

## 200mW SOD-323 SURFACE MOUNT Small Outline Gull Wing Lead Plastic Package Zener Voltage Regulators

Green Product

### Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$P_D$	Power Dissipation	200	mW
$T_{STG}$	Storage Temperature Range	-65 to +150	$^\circ\text{C}$
$T_{OPR}$	Operating Temperature Range	-65 to +150	$^\circ\text{C}$

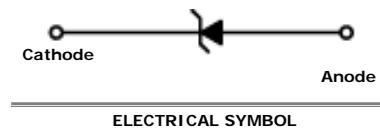
These ratings are limiting values above which the serviceability of the diode may be impaired.



SOD-323 Gull Wing Lead

### Specification Features:

- Wide Zener Voltage Range Selection, 2.4V to 75V
- VZ Tolerance Selection of  $\pm 5\%$
- Gull Wing Lead SOD-323 Small Outline Plastic Package
- Surface Device Type Mounting
- RoHS Compliant
- Green EMC
- Matte Tin(Sn) Lead Finish
- Band Indicates Cathode
- Weight: approx. 0.004g



### Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Device Type	Device Marking	$V_Z @ I_{ZT}$ (Volts)			$I_{ZT}$ (mA)	$Z_{ZT} @ I_{ZT}$ ( $\Omega$ ) Max	$Z_{ZK} @ I_{ZK} = 0.25\text{mA}$ ( $\Omega$ ) Max	$I_R @ V_R$ ( $\mu\text{A}$ ) Max	$V_R$ (Volts)
		Min	Nom	Max					
MMSZ5221BSWG	Z2V4	2.28	2.4	2.52	20	30	1200	100	1
MMSZ5222BSWG	Z2V5	2.38	2.5	2.63	20	30	1250	100	1
MMSZ5223BSWG	Z2V7	2.57	2.7	2.84	20	30	1300	75	1
MMSZ5224BSWG	Z2V8	2.66	2.8	2.94	20	30	1400	75	1
MMSZ5225BSWG	Z3V0	2.85	3.0	3.15	20	29	1600	50	1
MMSZ5226BSWG	Z3V3	3.14	3.3	3.47	20	28	1600	25	1
MMSZ5227BSWG	Z3V6	3.42	3.6	3.78	20	24	1700	15	1
MMSZ5228BSWG	Z3V9	3.71	3.9	4.10	20	23	1900	10	1
MMSZ5229BSWG	Z4V3	4.09	4.3	4.52	20	22	2000	5	1
MMSZ5230BSWG	Z4V7	4.47	4.7	4.94	20	19	1900	5	2
MMSZ5231BSWG	Z5V1	4.85	5.1	5.36	20	17	1600	5	2
MMSZ5232BSWG	Z5V6	5.32	5.6	5.88	20	11	1600	5	3
MMSZ5233BSWG	Z6V0	5.70	6.0	6.30	20	7	1600	5	3.5
MMSZ5234BSWG	Z6V2	5.89	6.2	6.51	20	7	1000	5	4
MMSZ5235BSWG	Z6V8	6.46	6.8	7.14	20	5	750	3	5
MMSZ5236BSWG	Z7V5	7.13	7.5	7.88	20	6	500	3	6
MMSZ5237BSWG	Z8V2	7.79	8.2	8.61	20	8	500	3	6.5
MMSZ5238BSWG	Z8V7	8.27	8.7	9.14	20	8	600	3	6.5
MMSZ5239BSWG	Z9V1	8.65	9.1	9.56	20	10	600	3	7
MMSZ5240BSWG	Z10V	9.50	10	10.50	20	17	600	3	8
MMSZ5241BSWG	Z11V	10.45	11	11.55	20	22	600	2	8.4
MMSZ5242BSWG	Z12V	11.40	12	12.60	20	30	600	1	9.1
MMSZ5243BSWG	Z13V	12.35	13	13.65	9.5	13	600	0.5	9.9

