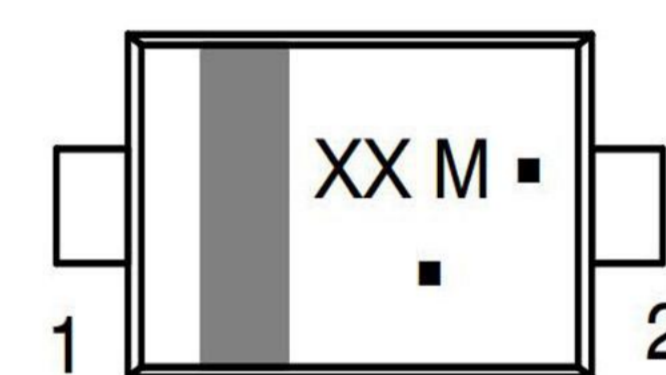
Rating	Symbol	Max	Unit
Total Device Dissipation FR-4 Board, (Note 1) @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	500 4.0	mW mW/°C
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	250	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	-65 to +150	°C



SOD-523
CASE 502
STYLE 1



MARKING DIAGRAM



- XX = Specific Device Code
M = Date Code*
▪ = Pb-Free Package

(Note: Microdot may be in either location)

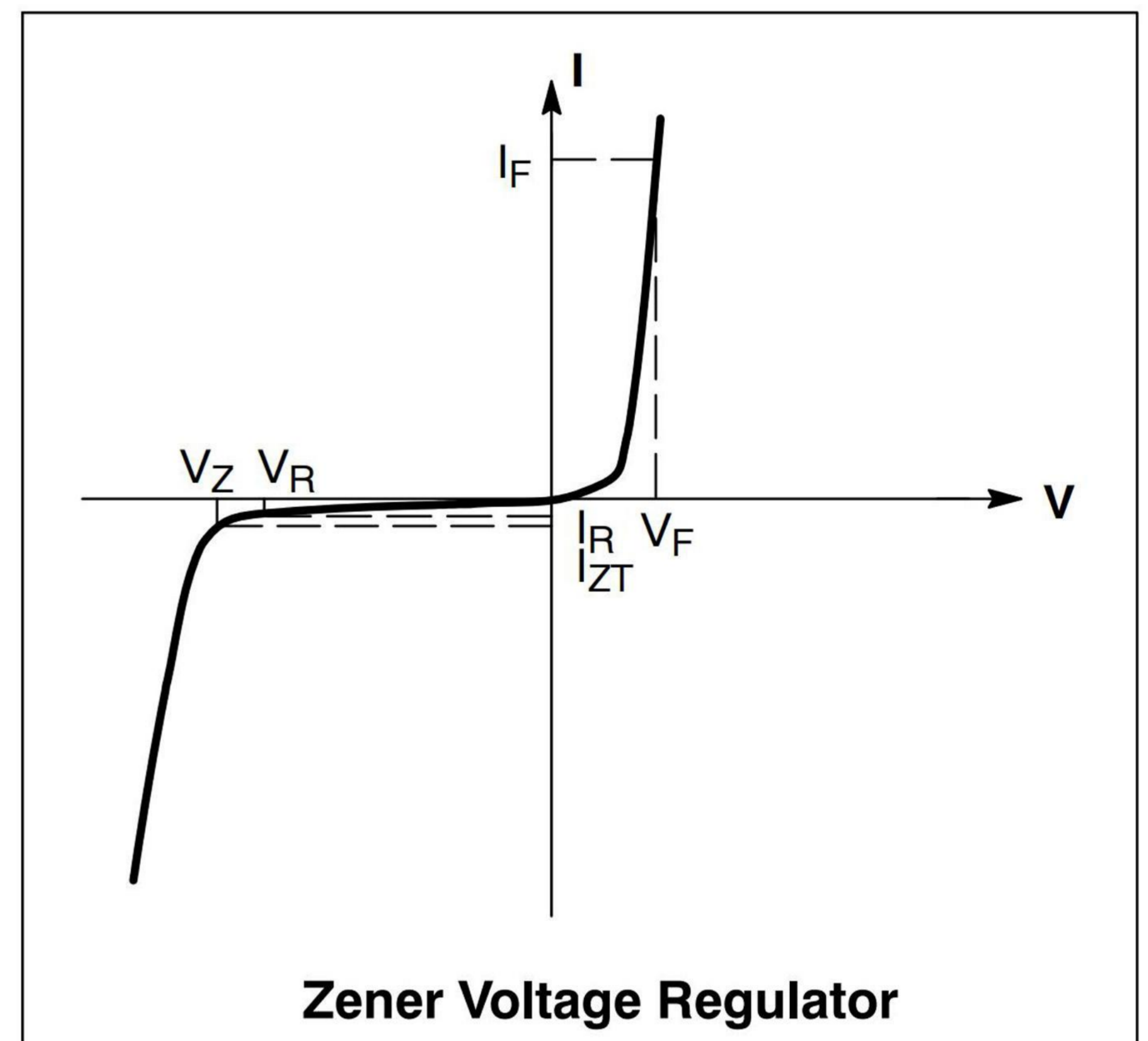
*Date Code orientation may vary depending upon manufacturing location.

