

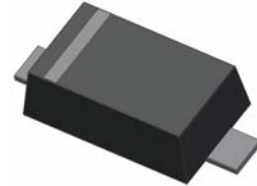


# DATA SHEET

SEMICONDUCTOR

MMSZ52xxB Series

## 500mW SOD-123 SURFACE MOUNT Flat Lead Surface Mount Plastic Package Zener Voltage Regulators



SOD-123 Flat Lead

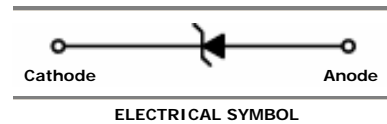
### Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$P_D$	Power Dissipation	500	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.

### Specification Features:

- Wide Zener Voltage Range Selection, 2.4V to 56V
- VZ Tolerance Selection of  $\pm 5\%$
- Flat Lead SOD-123 Plastic Package
- Surface Device Type Mounting
- Moisture Sensitivity Level 1
- Clip Bonding Construction, Good Thermal Capability
- Pb Free Version and RoHS Compliant
- Matte Tin(Sn) Lead Finish with Nickel(Ni) Underplate
- Band Indicates Cathode



### 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					
MMSZ5221B	Z2V4	2.28	2.4	2.52	20	30	1200	100	1
MMSZ5222B	Z2V5	2.38	2.5	2.63	20	30	1250	100	1
MMSZ5223B	Z2V7	2.57	2.7	2.84	20	30	1300	75	1
MMSZ5224B	Z2V8	2.66	2.8	2.94	20	30	1400	75	1
MMSZ5225B	Z3V0	2.85	3.0	3.15	20	29	1600	50	1
MMSZ5226B	Z3V3	3.14	3.3	3.47	20	28	1600	25	1
MMSZ5227B	Z3V6	3.42	3.6	3.78	20	24	1700	15	1
MMSZ5228B	Z3V9	3.71	3.9	4.10	20	23	1900	10	1
MMSZ5229B	Z4V3	4.09	4.3	4.52	20	22	2000	5	1
MMSZ5230B	Z4V7	4.47	4.7	4.94	20	19	1900	5	2
MMSZ5231B	Z5V1	4.85	5.1	5.36	20	17	1600	5	2
MMSZ5232B	Z5V6	5.32	5.6	5.88	20	11	1600	5	3
MMSZ5233B	Z6V0	5.70	6.0	6.30	20	7	1600	5	3.5
MMSZ5234B	Z6V2	5.89	6.2	6.51	20	7	1000	5	4
MMSZ5235B	Z6V8	6.46	6.8	7.14	20	5	750	3	5
MMSZ5236B	Z7V5	7.13	7.5	7.88	20	6	500	3	6
MMSZ5237B	Z8V2	7.79	8.2	8.61	20	8	500	3	6.5
MMSZ5238B	Z8V7	8.27	8.7	9.14	20	8	600	3	6.5
MMSZ5239B	Z9V1	8.65	9.1	9.56	20	10	600	3	7
MMSZ5240B	Z10V	9.50	10	10.50	20	17	600	3	8
MMSZ5241B	Z11V	10.45	11	11.55	20	22	600	2	8.4
MMSZ5242B	Z12V	11.40	12	12.60	20	30	600	1	9.1
MMSZ5243B	Z13V	12.35	13	13.65	9.5	13	600	0.5	9.9

# MMSZ52xxB Series

## 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					
MMSZ5244B	Z14V	13.30	14	14.70	9	15	600	0.1	10
MMSZ5245B	Z15V	14.25	15	15.75	8.5	16	600	0.1	11
MMSZ5246B	Z16V	15.20	16	16.80	7.8	17	600	0.1	12
MMSZ5247B	Z17V	16.15	17	17.85	7.4	19	600	0.1	13
MMSZ5248B	Z18V	17.10	18	18.90	7	21	600	0.1	14
MMSZ5249B	Z19V	18.05	19	19.95	6.6	23	600	0.1	14
MMSZ5250B	Z20V	19.00	20	21.00	6.2	25	600	0.1	15
MMSZ5251B	Z22V	20.90	22	23.10	5.6	29	600	0.1	17
MMSZ5252B	Z24V	22.80	24	25.20	5.2	33	600	0.1	18
MMSZ5253B	Z25V	23.75	25	26.25	5	35	600	0.1	19
MMSZ5254B	Z27V	25.65	27	28.35	4.6	41	600	0.1	21
MMSZ5255B	Z28V	26.60	28	29.40	4.5	44	600	0.1	21
MMSZ5256B	Z30V	28.50	30	31.50	4.2	49	600	0.1	23
MMSZ5257B	Z33V	31.35	33	34.65	3.8	58	700	0.1	25
MMSZ5258B	Z36V	34.20	36	37.80	3.4	70	700	0.1	27
MMSZ5259B	Z39V	37.05	39	40.95	3.2	80	800	0.1	30
MMSZ5260B	Z43V	40.85	43	45.15	3	93	900	0.1	33
MMSZ5261B	Z47V	44.65	47	49.35	2.7	105	1000	0.1	36
MMSZ5262B	Z51V	48.45	51	53.55	2.5	125	1100	0.1	39
MMSZ5263B	Z56V	53.20	56	58.80	2.2	150	1300	0.1	43

