THE DATASHEET OF

MM5Z11VT1

MM5Z2V4T1 SERIES

Zener Voltage Regulators

100 mW SOD−523 Surface Mount

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 − 2.4 V to 75 V
- Steady State Power Rating of 100 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

Mechanical Characteristics:
CASE: Void-free, transfer-molded, thermosetting plastic
Epoxy Meets UL 94 V−0
LEAD FINISH: 100% Matte Sn (Tin)
MOUNTING POSITION: Any
QUALIFIED MAX REFLOW TEMPERATURE: 260°C
Device Meets MSL 1 Requirements

MAXIMUM RATINGS

Rating	Symbol	Max	Unit
Total Device Dissipation FR−5 Board, @ T_A = 25°C	P_D	100	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.

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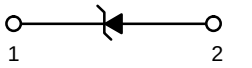
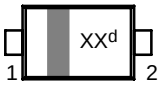


SOD−523
CASE 502
PLASTIC

MARKING DIAGRAM



XX = Specific Device Code
d = Date Code

ORDERING INFORMATION

Device	Package	Shipping†
MM5ZxxxxT1	SOD−523	3000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

DEVICE MARKING INFORMATION

See specific marking information in the device marking column of the Electrical Characteristics tables starting on page 3 of this data sheet.

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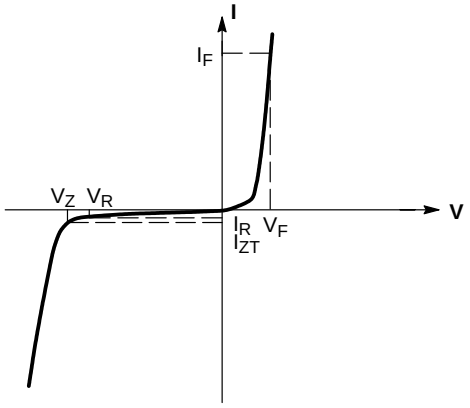
ELECTRICAL CHARACTERISTICS

(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

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted, V_F = 0.9 V Max. @ I_F = 10 mA for all types)

