

## Zener Diodes

### Features

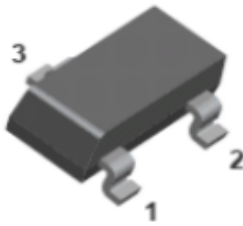
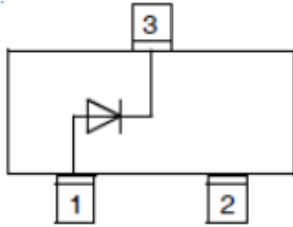
- Moisture sensitivity level 1
- Zener voltage 2.4V~75V

### 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



### SOT-23

#### ■ Maxim

as otherwise specified)

Characteristic	Symbol	Value	Units
Maximum Forward Voltage@ $I_F=10\text{mA}$	$V_F$	0.9	V
Power Dissipation	$P_D$	350	mW
Peak Forward Surge Current*	$I_{FSM}$	2.0	A
Thermal Resistance	$R_{thJA}$	357	$^{\circ}\text{C}/\text{W}$
Operation Temperature	$T_J$	-55~+150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55~+150	$^{\circ}\text{C}$

#### ■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BZX84B2V4 THRU BZX84B75	F2	Approximate 0.008	3000	30000	120000	7" reel



# BZX84B2V4 THRU BZX84B75

## ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

Type number	Device marking	V <sub>z</sub> @ I <sub>ZT</sub> (V)			Z <sub>ZT</sub> (Ω)		Z <sub>ZK</sub> (Ω)		I <sub>R</sub> (μA) @V <sub>R</sub>		Typical temperature coefficient @ I <sub>ZTC</sub> mV/°C		Diode capacitance Cd (pF)	Non-repetitive peak reverse current I <sub>ZSM</sub> (A)
		min	typ	max	max	I <sub>ZT</sub> (mA)	max	I <sub>ZK</sub> (mA)	max	V <sub>R</sub> (V)	min	max	max	max
BZX84B2V4	Z11.	2.34	2.4	2.46	100	5	600	1	45	1	-3.5	0	450	6
BZX84B2V7	Z12.	2.63	2.7	2.77	100	5	600	1	20	1	-3.5	0	450	6
BZX84B3V0	Z13.	2.92	3.0	3.08	100	5	600	1	10	1	-3.5	0	450	6
BZX84B3V3	Z14.	3.21	3.3	3.39	95	5	600	1	15	1	-3.5	0	450	6
BZX84B3V6	Z15.	3.52	3.6	3.67	95	5	600	1	15	1	-3.5	0	450	4.5
BZX84B3V9	Z16.	3.82	3.9	3.98	95	5	600	1	10	1	-3.5	0	450	4.5
BZX84B4V3	Z17.	4.21	4.3	4.39	95	5	600	1	3	1	-3.5	0	450	3.5
BZX84B4V7	Z1.	4.61	4.7	4.79	80	5	500	1	3	2	-3.5	0.2	300	3.5
BZX84B5V1	Z2.	5.0	5.1	5.2	60	5	480	1	2	2	-2.7	1.2	300	3
BZX84B5V6	Z3.	5.49	5.6	5.71	40	5	400	1	1	2	-2.0	2.5	200	3
BZX84B6V2	Z4.	6.08	6.2	6.32	10	5	150	1	3	4	0.4	3.7	200	3
BZX84B6V8	Z5.	6.66	6.8	6.94	15	5	80	1	2	4	1.2	4.5	200	2
BZX84B7V5	Z6.	7.35	7.5	7.65	15	5	80	1	1	5	2.5	5.3	150	2
BZX84B8V2	Z7.	8.04	8.2	8.36	15	5	80	1	0.7	5	3.2	6.2	150	2
BZX84B9V1	Z8.	8.92	9.1	9.28	15	5	100	1	0.5	6	3.8	7.0	150	1.8
BZX84B10	Z9.	9.8	10	10.2	20	5	150	1	0.2	7	4.5	8.0	90	1.8
BZX84B11	Y1.	10.78	11	11.22	20	5	150	1	0.1	8	5.4	9.0	85	1.8
BZX84B12	Y2.	11.76	12	12.24	25	5	150	1	0.1	8	6.0	10.0	85	1.8
BZX84B13	Y3.	12.74	13	13.3	30	5	170	1	0.1	8	7.0	11.0	80	1
BZX84B15	Y4.	14.7	15	15.3	30	5	200	1	0.1	10.5	9.2	13.0	75	1
BZX84B16	Y5.	15.68	16	16.3	40	5	200	1	0.1	11.2	10.4	14.0	75	1
BZX84B18	Y6.	17.6	18	18.4	45	5	225	1	0.1	12.6	12.4	16.0	70	1
BZX84B20	Y7.	19.6	20	20.4	55	5	225	1	0.1	14	14.4	18.0	60	1
BZX84B22	Y8.	21.56	22	22.44	55	5	250	1	0.1	15.4	16.4	20.0	60	0.6
BZX84B24	Y9.	23.52	24	24.5	70	5	250	1	0.1	16.8	18.4	22.0	55	0.6
BZX84B27	Y10.	26.46	27	27.54	80	5	300	1	0.1	18.9	21.4	25.3	50	0.6
BZX84B30	Y11.	29.4	30	30.6	80	5	300	1	0.1	21	24.4	29.4	50	0.6
BZX84B33	Y12.	32.34	33	33.7	80	5	325	1	0.1	23.1	27.4	33.4	45	0.6
BZX84B36	Y13.	35.28	36	36.72	90	5	350	1	0.1	25.2	30.4	37.4	45	0.6
BZX84B39	Y14	38.22	39	39.78	90	5	350	1.0	0.1	29.0	33.4	41.2	45	0.6
BZX84B43	Y15	42.14	43	43.86	100	5	375	1	0.1	32.0	37.6	46.6	40	0.6
BZX84B47	Y16	46.06	47	47.94	110	5	375	1	0.1	35.0	42.0	51.8	40	0.5
BZX84B51	Y17	50.0	51	52.0	180	2	400	0.5	0.05	35.7	46.6	57.2	40	0.4
BZX84B56	Y18	54.9	56	57.1	200	2	425	0.5	0.05	39.2	52.2	63.8	40	0.3



