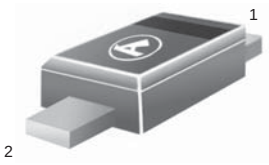
Zener Voltage Regulators

300 mW SOD–523 Surface Mount

- We declare that the material of product compliance with RoHS requirements.

LM5Z2V0PT1G Series
S-LM5Z2V0PT1G Series



SOD– 523

MARKING DIAGRAM

xx= Specific Device Code
M = Month Code

ORDERING INFORMATION

Device	Package	Shipping
LM5Z2V0T1G Series	SOD-523	3000/Tape&Reel
LM5Z2V0T5G Series	SOD-523	8000/Tape&Reel

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 – 2.0 V to 75 V
- Steady State Power Rating of 300 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
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

Mechanical Characteristics:

CASE: Void-free, transfer-molded,thermosetting plastic
Epoxy Meets UL 94 V-0

LEAD FINISH: 100% Matte Sn (Tin)

QUALIFIED MAX REFLOW TEMPERATURE:260°C
Device Meets MSL 1 Requirements

MOUNTING POSITION: Any

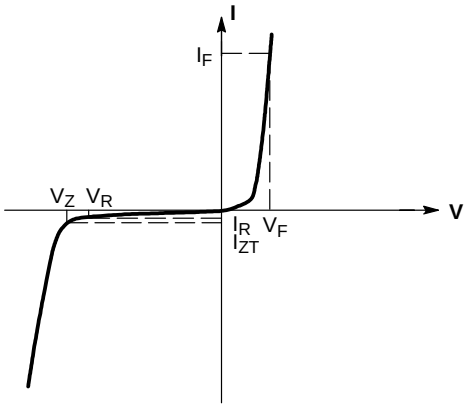
MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Total Device Dissipation FR−5 Board, @ T_A = 25°C	P_D	300	mW
Junction and Storage Temperature Range	T_J, T_{stg}	−65 to +150	°C

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)

