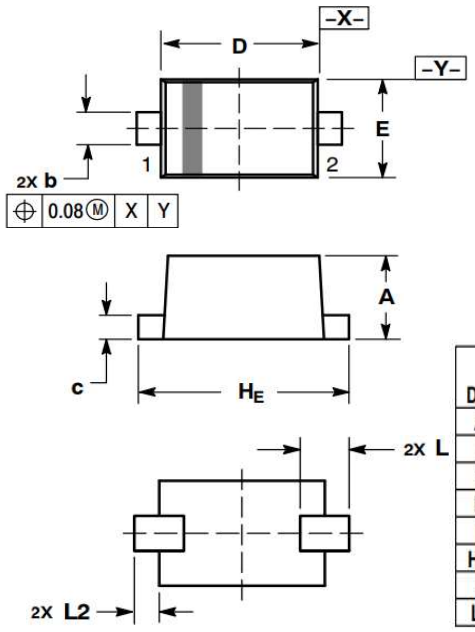
Zener Voltage Regulators
200mW Surface Mount Zener Diodes

This series of Zener diodes is packaged in a SOD–523 surface mount package that has a power dissipation of 200 mW. 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.

SOD-523



DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.50	0.60	0.70
b	0.25	0.30	0.35
c	0.07	0.14	0.20
D	1.10	1.20	1.30
E	0.70	0.80	0.90
HE	1.50	1.60	1.70
L	0.30 REF		
L2	0.15	0.20	0.25

Features
- Standard Zener Breakdown Voltage Range – 2.0 V to 75 V
- Steady State Power Rating of 200 mW
- Small Body Outline Dimensions: 0.047" x 0.032"(1.2 mm x 0.8 mm)
- Low Body Height: 0.028" (0.7 mm)
- ESD Rating of Class 3(>16kV) per Human Body Model
- Pb-Free package is available.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.
- We declare that the material of product compliance with RoHS requirements

Mechanical Data
- Case : Void-free, transfer-molded plastic
- Lead Finish : 100% Matte Sn (Tin)
- Maximun Case Temperature for Soldering Purposes : 260°C for 10 Seconds
- Polarity : Cathode indicated by polarity band
- Flammablity Rating : UL 94 V−0
- Mounting Position : Any

Marking

XX = Specific Device Code
d = Date Code

Cathode Anode

Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Parameter	Symbol	Rated Value	Unit	Remark
Total Power Dissipation on FR-5 Board,(Note 1)at Ta=25℃	P_D	200.0	mW	Note 1
Junction and Storage Temperature Range	T_J, T_{STG}	-65 to +150	℃	

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

Electrical Characteristics (T_A = 25°C unless otherwise noted, V_F = 0.9 V Max. @ I_F = 10 mA for all types)

