

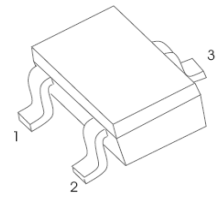
# **BZX84CxxxT Series**

Plastic-Encapsulate Zener Diodes

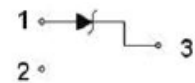
Vz Range: 2.4 to 39V Power Dissipation: 150mW

## Features

- 150mW Power Dissipation Rating
- Planar Die Construction
- Ultra-small Surface Mount Package
- Lead Free/RoHS Compliant<sup>1</sup>



**SOT-523**



**Schematic Diagram**

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

Characteristic	Symbol	Value	Unit
Forward Voltage @ I <sub>F</sub> = 10mA	V <sub>F</sub>	0.9	V
Power Dissipation <sup>2</sup>	P <sub>D</sub>	150	mW
Thermal Resistance from Junction to Ambient <sup>2</sup>	R <sub>θJA</sub>	833	°C/W
Junction Temperature	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

### Notes:

1. No purposefully added lead.
2. Device unted on FR-4 PC board with recommended pad layout.

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)

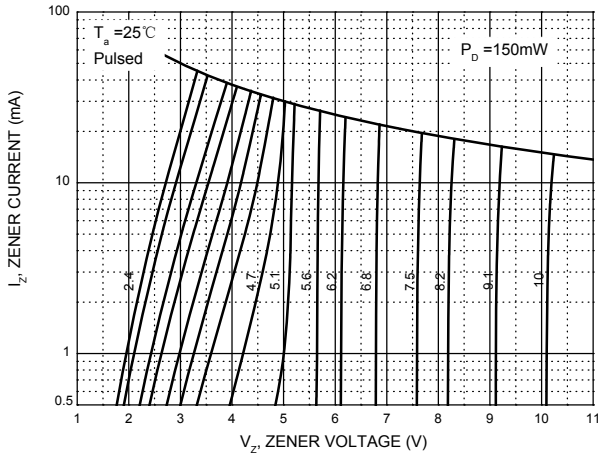
Type Number	Marking Code	Zener Voltage Range <sup>3</sup>				Maximum Zener Impedance <sup>4</sup>			Maximum Reverse Current <sup>5</sup>		Typical Temperature Coefficient @I <sub>ZT</sub> =5 mA mV/°C	
		V <sub>Z</sub> @I <sub>ZT</sub>			I <sub>ZT</sub>	Z <sub>ZT</sub> @I <sub>ZT</sub>	Z <sub>ZK</sub> @I <sub>ZK</sub>	I <sub>ZK</sub>	I <sub>R</sub>	V <sub>R</sub>	Min	Max
		Nom(V)	Min(V)	Max(V)	mA	Ω		mA	uA	V		
BZX84C2V4T	RB	2.4.	2.2.	2.6.	5.0.	100	600	1.0.	50.0.	1.0.	-3.5.	0
BZX84C2V7T	RC	2.7.	2.5.	2.9.	5.0.	100	600	1.0.	20.0.	1.0.	-3.5.	0
BZX84C3V0T	RD	3.0.	2.8.	3.2.	5.0.	95	600	1.0.	20.0.	1.0.	-3.5.	0
BZX84C3V3T	RE	3.3.	3.1.	3.5.	5.0.	95	600	1.0.	5.0.	1.0.	-3.5.	0
BZX84C3V6T	RF	3.6.	3.4.	3.8.	5.0.	90	600	1.0.	5.0.	1.0.	-3.5.	0
BZX84C3V9T	RG	3.9.	3.7.	4.1.	5.0.	90	600	1.0.	3.0.	1.0.	-3.5.	0
BZX84C4V3T	RH	4.3.	4.0.	4.6.	5.0.	90	600	1.0.	3.0.	1.0.	-3.5.	0
