

500mW, 5% Tolerance 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

APPLICATIONS

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

MECHANICAL DATA

- Case: Quadro Mini-MELF (LS34)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight: $29 \pm 2.5\text{mg}$

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_Z	2.4-75	V
P_D	500	mW
V_F at $I_F=10\text{mA}$	1	V
T_J Max.	175	$^{\circ}\text{C}$
Package	Quadro Mini-MELF (LS34)	
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	$R_{\theta JA}$	500	$^{\circ}\text{C/W}$

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	Ω	Ω	mA	μA	V
	Nom.	Min.	Max.		Max.	Max.		Max.	
BZT55C2V4	2.4	2.28	2.56	5	85	600	1	50	1
BZT55C2V7	2.7	2.51	2.89	5	85	600	1	10	1
BZT55C3V0	3.0	2.8	3.2	5	85	600	1	4	1
BZT55C3V3	3.3	3.1	3.5	5	85	600	1	2	1
BZT55C3V6	3.6	3.4	3.8	5	85	600	1	2	1
BZT55C3V9	3.9	3.7	4.1	5	85	600	1	2	1
BZT55C4V3	4.3	4.0	4.6	5	75	600	1	1	1
BZT55C4V7	4.7	4.4	5.0	5	60	600	1	0.5	1
BZT55C5V1	5.1	4.8	5.4	5	35	550	1	0.1	1
BZT55C5V6	5.6	5.2	6.0	5	25	450	1	0.1	1
BZT55C6V2	6.2	5.8	6.6	5	10	200	1	0.1	2
BZT55C6V8	6.8	6.4	7.2	5	8	150	1	0.1	3
BZT55C7V5	7.5	7.0	7.9	5	7	50	1	0.1	5
BZT55C8V2	8.2	7.7	8.7	5	7	50	1	0.1	6.2
BZT55C9V1	9.1	8.5	9.6	5	10	50	1	0.1	6.8
BZT55C10	10	9.4	10.6	5	15	70	1	0.1	7.5
BZT55C11	11	10.4	11.6	5	20	70	1	0.1	8.2
BZT55C12	12	11.4	12.7	5	20	90	1	0.1	9.1
BZT55C13	13	12.4	14.1	5	26	110	1	0.1	10
BZT55C15	15	13.8	15.6	5	30	110	1	0.1	11
BZT55C16	16	15.3	17.1	5	40	170	1	0.1	12
BZT55C18	18	16.8	19.1	5	50	170	1	0.1	13
BZT55C20	20	18.8	21.1	5	55	220	1	0.1	15
BZT55C22	22	20.8	23.3	5	55	220	1	0.1	16
BZT55C24	24	22.8	25.6	5	80	220	1	0.1	18
BZT55C27	27	25.1	28.9	5	80	220	1	0.1	20
BZT55C30	30	28	32	5	80	220	1	0.1	22
BZT55C33	33	31	35	5	80	220	1	0.1	24
BZT55C36	36	34	38	5	80	220	1	0.1	27
BZT55C39	39	37	41	2.5	90	500	0.5	0.1	28
BZT55C43	43	40	46	2.5	90	600	0.5	0.1	32
BZT55C47	47	44	50	2.5	110	700	0.5	0.1	35
BZT55C51	51	48	54	2.5	125	700	0.5	0.1	38
BZT55C56	56	52	60	2.5	135	1,000	0.5	0.1	42
BZT55C62	62	58	66	2.5	150	1,000	0.5	0.1	47
BZT55C68	68	64	72	2.5	160	1,000	0.5	0.1	51
BZT55C75	75	70	79	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 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}

ORDERING INFORMATION		
ORDERING CODE (Note)	PACKAGE	PACKING
BZT55Cxxx L0	Quadro Mini-MELF	10K / 13" Reel
BZT55Cxxx L0G	Quadro Mini-MELF	10K / 13" Reel
BZT55Cxxx L1	Quadro Mini-MELF	2.5K / 7" Reel
BZT55Cxxx L1G	Quadro Mini-MELF	2.5K / 7" Reel

Note:

"xxx" defines voltage from 2.4V (BZT55C2V4) to 75V (BZT55C75)

