

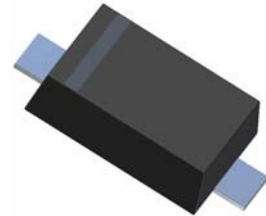


SEMICONDUCTOR

# DATA SHEET

## MMSZ Series

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



SOD-123 Flat Lead

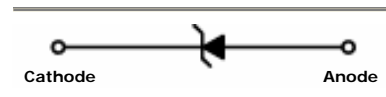
#### Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

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 75V
- VZ Tolerance Selection of  $\pm 2\%$  (B Series)
- 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 SYMBOL

#### 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	$I_{ZK}$ (mA)	$Z_{ZK} @ I_{ZK}$ ( $\Omega$ ) Max	$I_R @ V_R$ ( $\mu\text{A}$ ) Max	$V_R$ (Volts)
		Min	Nom	Max						
MMSZ2V4B	2V4B	2.35	2.4	2.45	5	94	1	564	45	1
MMSZ2V7B	2V7B	2.65	2.7	2.75	5	94	1	564	18	1
MMSZ3V0B	3V0B	2.94	3.0	3.06	5	89	1	564	9	1
MMSZ3V3B	3V3B	3.23	3.3	3.37	5	89	1	564	4.5	1
MMSZ3V6B	3V6B	3.53	3.6	3.67	5	84	1	564	4.5	1
MMSZ3V9B	3V9B	3.82	3.9	3.98	5	84	1	564	2.7	1
MMSZ4V3B	4V3B	4.21	4.3	4.39	5	84	1	564	2.7	1
MMSZ4V7B	4V7B	4.61	4.7	4.79	5	75	1	470	2.7	2
MMSZ5V1B	5V1B	5.00	5.1	5.20	5	56	1	451	1.8	2
MMSZ5V6B	5V6B	5.49	5.6	5.71	5	37	1	376	0.9	2
MMSZ6V2B	6V2B	6.08	6.2	6.32	5	9	1	141	2.7	4
MMSZ6V8B	6V8B	6.66	6.8	6.94	5	14	1	75	1.8	4
MMSZ7V5B	7V5B	7.35	7.5	7.65	5	14	1	75	0.9	5
MMSZ8V2B	8V2B	8.04	8.2	8.36	5	14	1	75	0.63	5
MMSZ9V1B	9V1B	8.92	9.1	9.28	5	14	1	94	0.45	6
MMSZ10VB	10VB	9.80	10	10.20	5	18	1	141	0.18	7
MMSZ11VB	11VB	10.78	11	11.22	5	18	1	141	0.09	8
MMSZ12VB	12VB	11.76	12	12.24	5	23	1	141	0.09	8
MMSZ13VB	13VB	12.74	13	13.26	5	28	1	160	0.09	8
MMSZ15VB	15VB	14.70	15	15.30	5	28	1	188	0.045	10.5
MMSZ16VB	16VB	15.68	16	16.32	5	37	1	188	0.045	11.2
MMSZ18VB	18VB	17.64	18	18.36	5	42	1	212	0.045	12.6
MMSZ20VB	20VB	19.60	20	20.40	5	51	1	212	0.045	14.0

# MMSZ 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	$I_{ZK}$ (mA)	$Z_{ZK} @ I_{ZK}$ ( $\Omega$ ) Max	$I_R @ V_R$ ( $\mu\text{A}$ ) Max	$V_R$ (Volts)
		Min	Nom	Max						
MMSZ22VB	22VB	21.56	22	22.44	5	51	1	235	0.045	15.4
MMSZ24VB	24VB	23.52	24	24.48	5	65	1	235	0.045	16.8
MMSZ27VB	27VB	26.46	27	27.54	5	75	0.5	282	0.045	18.9
MMSZ30VB	30VB	29.40	30	30.60	5	75	0.5	282	0.045	21.0
MMSZ33VB	33VB	32.34	33	33.66	5	75	0.5	306	0.045	23.0
MMSZ36VB	36VB	35.28	36	36.72	5	84	0.5	329	0.045	25.2
MMSZ39VB	39VB	38.22	39	39.78	5	122	0.5	329	0.045	27.3
MMSZ43VB	43VB	42.14	43	43.86	5	141	0.5	353	0.045	30.1
MMSZ47VB	47VB	46.06	47	47.94	5	160	0.5	353	0.045	33.0
MMSZ51VB	51VB	49.98	51	52.02	5	169	0.5	376	0.045	35.7
MMSZ56VB	56VB	54.88	56	57.12	5	188	0.5	400	0.045	39.2
MMSZ62VB	62VB	60.76	62	63.24	5	202	0.5	423	0.045	43.4
MMSZ68VB	68VB	66.64	68	69.36	5	226	0.5	447	0.045	47.6
MMSZ75VB	75VB	73.50	75	76.50	5	240	0.5	470	0.045	52.5

