

SOT-23 Plastic-Encapsulate Zener Diode

MMBZ52xxC Series

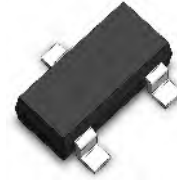
Features

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

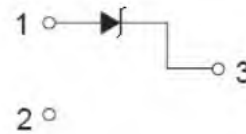
Mechanical Data

- ◆ 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

SOT-23 Plastic-Encapsulate Zener Diode

MMBZ52xxC Series

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
MMBZ5221C	2KC1	2.35	2.45	20	30	1200	0.25	100	1.0
MMBZ5222C	2KC2	2.45	2.55	20	30	1250	0.25	100	1.0
MMBZ5223C	2KC3	2.65	2.75	20	30	1300	0.25	75	1.0
MMBZ5225C	2KC5	2.94	3.06	20	30	1600	0.25	50	1.0
MMBZ5226C	2KG1	3.23	3.37	20	28	1600	0.25	25	1.0
MMBZ5227C	2KG2	3.53	3.67	20	24	1700	0.25	15	1.0
MMBZ5228C	2KG3	3.82	3.98	20	23	1900	0.25	10	1.0
MMBZ5229C	2KG4	4.21	4.39	20	22	2000	0.25	5.0	1.0
MMBZ5230C	2KG5	4.61	4.79	20	19	1900	0.25	5.0	2.0
MMBZ5231C	2KE1	5.00	5.20	20	17	1600	0.25	5.0	2.0
MMBZ5232C	2KE2	5.49	5.71	20	11	1600	0.25	5.0	3.0
MMBZ5233C	2KE3	5.88	6.12	20	7	1600	0.25	5.0	3.5
MMBZ5234C	2KE4	6.08	6.32	20	7	1000	0.25	5.0	4.0
MMBZ5235C	2KE5	6.66	6.94	20	5	750	0.25	3.0	5.0
MMBZ5236C	2KF1	7.35	7.65	20	6	500	0.25	3.0	6.0
MMBZ5237C	2KF2	8.04	8.36	20	8	500	0.25	3.0	6.5
MMBZ5238C	2KF3	8.53	8.87	20	8	600	0.25	3.0	6.5
MMBZ5239C	2KF4	8.92	9.28	20	10	600	0.25	3.0	7.0
MMBZ5240C	2KF5	9.80	10.20	20	17	600	0.25	3.0	8.0
MMBZ5241C	2KH1	10.78	11.22	20	22	600	0.25	2.0	8.4
MMBZ5242C	2KH2	11.72	12.24	20	30	600	0.25	1.0	9.1
MMBZ5243C	2KH3	12.74	13.26	9.5	13	600	0.25	0.5	9.9
MMBZ5244C	2KH4	13.72	14.28	9.0	15	600	0.25	0.1	10
MMBZ5245C	2KH5	14.70	15.30	8.5	16	600	0.25	0.1	11
MMBZ5246C	2KJ1	15.68	16.32	7.8	17	600	0.25	0.1	12
MMBZ5247C	2KJ2	16.66	17.34	7.5	19	600	0.25	0.1	13
MMBZ5248C	2KJ3	17.64	18.36	7.0	21	600	0.25	0.1	14
MMBZ5249C	2KJ4	18.62	19.38	6.6	23	600	0.25	0.1	14
MMBZ5250C	2KJ5	19.60	20.40	6.2	25	600	0.25	0.1	15
MMBZ5251C	2KK1	21.56	22.44	5.6	29	600	0.25	0.1	17
MMBZ5252C	2KK2	23.52	24.48	5.2	33	600	0.25	0.1	18
MMBZ5253C	2KK3	24.50	25.50	5.0	35	600	0.25	0.1	19
MMBZ5254C	2KK4	26.46	27.54	5.0	41	600	0.25	0.1	21
MMBZ5255C	2KK5	27.44	28.56	4.5	44	600	0.25	0.1	21
MMBZ5256B	2KM1	29.40	30.60	4.2	49	600	0.25	0.1	23
MMBZ5257C	2KM2	32.34	33.66	3.8	58	700	0.25	0.1	25
MMBZ5258C	2KM3	35.28	36.72	3.4	70	700	0.25	0.1	27
MMBZ5259C	2KM4	38.22	39.78	3.2	80	800	0.25	0.1	30

SOT-23 Plastic-Encapsulate Zener Diode

MMBZ52xxC Series

Characteristic Curves

Fig1. Zener Characteristics (V_z Up to 10V)

