



**DESCRIPTION**

The MMBZ5221B~MMBZ5259B are available in SOT-23 package

- Planar Die Construction
- 350mW Power Dissipation on FR-4 PCB
- General Purpose, Medium Current
- Ideally Suited for Automated Assembly Processes

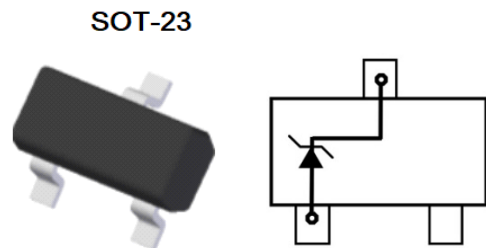
**MACHANICAL DATA**

- Case: SOT-23
- Case Material: Molded Plastic UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Pin Description
- Weight: 0.008grams (approx.)

**ORDERING INFORMATION**

Package Type	Part Number	
SOT-23	MMBZ5221B	MMBZ5239B
	MMBZ5223B	MMBZ5240B
	MMBZ5225B	MMBZ5241B
	MMBZ5226B	MMBZ5242B
	MMBZ5227B	MMBZ5243B
	MMBZ5228B	MMBZ5245B
	MMBZ5229B	MMBZ5246B
	MMBZ5230B	MMBZ5250B
	MMBZ5231B	MMBZ5251B
	MMBZ5232B	MMBZ5252B
	MMBZ5233B	MMBZ5254B
	MMBZ5234B	MMBZ5255B
	MMBZ5235B	MMBZ5256B
	MMBZ5236B	MMBZ5257B
	MMBZ5237B	MMBZ5258B
	MMBZ5238B	MMBZ5259B
Note	SPQ: 3,000pcs/Reel	
AiT provides all RoHS Compliant Products		

**PIN DESCRIPTION**





## ABSOLUTE MAXIMUM RATINGS

T<sub>A</sub>=25°C, unless otherwise specified

Parameter	Symbol	Value	Units
Forward Voltage @I <sub>F</sub> =10mA	V <sub>F</sub>	0.9	V
Power Dissipation <sup>1</sup>	P <sub>d</sub>	350	mW
Thermal Resistance, Junction to Ambient Air	R <sub>θJA</sub>	357	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to+150	°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

## ELECTRICAL CHARACTERISTICS

T<sub>A</sub>=25°C, unless otherwise specified

Part Number	Zener Voltage Range (V) *				Maximum Zener Impedance **		Maximum Reverse Leakage Current *	
	V <sub>Z</sub> @ I <sub>ZT</sub>			I <sub>ZT</sub> (mA)	Z <sub>ZT</sub> @ I <sub>ZT</sub>	Z <sub>ZK</sub> @I <sub>ZK</sub> =0.25mA	I <sub>R</sub>	@V <sub>R</sub>
	Min.	Nom.	Max.					
					Ω	μA	V	
MMBZ5221B	2.28	2.4	2.52	20	30	1200	100	1.0
MMBZ5223B	2.57	2.7	2.84	20	30	1300	75	1.0
MMBZ5225B	2.85	3.0	3.15	20	30	1600	50	1.0
MMBZ5226B	3.14	3.3	3.47	20	28	1600	25	1.0
MMBZ5227B	3.42	3.6	3.78	20	24	1700	15	1.0
MMBZ5228B	3.71	3.9	4.10	20	23	1900	10	1.0
MMBZ5229B	4.09	4.3	4.52	20	22	2000	5.0	1.0
MMBZ5230B	4.47	4.7	4.94	20	19	1900	5.0	2.0
MMBZ5231B	4.85	5.1	5.36	20	17	1600	5.0	2.0
MMBZ5232B	5.32	5.6	5.88	20	11	1600	5.0	3.0

\*Short duration pulse test used to minimize self-heating effect.