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BZX84B62	Y19	60.8	62	63.2	215	2	450	0.5	0.05	43.4	58.8	71.6	35	0.3
BZX84B68	Y20	66.64	68	69.36	240	2	475	0.5	0.05	47.6	65.6	79.8	35	0.25
BZX84B75	Y21	73.5	75	76.5	255	2	500	0.5	0.05	52.5	73.4	88.6	35	0.25



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## ■ Characteristics (Typical)

Fig 1:  $P_D$ - $T_a$  Curve

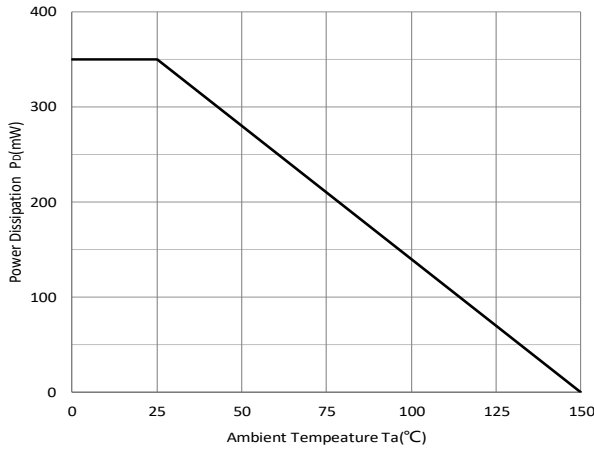


Fig 2: Zener Breakdown Characteristics

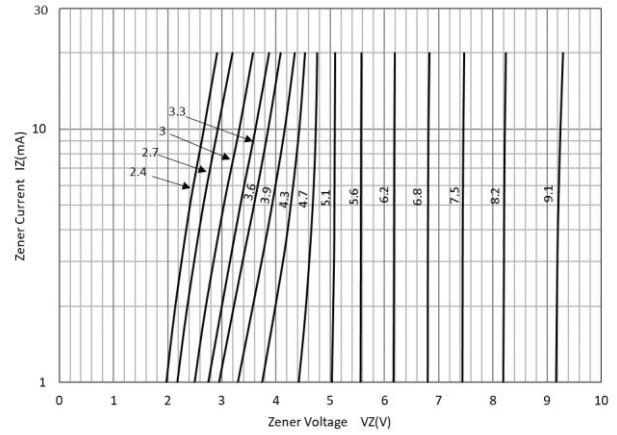


Fig 3: Zener Breakdown Characteristics

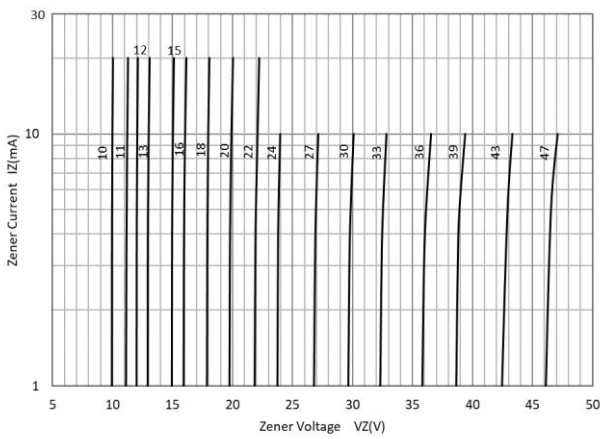


Fig 4: Zener Breakdown Characteristics

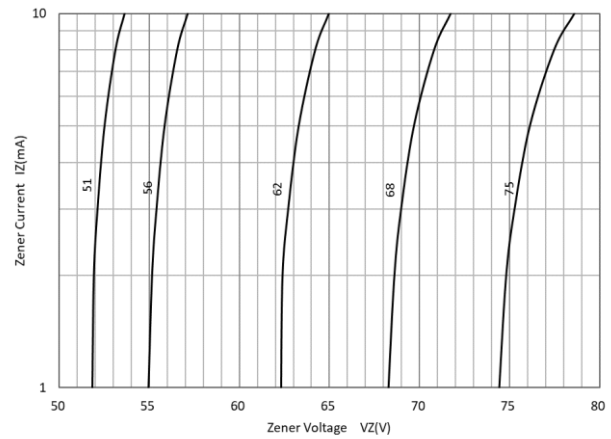


Fig 5: Typical Temperature Coefficient

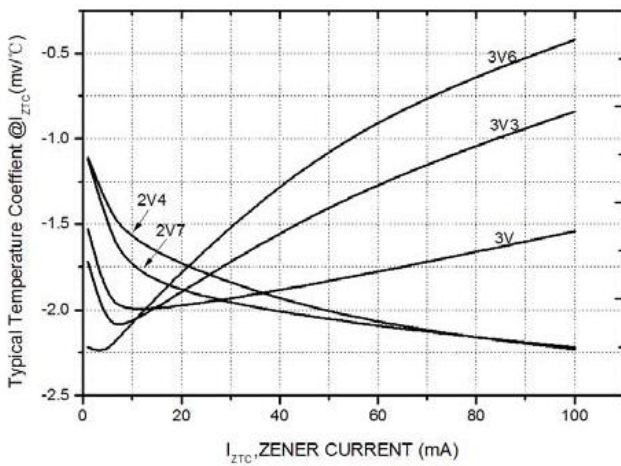
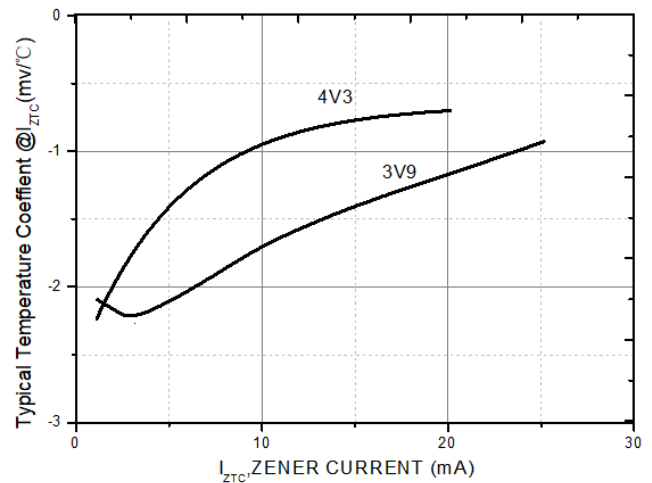


