

## 500mW, 2.4V - 7.5V Surface Mount Zener Diode

### FEATURES

- Wide Zener voltage range selection: 2.4V to 75V
- $V_Z$  tolerance selection of  $\pm 5\%$
- Hermetically sealed glass
- RoHS Compliant

### APPLICATIONS

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

### MECHANICAL DATA

- Case: MMELF
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight: 30.60mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$V_Z$	2.4 - 75	V
Test current $I_{ZT}$	2.5 - 5.0	mA
$P_D$	500	mW
$V_F$ at $I_F = 10\text{mA}$	1	V
$T_{J \text{ Max}}$	175	$^{\circ}\text{C}$
Package	MMELF	
Configuration	Single die	



MMELF



### 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	$P_D$	500	mW
Junction temperature range	$T_J$	-65 to +175	$^{\circ}\text{C}$
Storage temperature range	$T_{STG}$	-65 to +175	$^{\circ}\text{C}$

### THERMAL PERFORMANCE

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

**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	
BZV55C2V4	2.28	2.4	2.56	5	85	600	1.0	50	1.0
BZV55C2V7	2.51	2.7	2.89	5	85	600	1.0	10	1.0
BZV55C3V0	2.8	3.0	3.2	5	85	600	1.0	4	1.0
BZV55C3V3	3.1	3.3	3.5	5	85	600	1.0	2	1.0
BZV55C3V6	3.4	3.6	3.8	5	85	600	1.0	2	1.0
BZV55C3V9	3.7	3.9	4.1	5	85	600	1.0	2	1.0
BZV55C4V3	4.0	4.3	4.6	5	75	600	1.0	1	1.0
BZV55C4V7	4.4	4.7	5.0	5	60	600	1.0	0.5	1.0
BZV55C5V1	4.8	5.1	5.4	5	35	550	1.0	0.1	1.0
BZV55C5V6	5.2	5.6	6.0	5	25	450	1.0	0.1	1.0
BZV55C6V2	5.8	6.2	6.6	5	10	200	1.0	0.1	2.0
BZV55C6V8	6.4	6.8	7.2	5	8	150	1.0	0.1	3.0
BZV55C7V5	7.0	7.5	7.9	5	7	50	1.0	0.1	5.0
BZV55C8V2	7.7	8.2	8.7	5	7	50	1.0	0.1	6.2
BZV55C9V1	8.5	9.1	9.6	5	10	50	1.0	0.1	6.8
BZV55C10	9.4	10	10.6	5	15	70	1.0	0.1	7.5
BZV55C11	10.4	11	11.6	5	20	70	1.0	0.1	8.2
BZV55C12	11.4	12	12.7	5	20	90	1.0	0.1	9.1
BZV55C13	12.4	13	14.1	5	26	110	1.0	0.1	10
BZV55C15	13.8	15	15.6	5	30	110	1.0	0.1	11
BZV55C16	15.3	16	17.1	5	40	170	1.0	0.1	12
BZV55C18	16.8	18	19.1	5	50	170	1.0	0.1	13
BZV55C20	18.8	20	21.1	5	55	220	1.0	0.1	15
BZV55C22	20.8	22	23.3	5	55	220	1.0	0.1	16
BZV55C24	22.8	24	25.6	5	80	220	1.0	0.1	18
BZV55C27	25.1	27	28.9	5	80	220	1.0	0.1	20
BZV55C30	28	30	32	5	80	220	1.0	0.1	22
BZV55C33	31	33	35	5	80	220	1.0	0.1	24
BZV55C36	34	36	38	5	80	220	1.0	0.1	27
BZV55C39	37	39	41	2.5	90	500	0.5	0.1	28
BZV55C43	40	43	46	2.5	90	600	0.5	0.1	32
BZV55C47	44	47	50	2.5	110	700	0.5	0.1	35
BZV55C51	48	51	54	2.5	125	700	0.5	0.1	38
BZV55C56	52	56	60	2.5	135	1,000	0.5	0.1	42
BZV55C62	58	62	66	2.5	150	1,000	0.5	0.1	47
BZV55C68	64	68	72	2.5	160	1,000	0.5	0.1	51
BZV55C75	70	75	80	2.5	170	1,000	0.5	0.1	56

