

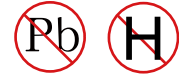


# DATA SHEET

SEMICONDUCTOR

## MM5ZxxV Series

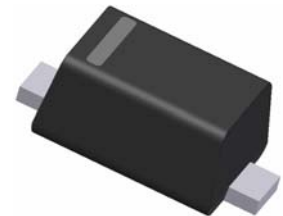
### 200mW SOD-523 SURFACE MOUNT Very Small Outline Flat Lead Plastic Package Zener Voltage Regulators



#### 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	-55 to +150	$^\circ\text{C}$
$T_{OPR}$	Operating Temperature Range	-55 to +150	$^\circ\text{C}$

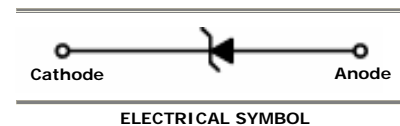
These ratings are limiting values above which the serviceability of the diode may be impaired.



SOD-523 Flat Lead

#### Specification Features:

- Wide Zener Voltage Range Selection, 2.4V to 75V
- Flat Lead SOD-523 Small Outline Plastic Package
- Extremely Small SOD-523 Package
- Surface Device Type Mounting
- Moisture Sensitivity Level 1
- Pb Free Version and RoHS Compliant
- Matte Tin(Sn) Lead Finish
- 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	$I_{ZK}$ (mA)	$Z_{ZK} @ I_{ZK}$ ( $\Omega$ ) Max	$I_R @ V_R$ ( $\mu\text{A}$ ) Max	$V_R$ (Volts)
		Min	Nom	Max						
MM5Z2V4	50	2.2	2.4	2.6	5	100	1	1000	50	1
MM5Z2V7	51	2.5	2.7	2.9	5	100	1	1000	20	1
MM5Z3V0	52	2.8	3.0	3.2	5	100	1	1000	10	1
MM5Z3V3	53	3.1	3.3	3.5	5	95	1	1000	5	1
MM5Z3V6	54	3.4	3.6	3.8	5	90	1	1000	5	1
MM5Z3V9	55	3.7	3.9	4.1	5	90	1	1000	3	1
MM5Z4V3	56	4.0	4.3	4.6	5	90	1	1000	3	1
MM5Z4V7	57	4.4	4.7	5.0	5	80	1	800	3	2
MM5Z5V1	58	4.8	5.1	5.4	5	60	1	500	2	2
MM5Z5V6	59	5.2	5.6	6.0	5	40	1	200	1	2
MM5Z6V2	5A	5.8	6.2	6.6	5	10	1	100	3	4
MM5Z6V8	5B	6.4	6.8	7.2	5	15	1	160	2	4
MM5Z7V5	5C	7.0	7.5	7.9	5	15	1	160	1	5
MM5Z8V2	5D	7.7	8.2	8.7	5	15	1	160	0.7	5
MM5Z9V1	5E	8.5	9.1	9.6	5	15	1	160	0.2	7
MM5Z10V	5F	9.4	10	10.6	5	20	1	160	0.1	8
MM5Z11V	5G	10.4	11	11.6	5	20	1	160	0.1	8
MM5Z12V	5H	11.4	12	12.7	5	25	1	80	0.1	8
MM5Z13V	5J	12.4	13	14.1	5	30	1	80	0.1	8
MM5Z15V	5K	14.3	15	15.8	5	30	1	80	0.05	10.5
MM5Z16V	5L	15.3	16	17.1	5	40	1	80	0.05	11.2
MM5Z18V	5M	16.8	18	19.1	5	45	1	80	0.05	12.6
MM5Z20V	5N	18.8	20	21.2	5	55	1	100	0.05	14

# MM5ZxxV 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						
MM5Z22V	5P	20.8	22	23.3	5	55	1	100	0.05	15.4
MM5Z24V	5R	22.8	24	25.6	5	70	1	120	0.05	16.8
MM5Z27V	5S	25.1	27	28.9	2	80	0.5	300	0.05	18.9
MM5Z30V	5T	28	30	32	2	80	0.5	300	0.05	21
MM5Z33V	5U	31	33	35	2	80	0.5	300	0.05	23.2
MM5Z36V	5V	34	36	38	2	90	0.5	500	0.05	25.2
MM5Z39V	5X	37	39	41	2	130	0.5	500	0.05	27.3
MM5Z43V	5Y	40	43	46	2	150	0.5	500	0.05	30.1
MM5Z47V	5Z	44	47	50	2	170	0.5	500	0.05	32.9
MM5Z51V	5-	48	51	54	2	180	0.5	500	0.05	35.7
MM5Z56V	5=	52	56	60	2	200	0.5	500	0.05	39.2
MM5Z62V	5≡	58	62	66	2	215	0.5	500	0.05	43.4
MM5Z68V	5>	64	68	72	2	240	0.5	500	0.05	47.6
MM5Z75V	5<	70	75	79	2	255	0.5	500	0.05	52.5

$V_F$  Forward Voltage = 1 V Maximum @  $I_F = 10$  mA for all types

### Notes:

1. The Zener Voltage ( $V_Z$ ) is tested under pulse condition of 10mS.
2. 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.
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  $I_{ZK}$ .