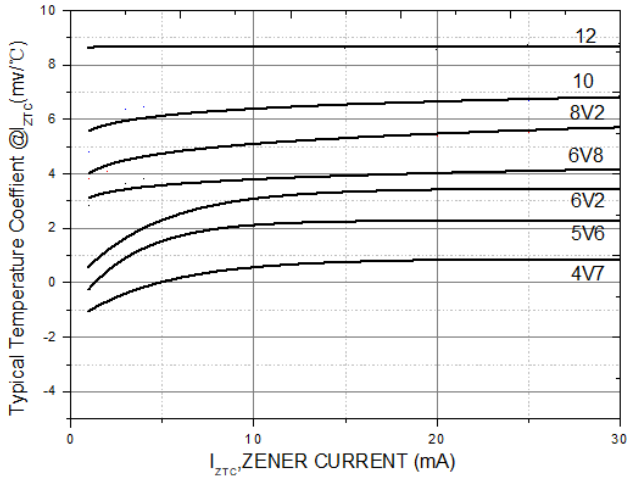
Fig 6: Typical Temperature Coefficient



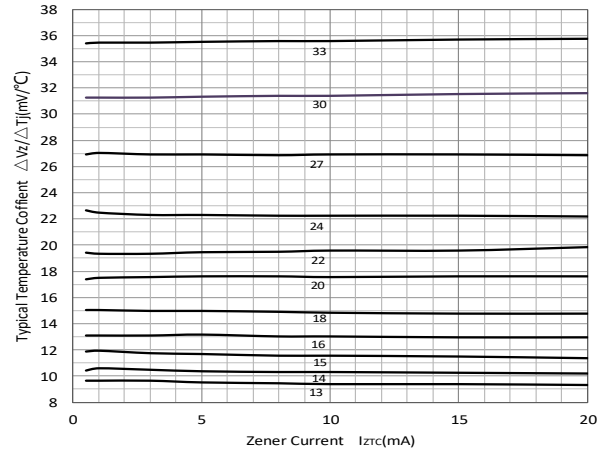


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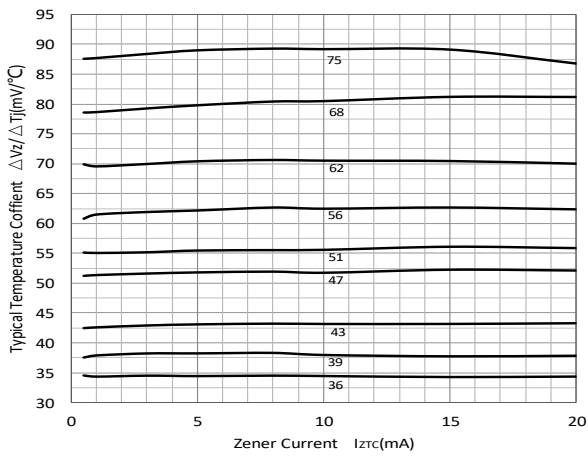
**Fig 7: Typical Temperature Coefficient**



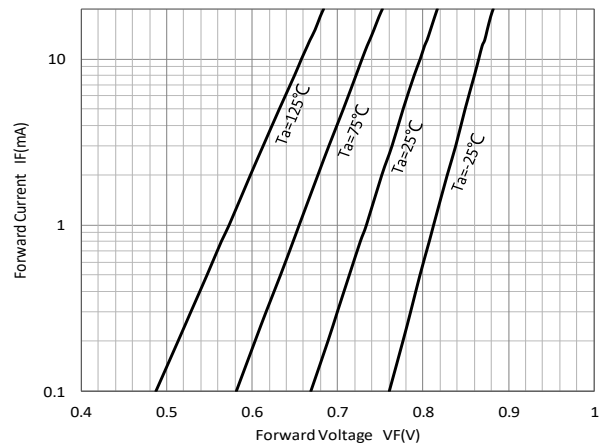
**Fig 8: Typical Temperature Coefficient**