**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  $\pm 5\%$ .
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>ORDERING CODE<sup>(1)(2)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
BZV55Cx L0	MMELF	10,000 / 13" Tape & Reel
BZV55Cx L0G	MMELF	10,000 / 13" Tape & Reel

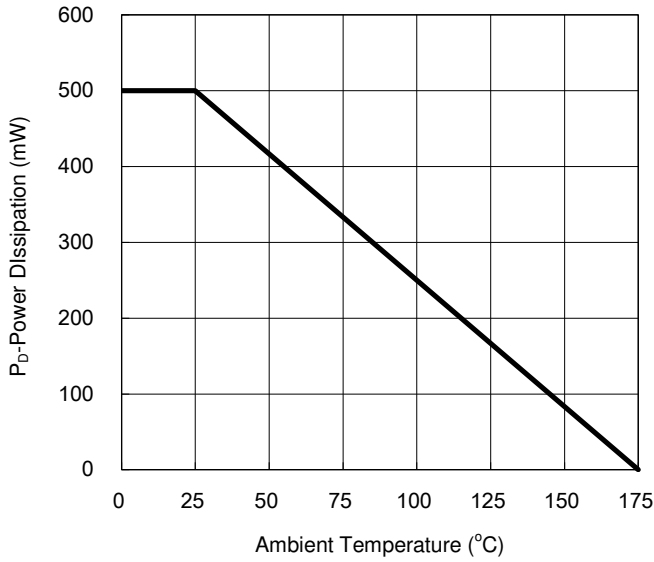
**Notes:**

1. "x" defines voltage from 2.4V (BZV55C2V4) to 75V (BZV55C75)
2. Above ordering codes L0/L0G refer to physically identical parts without any differences

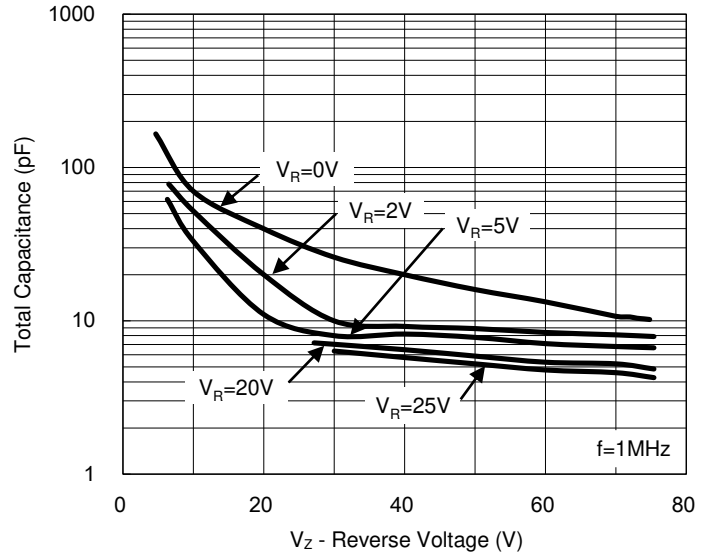
**CHARACTERISTICS CURVES**

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

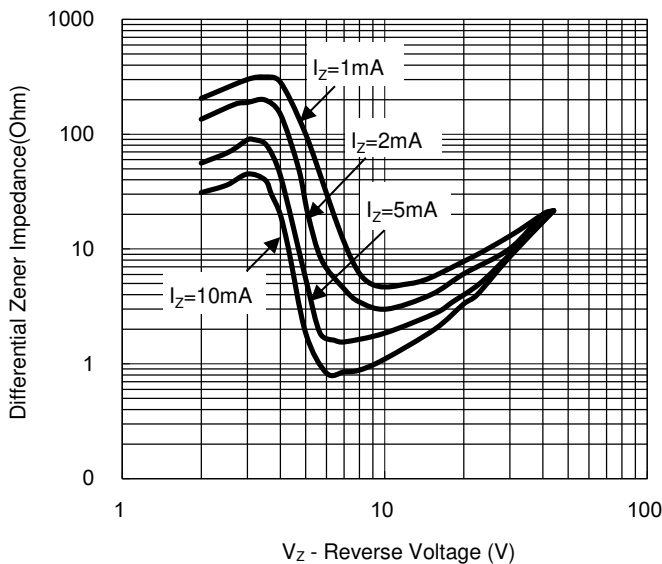
**Fig.1 Power Dissipation VS. Ambient Temperature**



