GOOD-ARK
SEMICONDUCTOR

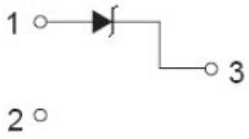
MMBZ52xxB

Plastic Encapsulate Zener Diodes
Vz Range: 2.4V to 75V Power Dissipation: 500mW

Features

- Low zener impedance
- Power dissipation of 500mW
- High stability and high reliability

SOT-23



Schematic Diagram

Mechanical Data

- SOT-23 small outline plastic package
- Polarity: Color band denotes cathode end
- Epoxy UL: 94V-0
- Mounting position: Any

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Forward Voltage (@ I_F=10mA)[2]	V_F	0.9	V
Power Dissipation[1]	P_D	500	mW
Thermal Resistance (Junction to Ambient)[3]	$R_{\theta JA}$	417	°C/W
Thermal Resistance (Junction to Lead)[3]	$R_{\theta JL}$	150	°C/W
Storage Temperature Range	T_{STG}	-65 to +150	°C

Note:
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.

Electrical Characteristics (T_A=25°C unless otherwise noted)

Part Number	Marking	Vz1(@Izt)			Zzt@Izt	Zzk		I_R	
		Min	Max	Izt	Max	Max	Izk	Max	V_R
		(V)	(V)	mA	Ω	Ω	mA	uA	V
MMBZ5221B	KC1	2.28	2.52	20.0	30	1200	0.25	100.0	1.0
MMBZ5222B	KC2	2.38	2.63	20.0	30	1250	0.25	100.0	1.0
MMBZ5223B	KC3	2.57	2.84	20.0	30	1300	0.25	75.0	1.0
MMBZ5224B	KC4	2.66	2.94	20.0	30	1400	0.25	75.0	1.0
MMBZ5225B	KC5	2.85	3.15	20.0	30	1600	0.25	50.0	1.0
MMBZ5226B	KG1	3.14	3.47	20.0	28	1600	0.25	25.0	1.0
MMBZ5227B	KG2	3.42	3.78	20.0	24	1700	0.25	15.0	1.0
MMBZ5228B	KG3	3.71	4.10	20.0	23	1900	0.25	10.0	1.0
MMBZ5229B	KG4	4.09	4.52	20.0	22	2000	0.25	5.0	1.0
MMBZ5230B	KG5	4.47	4.94	20.0	19	1900	0.25	5.0	2.0
MMBZ5231B	KE1	4.85	5.36	20.0	17	1600	0.25	5.0	2.0
MMBZ5232B	KE2	5.32	5.88	20.0	11	1600	0.25	5.0	3.0

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Part Number	Marking	Vz1(@Izt)			Zzt@Izt	Zzk		I_R	
		Min	Max	Izt	Max	Max	Izk	Max	V_R
		(V)	(V)	mA	Ω	Ω	mA	uA	V
MMBZ5233B	KE3	5.70	6.30	20.0	7	1600	0.25	5.0	3.5
MMBZ5234B	KE4	5.89	6.51	20.0	7	1000	0.25	5.0	4.0
MMBZ5235B	KE5	6.46	7.14	20.0	5	750	0.25	3.0	5.0
MMBZ5236B	KF1	7.13	7.88	20.0	6	500	0.25	3.0	6.0
MMBZ5237B	KF2	7.79	8.61	20.0	8	500	0.25	3.0	6.5
MMBZ5238B	KF3	8.27	9.14	20.0	8	600	0.25	3.0	6.5
MMBZ5239B	KF4	8.65	9.56	20.0	10	600	0.25	3.0	7.0
MMBZ5240B	KF5	9.50	10.50	20.0	17	600	0.25	3.0	8.0
MMBZ5241B	KH1	10.45	11.55	20.0	22	600	0.25	2.0	8.4
MMBZ5242B	KH2	11.40	12.60	20.0	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	10.0
MMBZ5245B	KH5	14.25	15.75	8.5	16	600	0.25	0.1	11.0
MMBZ5246B	KJ1	15.20	16.80	7.8	17	600	0.25	0.1	12.0
MMBZ5247B	KJ2	16.15	17.85	7.5	19	600	0.25	0.1	13.0
MMBZ5248B	KJ3	17.10	18.90	7.0	21	600	0.25	0.1	14.0
MMBZ5249B	KJ4	18.05	19.95	6.6	23	600	0.25	0.1	14.0
MMBZ5250B	KJ5	19.00	21.00	6.2	25	600	0.25	0.1	15.0
MMBZ5251B	KK1	20.90	23.10	5.6	29	600	0.25	0.1	17.0
MMBZ5252B	KK2	22.80	25.20	5.2	33	600	0.25	0.1	18.0
MMBZ5253B	KK3	23.75	26.25	5.0	35	600	0.25	0.1	19.0
MMBZ5254B	KK4	25.65	28.35	5.0	41	600	0.25	0.1	21.0
MMBZ5255B	KK5	26.60	29.40	4.5	44	600	0.25	0.1	21.0
MMBZ5256B	KM1	28.50	31.50	4.2	49	600	0.25	0.1	23.0
MMBZ5257B	KM2	31.35	34.65	3.8	58	700	0.25	0.1	25.0
MMBZ5258B	KM3	34.20	37.80	3.4	70	700	0.25	0.1	27.0
MMBZ5259B	KM4	37.05	40.95	3.2	80	800	0.25	0.1	30.0
MMBZ5260B	KM5	40.85	45.15	3.0	93	900	0.25	0.1	33.0
MMBZ5261B	KN1	44.65	49.35	2.7	105	1000	0.25	0.1	36.0
MMBZ5262B	KN2	48.45	53.55	2.5	125	1100	0.25	0.1	39.0
MMBZ5263B	KN3	53.20	58.80	2.2	150	1300	0.25	0.1	43.0
MMBZ5264B	KN4	57.00	63.00	2.1	170	1400	0.25	0.1	46.0
MMBZ5265B	KN5	58.90	65.10	2.0	185	1400	0.25	0.1	47.0
MMBZ5266B	KP1	64.60	71.40	1.8	230	1600	0.25	0.1	52.0
MMBZ5267B	KP2	71.25	78.75	1.7	270	1700	0.25	0.1	56.0