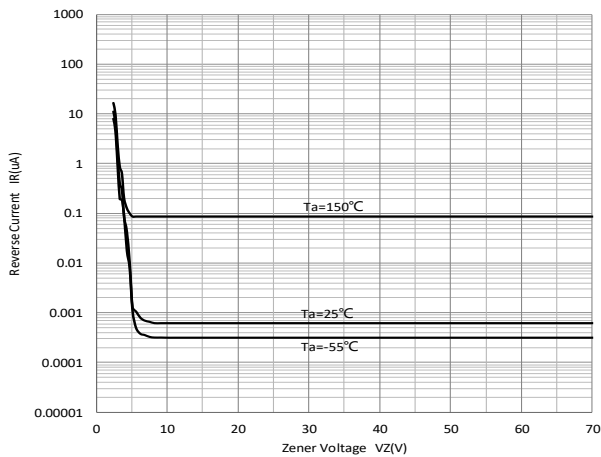
**Fig 9: Typical Temperature Coefficient**



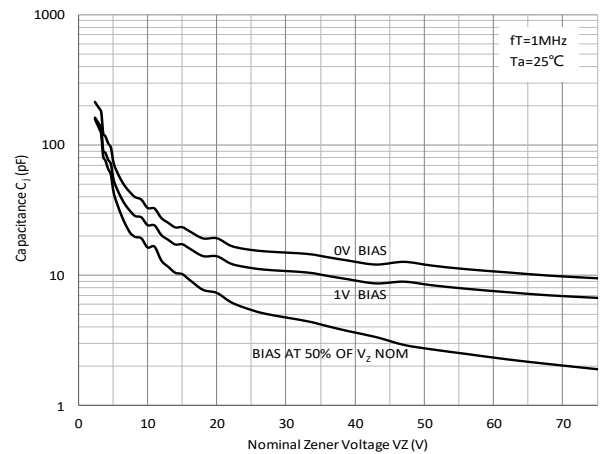
**Fig 10: Typical Forward Voltage**



**Fig 11: Typical Reverse Current**



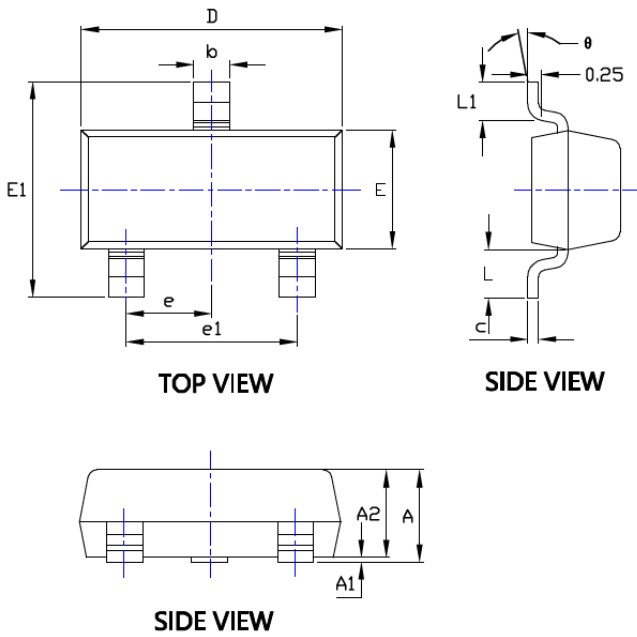
**Fig 12: Typical Capacitance**





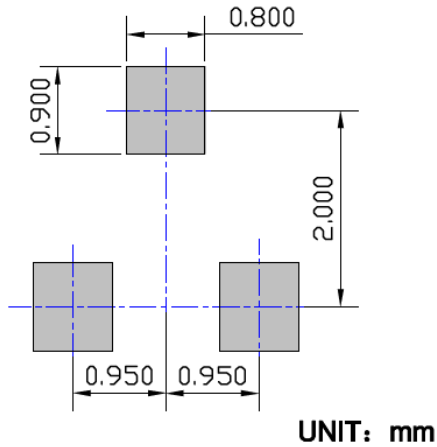
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## ■SOT-23 Package Outline Dimensions



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	0.200	0.300	0.500
$\theta$	0°	8°	0°	8°

## ■SOT-23 Suggested Pad Layout





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