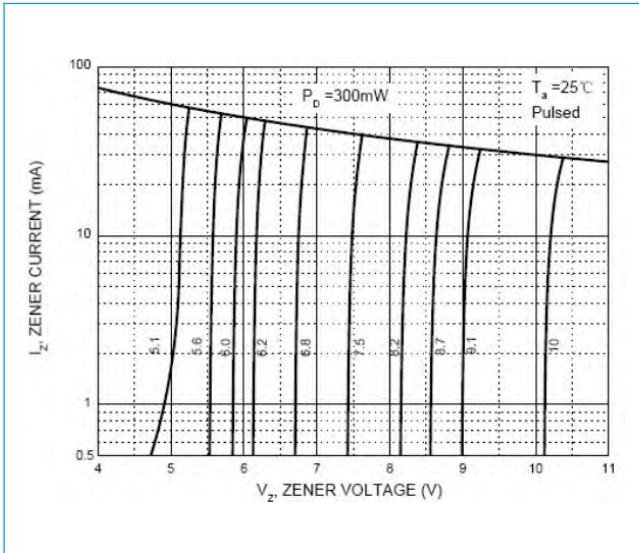


Fig2. Zener Characteristics (11V Up to 20V)

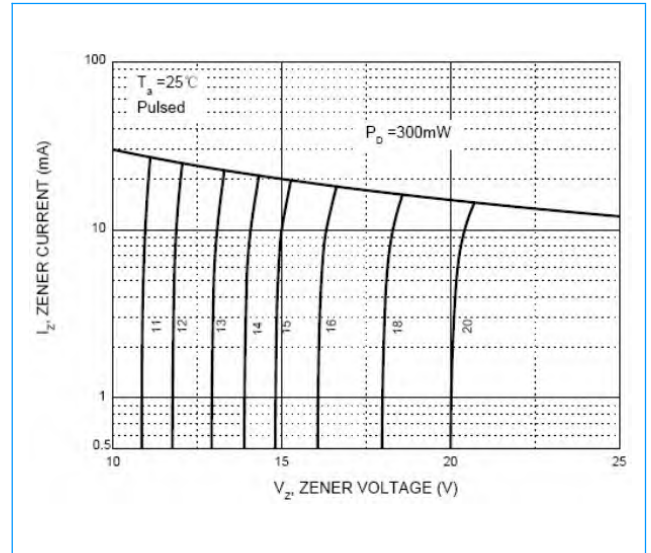


Fig3. Temperature Coefficients

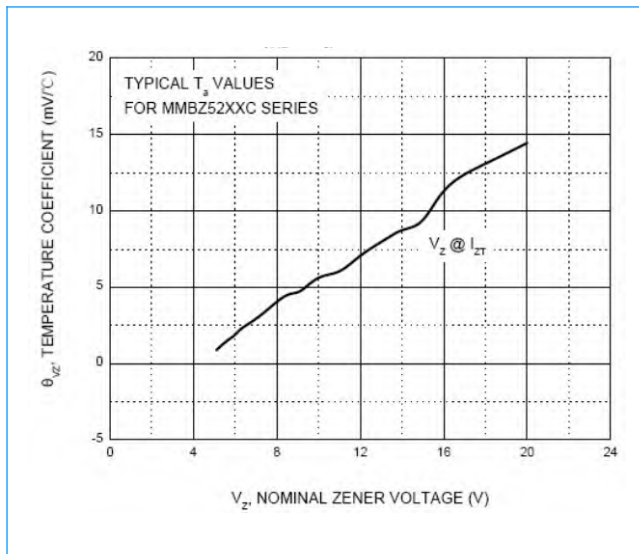
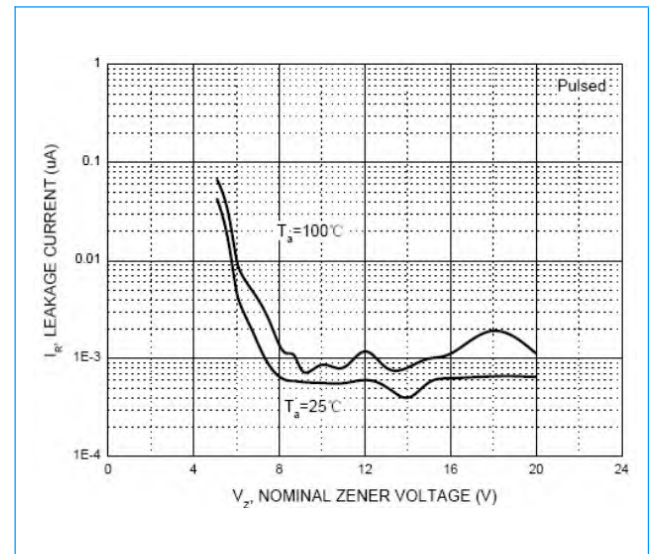


