

Surface Mount Zener Diodes

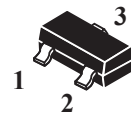
Features:

- *225mw Power Dissipation
- *Ideal for Surface Mountted Application
- *Zener Breakdown Voltage Range 2.4V to 91V

Mechanical Data:

- *Case : SOT-23 Molded plastic
- *Terminals: Solderable per MIL-STD-202, Method 208
- *Polarity: Cathode Indicated by Polarity Band
- *Marking: Marking Code (See Table on Page 3)
- *Weigh: 0.008grams(approx)

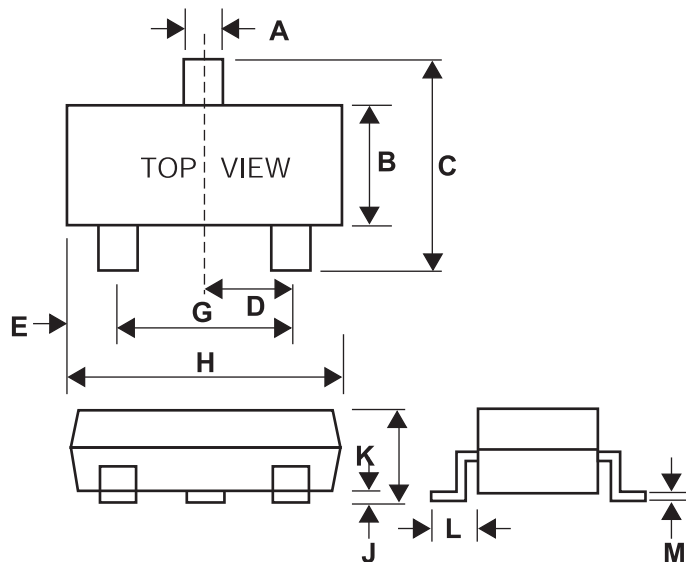
**SMALL SIGNAL
ZENER DIODES
225m WATTS**



SOT-23

SOT-23 Outline Dimensions

Unit:mm



Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25

Maximum Ratings and Electrical Characteristics (TA=25°C Unless Otherwise Noted)

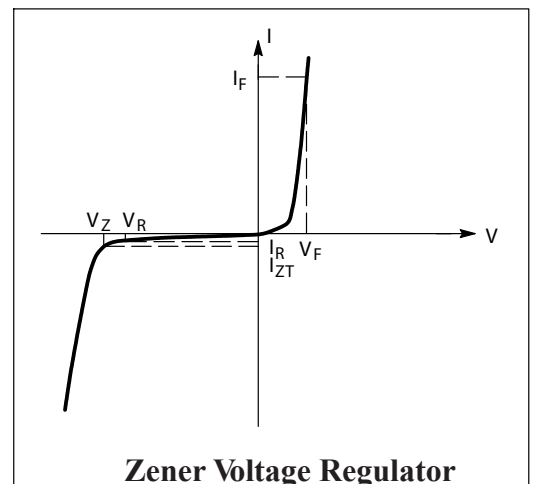
Characteristics	Symbol	Value	Unit
Total Power Dissipation on FR-5 Board ⁽¹⁾ @TA=25°C	PD	225	mW
Thermal Resistance Junction to Ambient Air ⁽¹⁾	RθJA	556	°C/W
Forward Voltage @ IF=10mA	VF	0.9	V
Junction and Storage Temperature Range	Tj, TSTG	-65 to +150	°C

NOTES: 1. FR-5=1.0*0.75*0.62in

ELECTRICAL CHARACTERISTICS

(Pinout: 1-Anode, 2-No Connection, 3-Cathode) (TA = 25°C unless otherwise noted, VF = 0.9V Max. @ IF = 10 mA)

Symbol	Parameter
VZ	Reverse Zener Voltage @ IZT
IZT	Reverse Current
ZZT	Maximum Zener Impedance @ IZT
IR	Reverse Leakage Current @ VR
VR	Reverse Voltage
IF	Forward Current
VF	Forward Voltage @ IF
IZK	Reverse Current
ZZK	Maximum Zener Impedance @ IZK



Device Marking

Item	Marking	Equivalent Circuit Diagram
MMBZ5221B Series	XX=Specific Device Code (See Table on page3)	

ELECTRICAL CHARACTERISTICS

(Pinout: 1-Anode, 2-NC, 3-Cathode) ($V_F = 0.9\text{ V Max @ } I_F = 10\text{ mA}$ for all types.)

