

# BZX84C2V4 THRU BZX84C(B)51

## Silicon 350 mWatt Zener Diodes

### Features

- Planar Die construction
- 350mW Power Dissipation
- Zener Voltages from 2.4V - 51V
- Ideally Suited for Automated Assembly Processes
- Halogen free available upon request by adding suffix "-HF"

### Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Weight: 0.008 grams (approx.)

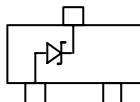
### Maximum Ratings @ 25°C Unless Otherwise Specified

Maximum Forward Voltage@IF=10mA	V <sub>F</sub>	0.9	V
Power Dissipation (Note A)	P <sub>(AV)</sub>	350	mWatt
Operation And Storage Temperature	T <sub>J</sub> , T <sub>STG</sub>	-55°C to +150°C	
Peak Forward Surge Current(Note B)	I <sub>FSM</sub>	2.0	A
Thermal Resistance (Note C)	R <sub>thja</sub>	357	°C/W

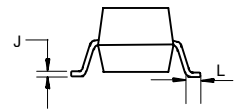
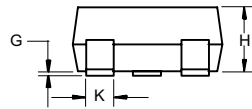
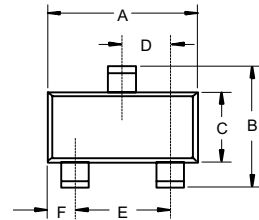
NOTES:

- A. Mounted on 5.0mm<sup>2</sup>(.013mm thick) land areas.  
 B. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.  
 C. Valid provided the terminals are kept at ambient temperature

\*Pin Configuration - Top View

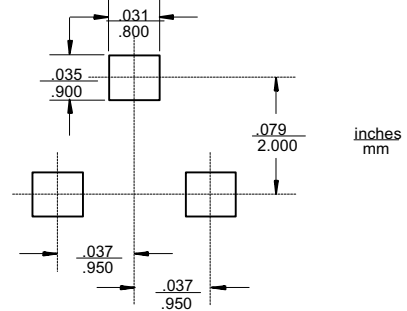


### SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	
L	.007	.020	.20	.50	

### Suggested Solder Pad Layout



# BZX84C2V4 thru BZX84C51

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted)

Part Number	Marking	Nominal Zener Voltage			Max. Zener Impedance				Max.Reverse Leakage Current	
		Vz(V) @ I <sub>ZT</sub>			Z <sub>ZT</sub> @ I <sub>ZT</sub>		Z <sub>ZK</sub> @ I <sub>ZK</sub>		IR @ VR	
		Nom.	Min.	Max.	Ohm	mA	Ohm	mA	µA	V
BZX84C2V4	W1/Z11	2.4	2.28	2.52	100	5	600	1	50	1.0
BZX84C2V7	W2/Z12	2.7	2.5	2.9	100	5	600	1	20	1.0
BZX84C3V0	W3/Z13	3	2.8	3.2	95	5	600	1	10	1.0
BZX84C3V3	W4/Z14	3.3	3.1	3.5	95	5	600	1	5	1.0
BZX84C3V6	W5/Z15	3.6	3.4	3.8	90	5	600	1	5	1.0
BZX84C3V9	W6/Z16	3.9	3.7	4.1	90	5	600	1	3	1.0
BZX84C4V3	W7/Z17	4.3	4	4.6	90	5	600	1	3	1.0
BZX84C4V7	W8/Z1	4.7	4.4	5	80	5	500	1	3	2.0
BZX84C5V1	W9/Z2	5.1	4.8	5.4	60	5	480	1	2	2.0
BZX84C5V6	WA/Z3	5.6	5.2	6	40	5	400	1	1	2.0
BZX84C6V2	WB/Z4	6.2	5.8	6.6	10	5	150	1	3	4.0
BZX84C6V8	WC/Z5	6.8	6.4	7.2	15	5	80	1	2	4.0
BZX84C7V5	WD/Z6	7.5	7	7.9	15	5	80	1	1	5.0
BZX84C8V2	WE/Z7	8.2	7.7	8.7	15	5	80	1	0.7	5.0
BZX84C9V1	WF/Z8	9.1	8.5	9.6	15	5	100	1	0.5	6.0
BZX84C10	WG/Z9	10	9.4	10.6	20	5	150	1	0.2	7.0
BZX84C11	WH/Y1	11	10.4	11.6	20	5	150	1	0.1	8.0
BZX84C12	WI/Y2	12	11.4	12.7	25	5	150	1	0.1	8.0
BZX84C13	WK/Y3	13	12.4	14.1	30	5	170	1	0.1	8.0
BZX84C15	WL/Y4	15	13.8	15.6	30	5	200	1	0.1	10.5
BZX84C16	WM /Y5	16	15.3	17.1	40	5	200	1	0.1	11.2
BZX84C18	WN/Y6	18	16.8	19.1	45	5	225	1	0.1	12.6
BZX84C20	WO/Y7	20	18.8	21.2	55	5	225	1	0.1	14.0
BZX84C22	WP/Y8	22	20.8	23.3	55	5	250	1	0.1	15.4
BZX84C24	WR/Y9	24	22.8	25.6	70	5	250	1	0.1	16.8
BZX84C27	WS/Y10	27	25.1	28.9	80	2	300	1	0.1	18.9
BZX84C30	WT /Y11	30	28	32	80	2	300	1	0.1	21.0
BZX84C33	WU/Y12	33	31	35	80	2	325	1	0.1	23.1
BZX84C36	WW/Y13	36	34	38	90	2	350	1	0.1	25.2
BZX84C39	WX/Y14	39	37	41	130	2	350	1	0.1	27.3
BZX84C43	WY/Y15	43	40.85	45.15	150	5	375	1	0.1	30.10
BZX84C47	WZ/Y16	47	44.65	49.35	170	5	375	1	0.1	32.90
BZX84C51	XA/Y17	51	48.45	53.55	100	5	400	1	0.1	35.70