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

LM5Z2V0PT1G Series,S-LM5Z2V0PT1G Series

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 (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
LM5Z2V0PT1G	WY	1.91	2.0	2.09	5	100	600	1.0	150	1.0	−3.5	0	450
LM5Z2V4PT1G	00	2.2	2.4	2.6	5	100	1000	1.0	50	1.0	−3.5	0	450
LM5Z2V7PT1G	01	2.5	2.7	2.9	5	100	1000	1.0	20	1.0	−3.5	0	450
LM5Z3V0PT1G	02	2.8	3.0	3.2	5	100	1000	1.0	10	1.0	−3.5	0	450
LM5Z3V3PT1G	05	3.1	3.3	3.5	5	95	1000	1.0	5	1.0	−3.5	0	450
LM5Z3V6PT1G	06	3.4	3.6	3.8	5	90	1000	1.0	5	1.0	−3.5	0	450
LM5Z3V9PT1G	07	3.7	3.9	4.1	5	90	1000	1.0	3	1.0	−3.5	−2.5	450
LM5Z4V3PT1G	08	4.0	4.3	4.6	5	90	1000	1.0	3	1.0	−3.5	0	450
LM5Z4V7PT1G	09	4.4	4.7	5.0	5	80	800	1.0	3	2.0	−3.5	0.2	260
LM5Z5V1PT1G	0A	4.8	5.1	5.4	5	60	500	1.0	2	2.0	−2.7	1.2	225
LM5Z5V6PT1G	0C	5.2	5.6	6.0	5	40	400	1.0	1	2.0	−2.0	2.5	200
LM5Z6V2PT1G	0E	5.8	6.2	6.6	5	10	100	1.0	3	4.0	0.4	3.7	185
LM5Z6V8PT1G	0F	6.4	6.8	7.2	5	15	160	1.0	2	4.0	1.2	4.5	155
LM5Z7V5PT1G	0G	7.0	7.5	7.9	5	15	160	1.0	1	5.0	2.5	5.3	140
LM5Z8V2PT1G	0H	7.7	8.2	8.7	5	15	160	1.0	0.7	5.0	3.2	6.2	135
LM5Z9V1PT1G	0K	8.5	9.1	9.6	5	15	160	1.0	0.2	7.0	3.8	7.0	130
LM5Z10VPT1G	0L	9.4	10	10.6	5	20	160	1.0	0.1	8.0	4.5	8.0	130
LM5Z11VPT1G	0M	10.4	11	11.6	5	20	160	1.0	0.1	8.0	5.4	9.0	130
LM5Z12VPT1G	0N	11.4	12	12.7	5	25	80	1.0	0.1	8.0	6.0	10	130
LM5Z13VPT1G	0P	12.4	13.25	14.1	5	30	80	1.0	0.1	8.0	7.0	11	120
LM5Z15VPT1G	0T	14.3	15	15.8	5	30	200	1.0	0.05	10.5	9.2	13	110
LM5Z16VPT1G	0U	15.3	16.2	17.1	2	40	200	1.0	0.05	11.2	10.4	14	105
LM5Z18VPT1G	0W	16.8	18	19.1	2	45	225	1.0	0.05	12.6	12.4	16	100
LM5Z20VPT1G	0Z	18.8	20	21.2	2	55	225	1.0	0.05	14.0	14.4	18	85
LM5Z22VPT1G	10	20.8	22	23.3	2	55	250	1.0	0.05	15.4	16.4	20	85
LM5Z24VPT1G	11	22.8	24.2	25.6	2	70	120	1.0	0.05	16.8	18.4	22	80
LM5Z27VPT1G	12	25.1	27	28.9	2	80	300	1.0	0.05	18.9	21.4	25.3	70
LM5Z30VPT1G	14	28	30	32	2	80	300	1.0	0.05	21.0	24.4	29.4	70
LM5Z33VPT1G	18	31	33	35	2	80	300	1.0	0.05	23.2	27.4	33.4	70
LM5Z36VPT1G	19	34	36	38	2	90	500	1.0	0.05	25.2	30.4	37.4	70
LM5Z39VPT1G	20	37	39	41	2	130	500	1.0	0.05	27.3	33.4	41.2	45
LM5Z43VPT1G	21	40	43	46	2	150	500	1.0	0.05	30.1	37.6	46.6	40
LM5Z47VPT1G	1A	44	47	50	2	170	500	1.0	0.05	32.9	42.0	51.8	40
LM5Z51VPT1G	1C	48	51	54	2	180	500	1.0	0.05	35.7	46.6	57.2	40
LM5Z56VPT1G	1D	52	56	60	2	200	500	1.0	0.05	39.2	52.2	63.8	40
LM5Z62VPT1G	1E	58	62	66	2	215	500	1.0	0.05	43.4	58.8	71.6	35
LM5Z68VPT1G	1F	64	68	72	2	240	500	1.0	0.05	47.6	65.6	79.8	35
LM5Z75VPT1G	1G	70	75	79	2	255	500	1.0	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.