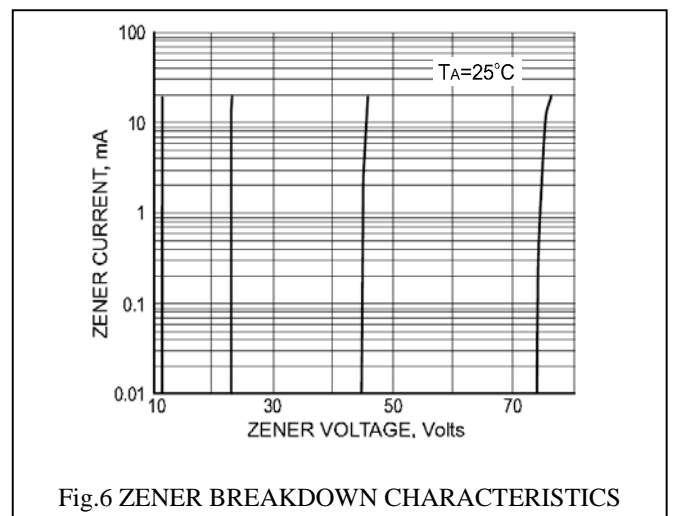
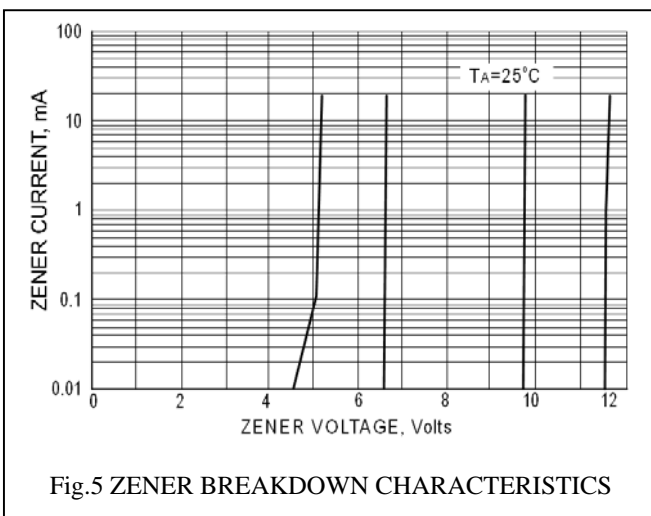
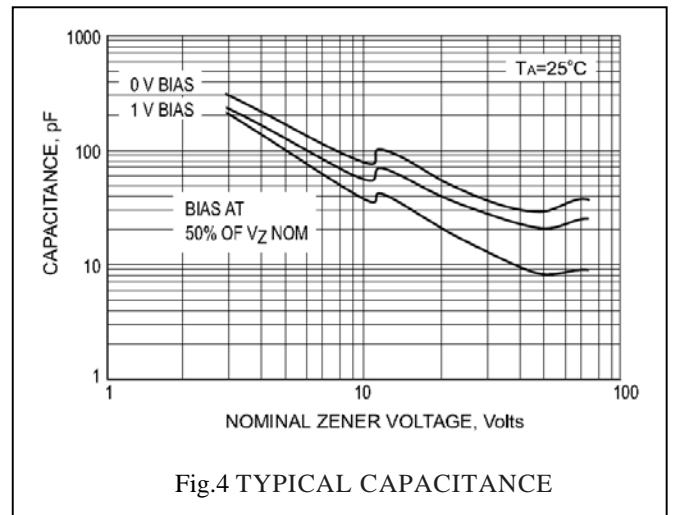
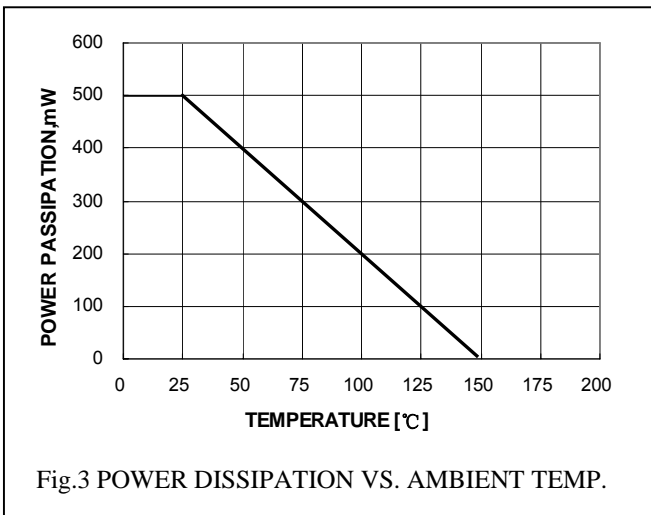
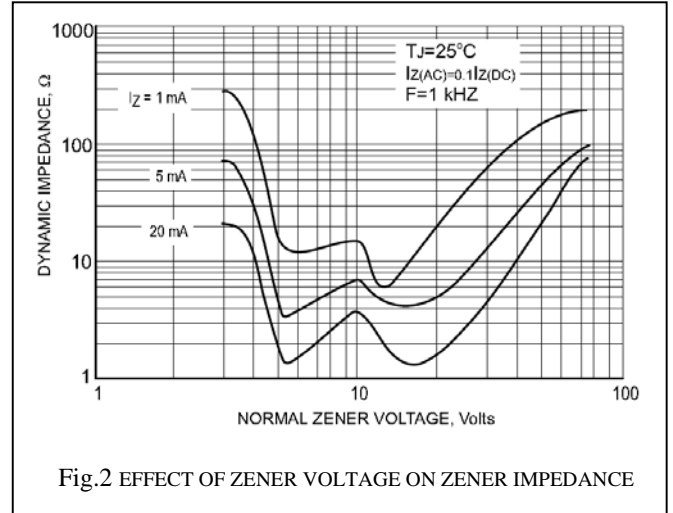
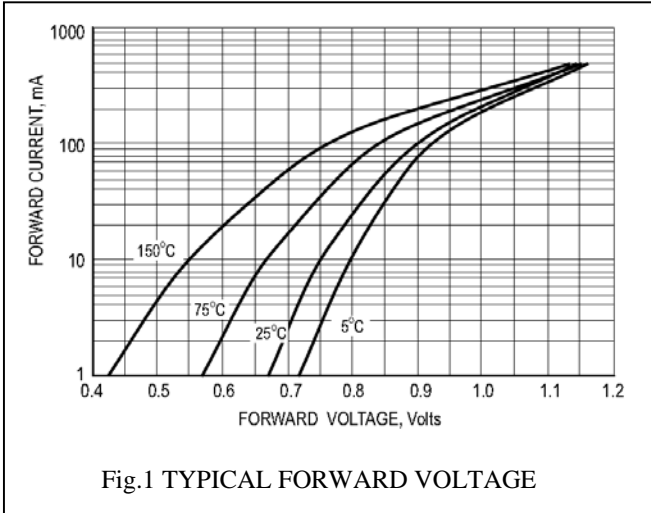
**Electrical Characteristics**  $T_A = 25^\circ\text{C}$  unless otherwise noted