\*\*f=1kHz



Part Number	Zener Voltage Range (V) *				Maximum Zener Impedance **		Maximum Reverse Leakage Current *	
	V <sub>Z</sub> @ I <sub>ZT</sub>			I <sub>ZT</sub>	Z <sub>ZT</sub> @ I <sub>ZT</sub>	Z <sub>ZK</sub> @I <sub>ZK</sub> =0.25mA	I <sub>R</sub>	@V <sub>R</sub>
	Min.	Nom.	Max.	(mA)				
						Ω	μA	V
MMBZ5233B	5.70	6.0	6.30	20	7	1600	5.0	3.5
MMBZ5234B	5.89	6.2	6.51	20	7	1000	5.0	4.0
MMBZ5235B	6.46	6.8	7.14	20	5	750	3.0	5.0
MMBZ5236B	7.13	7.5	7.88	20	6	500	3.0	6.0
MMBZ5237B	7.79	8.2	8.61	20	8	500	3.0	6.5
MMBZ5238B	8.27	8.7	9.14	20	8	600	3.0	6.5
MMBZ5239B	8.65	9.1	9.56	20	10	600	3.0	7.0
MMBZ5240B	9.50	10	10.50	20	17	600	3.0	8.0
MMBZ5241B	10.45	11	11.55	20	22	600	2.0	8.4
MMBZ5242B	11.40	12	12.60	20	30	600	1.0	9.1
MMBZ5243B	12.35	13	13.65	9.5	13	600	0.5	9.9
MMBZ5245B	14.25	15	15.75	8.5	16	600	0.1	11
MMBZ5246B	15.20	16	16.80	7.8	17	600	0.1	12
MMBZ5250B	19.00	20	21.00	6.2	25	600	0.1	15
MMBZ5251B	20.90	22	23.10	5.6	29	600	0.1	17
MMBZ5252B	22.80	24	25.20	5.2	33	600	0.1	18
MMBZ5254B	25.65	27	28.35	5.0	41	600	0.1	21
MMBZ5255B	26.60	28	29.40	4.5	44	600	0.1	21
MMBZ5256B	28.50	30	31.50	4.2	49	600	0.1	23
MMBZ5257B	31.35	33	34.65	3.8	58	700	0.1	25
MMBZ5258B	34.20	36	37.80	3.4	70	700	0.1	27
MMBZ5259B	37.05	39	40.95	3.2	80	600	0.1	30

\*Short duration pulse test used to minimize self-heating effect.