Typical Electrical Characteristic Curves

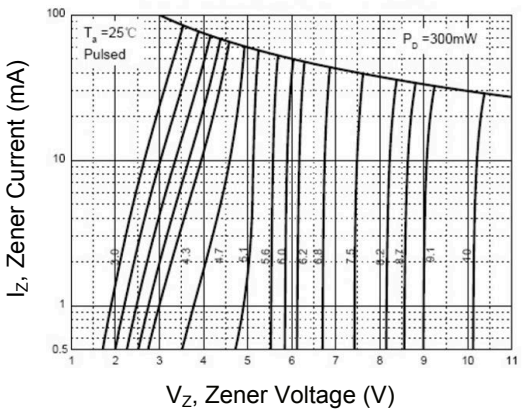

Figure 1. Zener Characteristics (V_Z Up to 10V)

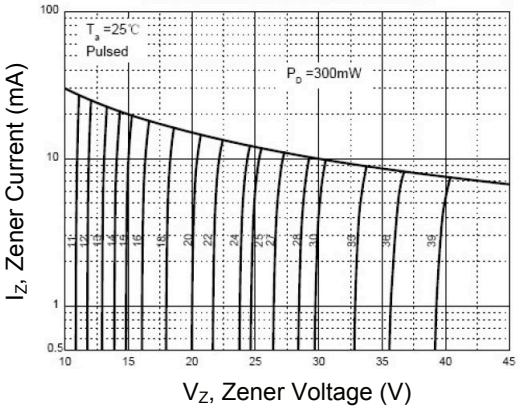

Figure 2. Zener Characteristics (11V to 39V)

