



**THE DATASHEET OF
BZX84B13**



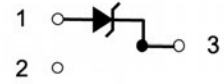
BZX84Bx Series

Surface Mount Zener Diodes

V_z Range: 2.4V to 51V Power Dissipation: 350mW

Features

- Total power dissipation: Max. 350 mW
- Working voltage range: Nom. 2.4V to 51V
- Zener tolerance: 2%
- Planar die construction



Package: SOT-23

Schematic Diagram

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

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	350	mW
Thermal Resistance, Junction to Ambient Air	R _{θJA}	357	°C/W
Storage Temperature Range	T _{STG}	-65 to +150	°C
Junction Temperature Range	T _J	-65 to +150	°C

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

Part Number	Marking Code	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Temperature Coefficient (mV/°C)		Non-Repetitive Peak Reverse Current I _{ZPM} (A) ¹
		V _Z @ I _{ZT}			I _{ZT}	Z _{ZT} @ I _{ZT}	Z _{ZK} @ I _{ZK}		I _R	V _R	@ I _{ZT}		
		Nom(V)	Min(V)	Max(V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	Min	Max	
BZX84B2V4	2Z11	2.4	2.35	2.45	5	100	275	1	50	1	-3.5	0	6.0
BZX84B2V7	2Z12	2.7	2.65	2.75	5	100	600	1	20	1	-3.5	0	6.0
BZX84B3V0	2Z13	3.0	2.94	3.06	5	95	600	1	10	1	-3.5	0	6.0
BZX84B3V3	2Z14	3.3	3.23	3.37	5	95	600	1	5	1	-3.5	0	6.0
BZX84B3V6	2Z15	3.6	3.53	3.67	5	90	600	1	5	1	-3.5	0	6.0
BZX84B3V9	2Z16	3.9	3.82	3.98	5	90	600	1	3	1	-3.5	0	6.0
BZX84B4V3	2Z17	4.3	4.21	4.39	5	90	600	1	3	1	-3.5	0	6.0
BZX84B4V7	2Z1	4.7	4.61	4.79	5	80	500	1	3	2	-3.5	0.2	6.0

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

Part Number	Marking Code	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Temperature Coefficient (mV/°C)		Non-Repetitive Peak Reverse Current I _{ZPM} (A) ¹
		V _Z @ I _{ZT}			I _{ZT}	Z _{ZT} @ I _{ZT}	Z _{ZK} @ I _{ZK}		I _R	V _R	@ I _{ZT}		
		Nom(V)	Min(V)	Max(V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	Min	Max	
BZX84B5V1	2Z2	5.1	5	5.2	5	60	480	1	2	2	-2.7	1.2	6.0
BZX84B5V6	2Z3	5.6	5.49	5.71	5	40	400	1	1	2	-2.0	2.5	6.0
BZX84B6V2	2Z4	6.2	6.08	6.32	5	10	150	1	3	4	0.4	3.7	6.0
BZX84B6V8	2Z5	6.8	6.66	6.94	5	15	80	1	2	4	1.2	4.5	6.0
BZX84B7V5	2Z6	7.5	7.35	7.65	5	15	80	1	1	5	2.5	5.3	4.0
BZX84B8V2	2Z7	8.2	8.04	8.36	5	15	80	1	0.7	5	3.2	6.2	4.0
BZX84B9V1	2Z8	9.1	8.92	9.28	5	15	100	1	0.5	6	3.8	7.0	3.0
BZX84B10	2Z9	10	9.8	10.2	5	20	150	1	0.2	7	4.5	8.0	3.0
BZX84B11	2Y1	11	10.8	11.2	5	20	150	1	0.1	8	5.4	9.0	2.5
BZX84B12	2Y2	12	11.8	12.2	5	25	150	1	0.1	8	6.0	10.0	2.5
BZX84B13	Z68	13	12.7	13.3	5	30	170	1	0.1	8	7.0	11.0	2.5
BZX84B15	2Y4	15	14.7	15.3	5	30	200	1	0.05	10.5	9.2	13.0	2.0
BZX84B16	2Y5	16	15.7	16.3	5	40	200	1	0.05	11.2	10.4	14.0	1.5
BZX84B18	2Y6	18	17.6	18.4	5	45	225	1	0.05	12.6	12.4	16.0	1.5
BZX84B20	2Y7	20	19.6	20.4	5	55	225	1	0.05	14	14.4	18.0	1.5
BZX84B22	2Y8	22	21.6	22.4	5	55	250	1	0.05	15.4	16.4	20.0	1.25
BZX84B24	2Y9	24	23.5	24.5	5	70	250	1	0.05	16.8	18.4	22.0	1.25
BZX84B27	2Y10	27	26.5	27.5	2	80	300	0.5	0.05	18.9	21.4	25.3	1.0
BZX84B30	2Y11	30	29.4	30.6	2	80	300	0.5	0.05	21	24.4	29.4	1.0
BZX84B33	2Y12	33	32.3	33.7	2	80	325	0.5	0.05	23.1	27.4	33.4	0.9
BZX84B36	2Y13	36	35.3	36.7	2	90	350	0.5	0.05	25.2	30.4	37.4	0.8
BZX84B39	2Y14	39	38.2	39.8	2	130	350	0.5	0.05	27.3	33.4	41.2	0.7
BZX84B43	2Y15	43	42.1	43.9	2	150	375	0.5	0.05	30.1	37.6	46.6	0.6
BZX84B47	2Y16	47	46.1	47.9	2	170	375	0.5	0.05	32.9	42.0	51.8	0.5
BZX84B51	2Y17	51	50	52	2	180	400	0.5	0.05	35.7	46.6	57.2	0.4

