



# MMBZ5221BT - MMBZ5259BT

150mW SURFACE MOUNT ZENER DIODE

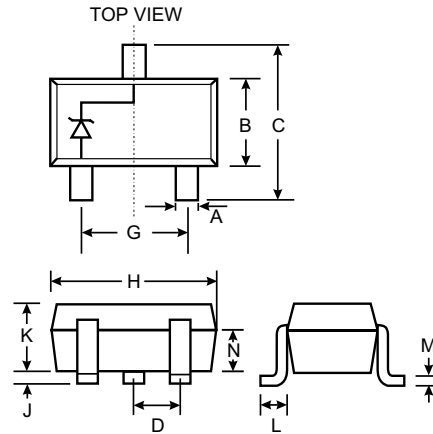
NEW PRODUCT

## Features

- Ultra-Small Surface Mount Package
- Planar Die Construction
- General Purpose
- Ideally Suited for Automated Assembly Processes

## Mechanical Data

- Case: SOT-523, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking: See Table, Sheet 2
- Weight: 0.002 grams (approx.)
- Ordering Information, see Sheet 2



SOT-523			
Dim	Min	Max	Typ
A	0.15	0.30	0.22
B	0.75	0.85	0.80
C	1.45	1.75	1.60
D	—	—	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
J	0.00	0.10	0.05
K	0.60	0.80	0.75
L	0.10	0.30	0.22
M	0.10	0.20	0.12
N	0.45	0.65	0.50
All Dimensions in mm			

## Maximum Ratings @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Zener Current (See Table on page 2)	—	—	—
Forward Voltage @ I <sub>F</sub> = 10mA	V <sub>F</sub>	0.9	V
Power Dissipation (Note 1)	P <sub>d</sub>	150	mW
Thermal Resistance, Junction to Ambient (Note 1)	R <sub>θJA</sub>	833	°C/W
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-65 to +150	°C

Notes: 1. Device mounted on FR-4 PC board with recommended pad layout.

Electrical Characteristics @  $T_A = 25^\circ\text{C}$  unless otherwise specified

TABLE 1

Type Number	Marking Code	Zener Voltage Range (Note 2)			Test Current	Maximum Zener Impedance (Note 4)		Maximum Reverse Leakage Current (Note 2)	
		$V_Z @ I_{ZT}$				$I_{ZT}$	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK} = 0.25\text{mA}$	$I_R$
		Nom (V)	Min (V)	Max (V)	mA	$\Omega$		$\mu\text{A}$	V
MMBZ5221BT	C1	2.4	2.28	2.52	20	30	1200	100	1.0
MMBZ5223BT	C3	2.7	2.57	2.84	20	30	1300	75	1.0
MMBZ5225BT	C5	3.0	2.85	3.15	20	30	1600	50	1.0
MMBZ5226BT	G1	3.3	3.14	3.47	20	28	1600	25	1.0
MMBZ5227BT	G2	3.6	3.42	3.78	20	24	1700	15	1.0
MMBZ5228BT	G3	3.9	3.71	4.10	20	23	1900	10	1.0
MMBZ5229BT	G4	4.3	4.09	4.52	20	22	2000	5.0	1.0
MMBZ5230BT	G5	4.7	4.47	4.94	20	19	1900	5.0	2.0
MMBZ5231BT	E1	5.1	4.85	5.36	20	17	1600	5.0	2.0
MMBZ5232BT	E2	5.6	5.32	5.88	20	11	1600	5.0	3.0
MMBZ5234BT	E4	6.2	5.89	6.51	20	7.0	1000	5.0	4.0
MMBZ5235BT	E5	6.8	6.46	7.14	20	5.0	750	3.0	5.0
MMBZ5236BT	F1	7.5	7.13	7.88	20	6.0	500	3.0	6.0
MMBZ5237BT	F2	8.2	7.79	8.61	20	8.0	500	3.0	6.5
MMBZ5239BT	F4	9.1	8.65	9.56	20	10	600	3.0	7.0
MMBZ5240BT	F5	10	9.50	10.50	20	17	600	3.0	8.0
MMBZ5241BT	H1	11	10.45	11.55	20	22	600	2.0	8.4
MMBZ5242BT	H2	12	11.40	12.60	20	30	600	1.0	9.1
MMBZ5243BT	H3	13	12.35	13.65	9.5	13	600	0.5	9.9
MMBZ5245BT	H5	15	14.25	15.75	8.5	16	600	0.1	11
MMBZ5246BT	J1	16	15.20	16.80	7.8	17	600	0.1	12
MMBZ5248BT	J3	18	17.10	18.90	7.0	21	600	0.1	14
MMBZ5250BT	J5	20	19.00	21.00	6.2	25	600	0.1	15
MMBZ5251BT	K1	22	20.90	23.10	5.6	29	600	0.1	17
MMBZ5252BT	K2	24	22.80	25.20	5.2	33	600	0.1	18
MMBZ5254BT	K4	27	25.65	28.35	5.0	41	600	0.1	21
MMBZ5255BT	K5	28	26.60	29.40	4.5	44	600	0.1	21
MMBZ5256BT	M1	30	28.50	31.50	4.2	49	600	0.1	23
MMBZ5257BT	M2	33	31.35	34.65	3.8	58	700	0.1	25
MMBZ5258BT	M3	36	34.20	37.80	3.4	70	700	0.1	27
MMBZ5259BT	M4	39	37.05	40.95	3.2	80	800	0.1	30