# DEVICE CHARACTERISTICS

## MM5ZxxV Series

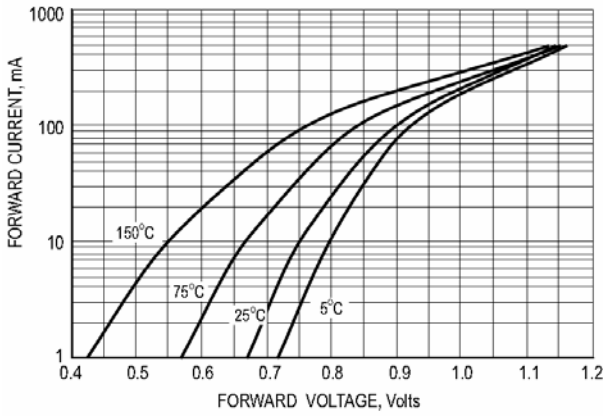


Fig.1 TYPICAL FORWARD VOLTAGE

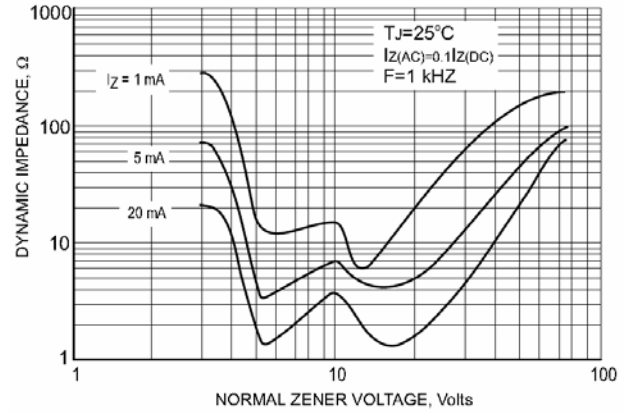


Fig.2 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

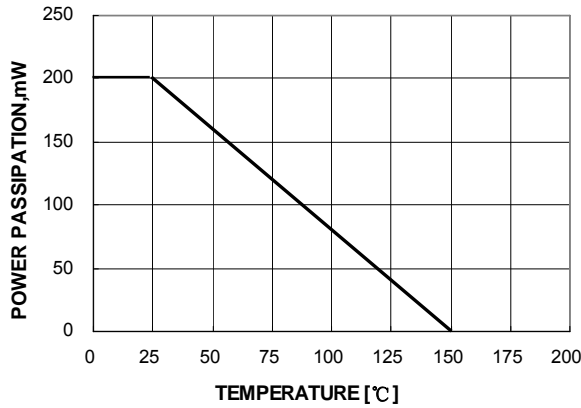


Fig.3 POWER DISSIPATION VS. AMBIENT TEMP.

