500mW, 5% Tolerance SMD Zener Diodes

FEATURES

- Wide Zener voltage range selection: 2.4V to 75V
- V_Z tolerance selection of ± 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

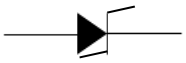
- Low voltage stabilizers or voltage references
- Adapters
- On-board DC/DC converter

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=10mA	1	V
T_J Max.	175	°C
Package	Mini-MELF	
Configuration	Single die	

MECHANICAL DATA

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

Pb Pb-Free RoHS COMPLIANT



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Forward voltage @ I_F=10mA	V_F	1	V
Power dissipation	P_D	500	mW
Junction temperature range	T_J	-65 to +175	°C
Storage temperature range	T_{STG}	-65 to +175	°C

THERMAL PERFORMANCE			
PARAMETER	**SYMBOL**	**TYP**	**UNIT**
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	300	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°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	Ω	Ω	mA	μA	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 ±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}.

ORDERING INFORMATION

PART NO. (Note 1)	PACKAGE	PACKING
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°C unless otherwise noted)

Fig.1 Power Dissipation VS. Ambient Temperature

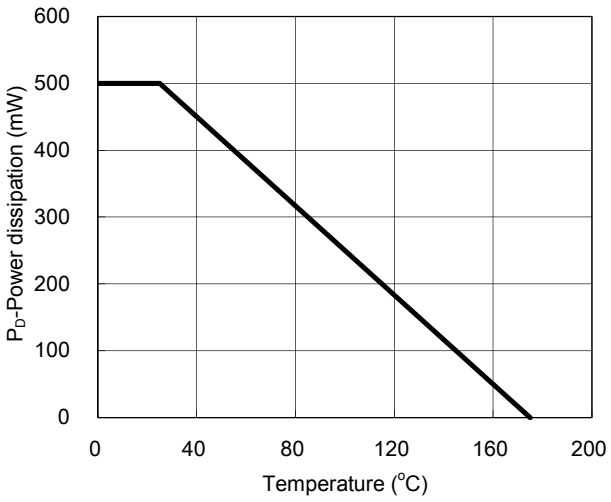


Fig. 2 Total Capacitance

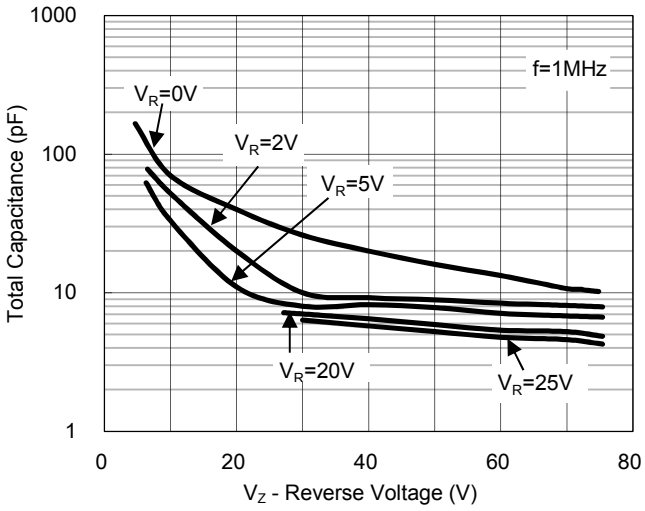


Fig. 3 Differential Impedance VS. Zener Voltage

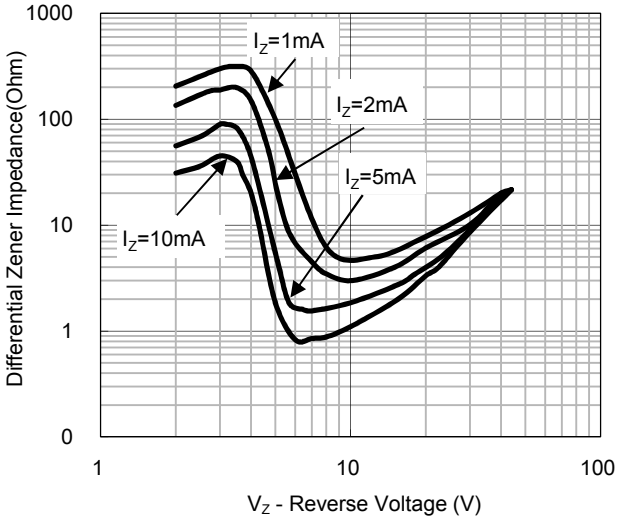
