

## 200mW, 2% Tolerance SMD Zener Diodes

### FEATURES

- Wide zener voltage range selection: 2.4V to 75V
- $V_Z$  tolerance selection of  $\pm 2\%$
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

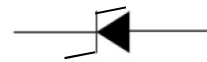
- Low voltage stabilizers or voltage references
- Adapters
- On-board DC/DC converter

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$V_Z$	2.4-75	V
$P_D$	200	mW
$V_F$ at $I_F=10\text{mA}$	1	V
$T_J$ Max.	150	$^{\circ}\text{C}$
Package	SOD-323F	
Configuration	Single die	



### MECHANICAL DATA

- Case: SOD-323F
- Molding compound meets UL 94 V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight:  $4.02 \pm 0.5\text{mg}$  (approximately)



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Forward voltage @ $I_F=10\text{mA}$	$V_F$	1	V
Power dissipation	$P_D$	200	mW
Junction temperature range	$T_J$	-65 to +150	$^{\circ}\text{C}$
Storage temperature range	$T_{STG}$	-65 to +150	$^{\circ}\text{C}$

### THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$

## ELECTRICAL SPECIFICATIONS (T<sub>A</sub> = 25°C unless otherwise noted)

PART NUMBER	MARKING CODE	ZENER VOLTAGE			TEST CURRENT	REGULAR IMPEDANCE		TEST CURRENT	LEAKAGE CURRENT	
		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>	
		V			mA	Ω	Ω	mA	μA	V
		Min.	Nom.	Max.		Max.	Max.		Max.	
BZT52B2V4S	OZ	2.35	2.40	2.45	5	100	564	1	45	1
BZT52B2V7S	1Z	2.65	2.70	2.75	5	100	564	1	18	1
BZT52B3V0S	2Z	2.94	3.00	3.06	5	100	564	1	9	1
BZT52B3V3S	3Z	3.23	3.30	3.37	5	95	564	1	4.5	1
BZT52B3V6S	4Z	3.53	3.60	3.67	5	90	564	1	4.5	1
BZT52B3V9S	5Z	3.82	3.90	3.98	5	90	564	1	2.7	1
BZT52B4V3S	6Z	4.21	4.30	4.39	5	90	564	1	2.7	1
BZT52B4V7S	7Z	4.61	4.70	4.79	5	80	470	1	2.7	2.0
BZT52B5V1S	8Z	5.00	5.10	5.20	5	60	451	1	1.8	2.0
BZT52B5V6S	9Z	5.49	5.60	5.71	5	40	376	1	0.9	2.0
BZT52B6V2S	AZ	6.08	6.20	6.32	5	10	141	1	2.7	4.0
BZT52B6V8S	BZ	6.66	6.80	6.94	5	15	75	1	1.8	4.0
BZT52B7V5S	CZ	7.35	7.50	7.65	5	15	75	1	0.9	5.0
BZT52B8V2S	DZ	8.04	8.20	8.36	5	15	75	1	0.63	5.0
BZT52B9V1S	EZ	8.92	9.10	9.28	5	15	94	1	0.45	6.0
BZT52B10S	FZ	9.80	10.00	10.20	5	20	141	1	0.18	7.0
BZT52B11S	GZ	10.78	11.00	11.22	5	20	141	1	0.09	8.0
BZT52B12S	HZ	11.76	12.00	12.24	5	25	141	1	0.09	8.0
BZT52B13S	JZ	12.74	13.00	13.26	5	30	160	1	0.09	8.0
BZT52B15S	KZ	14.70	15.00	15.30	5	30	188	1	0.045	10.5
BZT52B16S	LZ	15.68	16.00	16.32	5	40	188	1	0.045	11.2
BZT52B18S	MZ	17.64	18.00	18.36	5	45	212	1	0.045	12.6
BZT52B20S	NZ	19.60	20.00	20.40	5	55	212	1	0.045	14.0
BZT52B22S	PZ	21.56	22.00	22.44	5	55	235	1	0.045	15.4
BZT52B24S	RZ	23.52	24.00	24.48	5	70	235	1	0.045	16.8
BZT52B27S	SZ	26.46	27.00	27.54	2	80	282	0.5	0.045	18.9
BZT52B30S	TZ	29.40	30.00	30.60	2	80	282	0.5	0.045	21.0
BZT52B33S	UZ	32.34	33.00	33.66	2	80	306	0.5	0.045	23.0
BZT52B36S	VZ	35.28	36.00	36.72	2	90	329	0.5	0.045	25.2
BZT52B39S	WZ	38.22	39.00	39.78	2	130	329	0.5	0.045	27.3
BZT52B43S	XZ	42.14	43.00	43.86	2	150	353	0.5	0.045	30.1
BZT52B47S	YZ	46.06	47.00	47.94	2	170	353	0.5	0.045	33.0
BZT52B51S	-Z	49.98	51.00	52.02	2	180	376	0.5	0.045	35.7
BZT52B56S	=Z	54.88	56.00	57.12	2	200	400	0.5	0.045	39.2
BZT52B62S	≡Z	60.76	62.00	63.24	2	215	423	0.5	0.045	43.4
BZT52B68S	>Z	66.64	68.00	69.36	2	240	447	0.5	0.045	47.6
BZT52B75S	<Z	73.50	75.00	76.50	2	255	470	0.5	0.045	52.5

