

500mW, 2% Tolerance Zener Diodes

FEATURES

- Wide zener voltage range selection: 2.4V to 75V
- V_Z tolerance selection of $\pm 2\%$
- 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: Mini-MELF
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight: 0.03g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_Z	2.4-75	V
Test current I_{ZT}	5	mA
P_D	500	mW
VF at $I_F=100mA$	1	V
T_J Max.	175	°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 @ $I_F=100mA$	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 ($T_A = 25^\circ\text{C}$ 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	Ω	Ω	mA	μA	V
	Min.	Nom.	Max.		Max.	Max.		Max.	
BZV55B2V4	2.35	2.4	2.45	5	85	600	1.0	50	1.0
BZV55B2V7	2.65	2.7	2.75	5	85	600	1.0	10	1.0
BZV55B3V0	2.94	3.0	3.06	5	85	600	1.0	4	1.0
BZV55B3V3	3.23	3.3	3.37	5	85	600	1.0	2	1.0
BZV55B3V6	3.53	3.6	3.67	5	85	600	1.0	2	1.0
BZV55B3V9	3.82	3.9	3.98	5	85	600	1.0	2	1.0
BZV55B4V3	4.21	4.3	4.39	5	75	600	1.0	1	1.0
BZV55B4V7	4.61	4.7	4.79	5	60	600	1.0	0.5	1.0
BZV55B5V1	5.00	5.1	5.20	5	35	550	1.0	0.1	1.0
BZV55B5V6	5.49	5.6	5.71	5	25	450	1.0	0.1	1.0
BZV55B6V2	6.08	6.2	6.32	5	10	200	1.0	0.1	2.0
BZV55B6V8	6.66	6.8	6.94	5	8	150	1.0	0.1	3.0
BZV55B7V5	7.35	7.5	7.65	5	7	50	1.0	0.1	5.0
BZV55B8V2	8.04	8.2	8.36	5	7	50	1.0	0.1	6.2
BZV55B9V1	8.92	9.1	9.28	5	10	50	1.0	0.1	6.8
BZV55B10	9.80	10	10.20	5	15	70	1.0	0.1	7.5
BZV55B11	10.78	11	11.22	5	20	70	1.0	0.1	8.2
BZV55B12	11.76	12	12.24	5	20	90	1.0	0.1	9.1
BZV55B13	12.74	13	13.26	5	26	110	1.0	0.1	10
BZV55B15	14.70	15	15.30	5	30	110	1.0	0.1	11
BZV55B16	15.68	16	16.32	5	40	170	1.0	0.1	12
BZV55B18	17.64	18	18.36	5	50	170	1.0	0.1	13
BZV55B20	19.60	20	20.40	5	55	220	1.0	0.1	15
BZV55B22	21.56	22	22.44	5	55	220	1.0	0.1	16
BZV55B24	23.52	24	24.48	5	80	220	1.0	0.1	18
BZV55B27	26.46	27	27.54	5	80	220	1.0	0.1	20
BZV55B30	29.40	30	30.60	5	80	220	1.0	0.1	22
BZV55B33	32.34	33	33.66	5	80	220	1.0	0.1	24
BZV55B36	35.28	36	36.72	5	80	220	1.0	0.1	27
BZV55B39	38.22	39	39.78	2.5	90	500	0.5	0.1	28
BZV55B43	42.14	43	43.86	2.5	90	600	0.5	0.1	32
BZV55B47	46.06	47	47.94	2.5	110	700	0.5	0.1	35
BZV55B51	49.98	51	52.02	2.5	125	700	0.5	0.1	38
BZV55B56	54.88	56	57.12	2.5	135	1000	0.5	0.1	42
BZV55B62	60.76	62	63.24	2.5	150	1000	0.5	0.1	47
BZV55B68	66.64	68	69.36	2.5	160	1000	0.5	0.1	51
BZV55B75	73.50	75	76.50	2.5	170	1000	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 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_{ZT} or I_{ZK}) is superimposed to I_{ZT} or I_{ZK} .

ORDERING INFORMATION		
PART NO. (Note 1)	PACKAGE	PACKING
BZV55Bxxx L0	MINI MELF	10K / 13" Reel
BZV55Bxxx L0G	MINI MELF	10K / 13" Reel
BZV55Bxxx L1	MINI MELF	2.5K / 7" Reel
BZV55Bxxx L1G	MINI MELF	2.5K / 7" Reel

Notes:

1. "xxx" defines voltage from 2.4V (BZV55B2V4) to 75V (BZV55B75)