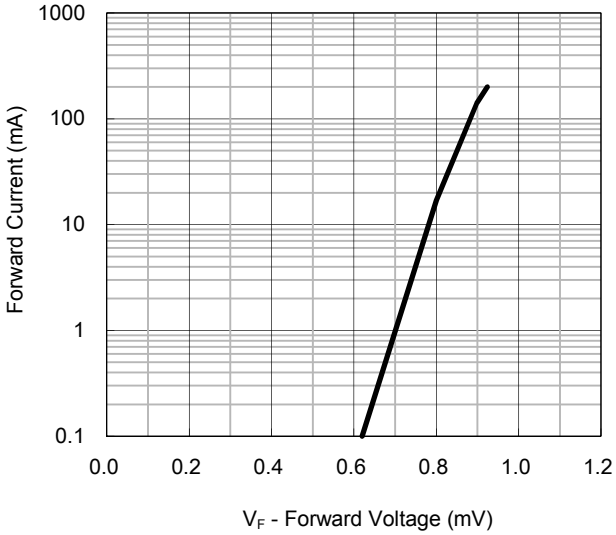
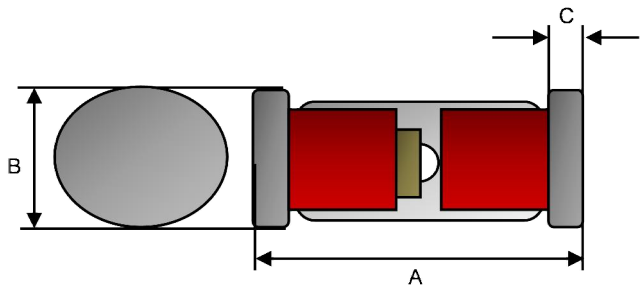


Fig.4 Forward Current VS. Forward Voltage



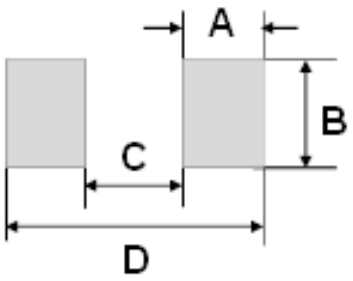
PACKAGE OUTLINE DIMENSION

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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BZV55C62 BZV55C68 BZV55C75 BZV55C10 BZV55C11 BZV55C12 BZV55C13 BZV55C15 BZV55C16 BZV55C18 BZV55C20 BZV55C22 BZV55C24 BZV55C27 BZV55C2V4 BZV55C2V7 BZV55C30 BZV55C33 BZV55C36 BZV55C39 BZV55C3V0 BZV55C3V3 BZV55C3V6 BZV55C3V9 BZV55C43 BZV55C47 BZV55C4V3 BZV55C4V7 BZV55C51 BZV55C56 BZV55C5V1 BZV55C5V6 BZV55C6V2 BZV55C6V8 BZV55C7V5 BZV55C8V2 BZV55C9V1 BZV55C75 L1 BZV55C68 L1 BZV55C13 L0G BZV55C4V3 L1G BZV55C3V3 L1G BZV55C4V7 L1G BZV55C5V6 L0 BZV55C2V4 L0 BZV55C5V1 L0G BZV55C2V4 L0G BZV55C24 L1G BZV55C75 L0G BZV55C62 L1G BZV55C5V1 L1G BZV55C18 L0G BZV55C47 L0G BZV55C62 L0 BZV55C10 L1G BZV55C51 L0G BZV55C20 L1G BZV55C39 L0G BZV55C22 L1G BZV55C27 L1G BZV55C3V9 L1G BZV55C6V8 L1G BZV55C5V1 L0 BZV55C75 L0 BZV55C6V2 L1G BZV55C11 L0G BZV55C16 L0G BZV55C33 L0G BZV55C22 L0 BZV55C62 L0G BZV55C36 L1G BZV55C13 L0 BZV55C6V2 L0G BZV55C12 L1G BZV55C16 L0 BZV55C5V6 L0G BZV55C15 L0G BZV55C2V4 L1G BZV55C20 L0 BZV55C13 L1G BZV55C3V6 L1G BZV55C10 L0G BZV55C47 L1G BZV55C2V7 L0G BZV55C3V6 L0G BZV55C18 L0 BZV55C27 L0G BZV55C20 L0G BZV55C22 L0G BZV55C8V2 L0G BZV55C9V1 L1G BZV55C30 L0G BZV55C4V7 L0 BZV55C30 L1G BZV55C3V0 L0G BZV55C56 L0G BZV55C12 L0G BZV55C56 L0 BZV55C24 L0G BZV55C3V3 L0