NOTE:

- Standard zener voltage tolerance is +/- 5% with a 'C' suffix from BZX84C2V4-BZX84C51, suffix 'B' is +/- 2% tolerance from BZX84B4V3-BZX84B51.
- Zener Voltage (Vz) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature (TL) AT 30 °C, from the diode body.
- Zener Impedance (Zz) Derivation. The zener impedance is derived from the 60 cycle ac voltage, which results when an AC current having an rms value equal to 10% of the dc zener current (Izt or Izk) is superimposed on Izt or Izk.
- Surge Current (IR) Non-Repetitive. The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current, Izt, per JEDEC registration; however, actual device capability is as described in Figure 5.

# BZX84B4V3 thru BZX84B51

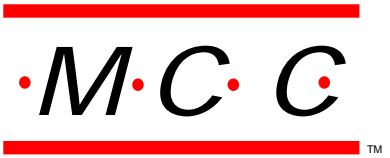
ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted)

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		Vz(V) @ I <sub>ZT</sub>			Z <sub>ZT</sub> @ I <sub>ZT</sub>		Z <sub>ZK</sub> @ I <sub>ZK</sub>		IR @ VR	
		Nom.	Min.	Max.	Ohm	mA	Ohm	mA	µA	V
BZX84B4V3	W7	4.3	4.21	4.39	90	5	600	1	3.0	1.0
BZX84B4V7	W8/Z1	4.7	4.61	4.79	80	5	500	1	3.0	2.0
BZX84B5V1	W9/2Z2	5.1	5.00	5.20	60	5	480	1	2.0	2.0
BZX84B5V6	WA/2Z3	5.6	5.49	5.71	40	5	400	1	1.0	2.0
BZX84B6V2	WB/2Z4	6.2	6.08	6.32	10	5	150	1	3.0	4.0
BZX84B6V8	WC/2Z5	6.8	6.66	6.94	15	5	80	1	2.0	4.0
BZX84B7V5	WD/2Z6	7.5	7.35	7.65	15	5	80	1	1.0	5.0
BZX84B8V2	WE/2Z7	8.2	8.04	8.36	15	5	80	1	0.7	5.0
BZX84B9V1	WF/2Z8	9.1	8.92	9.28	15	5	100	1	0.5	6.0
BZX84B10	WG/2Z9	10	9.80	10.20	20	5	150	1	0.2	7.0
BZX84B11	WH/2Y1	11	10.78	11.22	20	5	150	1	0.1	8.0
BZX84B12	WI/2Y2	12	11.76	12.24	25	5	150	1	0.1	8.0
BZX84B13	WK/2Y3	13	12.74	13.26	30	5	170	1	0.1	8.0
BZX84B15	WL/2Y4	15	14.70	15.30	30	5	200	1	0.1	10.5
BZX84B16	WM/2Y5	16	15.68	16.32	40	5	200	1	0.1	11.2
BZX84B18	WN/2Y6	18	17.64	18.36	45	5	225	1	0.1	12.6
BZX84B20	WO/2Y7	20	19.60	20.40	55	5	225	1	0.1	14.0
BZX84B22	WP/Y8	22	21.56	22.44	55	5	250	1	0.1	15.4
BZX84B24	WR/Y9	24	23.52	24.48	70	5	250	1	0.1	16.8
BZX84B27	WS/Y10	27	26.46	27.54	80	5	300	1	0.1	18.9
BZX84B30	WT/Y11	30	29.40	30.60	80	5	300	1	0.1	21.0
BZX84B33	WU/Y12	33	32.34	33.66	80	5	325	1	0.1	23.1
BZX84B36	WW/Y13	36	35.28	36.72	90	5	350	1	0.1	25.2
BZX84B39	WX/Y14	39	38.22	39.78	130	5	350	1	0.1	27.3
BZX84B43	WY	43	42.14	43.86	150	5	375	1	0.1	30.1
BZX84B47	WZ	47	46.06	47.94	170	5	375	1	0.1	32.9
BZX84B51	XA	51	49.98	52.02	100	5	750	1	0.1	38.0

