

## 500mW 2% Zener Diodes

### FEATURES

- Wide zener voltage range selection: 2.4V to 75V
- VZ Tolerance Selection of  $\pm 2\%$
- Hermetically sealed glass
- 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
- Lighting application
- On-board DC/DC converter

### MECHANICAL DATA

- Case: DO-35
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight:  $109 \pm 4$  mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$V_Z$	2.4-75	V
Test current $I_{ZT}$	2.5-5	mA
$P_{tot}$	500	mW
$V_F$ at $I_F=100mA$	1	V
$T_J$ MAX	175	$^{\circ}C$
Package	DO-35	
Configuration	Single dice	



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^{\circ}C$ unless otherwise noted)			
PARAMETER	SYMBOL	PART NUMBER	UNIT
Forward voltage @ $I_F=100mA$	$V_F$	1	V
Total power dissipation	$P_{tot}$	500	mW
Junction temperature range	$T_J$	-55 ~ 175	$^{\circ}C$
Storage temperature range	$T_{STG}$	-55 ~ 175	$^{\circ}C$

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	240	$^{\circ}C/W$

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

PART NUMBER	ZENER VOLTAGE			TEST CURRENT	REGULAR IMPEDANCE		TEST CURRENT	LEAKAGE CURRENT	
	$V_Z @ I_{ZT}$			$I_{ZT}$	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	$I_{ZK}$	$I_R @ V_R$	
	V			mA	$\Omega$	$\Omega$	mA	$\mu\text{A}$	V
	Min.	Nom.	Max.		Max.	Max.		Max.	
BZX55B2V4	2.35	2.40	2.45	5	85	600	1.0	50	1.0
BZX55B2V7	2.65	2.70	2.75	5	85	600	1.0	10	1.0
BZX55B3V0	2.94	3.00	3.06	5	85	600	1.0	4.0	1.0
BZX55B3V3	3.23	3.30	3.37	5	85	600	1.0	2.0	1.0
BZX55B3V6	3.53	3.60	3.67	5	85	600	1.0	2.0	1.0
BZX55B3V9	3.82	3.90	3.98	5	85	600	1.0	2.0	1.0
BZX55B4V3	4.21	4.30	4.39	5	75	600	1.0	1.0	1.0
BZX55B4V7	4.61	4.70	4.79	5	60	600	1.0	0.5	1.0
BZX55B5V1	5.00	5.10	5.20	5	35	550	1.0	0.1	1.0
BZX55B5V6	5.49	5.60	5.71	5	25	450	1.0	0.1	1.0
BZX55B6V2	6.08	6.20	6.32	5	10	200	1.0	0.1	2.0
BZX55B6V8	6.66	6.80	6.94	5	8	150	1.0	0.1	3.0
BZX55B7V5	7.35	7.50	7.65	5	7	50	1.0	0.1	5.0
BZX55B8V2	8.04	8.20	8.36	5	7	50	1.0	0.1	6.2
BZX55B9V1	8.92	9.10	9.28	5	10	50	1.0	0.1	6.8
BZX55B10	9.80	10.00	10.20	5	15	70	1.0	0.1	7.5
BZX55B11	10.78	11.00	11.22	5	20	70	1.0	0.1	8.2
BZX55B12	11.76	12.00	12.24	5	20	90	1.0	0.1	9.1
BZX55B13	12.74	13.00	13.26	5	26	110	1.0	0.1	10
BZX55B15	14.70	15.00	15.30	5	30	110	1.0	0.1	11
BZX55B16	15.68	16.00	16.32	5	40	170	1.0	0.1	12
BZX55B18	17.64	18.00	18.36	5	50	170	1.0	0.1	14
BZX55B20	19.60	20.00	20.40	5	55	220	1.0	0.1	15
BZX55B22	21.56	22.00	22.44	5	55	220	1.0	0.1	17
BZX55B24	23.52	24.00	24.48	5	80	220	1.0	0.1	18
BZX55B27	26.46	27.00	27.54	5	80	220	1.0	0.1	20
BZX55B30	29.40	30.00	30.6	5	80	220	1.0	0.1	22
BZX55B33	32.34	33.00	33.66	5	80	220	1.0	0.1	24
BZX55B36	35.28	36.00	36.72	5	80	220	1.0	0.1	27
BZX55B39	38.22	39.00	39.78	2.5	90	500	0.5	0.1	28
BZX55B43	42.14	43.00	43.86	2.5	90	600	0.5	0.1	32
BZX55B47	46.06	47.00	47.94	2.5	110	700	0.5	0.1	35
BZX55B51	49.98	51.00	52.02	2.5	125	700	0.5	0.1	38
BZX55B56	54.88	56.00	57.12	2.5	135	1000	0.5	0.1	42
BZX55B62	60.76	62.00	63.24	2.5	150	1000	0.5	0.1	47
BZX55B68	66.64	68.00	69.36	2.5	160	1000	0.5	0.1	51
BZX55B75	73.50	75.00	76.50	2.5	170	1000	0.5	0.1	56