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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)

Symbol	Parameter
V_Z	Reverse Zener Voltage @ I_{ZT}
I_{ZT}	Reverse Current
Z_{ZT}	Maximum Zener Impedance @ I_{ZT}
I_{ZK}	Reverse Current
Z_{ZK}	Maximum Zener Impedance @ I_{ZK}
I_R	Reverse Leakage Current @ V_R
V_R	Reverse Voltage
I_F	Forward Current
V_F	Forward Voltage @ I_F
ΘV_Z	Maximum Temperature Coefficient of V_Z
C	Max. Capacitance @ $V_R = 0$ and $f = 1\text{ MHz}$



TYPICAL CHARACTERISTICS

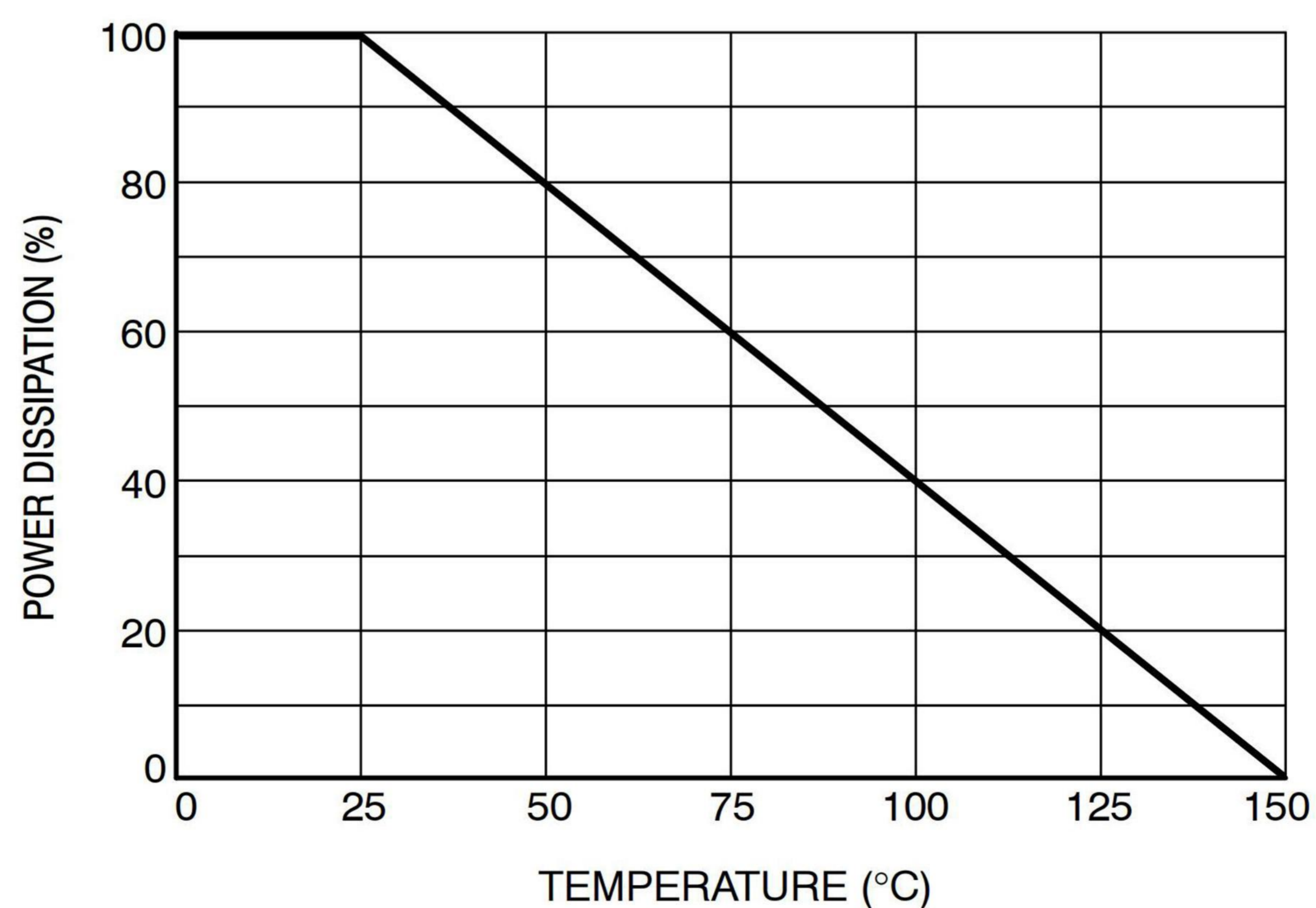


Figure 1. Steady State Power Derating

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ELECTRICAL CHARACTERISTICS – Standard Tolerance Series

($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 0.9\text{ V Max.}$ @ $I_F = 10\text{ mA}$ for all types)