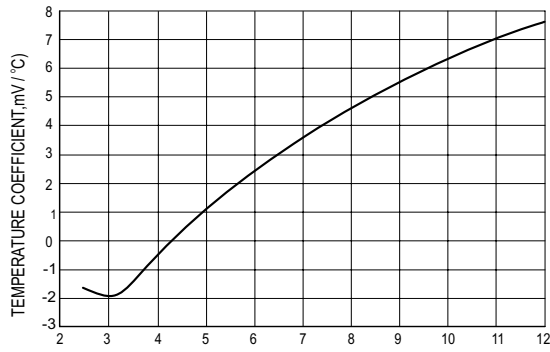
## NOTE:

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- Surge Current (IR) Non-Repetitive. The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current, Izt, per JEDEC registration; however, actual device capability is as described in Figure 5.

# BZX84 Series

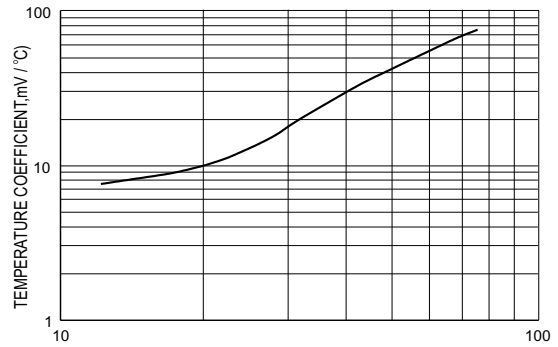


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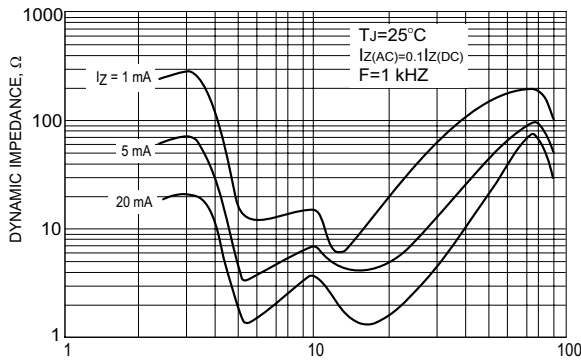
NOMINAL ZENER VOLTAGE, Volts