**Notes:**

1. Tolerance and voltage designation : the type numbers listed have Zener voltage as shown
2. The device numbers listed have a standard tolerance on the nominal Zener voltage of  $\pm 2\%$
3. For detailed information on price, availability and delivery of nominal 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<sub>ZT</sub> or I<sub>ZK</sub>) is superimposed to I<sub>ZT</sub> or I<sub>ZK</sub>

<b>ORDERING INFORMATION</b>				
<b>PART NO.</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>PACKAGE</b>	<b>PACKING</b>
BZX55BXXX (Note 1&2)	R0	G	DO-35	10K / 14" Reel
	A0			5K / Box (Ammo)

**Notes:**

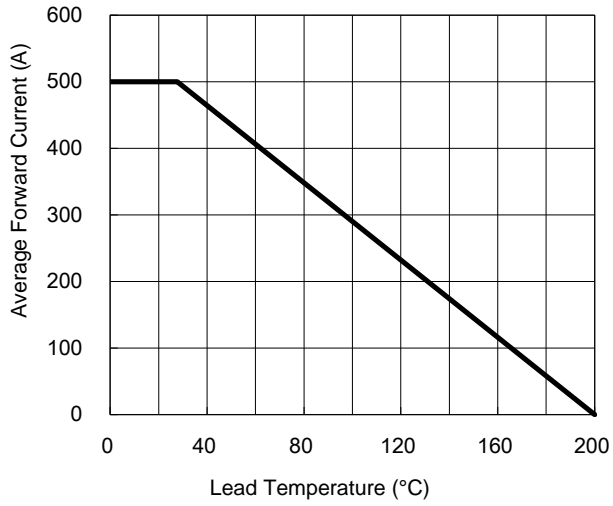
1. "xxx" defines voltage from 2.4V (BZX55B2V4) to 75V (BZX55B75)
2. Whole series with green compound

<b>EXAMPLE</b>				
<b>EXAMPLE P/N</b>	<b>PART NO.</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>DESCRIPTION</b>
BZX55B75 R0G	BZX55B75	R0	G	Green compound