Device*	Device Marking	$V_{Z1}\text{ (V) @}$ (Note 1) (Note 2)			$V_{Z2}\text{ (V) @}$ (Note 1) (Note 2)		Zener Impedance			Leakage Current		Θ_{VZ} (mV/k) @ I_{ZT}		C @ $V_R = 0$ f = 1 MHz
							Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}		I_R @ V_R				
		Min	Nom	Max	Min	Max	Ω	Ω	mA	μA	Volts	Min	Max	pF
MM5Z2V4T1G	00	2.2	2.4	2.6	1.7	2.1	100	1000	1.0	50	1.0	-3.5	0	450
MM5Z2V7T1G	01	2.5	2.7	2.9	1.9	2.4	100	1000	1.0	20	1.0	-3.5	0	450
MM5Z3V0T1G	02	2.8	3.0	3.2	2.1	2.7	100	1000	1.0	10	1.0	-3.5	0	450
MM5Z3V3T1G	05	3.1	3.3	3.5	2.3	2.9	95	1000	1.0	5	1.0	-3.5	0	450
MM5Z3V6T1G	06	3.4	3.6	3.8	2.7	3.3	90	1000	1.0	5	1.0	-3.5	0	450
MM5Z3V9T1G	AJ	3.7	3.9	4.2	2.9	3.5	90	1000	1.0	3	1.0	-3.5	0	450
MM5Z4V3T1G	08	4.0	4.3	4.6	3.3	4	90	1000	1.0	3	1.0	-3.5	0	450
MM5Z4V7T1G	09	4.4	4.7	5.0	3.7	4.7	80	800	1.0	3	2.0	-3.5	0.2	260
MM5Z5V1T1G	0A	4.8	5.1	5.4	4.2	5.3	60	500	1.0	2	2.0	-2.7	1.2	225
MM5Z5V6T1G	0C	5.2	5.6	6.0	4.8	6	40	200	1.0	1	2.0	-2.0	2.5	200
MM5Z6V2T1G	0E	5.8	6.2	6.6	5.6	6.6	10	100	1.0	3	4.0	0.4	3.7	185
MM5Z6V8T1G	0F	6.4	6.8	7.2	6.3	7.2	15	160	1.0	2	4.0	1.2	4.5	155
MM5Z7V5T1G	0G	7.0	7.5	7.9	6.9	7.9	15	160	1.0	1	5.0	2.5	5.3	140
MM5Z8V2T1G	0H	7.7	8.2	8.7	7.6	8.7	15	160	1.0	0.7	5.0	3.2	6.2	135
MM5Z9V1T1G	0K	8.5	9.1	9.6	8.4	9.6	15	160	1.0	0.2	7.0	3.8	7.0	130
MM5Z10VT1G	0L	9.4	10	10.6	9.3	10.6	20	160	1.0	0.1	8.0	4.5	8.0	130
MM5Z11VT1G	0M	10.4	11	11.6	10.2	11.6	20	160	1.0	0.1	8.0	5.4	9.0	130
MM5Z12VT1G	0N	11.4	12	12.7	11.2	12.7	25	80	1.0	0.1	8.0	6.0	10	130
MM5Z13VT1G	0P	12.4	13.25	14.1	12.3	14	30	80	1.0	0.1	8.0	7.0	11	120
MM5Z15VT1G	0T	14.3	15	15.8	13.7	15.5	30	80	1.0	0.05	10.5	9.2	13	110
MM5Z16VT1G	0U	15.3	16.2	17.1	15.2	17	40	80	1.0	0.05	11.2	10.4	14	105
MM5Z18VT1G	0W	16.8	18	19.1	16.7	19	45	80	1.0	0.05	12.6	12.4	16	100
MM5Z20VT1G	0Z	18.8	20	21.2	18.7	21.1	55	100	1.0	0.05	14.0	14.4	18	85