$V_F$  Forward Voltage = 900mV Maximum @  $I_F = 10$  mA for all types

### Notes:

1. The zener voltage ( $V_Z$ ) is tested under pulse condition of 15mS. The measured  $V_Z$  is guaranteed to be within specification with device junction in thermal equilibrium.
2. The device numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ .
3. 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  $I_{ZK}$ .
4. For detailed information on price, availability and delivery of nominal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest YEASHIN representative.

# DEVICE CHARACTERISTICS

## MMSZ52xxB Series

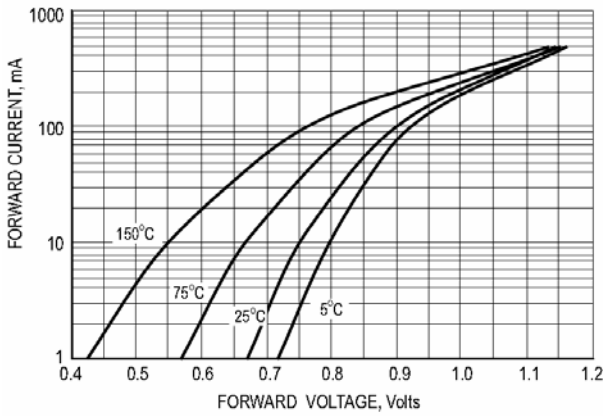


Fig.1 TYPICAL FORWARD VOLTAGE

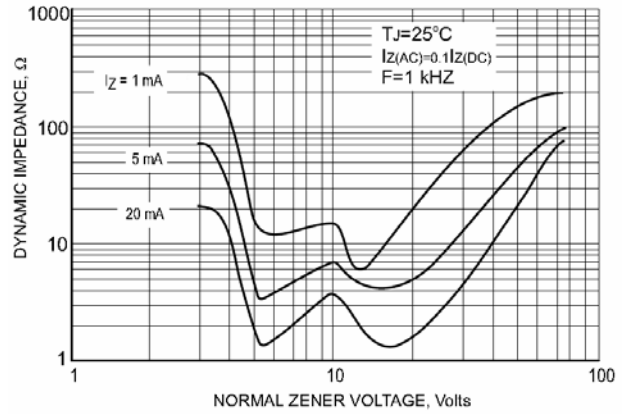


Fig.2 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

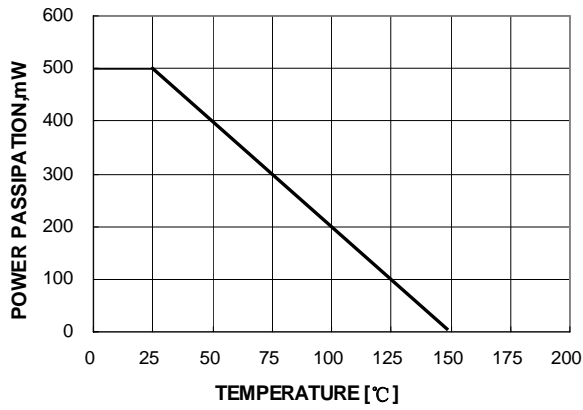


Fig.3 POWER DISSIPATION VS. AMBIENT TEMP.