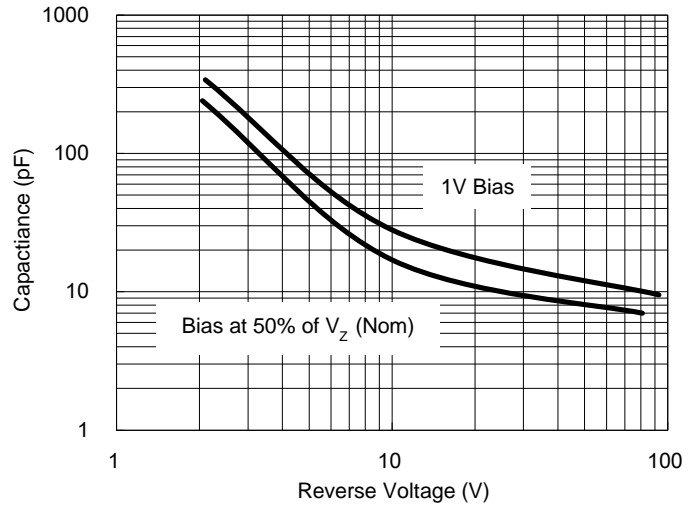
**CHARACTERISTICS CURVES**

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

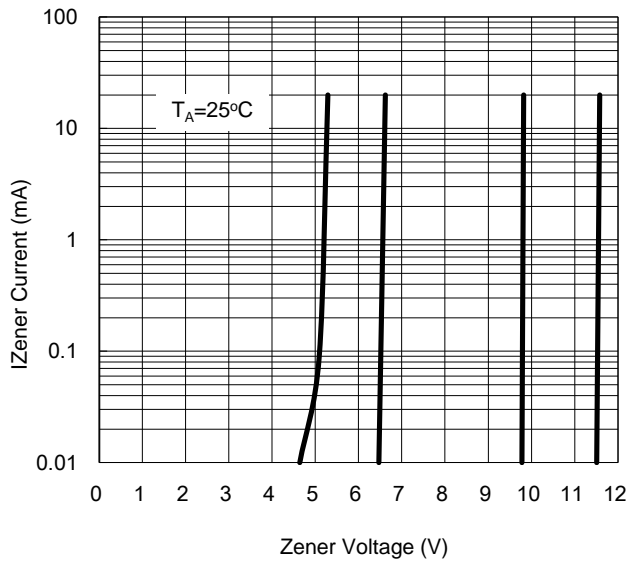
**Forward Current Derating Curve**



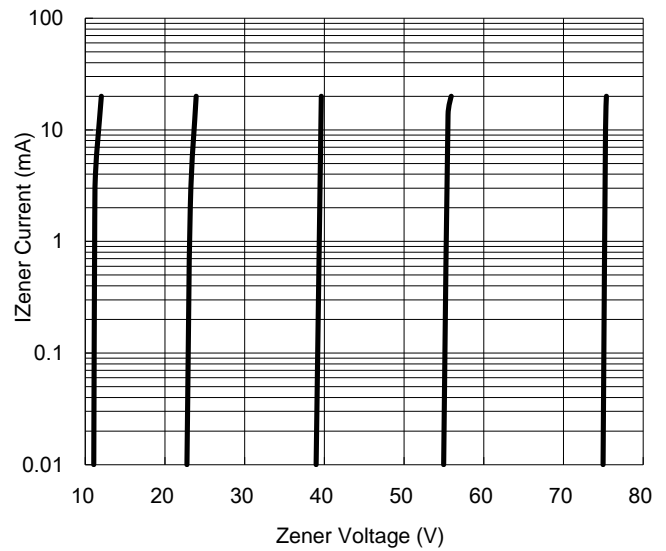
**Typical Junction Capacitance**



**Zener Breakdown Characteristics**



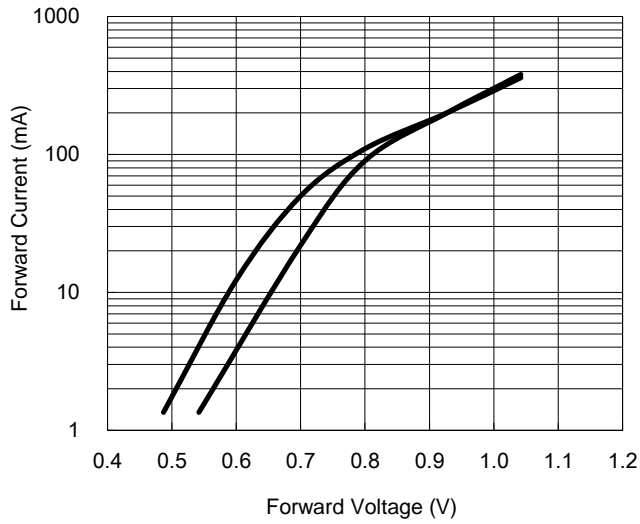
**Zener Breakdown Characteristics**



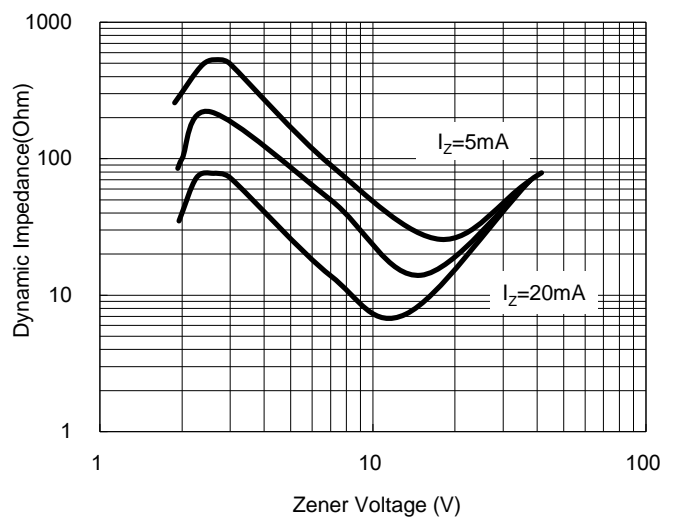
**CHARACTERISTICS CURVES**

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

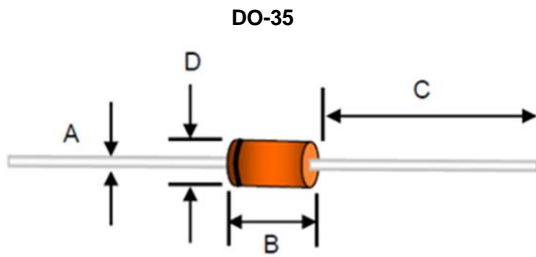
**Typical Forward Characteristics**



**Effect of Zener Voltage on Impedance**



**PACKAGE OUTLINE DIMENSION**



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	0.34	0.60	0.013	0.024
B	2.90	5.08	0.114	0.200
C	25.40	38.10	1.000	1.500
D	1.30	2.28	0.051	0.090