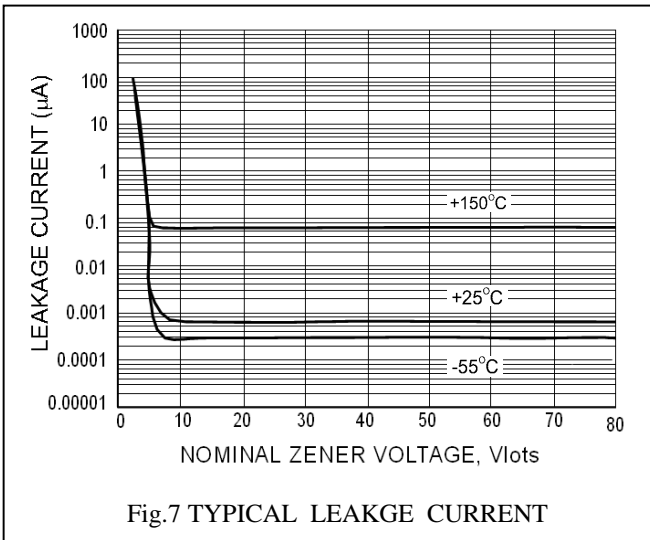
Device Type	Device Marking	$V_Z @ I_{ZT}$ (Volts)			$I_{ZT}$ (mA)	$Z_{ZT} @ I_{ZT}$ ( $\Omega$ ) Max	$Z_{ZK} @ I_{ZK} = 0.25\text{mA}$ ( $\Omega$ ) Max	$I_R @ V_R$ ( $\mu\text{A}$ ) Max	$V_R$ (Volts)
		Min	Nom	Max					
MMSZ5244BSWG	Z14V	13.30	14	14.70	9	15	600	0.1	10
MMSZ5245BSWG	Z15V	14.25	15	15.75	8.5	16	600	0.1	11
MMSZ5246BSWG	Z16V	15.20	16	16.80	7.8	17	600	0.1	12
MMSZ5247BSWG	Z17V	16.15	17	17.85	7.4	19	600	0.1	13
MMSZ5248BSWG	Z18V	17.10	18	18.90	7	21	600	0.1	14
MMSZ5249BSWG	Z19V	18.05	19	19.95	6.6	23	600	0.1	14
MMSZ5250BSWG	Z20V	19.00	20	21.00	6.2	25	600	0.1	15
MMSZ5251BSWG	Z22V	20.90	22	23.10	5.6	29	600	0.1	17
MMSZ5252BSWG	Z24V	22.80	24	25.20	5.2	33	600	0.1	18
MMSZ5253BSWG	Z25V	23.75	25	26.25	5	35	600	0.1	19
MMSZ5254BSWG	Z27V	25.65	27	28.35	4.6	41	600	0.1	21
MMSZ5255BSWG	Z28V	26.60	28	29.40	4.5	44	600	0.1	21
MMSZ5256BSWG	Z30V	28.50	30	31.50	4.2	49	600	0.1	23
MMSZ5257BSWG	Z33V	31.35	33	34.65	3.8	58	700	0.1	25
MMSZ5258BSWG	Z36V	34.20	36	37.80	3.4	70	700	0.1	27
MMSZ5259BSWG	Z39V	37.05	39	40.95	3.2	80	800	0.1	30
MMSZ5260BSWG	Z43V	40.85	43	45.15	3	93	900	0.1	33
MMSZ5261BSWG	Z47V	44.65	47	49.35	2.7	105	1000	0.1	36
MMSZ5262BSWG	Z51V	48.45	51	53.55	2.5	125	1100	0.1	39
MMSZ5263BSWG	Z56V	53.20	56	58.80	2.2	150	1300	0.1	43
MMSZ5264BSWG	Z60V	57.00	60	63.00	2.1	170	1400	0.1	46
MMSZ5265BSWG	Z62V	58.90	62	65.10	2.0	185	1400	0.1	47
MMSZ5266BSWG	Z68V	64.60	68	71.40	1.8	230	1600	0.1	52
MMSZ5267BSWG	Z75V	71.25	75	78.75	1.7	270	1700	0.1	56