Device	Device Marking	Zener Voltage (Note)				Zener Impedance			Leakage Current	
		V_Z (Volts)			@ I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}		I_R @ V_R	
		Min	Nom	Max	mA	Ω	Ω	mA	μA	Volts
MMBZ5221BLT1	18A	2.28	2.4	2.52	20	30	1200	0.25	100	1
MMBZ5222BLT1	18B	2.37	2.5	2.63	20	30	1250	0.25	100	1
MMBZ5223BLT1	18C	2.56	2.7	2.84	20	30	1300	0.25	75	1
MMBZ5224BLT1	18D	2.66	2.8	2.94	20	30	1400	0.25	75	1
MMBZ5225BLT1	18E	2.85	3	3.15	20	29	1600	0.25	50	1
MMBZ5226BLT1	8A	3.13	3.3	3.47	20	28	1600	0.25	25	1
MMBZ5227BLT1	8B	3.42	3.6	3.78	20	24	1700	0.25	15	1
MMBZ5228BLT1	8C	3.70	3.9	4.10	20	23	1900	0.25	10	1
MMBZ5229BLT1	8D	4.08	4.3	4.52	20	22	2000	0.25	5	1
MMBZ5230BLT1	8E	4.46	4.7	4.94	20	19	1900	0.25	5	2
MMBZ5231BLT1	8F	4.84	5.1	5.36	20	17	1600	0.25	5	2
MMBZ5232BLT1	8G	5.32	5.6	5.88	20	11	1600	0.25	5	3
MMBZ5233BLT1*	8H	5.70	6	6.30	20	7	1600	0.25	5	3.5
MMBZ5234BLT1	8J	5.89	6.2	6.51	20	7	1000	0.25	5	4
MMBZ5235BLT1	8K	6.46	6.8	7.14	20	5	750	0.25	3	5
MMBZ5236BLT1	8L	7.12	7.5	7.88	20	6	500	0.25	3	6
MMBZ5237BLT1	8M	7.79	8.2	8.61	20	8	500	0.25	3	6.5
MMBZ5238BLT1	8N	8.26	8.7	9.14	20	8	600	0.25	3	6.5
MMBZ5239BLT1	8P	8.64	9.1	9.56	20	10	600	0.25	3	7
MMBZ5240BLT1	8Q	9.50	10	10.50	20	17	600	0.25	3	8
MMBZ5241BLT1	8R	10.4	11	11.55	20	22	600	0.25	2	8.4
MMBZ5242BLT1	8S	11.40	12	12.60	20	30	600	0.25	1	9.1
MMBZ5243BLT1	8T	12.35	13	13.65	9.5	13	600	0.25	0.5	9.9
MMBZ5244BLT1	8U	13.30	14	14.70	9	15	600	0.25	0.1	10
MMBZ5245BLT1	8V	14.25	15	15.75	8.5	16	600	0.25	0.1	11
MMBZ5246BLT1*	8W	15.20	16	16.80	7.8	17	600	0.25	0.1	12
MMBZ5247BLT1	8X	16.15	17	17.85	7.4	19	600	0.25	0.1	13
MMBZ5248BLT1	8Y	17.10	18	18.90	7	21	600	0.25	0.1	14
MMBZ5249BLT1	8Z	18.05	19	19.95	6.6	23	600	0.25	0.1	14
MMBZ5250BLT1	81A	19.00	20	21.00	6.2	25	600	0.25	0.1	15
MMBZ5251BLT1*	81B	20.90	22	23.10	5.6	29	600	0.25	0.1	17
MMBZ5252BLT1*	81C	22.80	24	25.20	5.2	33	600	0.25	0.1	18
MMBZ5253BLT1	81D	23.75	25	26.25	5	35	600	0.25	0.1	19
MMBZ5254BLT1	81E	25.65	27	28.35	4.6	41	600	0.25	0.1	21
MMBZ5255BLT1	81F	26.60	28	29.40	4.5	44	600	0.25	0.1	21
MMBZ5256BLT1	81G	28.50	30	31.50	4.2	49	600	0.25	0.1	23
MMBZ5257BLT1	81H	31.35	33	34.65	3.8	58	700	0.25	0.1	25
MMBZ5258BLT1	81J	34.20	36	37.80	3.4	70	700	0.25	0.1	27
MMBZ5259BLT1	81K	37.05	39	40.95	3.2	80	800	0.25	0.1	30
MMBZ5260BLT1	81L	40.85	43	45.15	3	93	900	0.25	0.1	33
MMBZ5261BLT1	81M	44.65	47	49.35	2.7	105	1000	0.25	0.1	36
MMBZ5262BLT1	81N	48.45	51	53.55	2.5	125	1100	0.25	0.1	39
MMBZ5263BLT1	81P	53.20	56	58.80	2.2	150	1300	0.25	0.1	43
MMBZ5264BLT1	81Q	57.00	60	63.00	2.1	170	1400	0.25	0.1	46
MMBZ5265BLT1	81R	58.90	62	65.10	2	185	1400	0.25	0.1	47
MMBZ5266BLT1	81S	64.60	68	71.40	1.8	230	1600	0.25	0.1	52
MMBZ5267BLT1	81T	71.25	75	78.75	1.7	270	1700	0.25	0.1	56
MMBZ5268BLT1	81U	77.90	82	86.10	1.5	330	2000	0.25	0.1	62
MMBZ5269BLT1	81V	82.65	87	91.35	1.4	370	2200	0.25	0.1	68
MMBZ5270BLT1	81W	86.45	91	95.55	1.4	400	2300	0.25	0.1	69