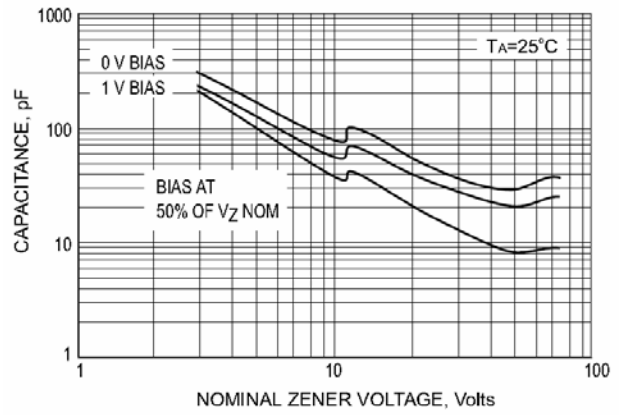


Fig.4 TYPICAL CAPACITANCE

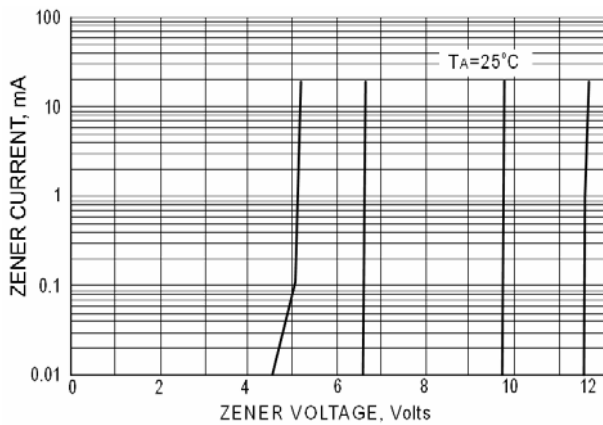


Fig.5 ZENER BREAKDOWN CHARACTERISTICS

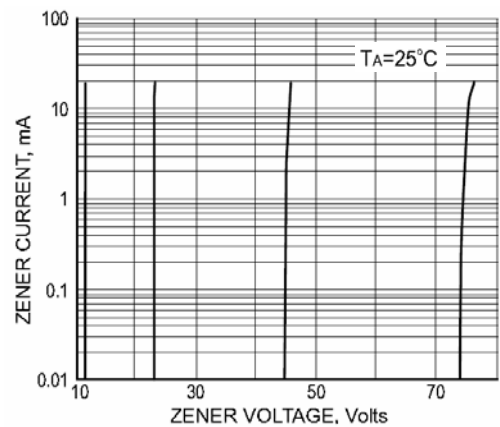


Fig.6 ZENER BREAKDOWN CHARACTERISTICS

# PACKAGE OUTLINE & DIMENSIONS

## MMSZ52xxB Series

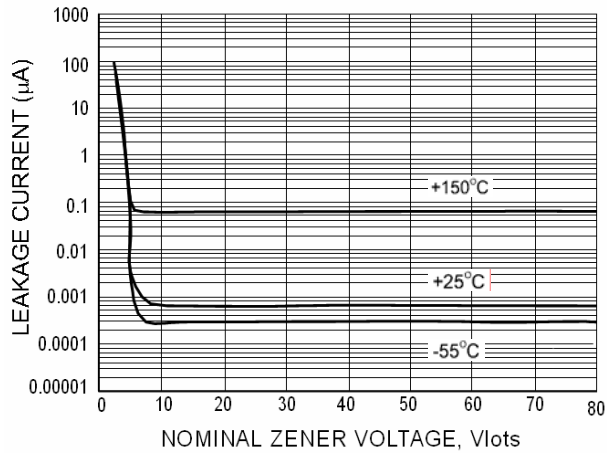
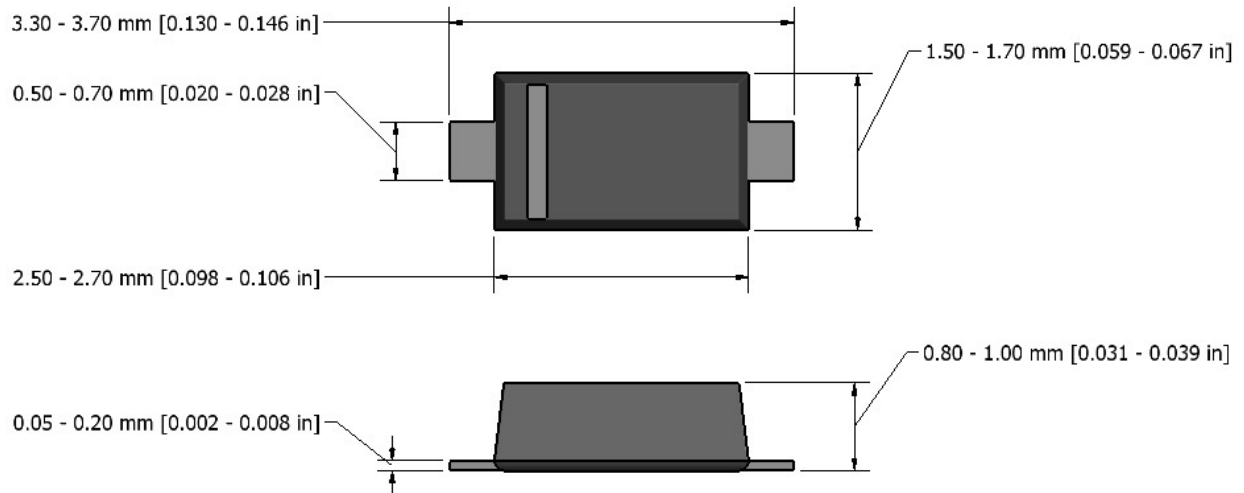


Fig.7 TYPICAL LEAKGE CURRENT

### Flat Lead SOD-123 Package Outline



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