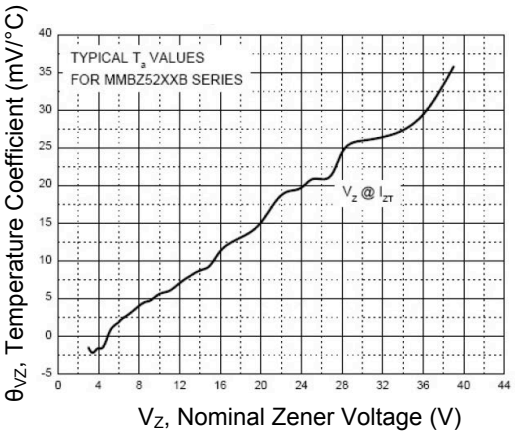

Figure 3. Temperature Coefficients

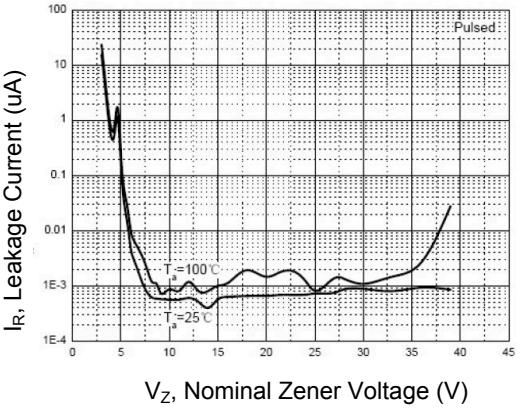

Figure 4. Typical Leakage Current

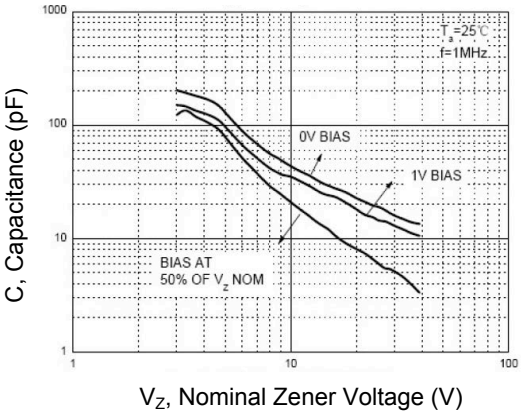

Figure 5. Typical Zener Breakdown

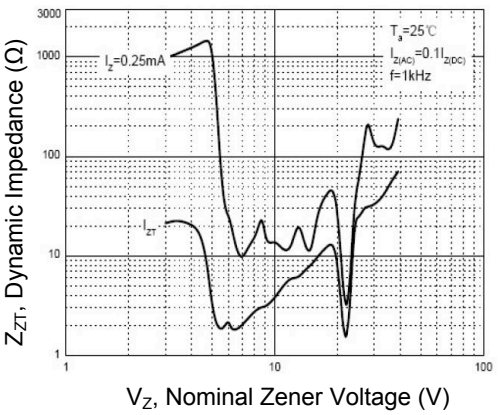

Figure 6. Effect of Zener Voltage on Zener Impedance

Typical Electrical Characteristic Curves

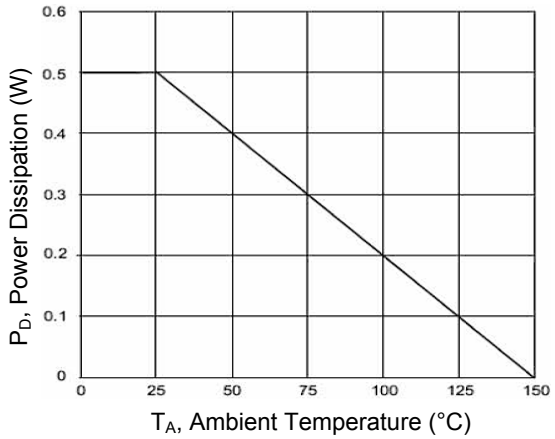

Figure 7. Power Derating Curve

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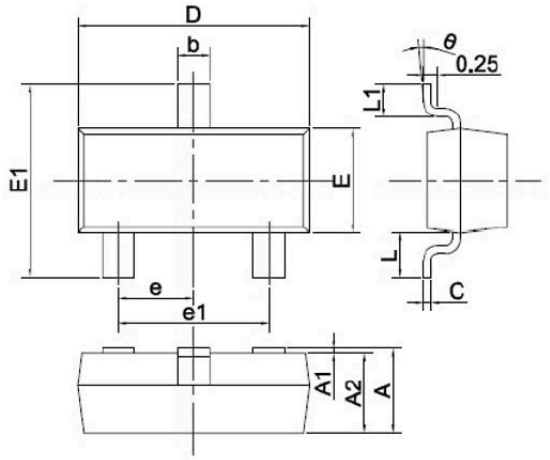
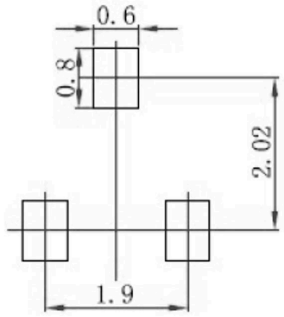
Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
C	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Recommended Pad Layout



Note:
1. Controlling dimensions: in millimeters.
2. General tolerance: 0.05mm.
3. The pad layout is for reference purposes only.

Order Information

Device	Package	Packaging	SPQ
MMBZ52xxB	SOT-23	Tape & Reel	3,000 Pcs / Reel