

## 500mW, 5% Tolerance Zener Diodes

### FEATURES

- Wide zener voltage range selection: 2.0V to 75V
- $V_Z$  tolerance selection of  $\pm 5\%$
- 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
- 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
$V_Z$	2.0-75	V
Test current $I_{ZT}$	5	mA
$P_D$	500	mW
$V_F$ at $I_F=100mA$	1.5	V
$T_J$ Max.	175	$^{\circ}C$
Package	DO-35	
Configuration	Single die	



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^{\circ}C$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Power dissipation	$P_D$	500	mW
Forward voltage	$V_F$	1.5	V
Junction temperature range	$T_J$	-65 to +175	$^{\circ}C$
Storage temperature range	$T_{STG}$	-65 to +175	$^{\circ}C$

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction to ambient thermal resistance	$R_{\theta JA}$	300	$^{\circ}C/W$

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

PART NUMBER	MARKING CODE	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.	
BZX79C2V0	BZX79C2V0	1.88	2.0	2.12	5	100	600	1.0	150	1.0
BZX79C2V2	BZX79C2V2	2.08	2.2	2.33	5	100	600	1.0	150	1.0
BZX79C2V4	BZX79C2V4	2.28	2.4	2.56	5	100	600	1.0	100	1.0
BZX79C2V7	BZX79C2V7	2.51	2.7	2.89	5	100	600	1.0	75	1.0
BZX79C3V0	BZX79C3V0	2.8	3.0	3.2	5	95	600	1.0	50	1.0
BZX79C3V3	BZX79C3V3	3.1	3.3	3.5	5	95	600	1.0	25	1.0
BZX79C3V6	BZX79C3V6	3.4	3.6	3.8	5	90	600	1.0	15	1.0
BZX79C3V9	BZX79C3V9	3.7	3.9	4.1	5	90	600	1.0	10	1.0
BZX79C4V3	BZX79C4V3	4.0	4.3	4.6	5	90	600	1.0	5	1.0
BZX79C4V7	BZX79C4V7	4.4	4.7	5.0	5	80	500	1.0	3	2.0
BZX79C5V1	BZX79C5V1	4.8	5.1	5.4	5	60	480	1.0	2	2.0
BZX79C5V6	BZX79C5V6	5.2	5.6	6.0	5	40	400	1.0	1	2.0
BZX79C6V2	BZX79C6V2	5.8	6.2	6.6	5	10	150	1.0	3	4.0
BZX79C6V8	BZX79C6V8	6.4	6.8	7.2	5	15	80	1.0	2	4.0
BZX79C7V5	BZX79C7V5	7.0	7.5	7.9	5	15	80	1.0	1	5.0
BZX79C8V2	BZX79C8V2	7.7	8.2	8.7	5	15	80	1.0	0.7	5.0
BZX79C9V1	BZX79C9V1	8.5	9.1	9.6	5	15	100	1.0	0.5	6.0
BZX79C10	BZX79C10	9.4	10	10.6	5	20	150	1.0	0.2	7.0
BZX79C11	BZX79C11	10.4	11	11.6	5	20	150	1.0	0.1	8.0
BZX79C12	BZX79C12	11.4	12	12.7	5	25	150	1.0	0.1	8.0
BZX79C13	BZX79C13	12.4	13	14.1	5	30	170	1.0	0.1	8
BZX79C15	BZX79C15	13.8	15	15.6	5	30	200	1.0	0.05	10.5
BZX79C16	BZX79C16	15.3	16	17.1	5	40	200	1.0	0.05	11.2
BZX79C18	BZX79C18	16.8	18	19.1	5	45	225	1.0	0.05	12.6
BZX79C20	BZX79C20	18.8	20	21.2	5	55	225	1.0	0.05	14.0
BZX79C22	BZX79C22	20.8	22	23.3	5	55	250	1.0	0.05	15.4
BZX79C24	BZX79C24	22.8	24	25.6	5	70	250	1.0	0.05	16.8
BZX79C27	BZX79C27	25.1	27	28.9	2	80	300	0.5	0.05	18.9
BZX79C30	BZX79C30	28.0	30	32.0	2	80	300	0.5	0.05	21.0
BZX79C33	BZX79C33	31.0	33	35.0	2	80	325	0.5	0.05	23.1
BZX79C36	BZX79C36	34.0	36	38.0	2	90	350	0.5	0.05	25.2
BZX79C39	BZX79C39	37.0	39	41.0	2	130	350	0.5	0.05	27.3
BZX79C43	BZX79C43	40.0	43	46.0	2	150	375	0.5	0.05	30.1
BZX79C47	BZX79C47	44.0	47	50.0	2	170	375	0.5	0.05	32.9
BZX79C51	BZX79C51	48.0	51	54.0	2	180	400	0.5	0.05	35.7
BZX79C56	BZX79C56	52.0	56	60.0	2	200	425	0.5	0.05	39.2
BZX79C62	BZX79C62	58.0	62	66.0	2.5	215	1000	0.5	0.05	43.4
BZX79C68	BZX79C68	64.0	68	72.0	2.5	240	1000	0.5	0.05	47.6
BZX79C75	BZX79C75	70.0	75	80.0	2.5	255	1000	0.5	0.05	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 nominal zener voltage of  $\pm 5\%$ .
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 ( $I_{ZT}$  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>
BZX79Cxxx R0	DO-35	10K / 14" Reel
BZX79Cxxx R0G	DO-35	10K / 14" Reel
BZX79Cxxx A0	DO-35	5K / Box ( Ammo )
BZX79Cxxx A0G	DO-35	5K / Box ( Ammo )

