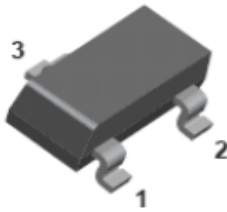
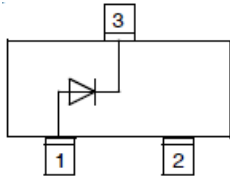


Zener Diodes



SOT-23

Features

- Moisture sensitivity level 1
- Zener voltage 5.1V~47V

Application

- Linear voltage regulator
- DC regulator
- Small-signal surge protection

Mechanical data

- **Package:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ Maximum Ratings ($T_a=25^\circ\text{C}$ Unless otherwise specified)

Parameter	Symbol	Unit	Value
Forward voltage @ $I_F=10\text{mA}$	V_F	V	0.9
Power dissipation	P_D	mW	350
Maximum regulator current	I_{ZM}	mA	P_D / V_Z
Junction temperature	T_J	$^\circ\text{C}$	-55 to +150
Storage temperature	T_{STG}	$^\circ\text{C}$	-55 to +150



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■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

Type number	Device marking	V _Z @ I _{ZT} (V)			Z _{ZT} (Ω)		Z _{ZK} (Ω)		I _R (μA) @V _R	
		Min.	Typ.	Max.	I _{ZT} (ma)	Max.	I _{ZK} (ma)	Max.	Max	V _R (V)
MMBZ5231B	E1	4.85	5.1	5.36	20	17	0.25	1600	5	2.0
MMBZ5232B	E2	5.32	5.6	5.88	20	11	0.25	1600	5	3.0
MMBZ5234B	E4	5.89	6.2	6.51	20	7	0.25	1000	5	4.0
MMBZ5235B	E5	6.46	6.8	7.14	20	5	0.25	750	3	5.0
MMBZ5236B	F1	7.13	7.5	7.88	20	6	0.25	500	3	6.0
MMBZ5237B	F2	7.79	8.2	8.61	20	8	0.25	500	3	6.5
MMBZ5239B	F4	8.65	9.1	9.56	20	10	0.25	600	3	7.0
MMBZ5240B	F5	9.50	10	10.50	20	17	0.25	600	3	8.0
MMBZ5241B	H1	10.45	11	11.55	20	22	0.25	600	2	8.4
MMBZ5242B	H2	11.40	12	12.60	20	30	0.25	600	1	9.1
MMBZ5243B	H3	12.35	13	13.65	9.5	13	0.25	600	0.5	9.9
MMBZ5245B	H5	14.25	15	15.75	8.5	16	0.25	600	0.1	11.0
MMBZ5246B	J1	15.20	16	16.80	7.8	17	0.25	600	0.1	12.0
MMBZ5248B	J3	17.10	18	18.90	7	21	0.25	600	0.1	14.0
MMBZ5250B	J5	19.00	20	21.00	6.2	25	0.25	600	0.1	15.0
MMBZ5251B	K1	20.90	22	23.10	5.6	29	0.25	600	0.1	17.0
MMBZ5252B	K2	22.80	24	25.20	5.2	33	0.25	600	0.1	18.0
MMBZ5254B	K4	25.65	27	28.35	4.6	41	0.25	600	0.1	21.0
MMBZ5255B	K5	26.60	28	29.40	4.5	44	0.25	600	0.1	21.0
MMBZ5256B	M1	28.50	30	31.50	4.2	49	0.25	600	0.1	23.0
MMBZ5257B	M2	31.35	33	34.65	3.8	58	0.25	700	0.1	25.0
MMBZ5258B	M3	34.20	36	37.80	3.4	70	0.25	700	0.1	27.0
MMBZ5259B	M4	37.05	39	40.95	3.2	80	0.25	800	0.1	30.0
MMBZ5260B	M5	40.85	43	45.15	3	93	0.25	900	0.1	33.0
MMBZ5261B	N1	44.65	47	49.35	2.7	105	0.25	1000	0.1	36.0



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■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J-A}^{(1)}$	$^{\circ}\text{C}/\text{W}$	357
Thermal resistance, junction-to-case	$R_{\theta J-C}^{(1)}$	$^{\circ}\text{C}/\text{W}$	286

Note:

(1) Device mounted on PCB, single-sided copper, with standard footprint

Fig 1: P_D - T_a Curve

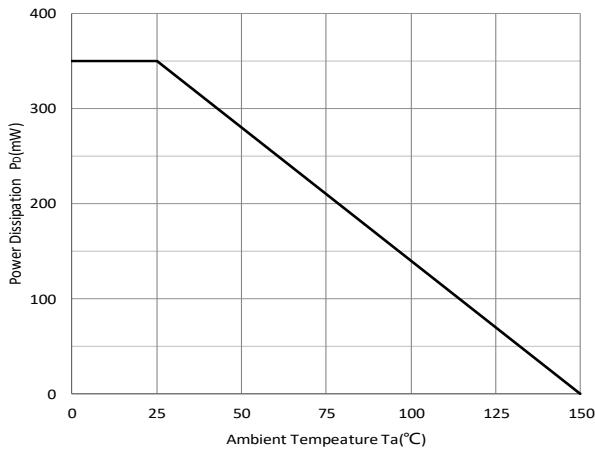


Fig 2: Zener Breakdown Characteristics

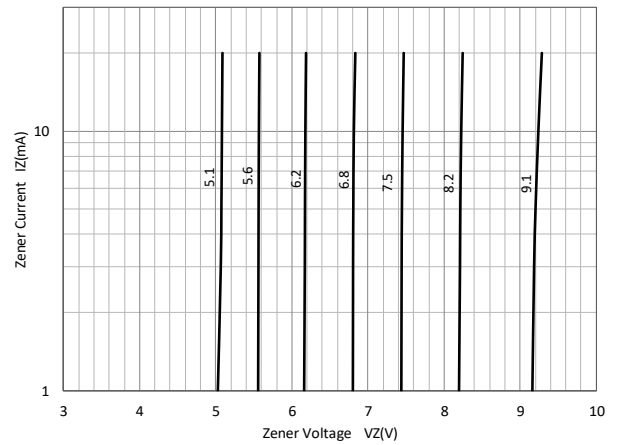


Fig 3: Zener Breakdown Characteristics

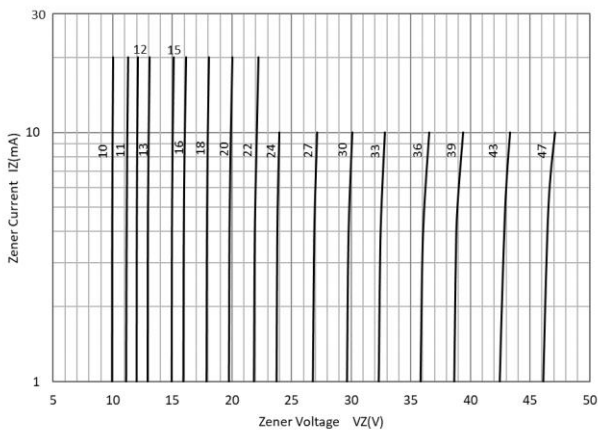
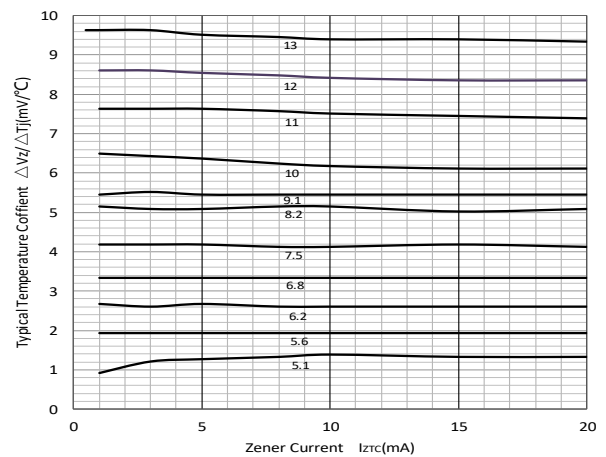


Fig 4: Typical Temperature Coefficient





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Fig 5: Typical Temperature Coefficient