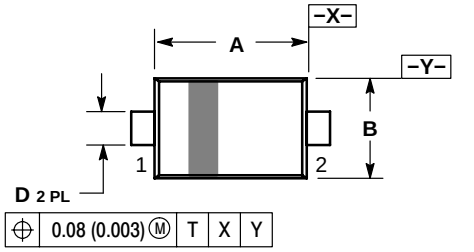
Device	Device Marking	Zener Voltage (Note 1) V_Z (Volts) Min	Nom	Max	@ I_{ZT} mA	Zener Impedance Z_{ZT} @ I_{ZT} Ω	Z_{ZK} @ I_{ZK} Ω	mA	Leakage Current I_R @ V_R µA	Volts	ΘV_Z (mV/k) @ I_{ZT} Min	Max	C @ V_R = 0 f = 1 MHz pF
MM5Z2V4T1	00	2.2	2.4	2.6	5	100	1000	1.0	50	1.0	−3.5	0	450
MM5Z2V7T1	01	2.5	2.7	2.9	5	100	1000	1.0	20	1.0	−3.5	0	450
MM5Z3V0T1	02	2.8	3.0	3.2	5	100	1000	1.0	10	1.0	−3.5	0	450
MM5Z3V3T1	05	3.1	3.3	3.5	5	95	1000	1.0	5	1.0	−3.5	0	450
MM5Z3V6T1	06	3.4	3.6	3.8	5	90	1000	1.0	5	1.0	−3.5	0	450
MM5Z3V9T1	07	3.7	3.9	4.1	5	90	1000	1.0	3	1.0	−3.5	−2.5	450
MM5Z4V3T1	08	4.0	4.3	4.6	5	90	1000	1.0	3	1.0	−3.5	0	450
MM5Z4V7T1	09	4.4	4.7	5.0	5	80	800	1.0	3	2.0	−3.5	0.2	260
MM5Z5V1T1	0A	4.8	5.1	5.4	5	60	500	1.0	2	2.0	−2.7	1.2	225
MM5Z5V6T1	0C	5.2	5.6	6.0	5	40	200	1.0	1	2.0	−2.0	2.5	200
MM5Z6V2T1	0E	5.8	6.2	6.6	5	10	100	1.0	3	4.0	0.4	3.7	185
MM5Z6V8T1	0F	6.4	6.8	7.2	5	15	160	1.0	2	4.0	1.2	4.5	155
MM5Z7V5T1	0G	7.0	7.5	7.9	5	15	160	1.0	1	5.0	2.5	5.3	140
MM5Z8V2T1	0H	7.7	8.2	8.7	5	15	160	1.0	0.7	5.0	3.2	6.2	135
MM5Z9V1T1	0K	8.5	9.1	9.6	5	15	160	1.0	0.2	7.0	3.8	7.0	130
MM5Z10VT1	0L	9.4	10	10.6	5	20	160	1.0	0.1	8.0	4.5	8.0	130
MM5Z11VT1	0M	10.4	11	11.6	5	20	160	1.0	0.1	8.0	5.4	9.0	130
MM5Z12VT1	0N	11.4	12	12.7	5	25	80	1.0	0.1	8.0	6.0	10	130
MM5Z13VT1	0P	12.4	13.25	14.1	5	30	80	1.0	0.1	8.0	7.0	11	120
MM5Z15VT1	0T	14.3	15	15.8	5	30	80	1.0	0.05	10.5	9.2	13	110
MM5Z16VT1	0U	15.3	16.2	17.1	2	40	80	1.0	0.05	11.2	10.4	14	105
MM5Z18VT1	0W	16.8	18	19.1	2	45	80	1.0	0.05	12.6	12.4	16	100
MM5Z20VT1	0Z	18.8	20	21.2	2	55	100	1.0	0.05	14.0	14.4	18	85
MM5Z22VT1	10	20.8	22	23.3	2	55	100	1.0	0.05	15.4	16.4	20	85
MM5Z24VT1	11	22.8	24.2	25.6	2	70	120	1.0	0.05	16.8	18.4	22	80
MM5Z27VT1	12	25.1	27	28.9	2	80	300	1.0	0.05	18.9	21.4	25.3	70
MM5Z30VT1	14	28	30	32	2	80	300	1.0	0.05	21.0	24.4	29.4	70
MM5Z33VT1	18	31	33	35	2	80	300	1.0	0.05	23.2	27.4	33.4	70
MM5Z36VT1	19	34	36	38	2	90	500	1.0	0.05	25.2	30.4	37.4	70
MM5Z39VT1	20	37	39	41	2	130	500	1.0	0.05	27.3	33.4	41.2	45
MM5Z43VT1	21	40	43	46	1	150	500	1.0	0.05	30.1	37.6	46.6	40
MM5Z47VT1	1A	44	47	50	1	170	500	1.0	0.05	32.9	42.0	51.8	40
MM5Z51VT1	1C	48	51	54	1	180	500	1.0	0.05	35.7	46.6	57.2	40
MM5Z56VT1	1D	52	56	60	1	200	500	1.0	0.05	39.2	52.2	63.8	40
MM5Z62VT1	1E	58	62	66	1	215	500	1.0	0.05	43.4	58.8	71.6	35
MM5Z68VT1	1F	64	68	72	1	240	500	1.0	0.05	47.6	65.6	79.8	35
MM5Z75VT1	1G	70	75	79	1	255	500	1.0	0.05	52.5	73.4	88.6	35

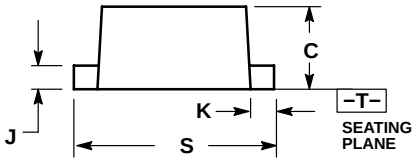
1. Zener voltage is measured with a pulse test current I_Z at an ambient temperature of 25°C.

MM5Z2V4T1 SERIES

PACKAGE DIMENSIONS

SOD−523
CASE 502−01
ISSUE A

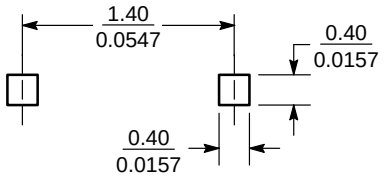




NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	1.10	1.20	1.30	0.043	0.047	0.051
B	0.70	0.80	0.90	0.028	0.032	0.035
C	0.50	0.60	0.70	0.020	0.024	0.028
D	0.25	0.30	0.35	0.010	0.012	0.014
J	0.07	0.14	0.20	0.0028	0.0055	0.0079
K	0.15	0.20	0.25	0.006	0.008	0.010
S	1.50	1.60	1.70	0.059	0.063	0.067

SOLDERING FOOTPRINT



SCALE 10:1 $\left(\frac{\text{mm}}{\text{inches}}\right)$

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