CHARACTERISTICS CURVES

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

Fig. 1 Power Dissipation VS. Ambient Temperature

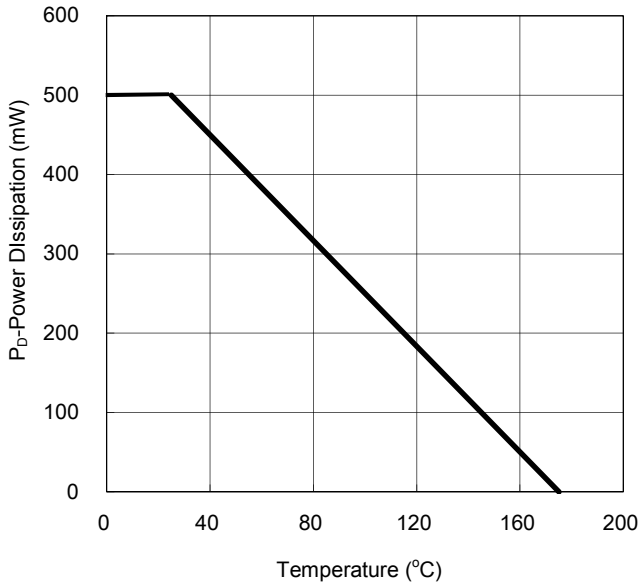


Fig. 2 Total Capacitance

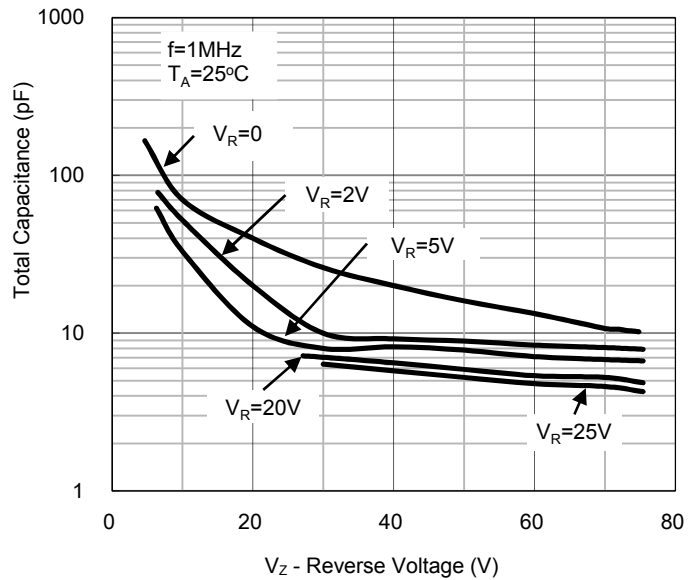


Fig. 3 Differential Impedance VS. Zener Voltage

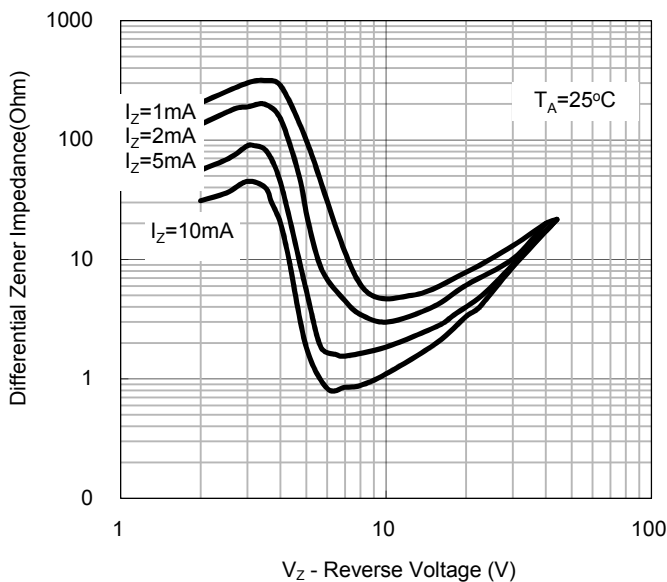
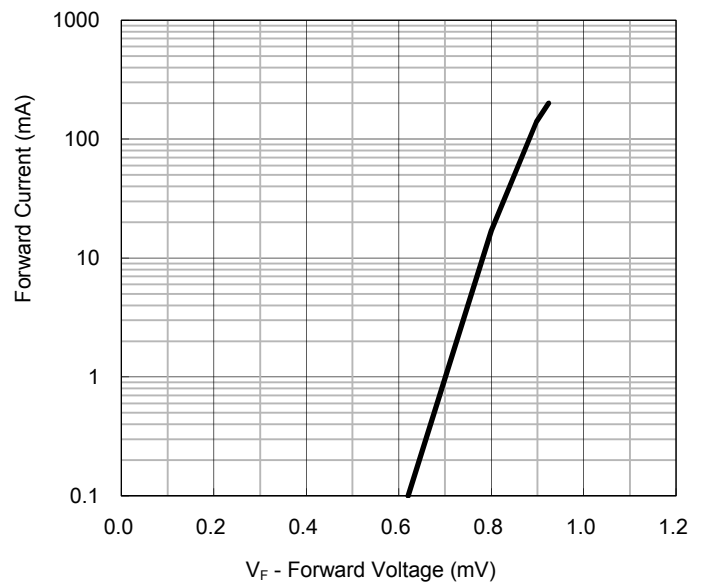
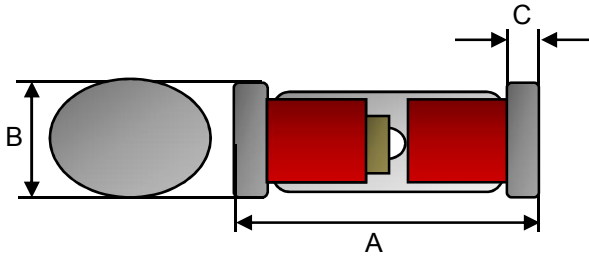


Fig. 4 Forward Current VS. Forward Voltage



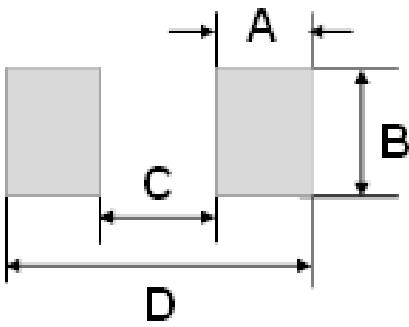
PACKAGE OUTLINE DIMENSION

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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