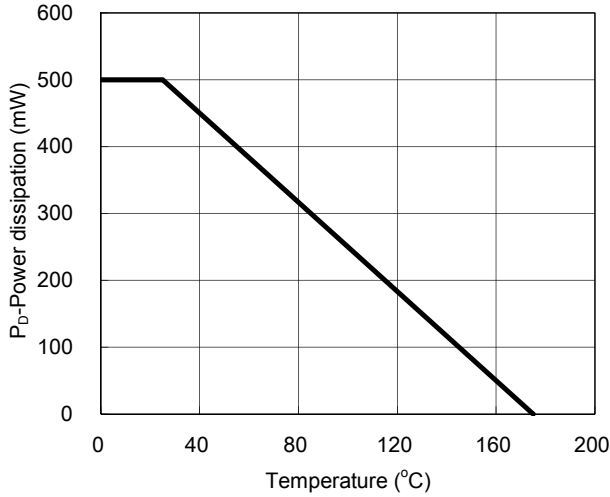
**Note:**

1. "xxx" defines part no. from BZX79C2V0 to BZX79C75

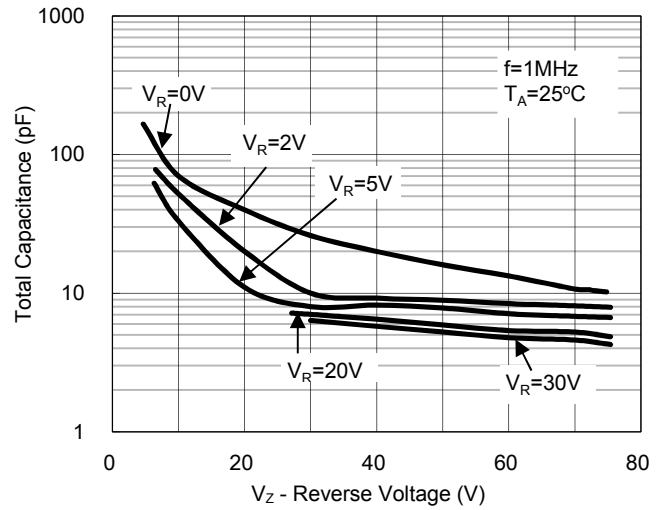
**CHARACTERISTICS CURVES**

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

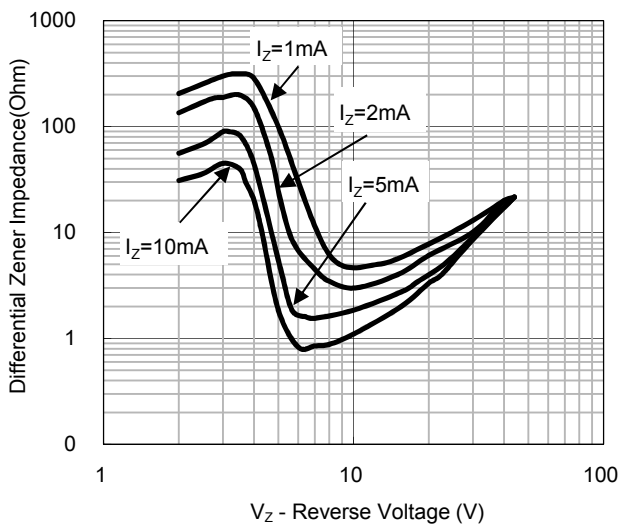
**Fig.1 Power Dissipation VS. Ambient Temperature**



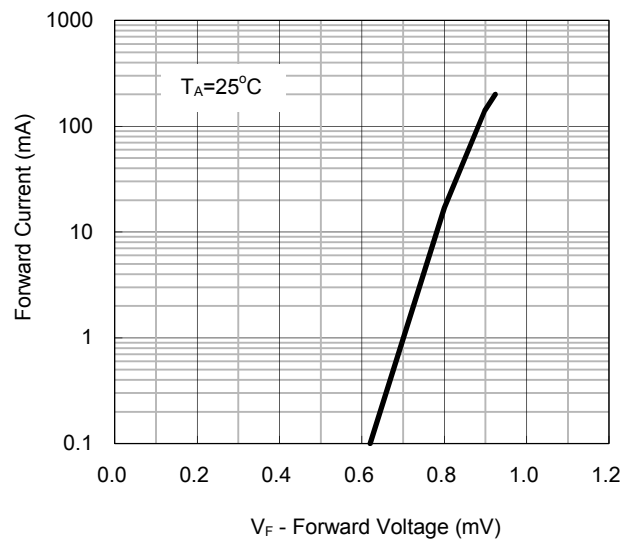
**Fig. 2 Total Capacitance**



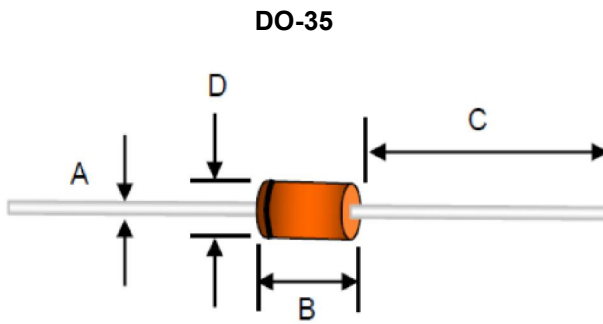
**Fig. 3 Differential Impedance VS. Zener Voltage**



**Fig.4 Forward Current VS. Forward Voltage**



**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

## 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.