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

TYPICAL CHARACTERISTICS

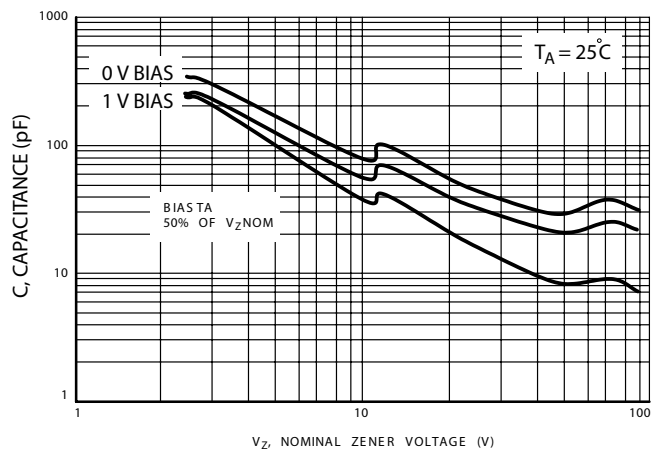


Figure 5. Typical Capacitance

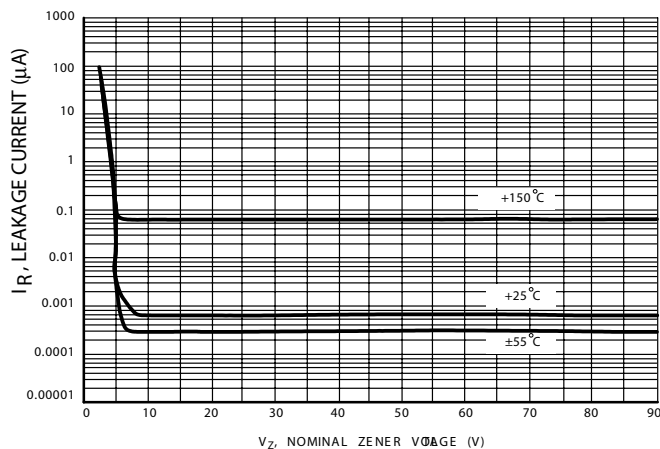


Figure 6. Typical Leakage Current

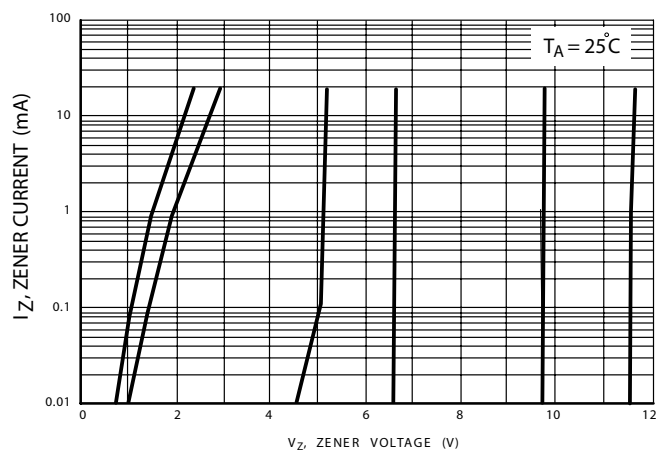


Figure 7. Zener Voltage versus Zener Current (V_Z Up to 12 V)

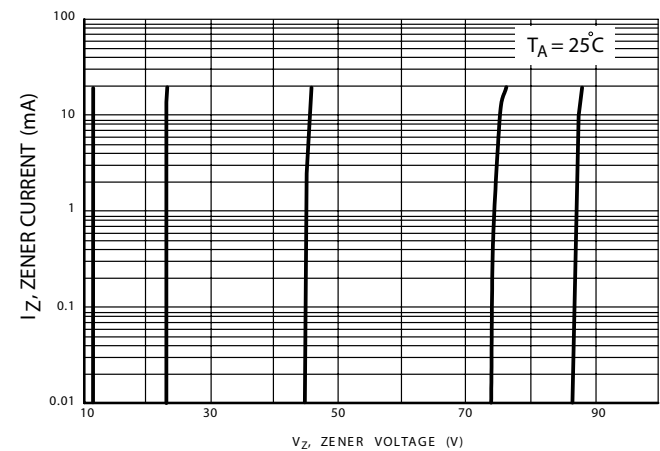


Figure 8. Zener Voltage versus Zener Current (12 V to 91 V)