Device	Device Marking	Zener Voltage				Zener Impedance (Note 5)			Leakage Current I_R @ V_R		ΘV_Z(mV/k)@I_{ZT}		Capacitance @V_R=0, f=1MHz
		V_Z (V)			I_{ZT}	Z_{ZT} @	Z_{ZK} @ I_{ZK}	I_{ZK}	I_R	V_R	mV/k		C
		Min	Nom	Max	mA	Ω	Ω	mA	uA	Volts	Min	Max	pF
LM5Z2V0T1G	WY	1.91	2.0	2.09	5.0	100	600	1.0	150	1.0	–3.5	0	450
LM5Z2V4T1G	00	2.2	2.4	2.6	5.0	100	1000	0.5	50	1.0	–3.5	0	450
LM5Z2V7T1G	01	2.5	2.7	2.9	5.0	100	1000	0.5	20	1.0	–3.5	0	450
LM5Z3V0T1G	02	2.8	3.0	3.2	5.0	100	1000	0.5	10	1.0	–3.5	0	450
LM5Z3V3T1G	05	3.1	3.3	3.5	5.0	95	1000	0.5	5.0	1.0	–3.5	0	450
LM5Z3V6T1G	06	3.4	3.6	3.8	5.0	90	1000	0.5	5.0	1.0	–3.5	0	450
LM5Z3V9T1G	07	3.7	3.9	4.1	5.0	90	1000	0.5	3.0	1.0	–3.5	–2.5	450
LM5Z4V3T1G	08	4.0	4.3	4.6	5.0	90	1000	0.5	3.0	1.0	–3.5	0	450
LM5Z4V7T1G	09	4.4	4.7	5.0	5.0	80	800	0.5	3.0	2.0	–3.5	0.2	260
LM5Z5V1T1G	0A	4.8	5.1	5.4	5.0	60	800	0.5	2.0	2.0	–2.7	1.2	225
LM5Z5V6T1G	0C	5.2	5.6	6.0	5.0	40	700	0.5	1.0	2.0	–2.0	2.5	200
LM5Z6V2T1G	0E	5.8	6.2	6.6	5.0	10	100	0.5	3.0	4.0	0.4	3.7	185
LM5Z6V8T1G	0F	6.4	6.8	7.2	5.0	15	160	0.5	2.0	4.0	1.2	4.5	155
LM5Z7V5T1G	0G	7.0	7.5	7.9	5.0	15	160	0.5	1.0	5.0	2.5	5.3	140
LM5Z8V2T1G	0H	7.7	8.2	8.7	5.0	15	160	0.5	0.7	5.0	3.2	6.2	135
LM5Z9V1T1G	0K	8.5	9.1	9.6	5.0	15	160	0.5	0.2	7.0	3.8	7.0	130
LM5Z10VT1G	0L	9.4	10.0	10.6	5.0	20	160	0.5	0.1	8.0	4.5	8.0	130
LM5Z11VT1G	0M	10.4	11.0	11.6	5.0	20	160	0.5	0.1	8.0	5.4	9.0	130
LM5Z12VT1G	0N	11.4	12.0	12.7	5.0	25	80	0.5	0.1	8.0	6.0	10.0	130
LM5Z13VT1G	0P	12.4	13.25	14.1	5.0	30	80	0.5	0.1	8.0	7.0	11.0	120
LM5Z15VT1G	0T	14.3	15.0	15.8	5.0	30	400	0.5	0.05	10.5	9.2	13.0	110
LM5Z16VT1G	0U	15.3	16.2	17.1	5.0	40	400	0.5	0.05	11.2	10.4	14.0	105
LM5Z18VT1G	0W	16.8	18.0	19.1	5.0	45	400	0.5	0.05	12.6	12.4	16.0	100
LM5Z20VT1G	0Z	18.8	20.0	21.2	5.0	55	500	0.5	0.05	14.0	14.4	18.0	85
LM5Z22VT1G	10	20.8	22.0	23.3	5.0	55	500	0.5	0.05	15.4	16.4	20.0	85
LM5Z24VT1G	11	22.8	24.2	25.6	5.0	70	120	0.5	0.05	16.8	18.4	22.0	80
LM5Z27VT1G	12	25.1	27.0	28.9	2.0	80	300	0.5	0.05	18.9	21.4	25.3	70
LM5Z30VT1G	14	28.0	30.0	32.0	2.0	80	300	0.5	0.05	21.0	24.4	29.4	70
LM5Z33VT1G	18	31.0	33.0	35.0	2.0	80	300	0.5	0.05	23.2	27.4	33.4	70
LM5Z36VT1G	19	34.0	36.0	38.0	2.0	90	500	0.5	0.05	25.2	30.4	37.4	70
LM5Z39VT1G	20	37.0	39.0	41.0	2.0	130	500	0.5	0.05	27.3	33.4	41.2	45
LM5Z43VT1G	21	40.0	43.0	46.0	2.0	150	500	0.5	0.05	30.1	37.6	46.6	40
LM5Z47VT1G	1A	44.0	47.0	50.0	2.0	170	500	0.5	0.05	32.9	42.0	51.8	40
LM5Z51VT1G	1C	48.0	51.0	54.0	2.0	180	500	0.5	0.05	35.7	46.6	57.2	40
LM5Z56VT1G	1D	52.0	56.0	60.0	2.0	200	500	0.5	0.05	39.2	52.2	63.8	40
LM5Z62VT1G	1E	58.0	62.0	66.0	2.0	215	500	0.5	0.05	43.4	58.8	71.6	35
LM5Z68VT1G	1F	64.0	68.0	72.0	2.0	240	500	0.5	0.05	47.6	65.6	79.8	35
LM5Z75VT1G	1G	70.0	75.0	79.0	2.0	255	500	0.5	0.05	52.5	73.4	88.6	35