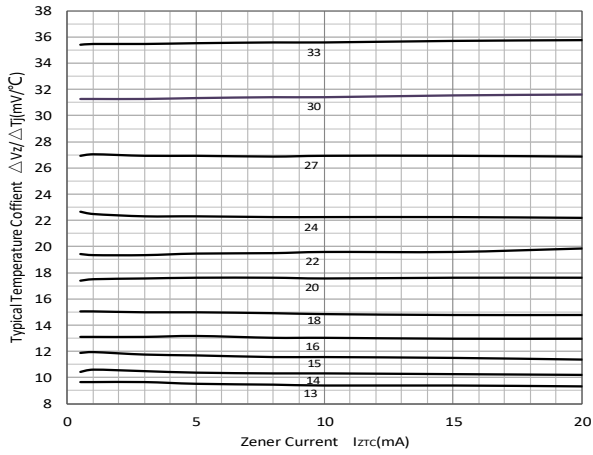


Fig 6: Typical Temperature Coefficient

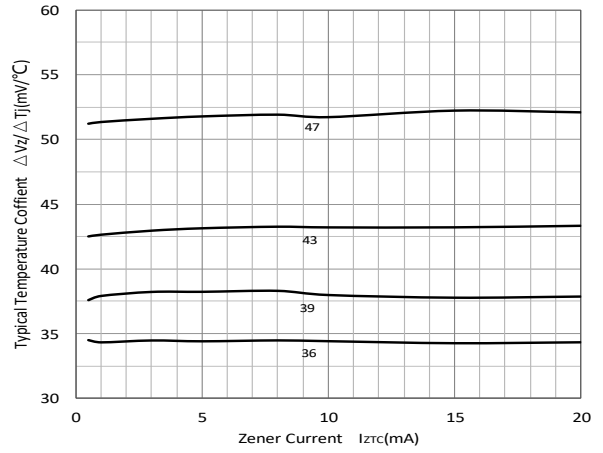
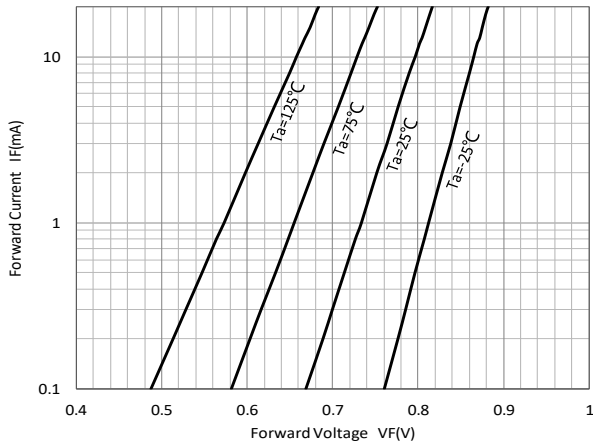


Fig 7: Typical Forward Voltage





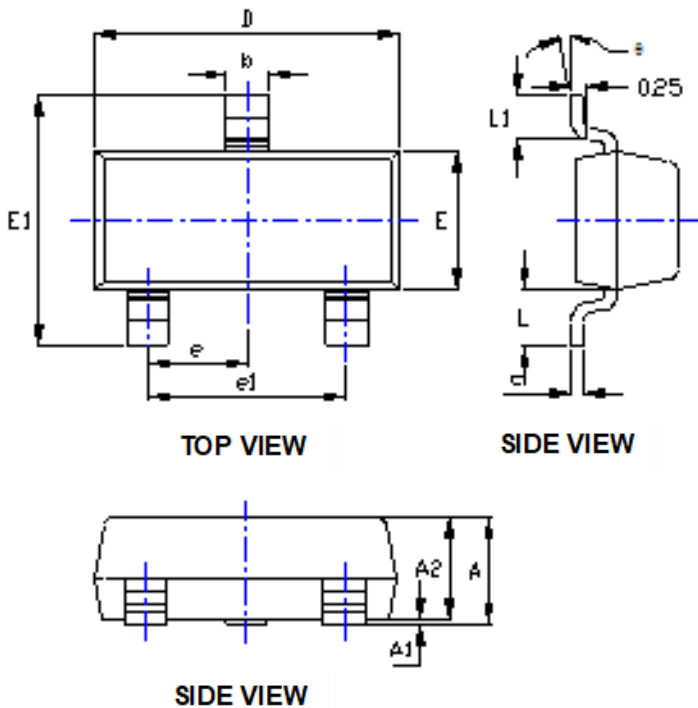
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■ Ordering Information

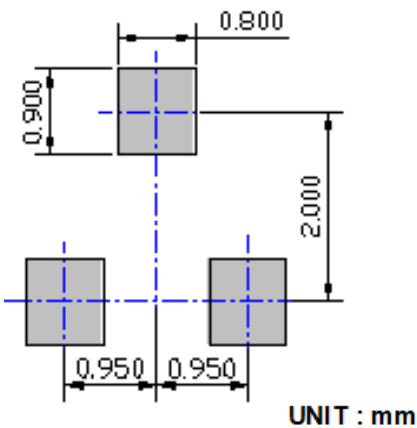
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
MMBZ5231B THRU MMBZ5261B	F2	Approximate 0.008	3000	30000	120000	7" reel
MMBZ5231B THRU MMBZ5261B	F4	Approximate 0.008	10000	/	210000	13" reel

■ Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

■ Suggested Pad Layout





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