TYPICAL CHARACTERISTICS

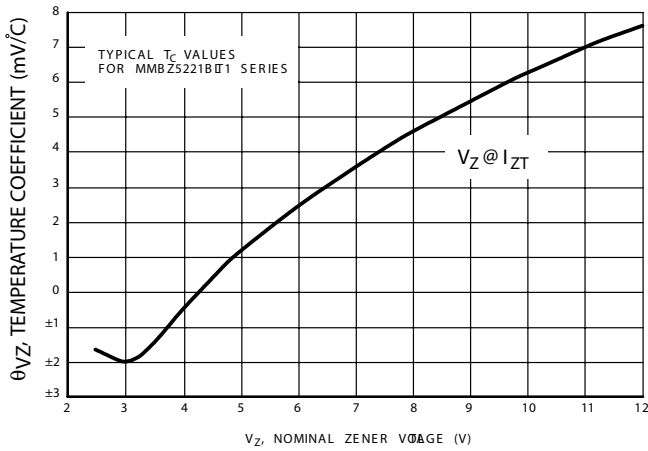


Figure 1. Temperature Coefficients (Temperature Range $\pm 55^{\circ}\text{C}$ to $+150^{\circ}\text{C}$)

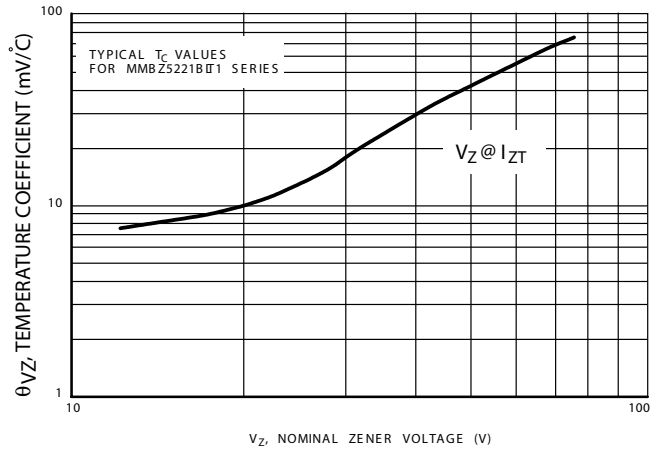


Figure 2. Temperature Coefficients (Temperature Range $\pm 55^{\circ}\text{C}$ to $+150^{\circ}\text{C}$)

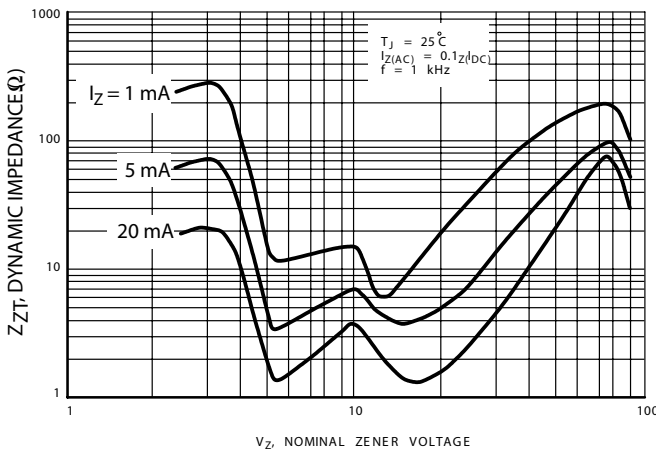


Figure 3. Effect of Zener Voltage on Zener Impedance

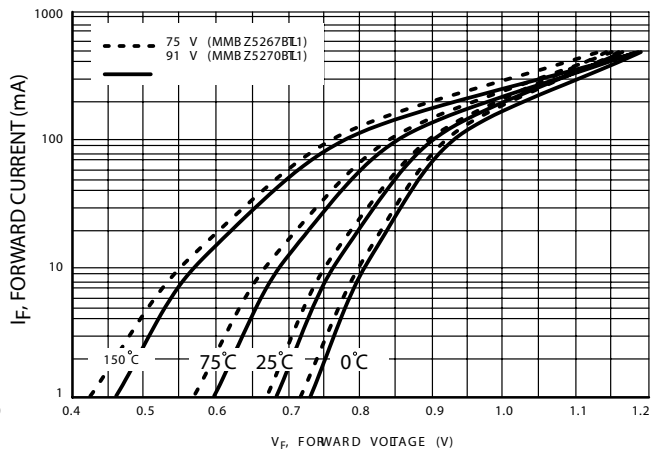


Figure 4. Typical Forward Voltage