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

Ratings and Characteristics Curves (Ta=25℃ unless otherwise noted)

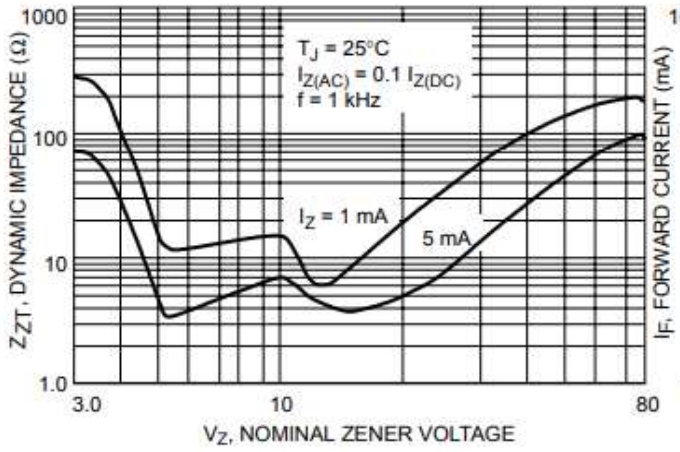


Figure 1. Effect of Zener Voltage on Zener Impedance

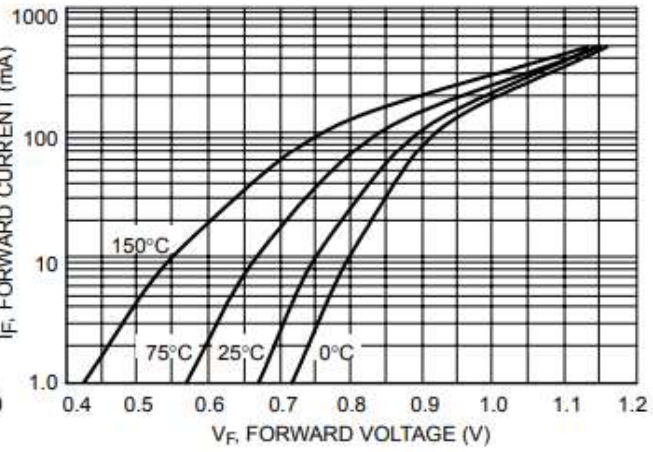


Figure 2. Typical Forward Voltage

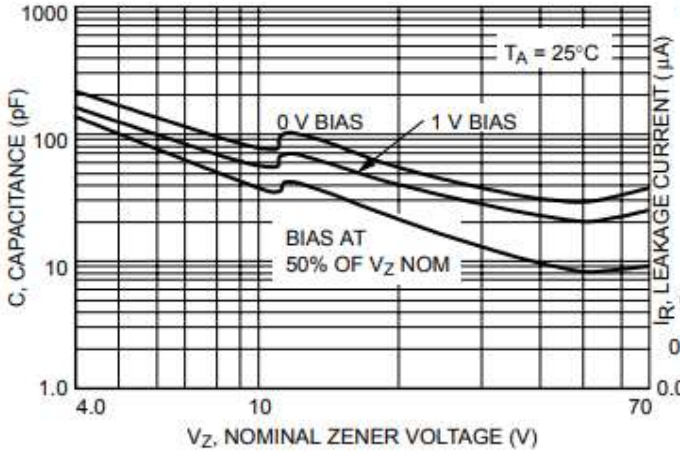


