

SOT-23 Plastic-Encapsulate Zener Diode

MMBZ52xxB Series

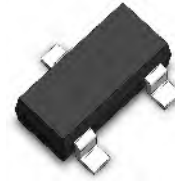
Features

- ◆ Low Zener Impedance
- ◆ Power Dissipation of 300mW
- ◆ High Stability and High Reliability

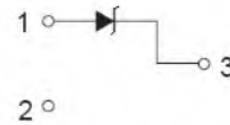
Mechanical Data

- ◆ JEDEC SOT-23 Package
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Mounting Position: Any
- ◆ Quantity Per Reel : 3,000pcs
- ◆ Lead Finish : Lead Free

SOT-23



Functional Diagram



Mechanical Characteristics

Symbol	Parameter	Value	Units
P_d	Power Dissipation ⁽¹⁾	500	mW
V_F	Forward Voltage @ $I_F=10mA$ ⁽²⁾	0.9	V
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient ⁽³⁾	417	°C/W
$R_{\theta JL}$	Thermal Resistance, Junction-to-Lead ⁽³⁾	150	°C/W
T_s	Storage temperature range	-65~+150	°C

(1)Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm²

(2)Short duration test pulse used to minimize self-heating effect.

(3)Thermal Resistance measurement obtained via infrared Scan Method.

(4)f=1KHz

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Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

Device	Marking	$V_{ZT}(@I_{ZT})$			$Z_{ZT}(@I_{ZT})$	Z_{ZK}		I_R	
		Min	Max	I_{ZT}	Max	Max	I_{ZK}	Max	V_R
		V	V	mA	Ω	Ω	mA	μA	V
MMBZ5221B	KC1	2.28	2.52	20	30	1200	0.25	100	1.0
MMBZ5222B	KC2	2.38	2.63	20	30	1250	0.25	100	1.0
MMBZ5223B	KC3	2.57	2.84	20	30	1300	0.25	75	1.0
MMBZ5224B	KC4	2.66	2.94	20	30	1400	0.25	75	1.0
MMBZ5225B	KC5	2.85	3.15	20	30	1600	0.25	50	1.0
MMBZ5226B	KG1	3.14	3.47	20	28	1600	0.25	25	1.0
MMBZ5227B	KG2	3.42	3.78	20	24	1700	0.25	15	1.0
MMBZ5228B	KG3	3.71	4.10	20	23	1900	0.25	10	1.0
MMBZ5229B	KG4	4.09	4.52	20	22	2000	0.25	5.0	1.0
MMBZ5230B	KG5	4.47	4.94	20	19	1900	0.25	5.0	2.0
MMBZ5231B	KE1	4.85	5.36	20	17	1600	0.25	5.0	2.0
MMBZ5232B	KE2	5.32	5.88	20	11	1600	0.25	5.0	3.0
MMBZ5233B	KE3	5.70	6.30	20	7	1600	0.25	5.0	3.5
MMBZ5234B	KE4	5.89	6.51	20	7	1000	0.25	5.0	4.0
MMBZ5235B	KE5	6.46	7.14	20	5	750	0.25	3.0	5.0
MMBZ5236B	KF1	7.13	7.88	20	6	500	0.25	3.0	6.0
MMBZ5237B	KF2	7.79	8.61	20	8	500	0.25	3.0	6.5
MMBZ5238B	KF3	8.27	9.14	20	8	600	0.25	3.0	6.5
MMBZ5239B	KF4	8.65	9.56	20	10	600	0.25	3.0	7.0
MMBZ5240B	KF5	9.50	10.50	20	17	600	0.25	3.0	8.0
MMBZ5241B	KH1	10.45	11.55	20	22	600	0.25	2.0	8.4
MMBZ5242B	KH2	11.40	12.60	20	30	600	0.25	1.0	9.1
MMBZ5243B	KH3	12.35	13.65	9.5	13	600	0.25	0.5	9.9
MMBZ5244B	KH4	13.30	14.70	9.0	15	600	0.25	0.1	10
MMBZ5245B	KH5	14.25	15.75	8.5	16	600	0.25	0.1	11
MMBZ5246B	KJ1	15.20	16.80	7.8	17	600	0.25	0.1	12
MMBZ5247B	KJ2	16.15	17.85	7.5	19	600	0.25	0.1	13
MMBZ5248B	KJ3	17.10	18.90	7.0	21	600	0.25	0.1	14
MMBZ5249B	KJ4	18.05	19.95	6.6	23	600	0.25	0.1	14
MMBZ5250B	KJ5	19.00	21.00	6.2	25	600	0.25	0.1	15
MMBZ5251B	KK1	20.90	23.10	5.6	29	600	0.25	0.1	17
MMBZ5252B	KK2	22.80	25.20	5.2	33	600	0.25	0.1	18
MMBZ5253B	KK3	23.75	26.25	5.0	35	600	0.25	0.1	19
MMBZ5254B	KK4	25.65	28.35	5.0	41	600	0.25	0.1	21
MMBZ5255B	KK5	26.60	29.40	4.5	44	600	0.25	0.1	21
MMBZ5256B	KM1	28.50	31.50	4.2	49	600	0.25	0.1	23
MMBZ5257B	KM2	31.35	34.65	3.8	58	700	0.25	0.1	25
MMBZ5258B	KM3	34.20	37.80	3.4	70	700	0.25	0.1	27
MMBZ5259B	KM4	37.05	40.95	3.2	80	800	0.25	0.1	30
MMBZ5260B	KM5	40.85	45.15	3.0	93	900	0.25	0.1	33
MMBZ5261B	KN1	44.65	49.35	2.7	105	1000	0.25	0.1	36
MMBZ5262B	KN2	48.45	53.55	2.5	125	1100	0.25	0.1	39
MMBZ5263B	KN3	53.20	58.80	2.2	150	1300	0.25	0.1	43
MMBZ5264B	KN4	57.00	63.00	2.1	170	1400	0.25	0.1	46
MMBZ5265B	KN5	58.90	65.10	2.0	185	1400	0.25	0.1	47
MMBZ5266B	KP1	64.60	71.40	1.8	230	1600	0.25	0.1	52
MMBZ5267B	KP2	71.25	78.75	1.7	270	1700	0.25	0.1	56