Fig4. Typical Leakage Current



SOT-23 Plastic-Encapsulate Zener Diode

MMBZ52xxC Series

Characteristic Curves

Fig5. Typical Capacitance

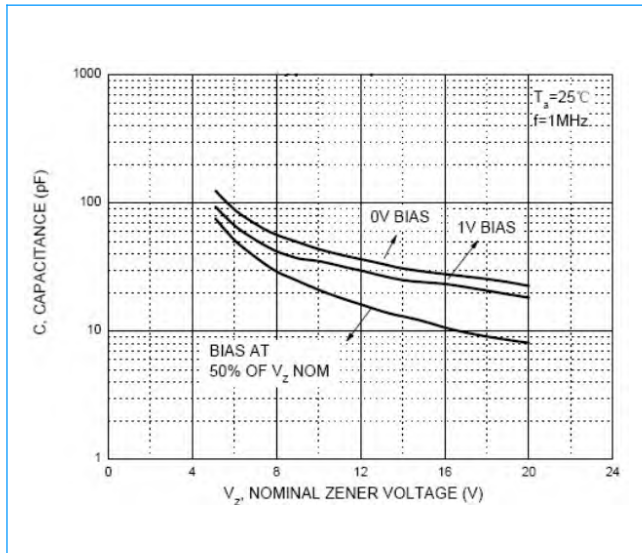


Fig6. Effect of Voltage on Zener Impedance

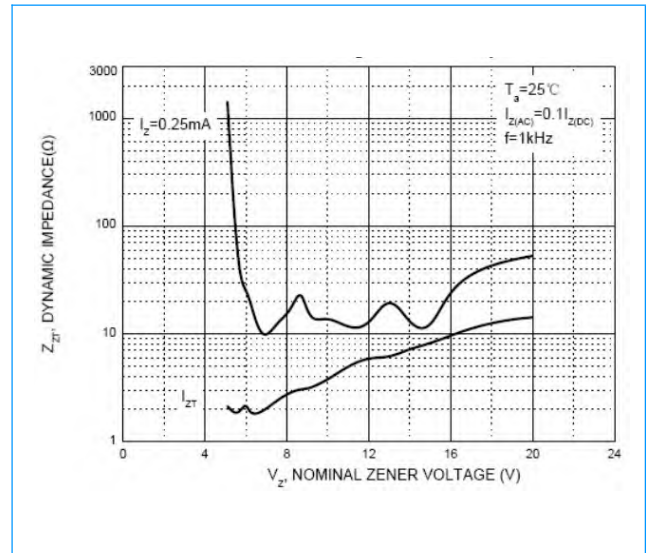
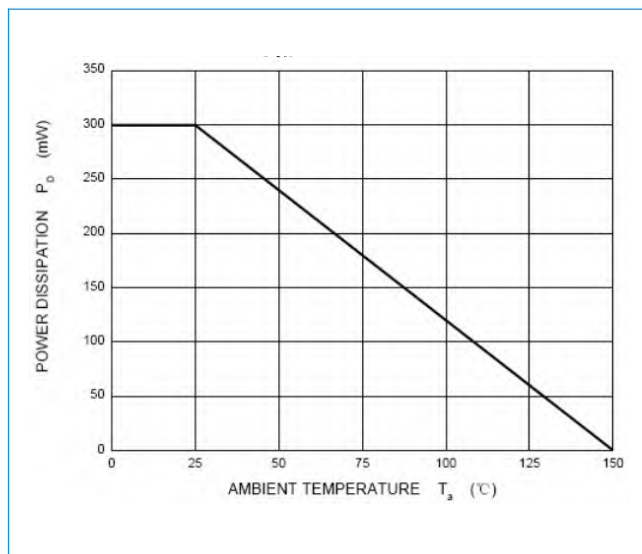


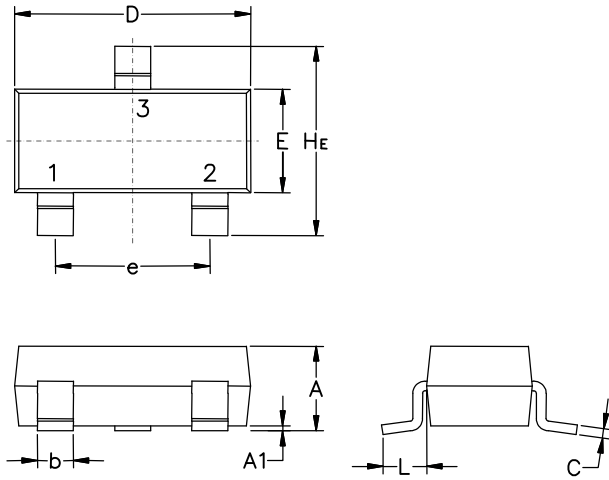
Fig7. Power Derating Curve



SOT-23 Plastic-Encapsulate Zener Diode

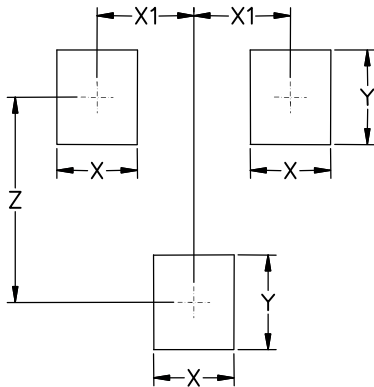
MMBZ52xxC Series

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