BZX84C4V7T	R1	4.7.	4.4.	5.0.	5.0.	80	600	1.0.	3.0.	2.0.	-3.5.	0.2.
BZX84C5V1T	R2	5.1.	4.8.	5.4.	5.0.	60	500	1.0.	2.0.	2.0.	-2.7.	1.2.
BZX84C5V6T	R3	5.6.	5.2.	6.0.	5.0.	40	480	1.0.	1.0.	2.0.	-2.0.	2.5.
BZX84C6V2T	R4	6.2.	5.8.	6.6.	5.0.	10	400	1.0.	3.0.	4.0.	0.4.	3.7.
BZX84C6V8T	R5	6.8.	6.4.	7.2.	5.0.	15	150	1.0.	2.0.	4.0.	1.2.	4.5.
BZX84C7V5T	R6	7.5.	7.0.	7.9.	5.0.	15	80	1.0.	1.0.	5.0.	2.5.	5.3.
BZX84C8V2T	R7	8.2.	7.7.	8.7.	5.0.	15	80	1.0.	0.7.	5.0.	3.2.	6.2.
BZX84C9V1T	R8	9.1.	8.5.	9.6.	5.0.	15	80	1.0.	0.5.	6.0.	3.8.	7.0.
BZX84C10T	R9	10.0.	9.4.	10.6.	5.0.	20	100	1.0.	0.2.	7.0.	4.5.	8.0.
BZX84C11T	P1	11.0.	10.4.	11.6.	5.0.	20	150	1.0.	0.1.	8.0.	5.4.	9.0.
BZX84C12T	P2	12.0.	11.4.	12.7.	5.0.	25	150	1.0.	0.1.	8.0.	6.0.	10.0.
BZX84C13T	P3	13.0.	12.4.	14.1.	5.0.	30	150	1.0.	0.1.	8.0.	7.0.	11.0.
BZX84C15T	P4	15.0.	13.8.	15.6.	5.0.	30	170	1.0.	0.1.	10.5.	9.2.	13.0.
BZX84C16T	P5	16.0.	15.3.	17.1.	5.0.	40	200	1.0.	0.1.	11.2.	10.4.	14.0.
BZX84C18T	P6	18.0.	16.8.	19.1.	5.0.	45	200	1.0.	0.1.	12.6.	12.4.	16.0.
BZX84C20T	P7	20.0.	18.8.	21.2.	5.0.	55	225	1.0.	0.1.	14.0.	14.4.	18.0.
BZX84C22T	P8	22.0.	20.8.	23.3.	5.0.	55	225	1.0.	0.1.	15.4.	16.4.	20.0.
BZX84C24T	P9	24.0.	22.8.	25.6.	5.0.	70	250	1.0.	0.1.	16.8.	18.4.	22.0.
BZX84C27T	PA	27.0.	25.1.	28.9.	2.0.	80	250	0.5.	0.1.	18.9.	21.4.	25.3.
BZX84C30T	PB	30.0.	28.0.	32.0.	2.0.	80	300	0.5.	0.1.	21.0.	24.4.	29.4.
BZX84C33T	PC	33.0.	31.0.	35.0.	2.0.	80	300	0.5.	0.1.	23.1.	27.4.	33.4.
BZX84C36T	PD	36.0.	34.0.	38.0.	2.0.	90	325	0.5.	0.1.	25.2.	30.4.	37.4.
BZX84C39T	PE	39.0.	37.0.	41.0.	2.0.	130	350	0.5.	0.1.	27.3.	33.4.	41.2.

### Notes:

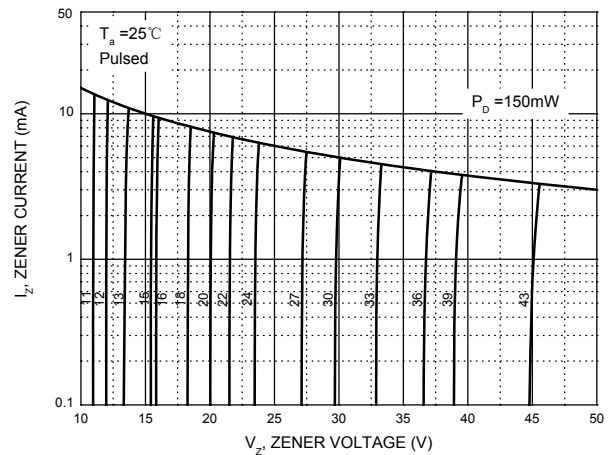
- Short duration pulse test used to minimize self-heating effect.
- f =1kHz.
- For Packaging Details, go to our website.