**TYPICAL REVERSE CURRENT**



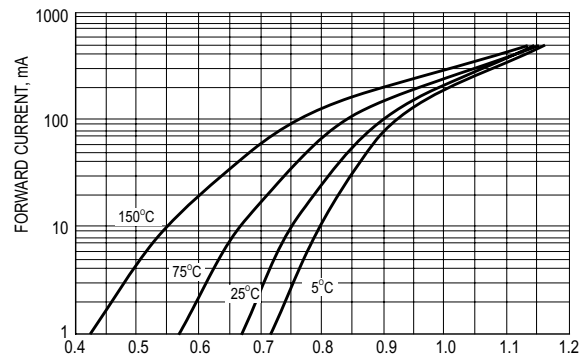
NOMINAL ZENER VOLTAGE, Volts

**TEMPERATURE COEFFICIENTS**



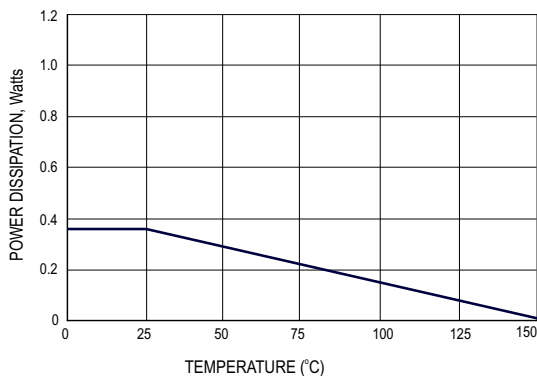
NORMAL ZENER VOLTAGE, Volts

**EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE**



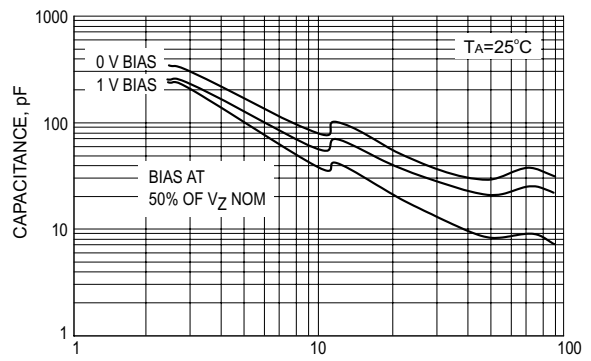
FORWARD VOLTAGE, Volts

**TYPICAL FORWARD VOLTAGE**



TEMPERATURE (°C)

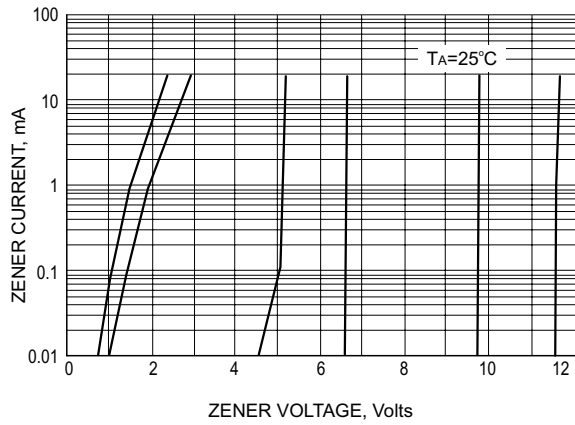
**STEADY STATE POWER DERATING**



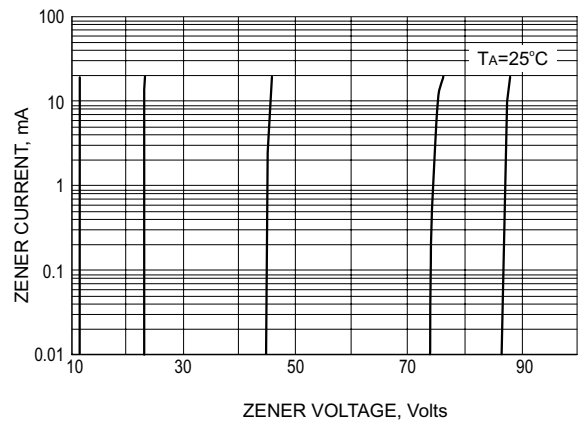
NOMINAL ZENER VOLTAGE, Volts

**TYPICAL CAPACITANCE**

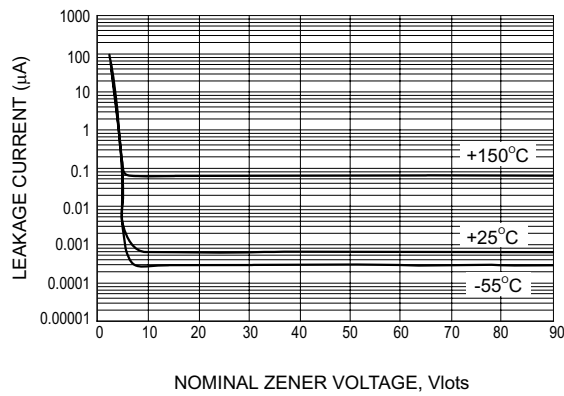
# BZX84 Series



**ZENER VOLTAGE V.S. ZENER CURRENT**



**ZENER VOLTAGE V.S. ZENER CURRENT**



**TYPICAL LEAKAGE CURRENT**



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### Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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[BZX84C39-TP](#) [BZX84C3V3-TP](#) [BZX84C5V1-TP](#) [BZX84C5V6-TP](#) [BZX84C7V5-TP](#) [BZX84C9V1-TP](#) [BZX84B12-TP](#)  
[BZX84C3V9-TP](#) [BZX84C36-TP](#) [BZX84C12-TP](#) [BZX84C16-TP](#) [BZX84C18-TP](#) [BZX84C20-TP](#) [BZX84C22-TP](#)  
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[BZX84B8V2-TP](#)