\*\*f=1kHz



Fig 1. Power Dissipation vs Ambient Temperature

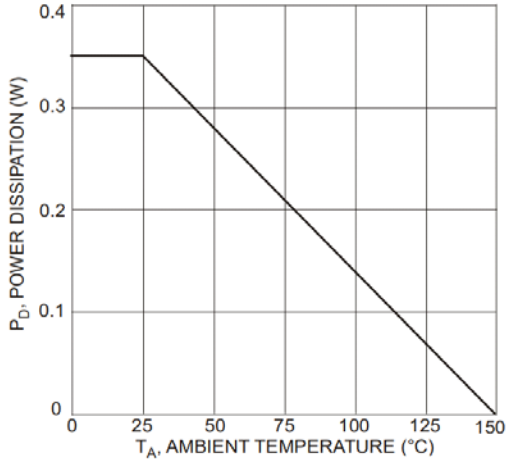


Fig 2. Total Capacitance vs Nominal Zener Voltage

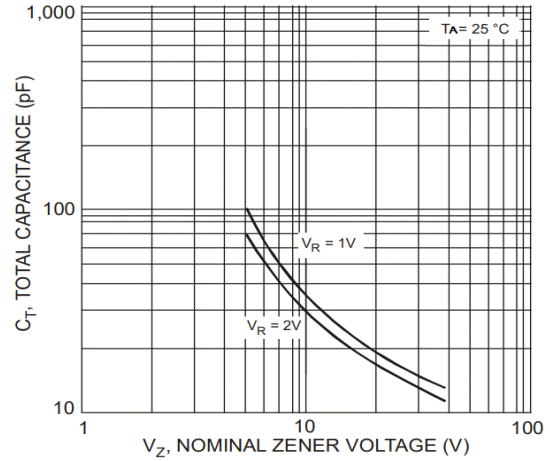


Fig 3. Zener Voltage vs Zener Impedance

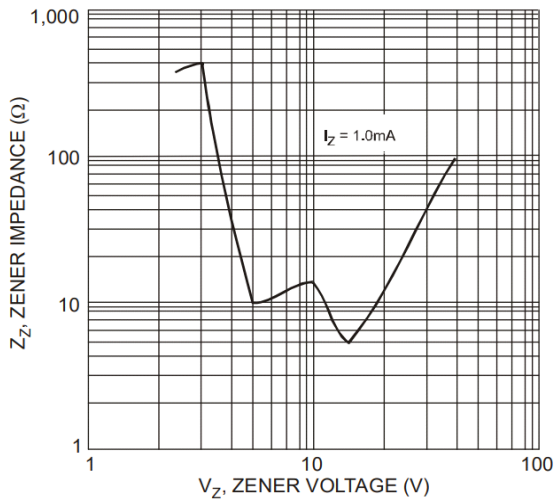


Fig 4. Maximum Non-Repetitive Surge Power

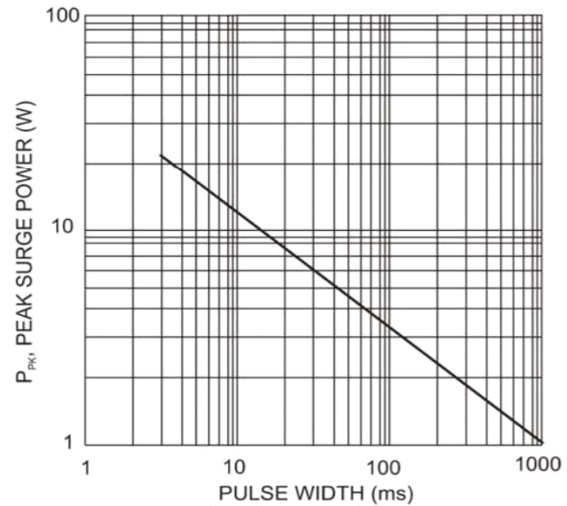


Fig 5. Zener Breakdown Characteristics

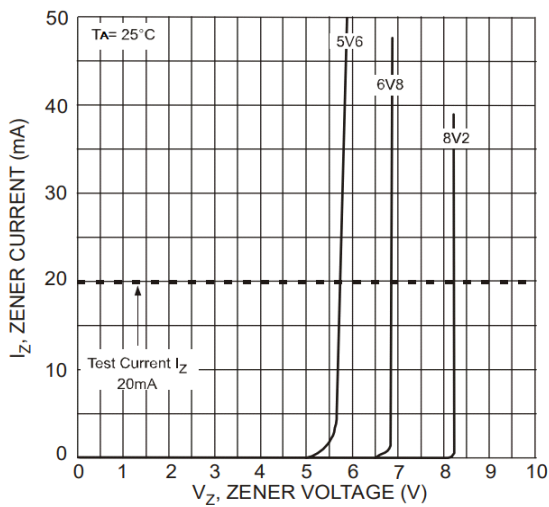
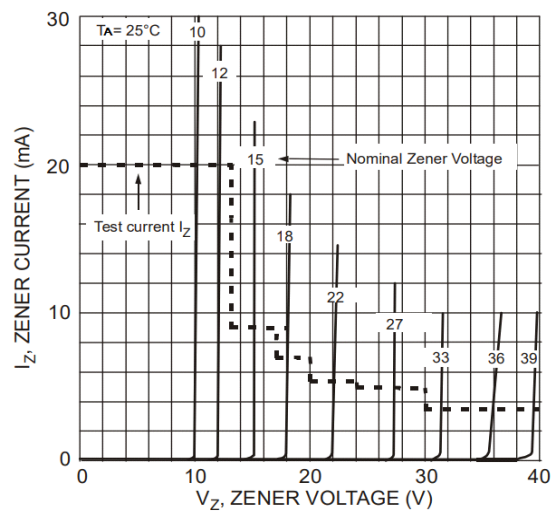


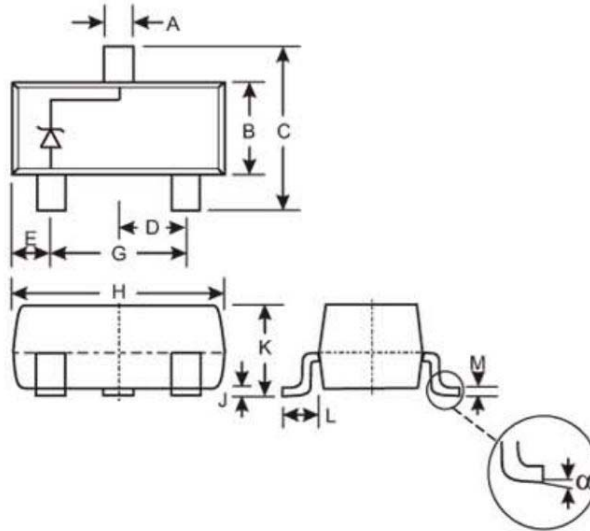
Fig 6. Zener Breakdown Characteristics





## PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)



Symbol	Min.	Max.
A	0.370	0.510
B	1.200	1.400
C	2.300	2.500
D	0.890	1.030
E	0.450	0.600
G	1.780	2.050
H	2.800	3.000
J	0.013	0.100
K	0.903	1.100
L	0.450	0.610
M	0.085	0.180
$\alpha$	0°	8°



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