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Characteristic Curves

Fig1. Zener Characteristics (V_z Up to 10V)

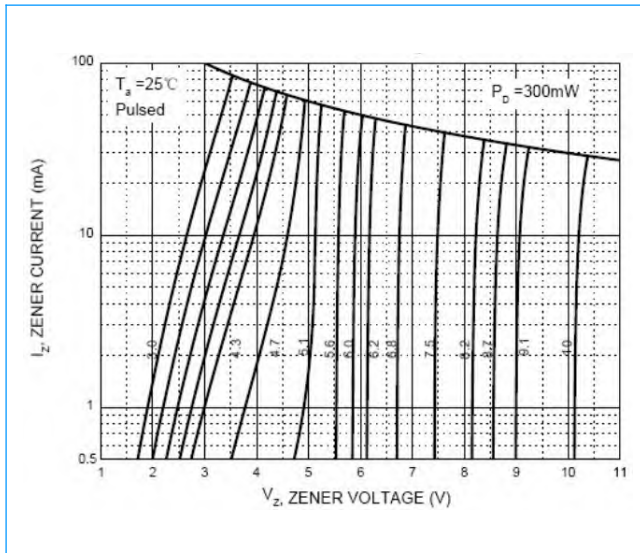


Fig2. Zener Characteristics (11V Up to 39V)