MM5Z22VT1G	10	20.8	22	23.3	20.7	23.2	55	100	1.0	0.05	15.4	16.4	20	85
MM5Z24VT1G	11	22.8	24.2	25.6	22.7	25.5	70	120	1.0	0.05	16.8	18.4	22	80
MM5Z27VT1G	12	25.1	27	28.9	25	28.9	80	300	1.0	0.05	18.9	21.4	25.3	70
MM5Z30VT1G	14	28	30	32	27.8	32	80	300	1.0	0.05	21.0	24.4	29.4	70
MM5Z33VT1G	18	31	33	35	30.8	35	80	300	1.0	0.05	23.2	27.4	33.4	70
MM5Z36VT1G	19	34	36	38	33.8	38	90	500	1.0	0.05	25.2	30.4	37.4	70
MM5Z39VT1G	20	37	39	41	36.7	41	130	500	1.0	0.05	27.3	33.4	41.2	45
MM5Z43VT1G	21	40	43	46	39.7	46	150	500	1.0	0.05	30.1	37.6	46.6	40
MM5Z47VT1G	1A	44	47	50	43.7	50	170	500	1.0	0.05	32.9	42.0	51.8	40
MM5Z51VT1G	1C	48	51	54	47.6	54	180	500	1.0	0.05	35.7	46.6	57.2	40
MM5Z56VT1G	1D	52	56	60	51.5	60	200	500	1.0	0.05	39.2	52.2	63.8	40
MM5Z62VT1G	1E	58	62	66	57.4	66	215	500	1.0	0.05	43.4	58.8	71.6	35
MM5Z68VT1G	1F	64	68	72	63.4	72	240	500	1.0	0.05	47.6	65.6	79.8	35
MM5Z75VT1G	1G	70	75	79	69.4	79	255	500	1.0	0.05	52.5	73.4	88.6	35

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. $I_{ZT1} = 5\text{ mA}$: 2.4 to 24 V, $I_{ZT1} = 2\text{ mA}$: 27 to 75 V; $I_{ZT2} = 1\text{ mA}$: 2.4 to 24 V, $I_{ZT2} = 0.5\text{ mA}$: 27 to 75 V.

2. Zener voltage is measured with a pulse test current I_Z at an ambient temperature of 25°C .

*Includes SZ-prefix devices where applicable.

**Contact Sales.

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Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOD-523	R1	0.002	3000	45000	180000	7"

Package Outline Dimensions (SOD-523)

Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	1.10	1.30	0.043	0.051
B	0.25	0.35	0.010	0.014
C	1.50	1.70	0.059	0.067
D	0.50	0.70	0.020	0.027
E	0.70	0.90	0.027	0.035
F	0.05	0.20	0.002	0.008

Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
X	0.55	0.65	0.022	0.026
Y	0.65	0.75	0.026	0.029
Z	1.37	1.47	0.054	0.058