Typical Characteristics

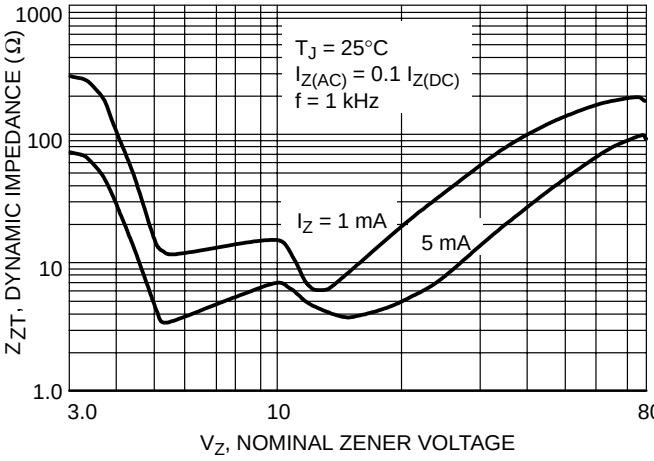


Figure 1. Effect of Zener Voltage on Zener Impedance

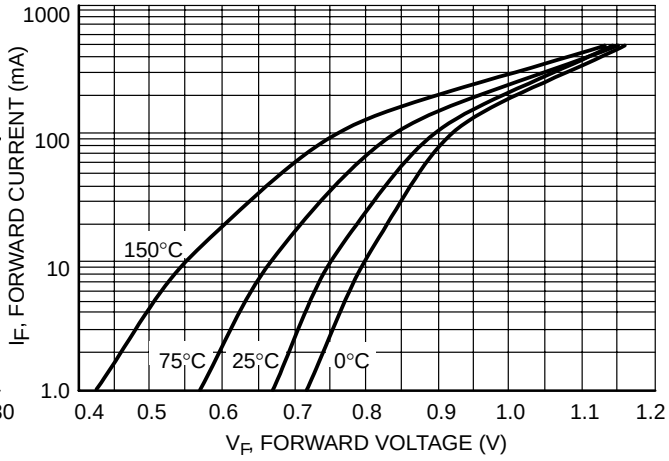


Figure 2. Typical Forward Voltage

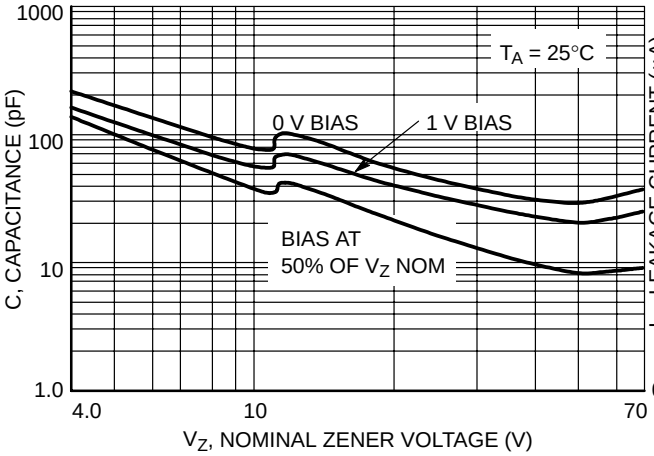


Figure 3. Typical Capacitance

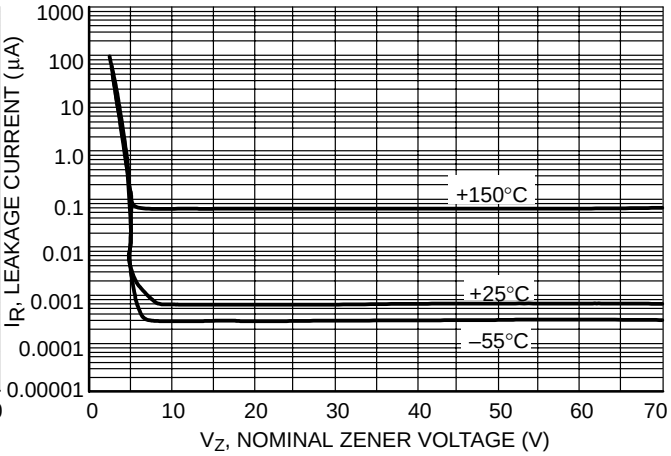


Figure 4. Typical Leakage Current

Typical Characteristics

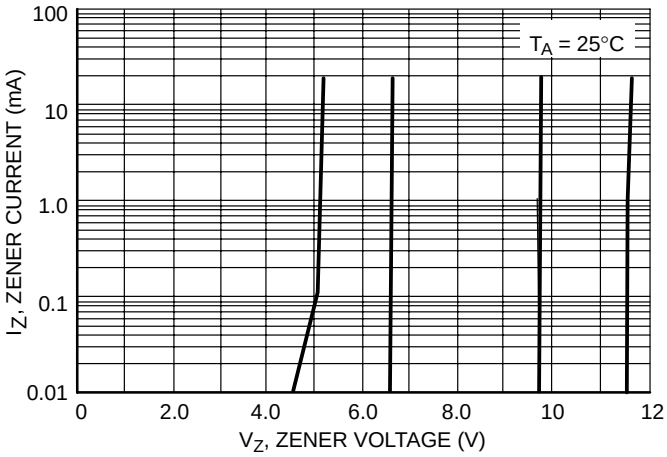


Figure 5. Zener Voltage versus Zener Current (V_Z Up to 12 V)