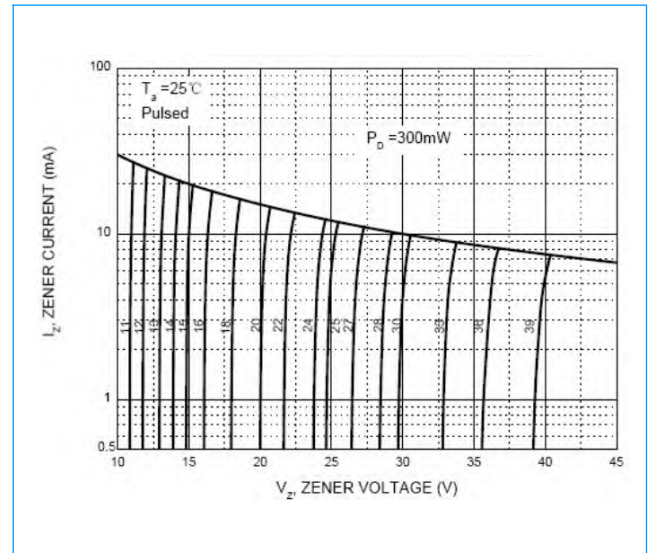


Fig3. Temperature Coefficients

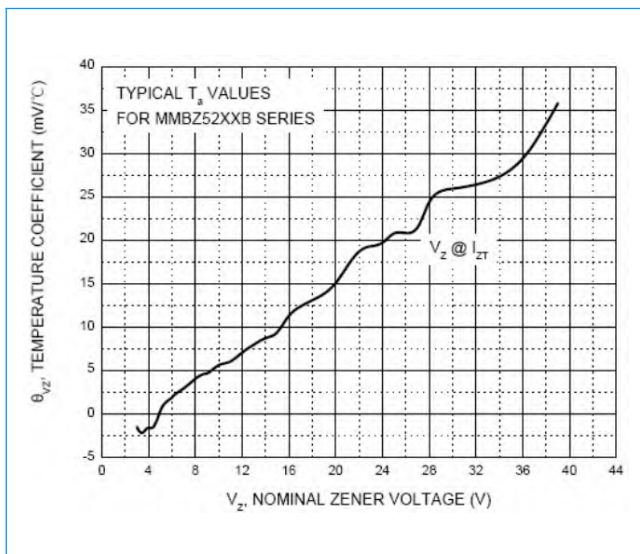
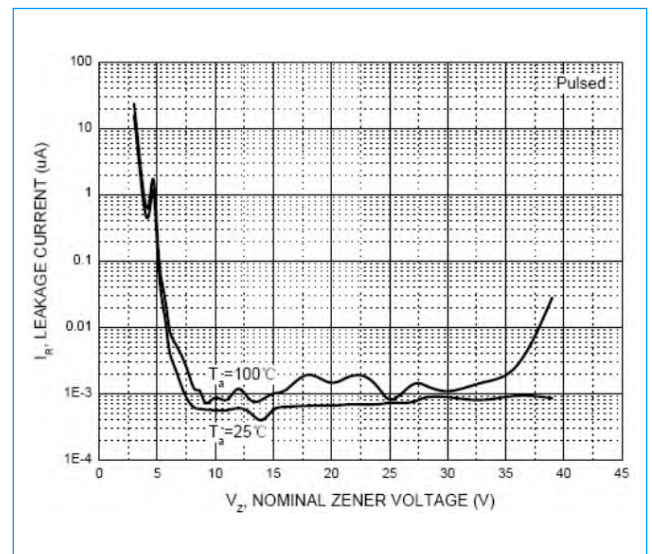