**Notes:**

1. The zener voltage ( $V_Z$ ) is tested under pulse condition of 30ms.
2. The device numbers listed have a standard tolerance on the normal zener voltage of  $\pm 2\%$ .
3. For detailed information on price, availability and delivery of normal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Taiwan Semiconductor representative.
4. 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 ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed to  $I_{ZT}$  or  $I_{ZK}$ .

<b>ORDERING INFORMATION</b>		
<b>PART NO.</b> (Note 1)	<b>PACKAGE</b>	<b>PACKING</b>
BZT52BxxxS RRG	SOD-323F	3K / 7" Reel
BZT52BxxxS RR	SOD-323F	3K / 7" Reel
BZT52BxxxS R9G	SOD-323F	10K / 13" Reel
BZT52BxxxS R9	SOD-323F	10K / 13" Reel

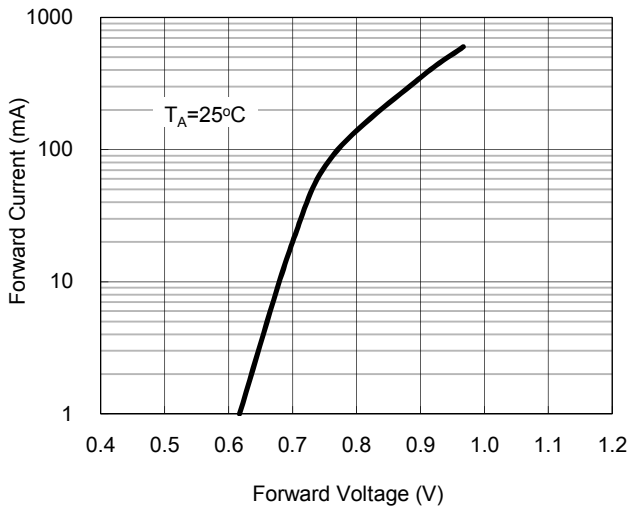
**Note:**

1. "xxx" defines voltage from 2.4V (BZT52B2V4S) to 75V (BZT52B75S)

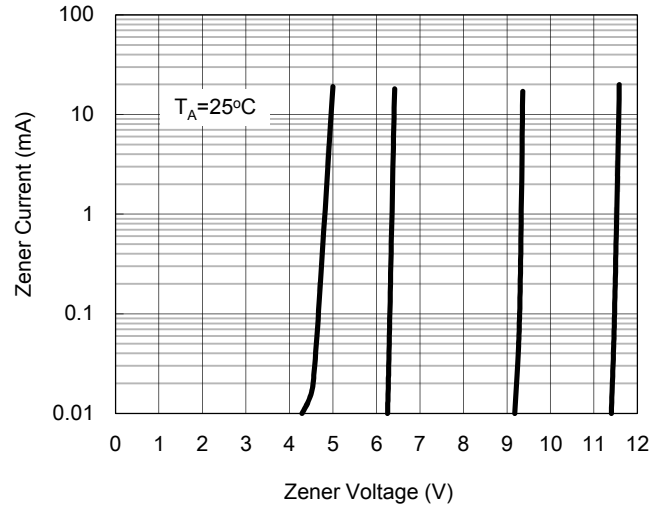
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

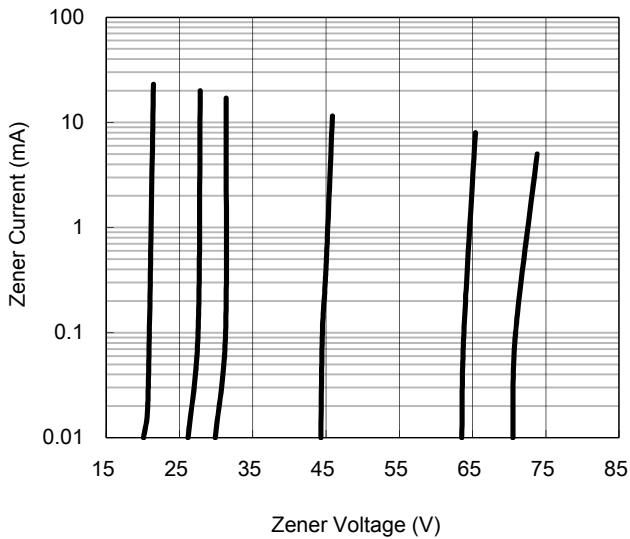
**Fig.1 Typical Forward Characteristics**