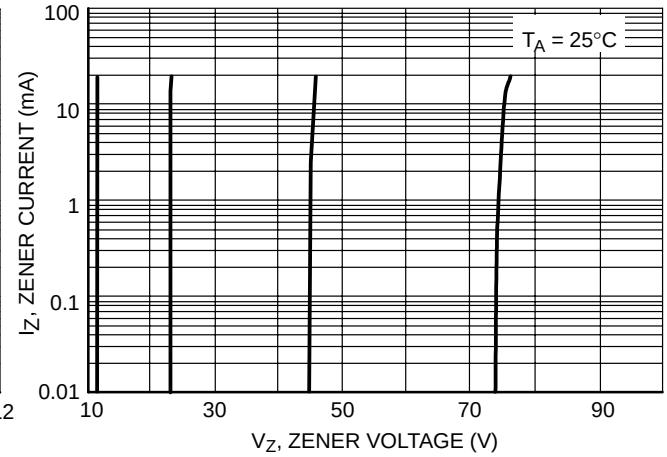


Figure 6. Zener Voltage versus Zener Current (12 V to 75 V)

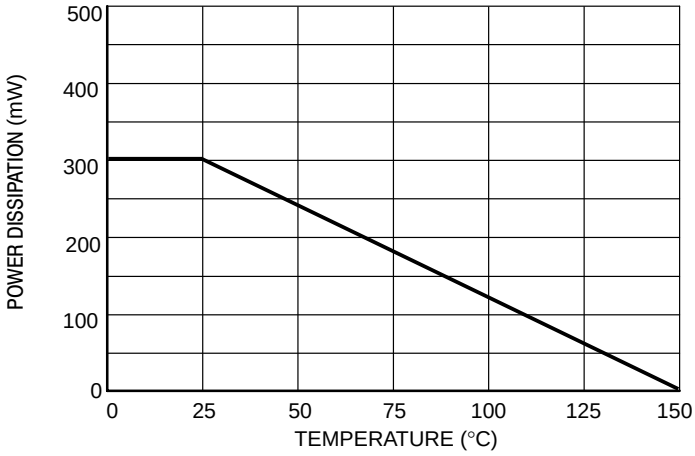
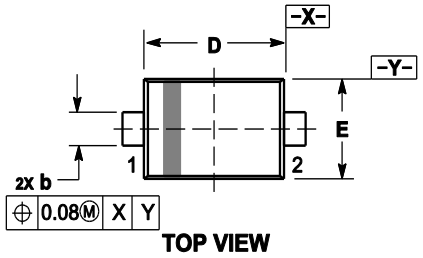
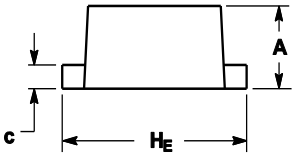


Figure 7. Steady State Power Derating

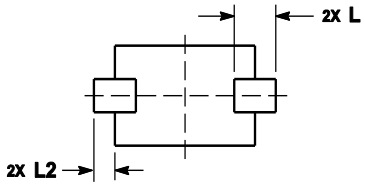
OUTLINE AND DIMENSIONS



TOP VIEW



SIDE VIEW



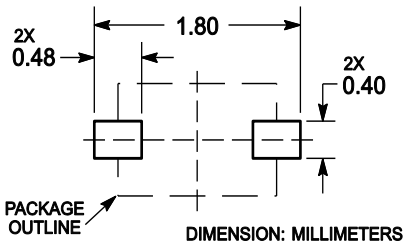
BOTTOM VIEW

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
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			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.50	0.60	0.70	0.020	0.024	0.028
b	0.25	0.30	0.35	0.010	0.012	0.014
c	0.07	0.14	0.20	0.003	0.006	0.008
D	1.10	1.20	1.30	0.043	0.047	0.051
E	0.70	0.80	0.90	0.028	0.031	0.035
H_E	1.50	1.60	1.70	0.059	0.063	0.067
L	0.30 REF			0.012 REF		
L_2	0.15	0.20	0.25	0.006	0.008	0.010

SOLDERING FOOTPRINT



DIMENSION: MILLIMETERS

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