

## 500mW, 5% Tolerance SMD Zener Diodes

### FEATURES

- Wide Zener voltage range selection: 2.4V 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
- On-board DC/DC converter

### MECHANICAL DATA

- Case: Mini-MELF
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight: 31mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$V_Z$	2.4-75	V
Test current $I_{ZT}$	5	mA
$P_D$	500	mW
$V_F$ at $I_F=10\text{mA}$	1	V
$T_J$ Max.	175	$^{\circ}\text{C}$
Package	Mini-MELF	
Configuration	Single die	



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>PART NO.</b> (Note 1)	<b>PACKAGE</b>	<b>PACKING</b>
BZV55Cxxx L0	MINI MELF	10K / 13" Reel
BZV55Cxxx L0G	MINI MELF	10K / 13" Reel
BZV55Cxxx L1	MINI MELF	2.5K / 7" Reel
BZV55Cxxx L1G	MINI MELF	2.5K / 7" Reel

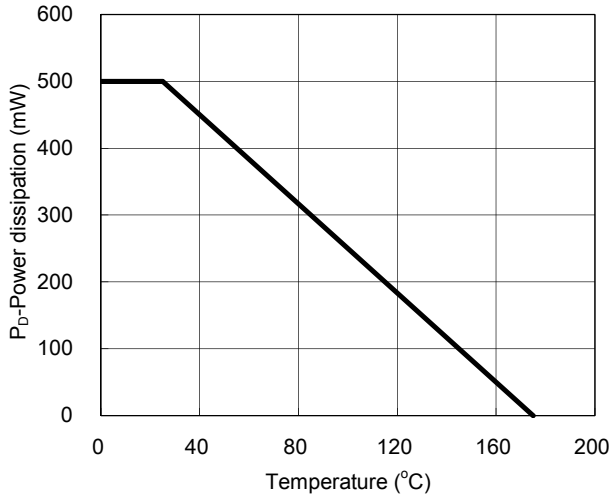
**Notes:**

"xxx" defines voltage from 2.4V (BZV55C2V4) to 75V (BZV55C75)

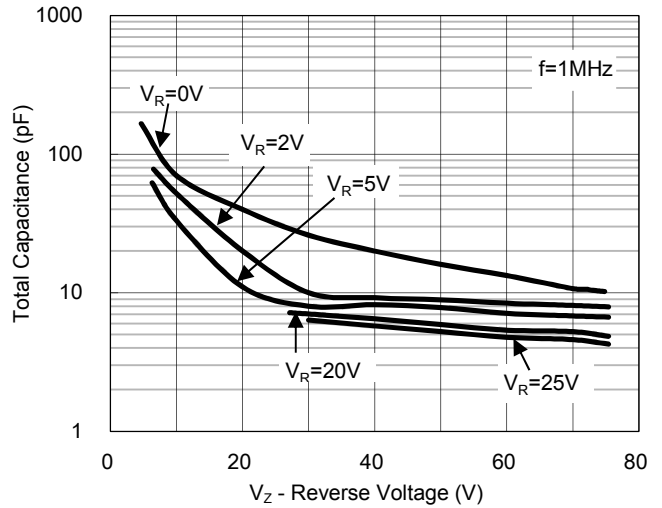
**CHARACTERISTICS CURVES**

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

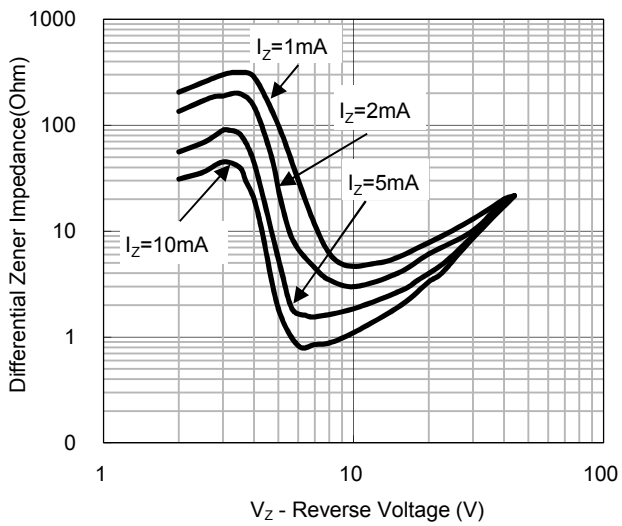
**Fig.1 Power Dissipation VS. Ambient Temperature**



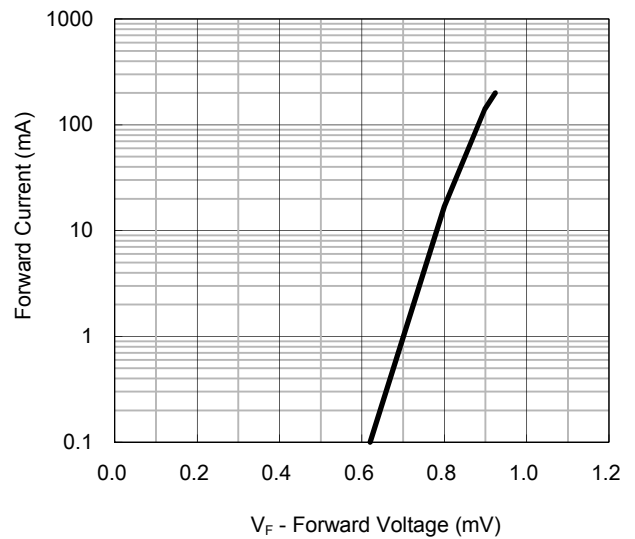
**Fig. 2 Total Capacitance**



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

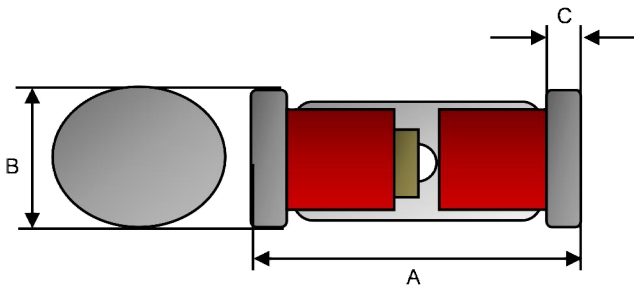


**Fig.4 Forward Current VS. Forward Voltage**



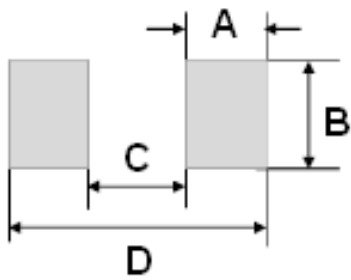
**PACKAGE OUTLINE DIMENSION**

Mini-MELF



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	3.30	3.70	0.130	0.146
B	1.40	1.60	0.055	0.063
C	0.20	0.50	0.008	0.020

**SUGGEST PAD LAYOUT**



DIM.	Unit (mm)	Unit (inch)
	Typ	Typ
A	1.25	0.049
B	2.00	0.079
C	2.50	0.098
D	5.00	0.197

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