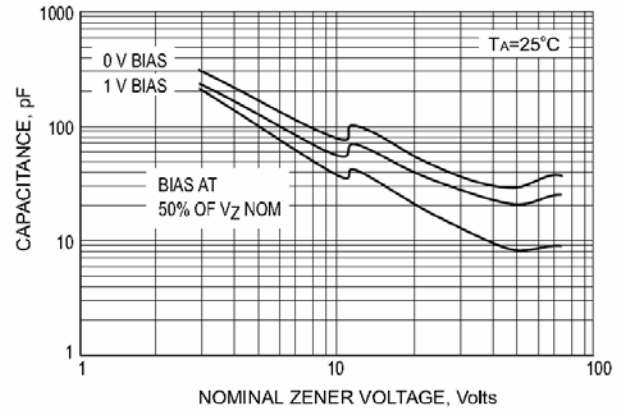


Fig.4 TYPICAL CAPACITANCE

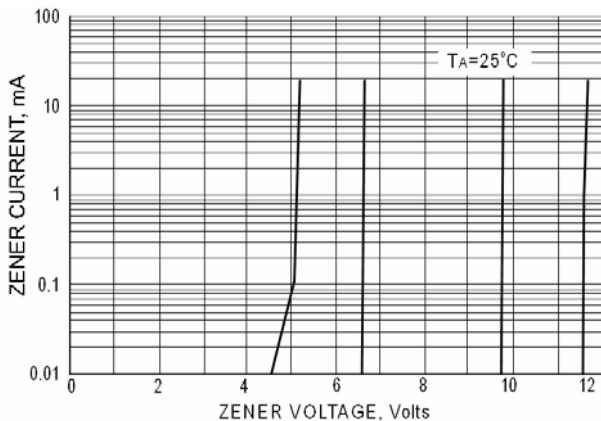


Fig.5 ZENER BREAKDOWN CHARACTERISTICS

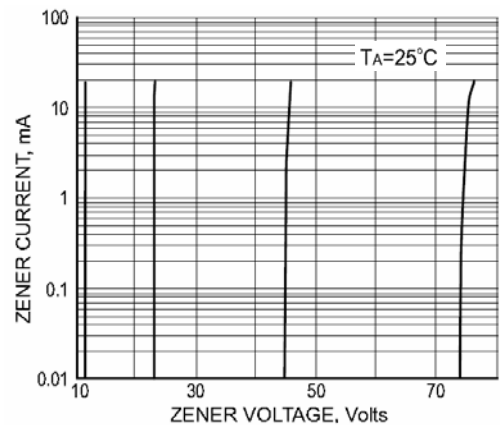


Fig.6 ZENER BREAKDOWN CHARACTERISTICS

# PACKAGE OUTLINE & DIMENSIONS

## MM5ZxxV Series

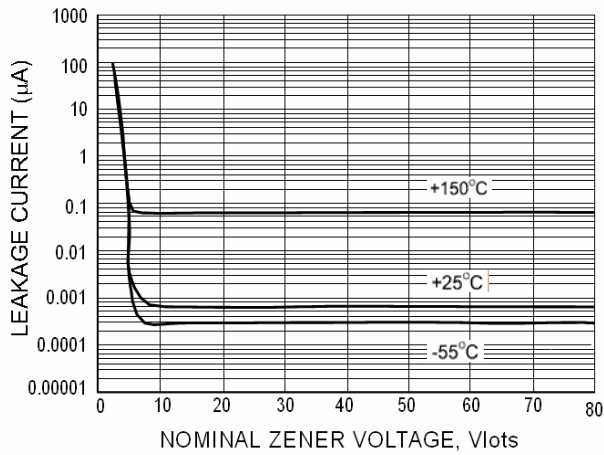
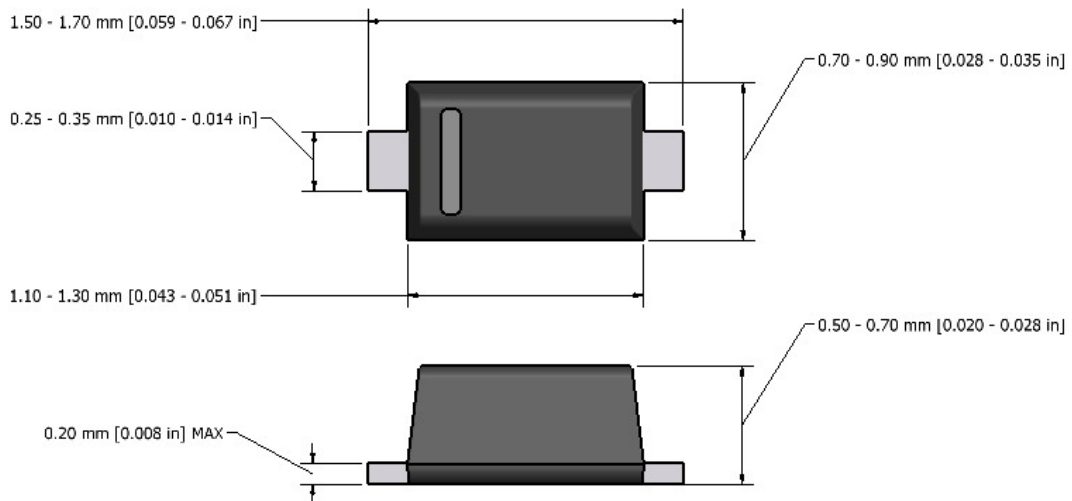


Fig.7 TYPICAL LEAKGE CURRENT

### Flat Lead SOD-523 Package Outline



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

### SOLDERING FOOTPRINT