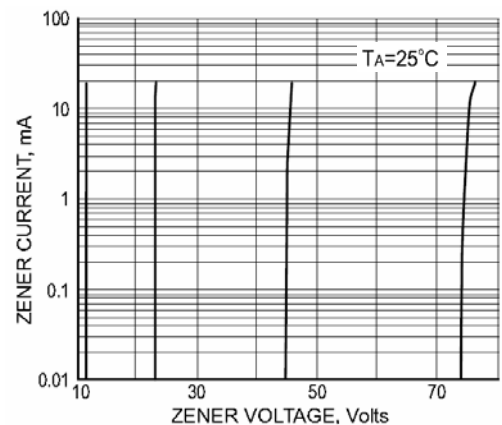
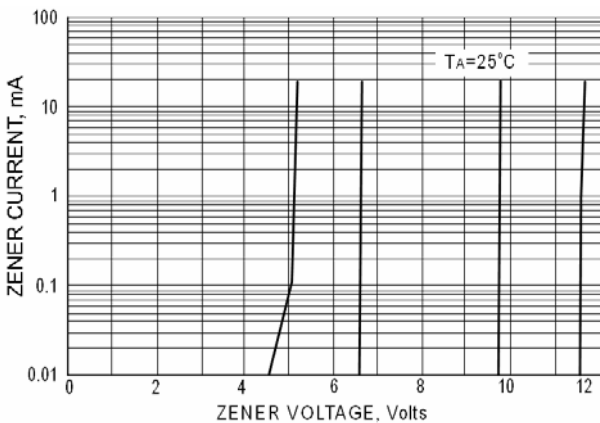
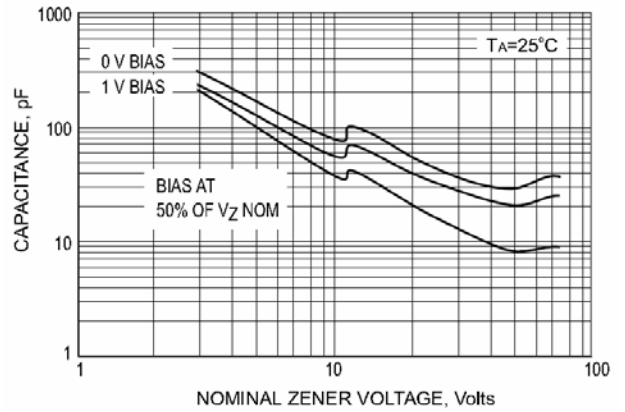
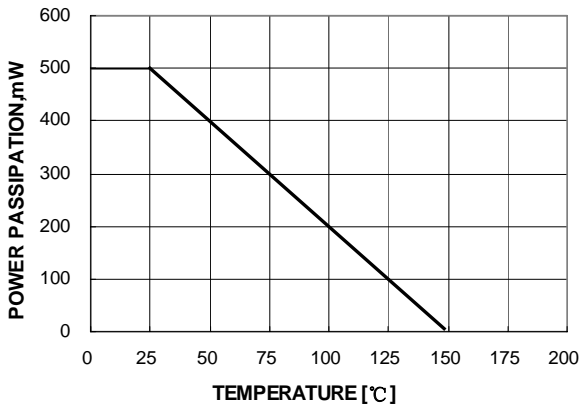
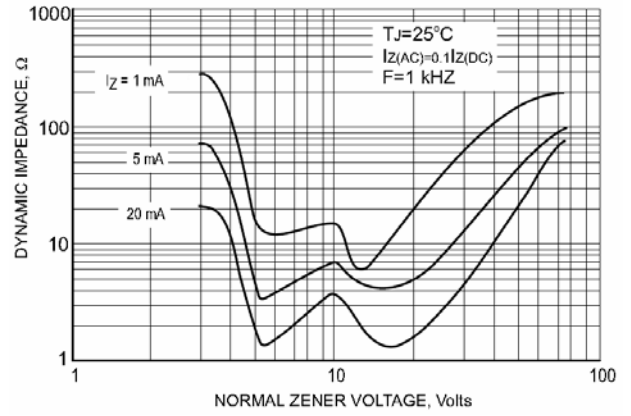
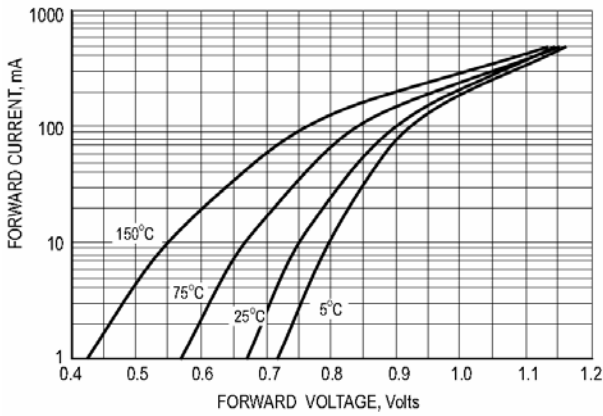
$V_F$  Forward Voltage = 900mV Maximum @  $I_F = 10$  mA for all types

### Notes:

1. The Zener Voltage ( $V_Z$ ) is tested under pulse condition of 10mS.
2. The device numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 2\%$ .
3. For detailed information on price, availability and delivery of nominal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Y S Terhnology 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  $I_{ZK}$ .

# DEVICE CHARACTERISTICS

## MMSZ Series



# PACKAGE OUTLINE & DIMENSIONS

## MMSZ Series

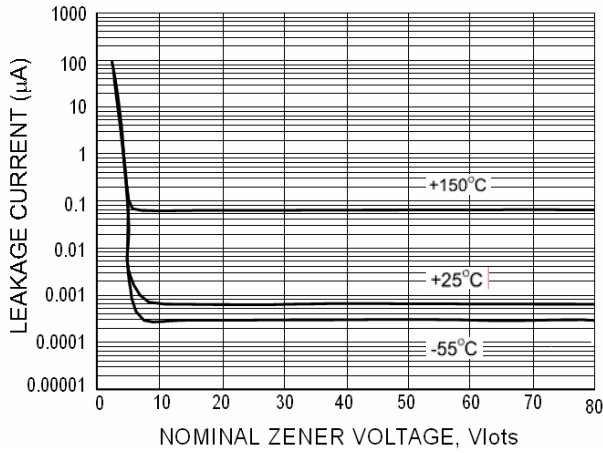


Fig.7 TYPICAL LEAKGE CURRENT

### Flat Lead SOD-123 Package Outline