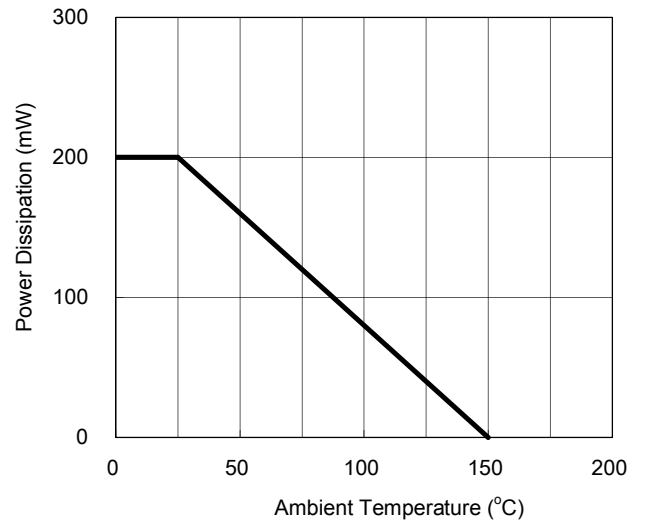
**Fig. 2 Zener Breakdown Characteristics**



**Fig. 3 Zener Breakdown Characteristics**



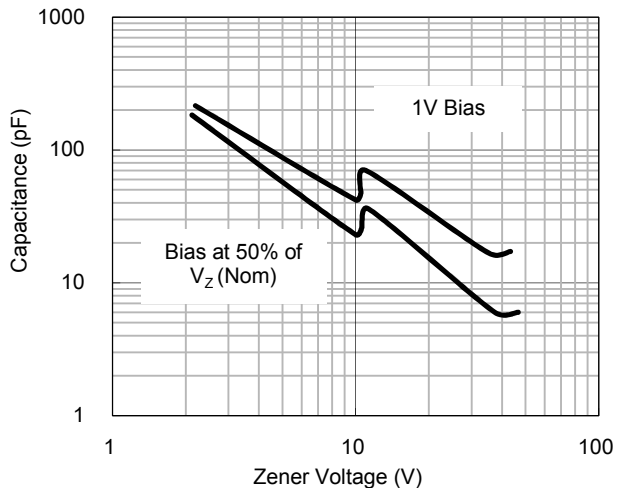
**Fig.4 Power Dissipation Curve**



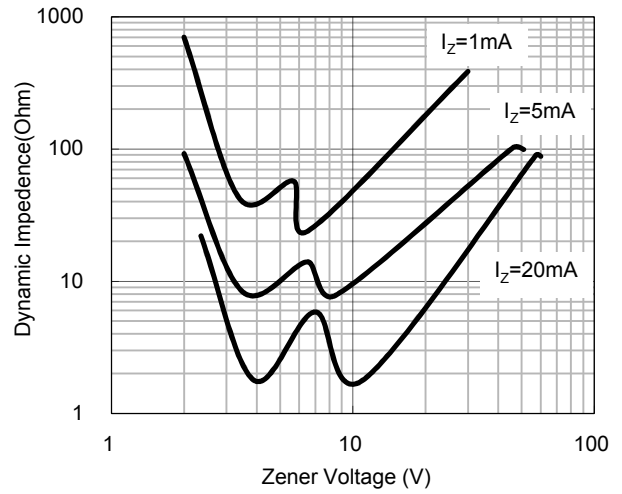
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