Fig4. Typical Leakage Current



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Characteristic Curves

Fig5. Typical Capacitance

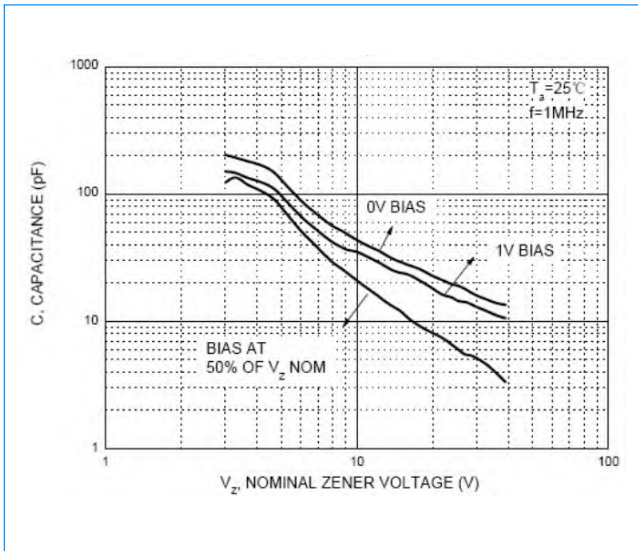


Fig6. Effect of Voltage on Zener Impedance

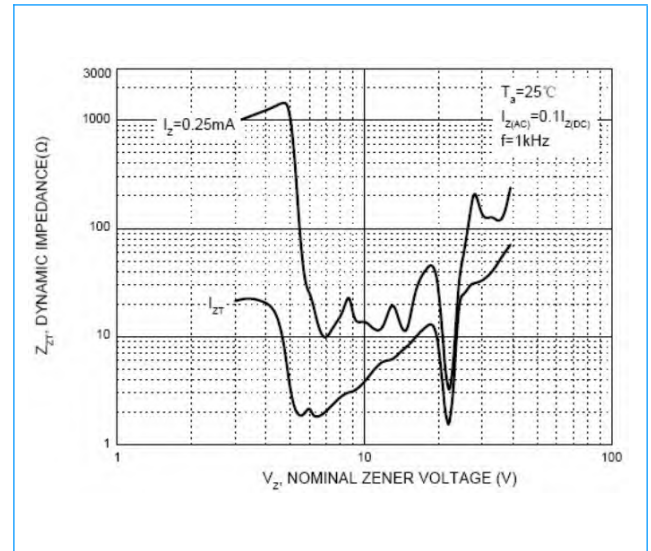
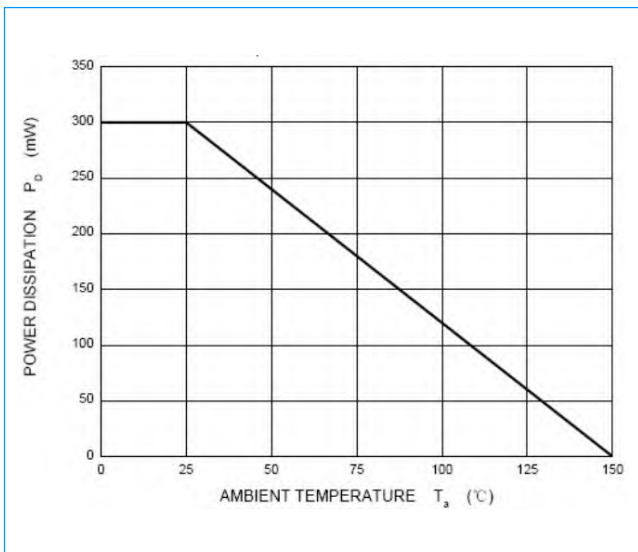


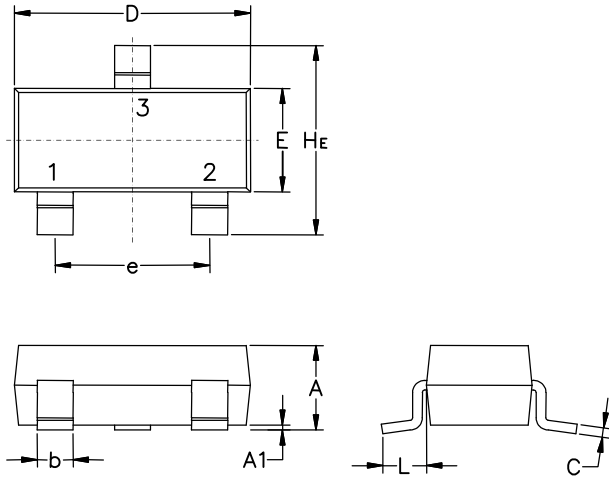
Fig7. Power Derating Curve



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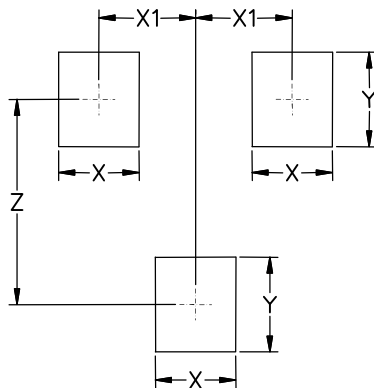
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SOT-23 Package Outline & Dimensions



Symbol	Millimeters			Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.15	0.18	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.35	0.54	0.69	0.014	0.021	0.029
He	2.10	2.40	2.64	0.083	0.094	0.104

Soldering Footprint



Symbol	Millimeters	Inches
X	0.80	0.031
X1	0.95	0.037
Y	0.90	0.035
Z	2.00	0.079