Figure 3. Typical Capacitance

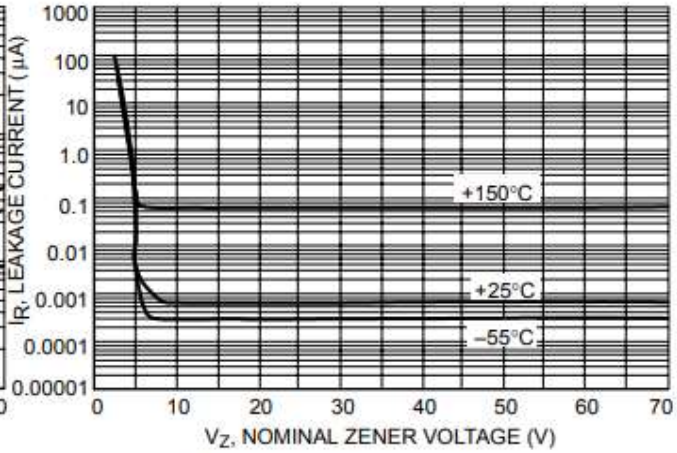


Figure 4. Typical Leakage Current

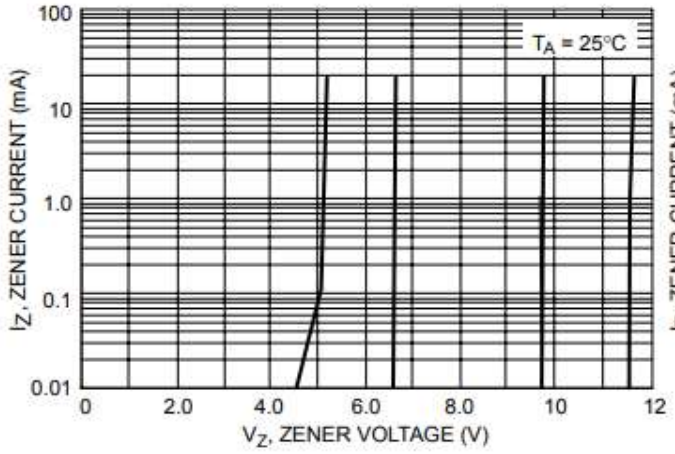


Figure 5. Zener Voltage versus Zener Current (V_Z Up to 12 V)

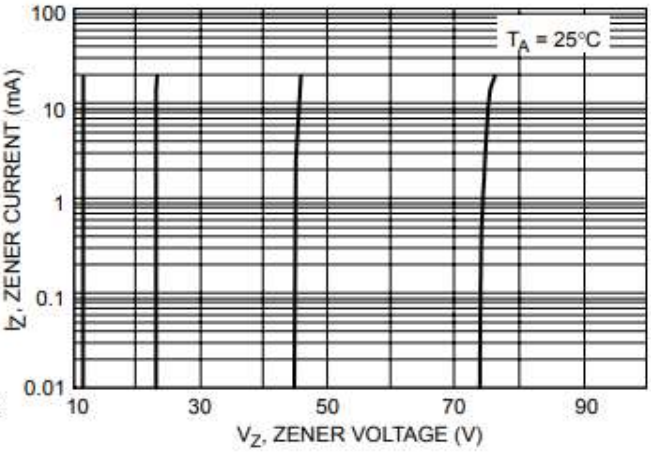


Figure 6. Zener Voltage versus Zener Current (12 V to 75 V)