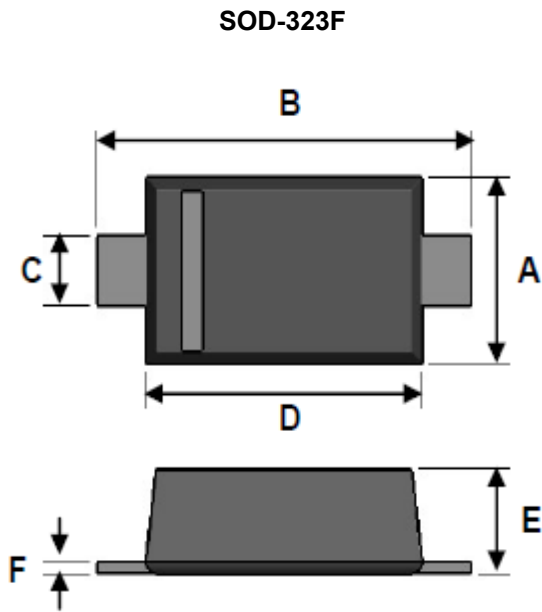
**Fig.5 Typical Capacitance**



**Fig.6 Effect of Zener Voltage on Impedance**

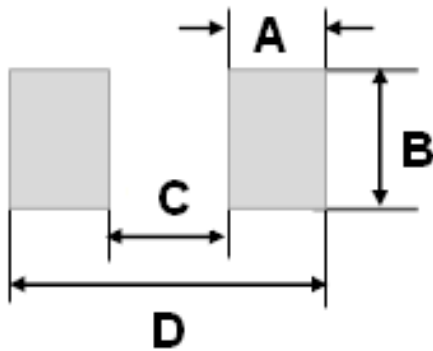


**PACKAGE OUTLINE DIMENSION**



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.15	1.35	0.045	0.053
B	2.30	2.80	0.091	0.110
C	0.25	0.40	0.010	0.016
D	1.60	1.80	0.063	0.071
E	0.80	1.10	0.031	0.043
F	0.05	0.25	0.002	0.010

**SUGGEST PAD LAYOUT**



DIM.	Unit (mm)	Unit (inch)
	Typ.	Typ.
A	0.63	0.025
B	0.83	0.033
C	1.60	0.063
D	2.86	0.113

## Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Taiwan Semiconductor:

[BZT52B10S](#) [BZT52B11S](#) [BZT52B12S](#) [BZT52B13S](#) [BZT52B15S](#) [BZT52B16S](#) [BZT52B18S](#) [BZT52B20S](#)  
[BZT52B22S](#) [BZT52B24S](#) [BZT52B27S](#) [BZT52B2V4S](#) [BZT52B2V7S](#) [BZT52B30S](#) [BZT52B33S](#) [BZT52B36S](#)  
[BZT52B39S](#) [BZT52B3V0S](#) [BZT52B3V3S](#) [BZT52B3V6S](#) [BZT52B3V9S](#) [BZT52B43S](#) [BZT52B47S](#) [BZT52B4V3S](#)  
[BZT52B4V7S](#) [BZT52B51S](#) [BZT52B56S](#) [BZT52B5V1S](#) [BZT52B5V6S](#) [BZT52B62S](#) [BZT52B68S](#) [BZT52B6V2S](#)  
[BZT52B6V8S](#) [BZT52B75S](#) [BZT52B7V5S](#) [BZT52B8V2S](#) [BZT52B9V1S](#) [BZT52B3V9S RR](#) [BZT52B13S RR](#)  
[BZT52B2V7S RR](#) [BZT52B22S RR](#) [BZT52B5V6S RR](#) [BZT52B39S RR](#) [BZT52B51S RR](#) [BZT52B5V1S RR](#)  
[BZT52B36S RR](#) [BZT52B8V2S RR](#) [BZT52B2V4S RR](#) [BZT52B4V3S RR](#) [BZT52B4V7S RR](#) [BZT52B3V0S RR](#)  
[BZT52B9V1S RR](#) [BZT52B18S RR](#) [BZT52B24S RR](#) [BZT52B68S RR](#) [BZT52B75S RR](#) [BZT52B62S RR](#) [BZT52B12S](#)  
[RR](#) [BZT52B3V6S RR](#) [BZT52B16S RR](#) [BZT52B10S RR](#) [BZT52B7V5S RR](#) [BZT52B47S RR](#) [BZT52B11S RR](#)  
[BZT52B33S RR](#) [BZT52B30S RR](#) [BZT52B3V3S RR](#) [BZT52B6V2S RR](#) [BZT52B20S RR](#) [BZT52B6V8S RR](#)  
[BZT52B56S RR](#) [BZT52B43S RR](#) [BZT52B15S RR](#) [BZT52B27S RR](#) [BZT52B4V7S RRG](#) [BZT52B4V3S RRG](#)  
[BZT52B75S RRG](#) [BZT52B15S RRG](#) [BZT52B56S RRG](#) [BZT52B3V9S RRG](#) [BZT52B5V6S RRG](#) [BZT52B6V2S RRG](#)  
[BZT52B39S RRG](#) [BZT52B3V6S RRG](#) [BZT52B27S RRG](#) [BZT52B68S RRG](#) [BZT52B10S RRG](#) [BZT52B2V4S RRG](#)  
[BZT52B6V8S RRG](#) [BZT52B3V3S RRG](#) [BZT52B8V2S RRG](#) [BZT52B2V7S RRG](#) [BZT52B3V0S RRG](#) [BZT52B20S](#)  
[RRG](#) [BZT52B47S RRG](#) [BZT52B51S RRG](#) [BZT52B9V1S RRG](#) [BZT52B13S RRG](#) [BZT52B22S RRG](#) [BZT52B11S](#)  
[RRG](#)