## Ordering Information (Note 3)

Device	Packaging	Shipping
(Type Number)-7*	SOT-523	3000/Tape & Reel

\* Add "-7" to the appropriate type number in Table 1 above. Example: 6.2V Zener = MMBZ5234BT-7.

- Notes:
- Short duration test pulse used to minimize self-heating effect.
  - For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
  - $f = 1\text{KHz}$ .

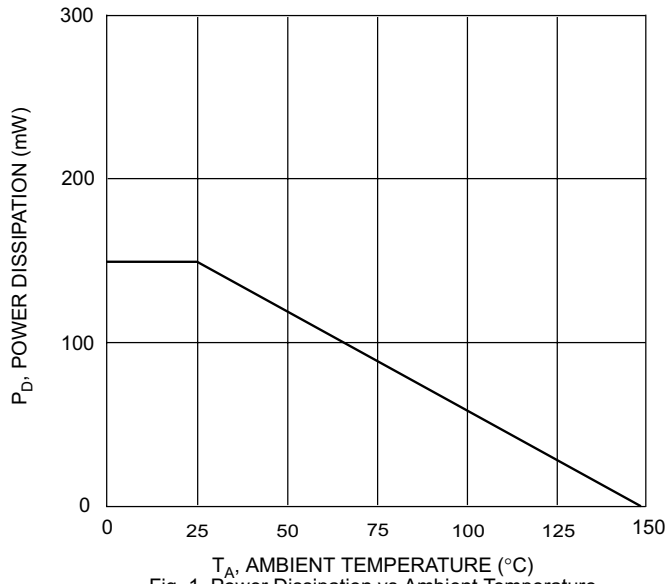


Fig. 1 Power Dissipation vs Ambient Temperature

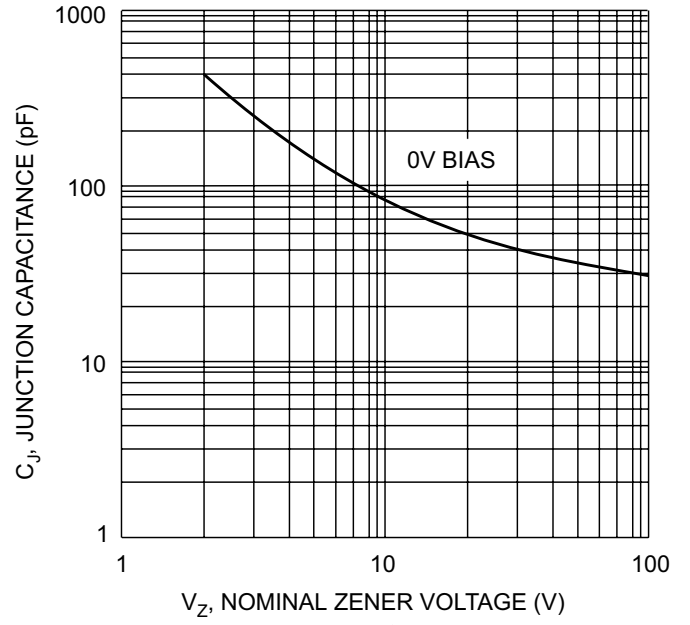


Fig. 2 Typical Capacitance

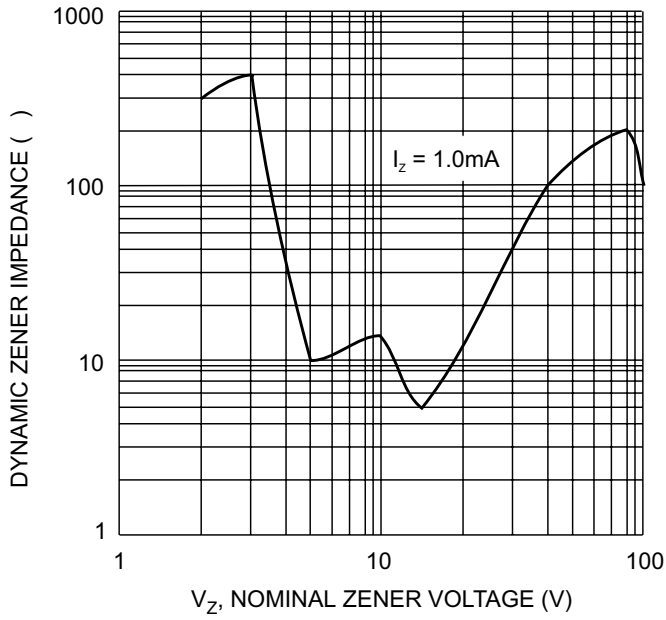


Fig. 3 Zener Voltage vs. Zener Impedance

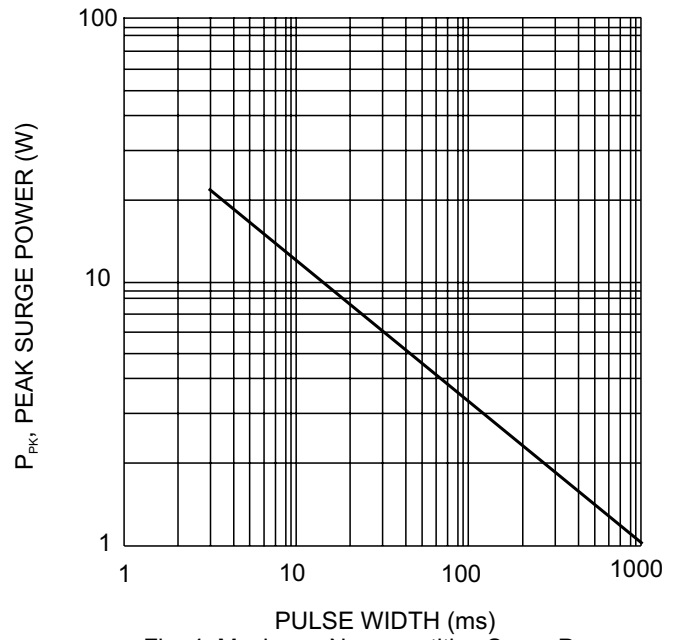


Fig. 4 Maximum Non-repetitive Surge Power