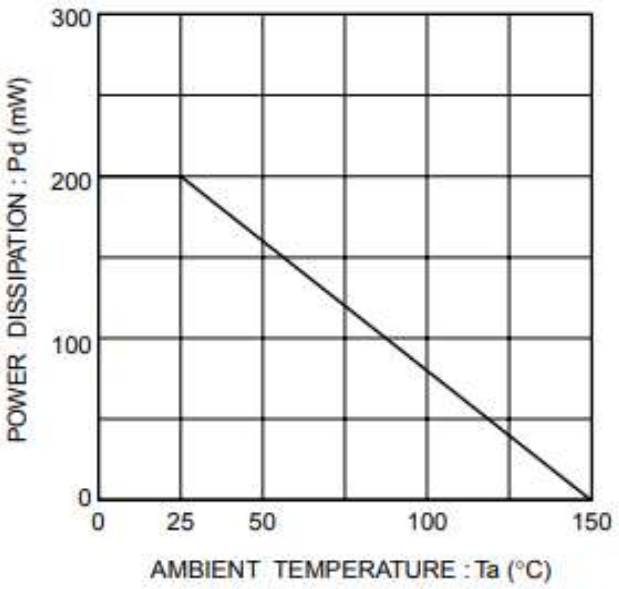
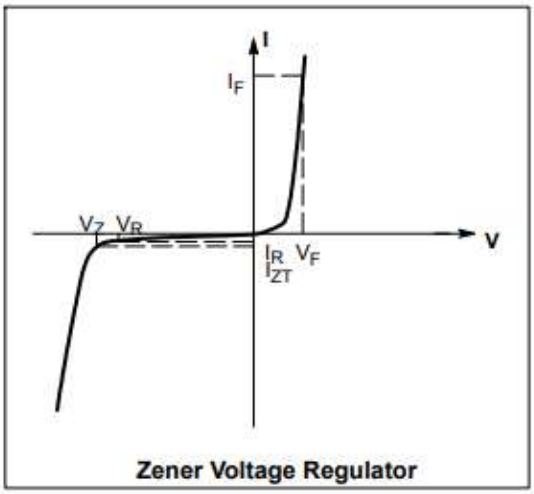


Figure 7. Steady State Power Derating

ELECTRICAL CHARACTERISTICS

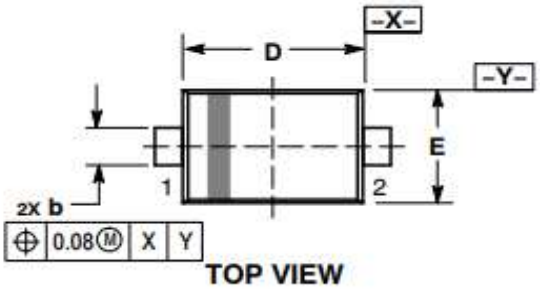
(T_A = 25°C unless otherwise noted,
V_F = 0.9 V Max. @ I_F = 10 mA for all types)

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 MHz

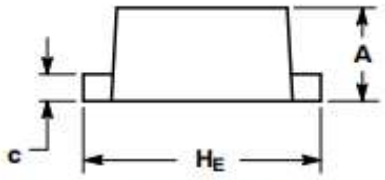


Zener Voltage Regulator

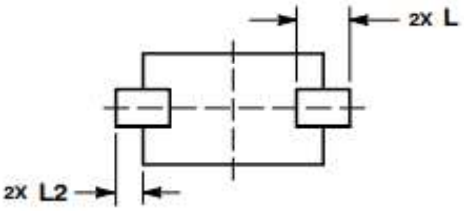
SOD-523/SC-79



TOP VIEW

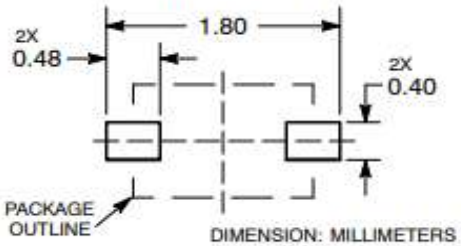


SIDE VIEW



BOTTOM VIEW

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSION: MILLIMETERS

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS		
DIM	MIN	NOM	MAX
A	0.50	0.60	0.70
b	0.25	0.30	0.35
c	0.07	0.14	0.20
D	1.10	1.20	1.30
E	0.70	0.80	0.90
HE	1.50	1.60	1.70
L		0.30 REF	
L2	0.15	0.20	0.25