## Typical Characteristics Curves

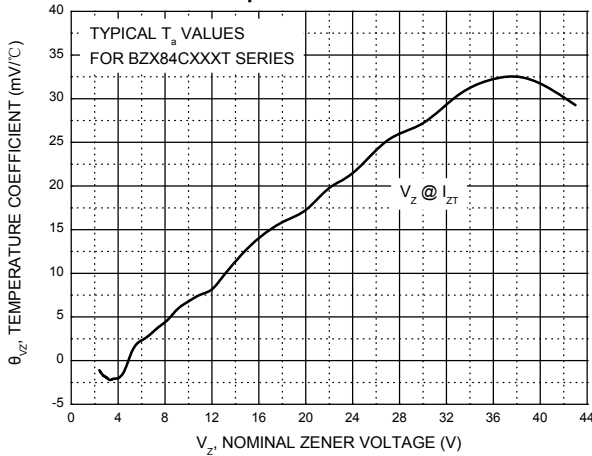
Zener Characteristics (V<sub>z</sub> Up to 10 V)



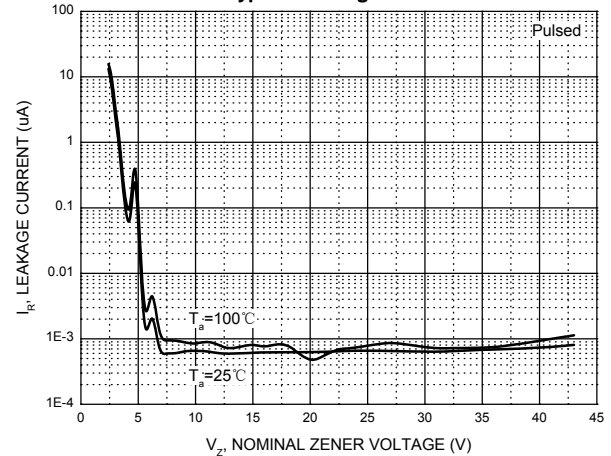
Zener Characteristics (11 V to 43 V)