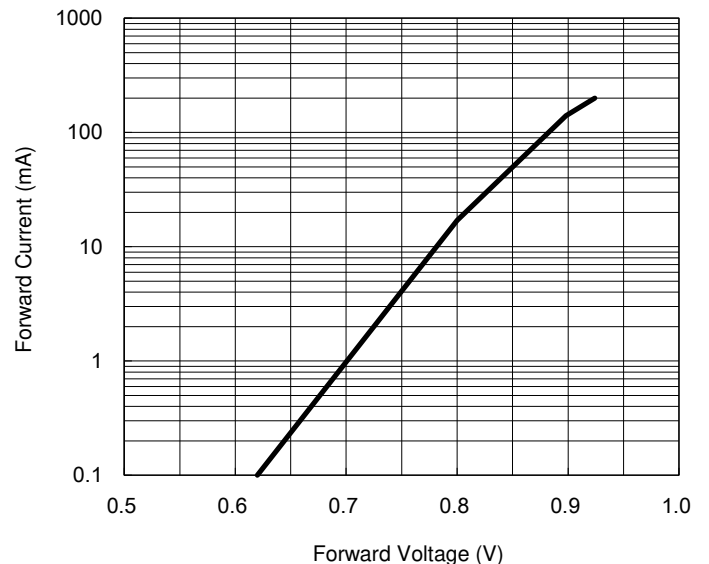
**Fig.2 Total Capacitance**



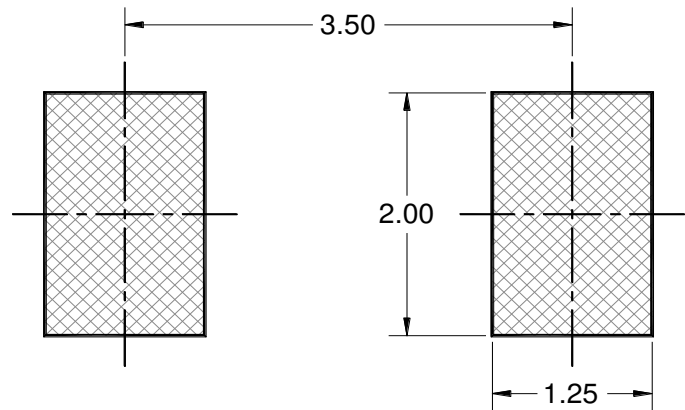
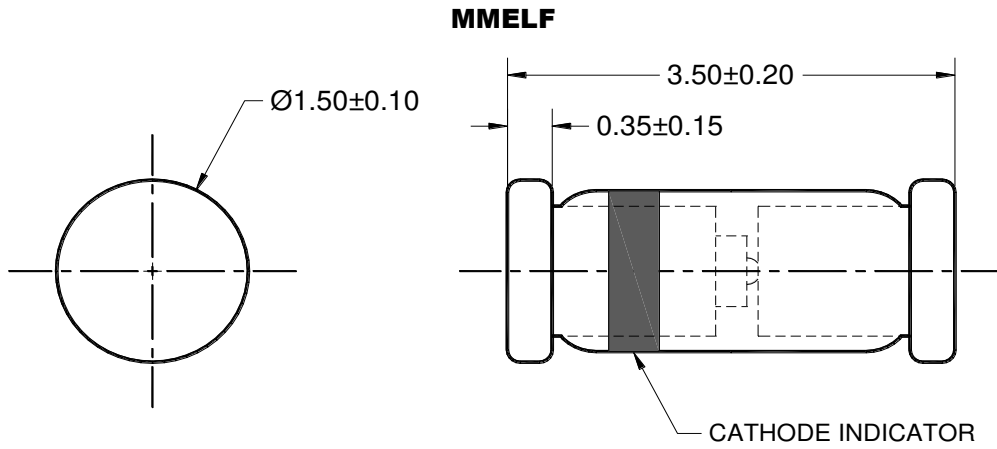
**Fig.3 Differential Impedance VS. Zener Voltage**



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



**PACKAGE OUTLINE DIMENSIONS**



**SUGGESTED PAD LAYOUT**

**NOTES: UNLESS OTHERWISE SPECIFIED**

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC DO-213, VARIATION AA, ISSUE D.
4. DWG NO. REF: HQ2SD07-MMELFG-044 REV A.

## **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.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

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.