**MARKING DIAGRAM**



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[BZX55B4V7 R0](#) [BZX55B2V4 R0G](#) [BZX55B2V4 R0](#) [BZX55B43 R0G](#) [BZX55B39 R0](#) [BZX55B51 R0](#) [BZX55B22 R0G](#)  
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[BZX55B9V1 R0G](#) [BZX55B36 R0](#) [BZX55B3V3 R0](#) [BZX55B7V5 R0](#) [BZX55B11 R0](#) [BZX55B15 R0G](#) [BZX55B39 R0G](#)  
[BZX55B7V5 R0G](#) [BZX55B10 R0](#) [BZX55B8V2 R0G](#) [BZX55B5V1 R0G](#) [BZX55B2V7 R0G](#) [BZX55B30 R0](#)  
[BZX55B4V7 R0G](#) [BZX55B4V3 R0](#) [BZX55B75 R0G](#) [BZX55B18 R0](#) [BZX55B6V8 R0G](#) [BZX55B3V6 R0](#) [BZX55B3V6](#)  
[R0G](#) [BZX55B30 R0G](#) [BZX55B33 R0](#) [BZX55B68 R0](#) [BZX55B10 R0G](#) [BZX55B3V0 R0](#) [BZX55B27 R0](#) [BZX55B51](#)  
[R0G](#) [BZX55B12 R0G](#) [BZX55B27 R0G](#) [BZX55B6V2 R0G](#) [BZX55B56 R0](#) [BZX55B24 R0](#) [BZX55B3V0 R0G](#)  
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