 $V_F$  Forward Voltage = 900mV Maximum @  $I_F = 10\text{ mA}$  for all types

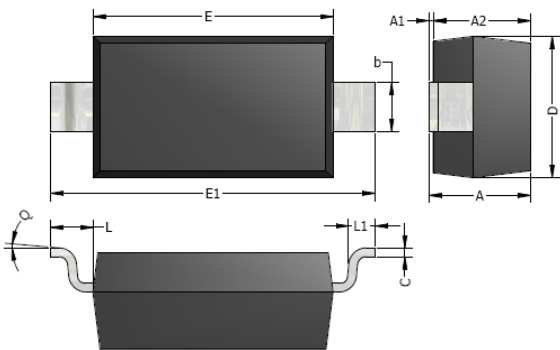
**Notes:**

1. The Zener Voltage ( $V_Z$ ) is tested under pulse condition of 10mS.
2. The device numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ .
3. For detailed information on price, availability and delivery of nominal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Tak Cheong Electronics representative.
4. The zener impedance is derived from the 60-cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed to  $I_{ZT}$  or  $I_{ZK}$ .

**RATING AND CHARACTERISTIC CURVES**


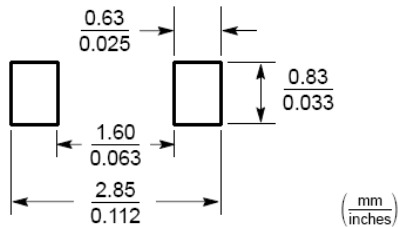


SOD-323 Gull Wing Lead Package Outline



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	1.00	0.031	0.039
A1	0.00	0.10	0.000	0.004
A2	0.80	0.90	0.031	0.035
b	0.30	0.40	0.012	0.016
c	0.08	0.15	0.003	0.006
D	1.20	1.40	0.047	0.055
E	1.60	1.80	0.063	0.071
E1	2.50	2.70	0.098	0.106
L	0.475 REF.		0.019 REF.	
L1	0.25	0.40	0.010	0.016
θ	0°	8°	0°	8°

Typical Soldering Pattern:



**Note:**  
Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

## **NOTICE**

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The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Tak Cheong Semiconductor Co., Ltd., or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

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