Note:

1. I_{ZPM} tested at tp=100uS, square wave

Typical Electrical Characteristic Curves

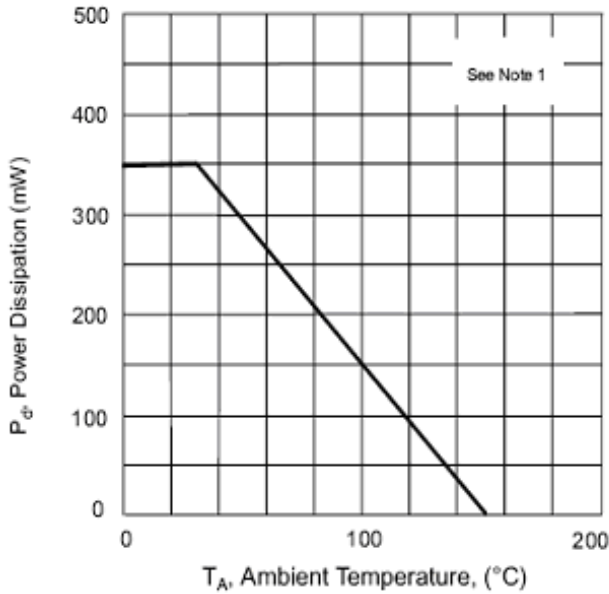


Figure 1. Power Derating Curve

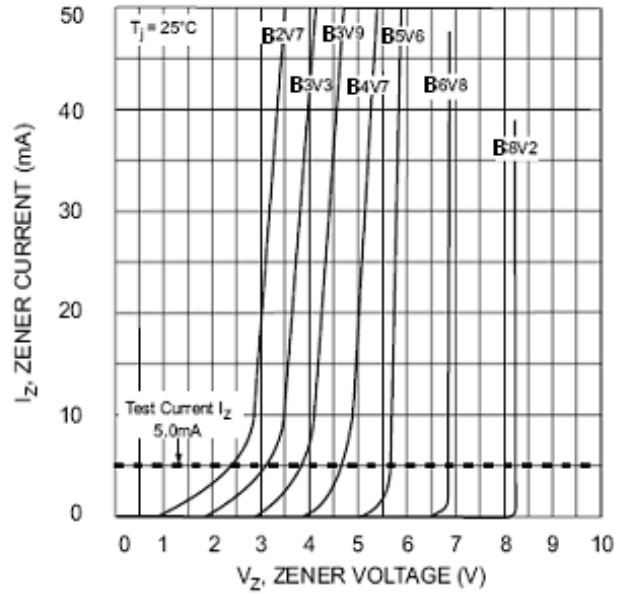


Figure 2. Zener Breakdown Characteristics

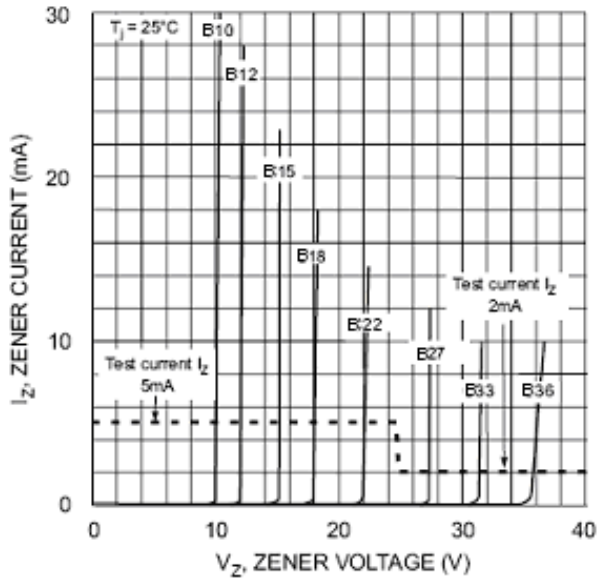


Figure 3. Zener Breakdown Characteristics

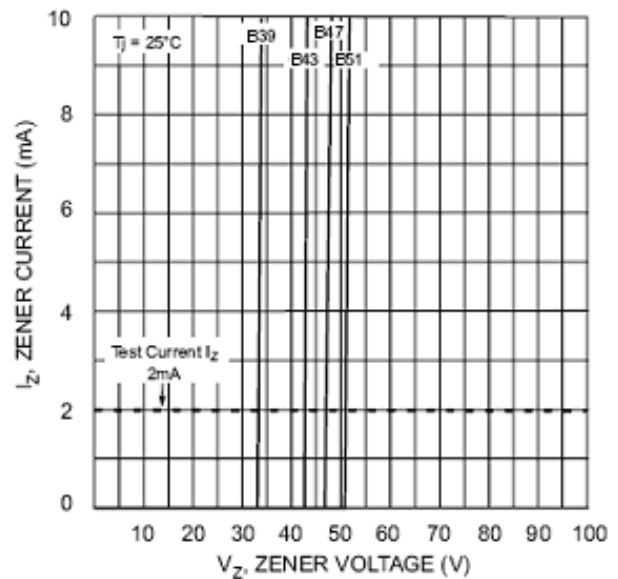
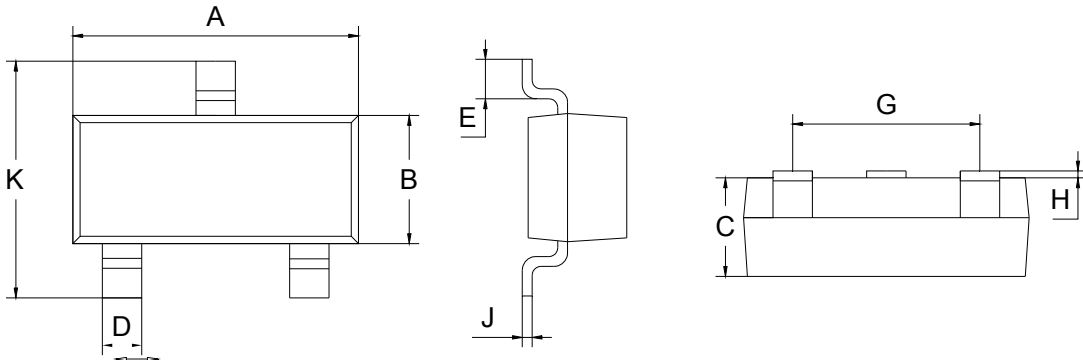


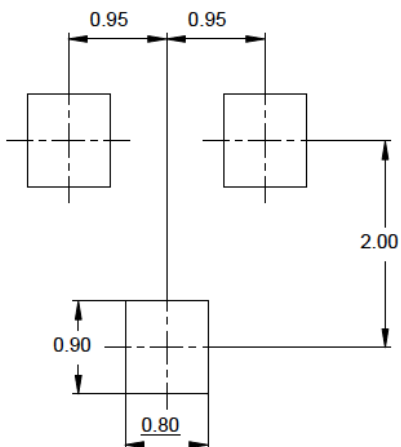
Figure 4. Zener Breakdown Characteristics

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.700	3.100	0.106	0.122
B	1.100	1.500	0.043	0.059
C	1.000 TYP		0.039 TYP	
D	0.400 TYP		0.016 TYP	
E	0.350	0.480	0.014	0.019
G	1.800	2.000	0.071	0.079
H	0.020	0.100	0.001	0.004
J	0.100 TYP		0.004 TYP	
K	2.200	2.600	0.087	0.102



Recommended Pad Layout









Unit : mm
 Dimensions for reference only.

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