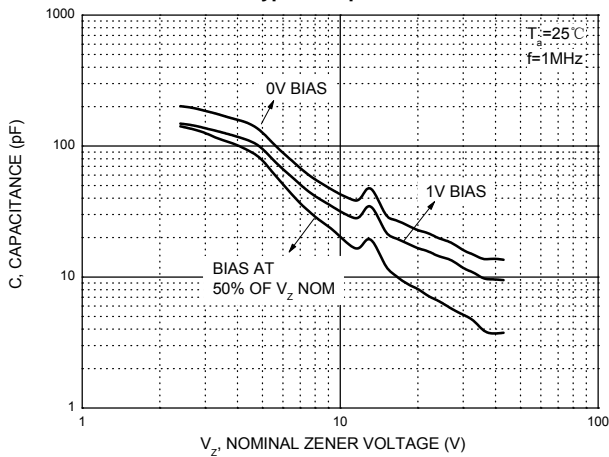
Temperature Coefficients



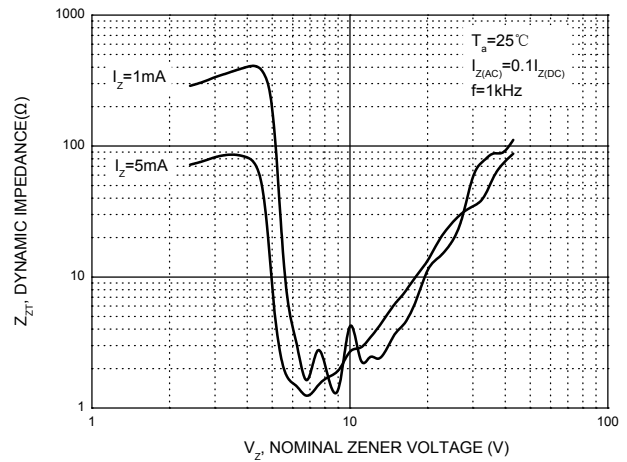
Typical Leakage Current



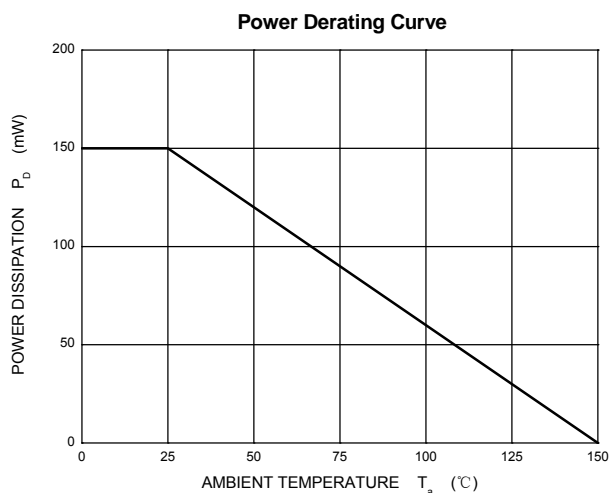
Typical Capacitance



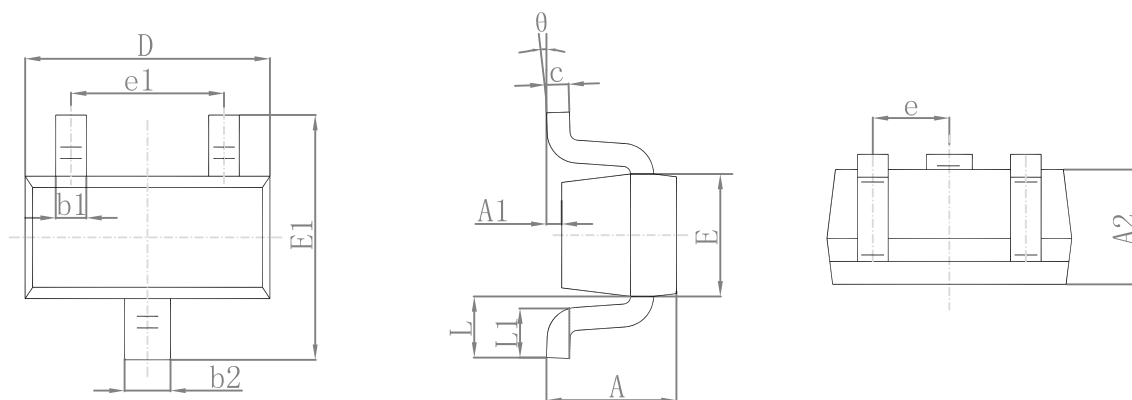
Effect of Zener Voltage on Zener Impedance



## Typical Characteristics Curves



## Package Outline Dimensions SOT-523



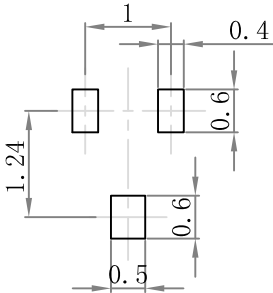
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
$\theta$	0°	8°	0°	8°

# **BZX84CxxxT Series**

Plastic-Encapsulate Zener Diodes

Vz Range: 2.4 to 39V Power Dissipation: 150mW

## **Suggested Pad Layout**



**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$ mm.
3. The pad layout is for reference purposes only.

## **Order Information**

Device	Package	Carrier	Quantity	HSF Status
BZX84CxxxT	SOT-523	Tape & Reel	3000pcs / Reel	RoHS compliant