"G" means green compound (halogen free)

CHARACTERISTICS CURVES

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

Fig. 1 Typical Forward Characteristics

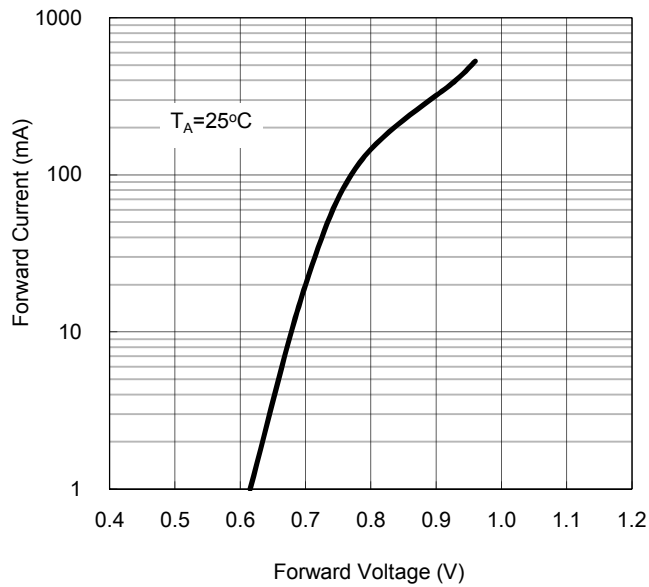


Fig. 2 Admissible Power Dissipation Curve

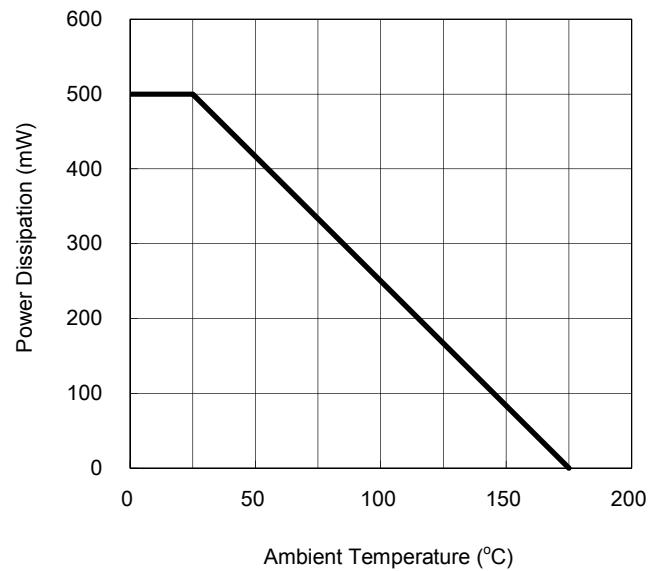
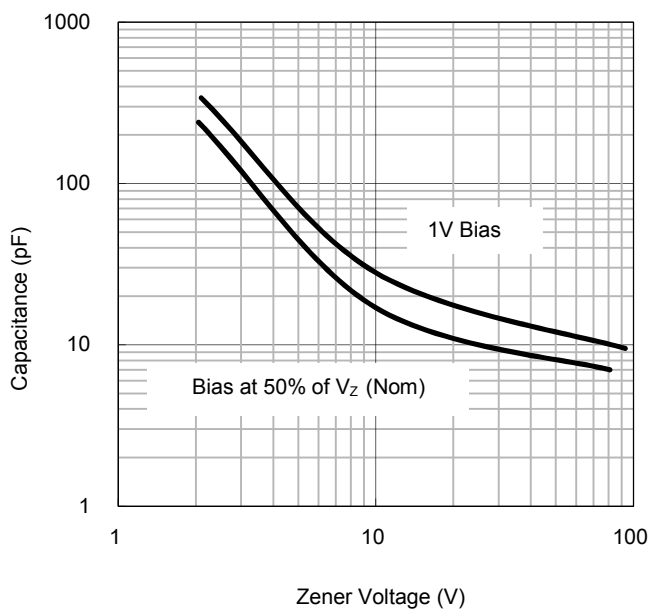
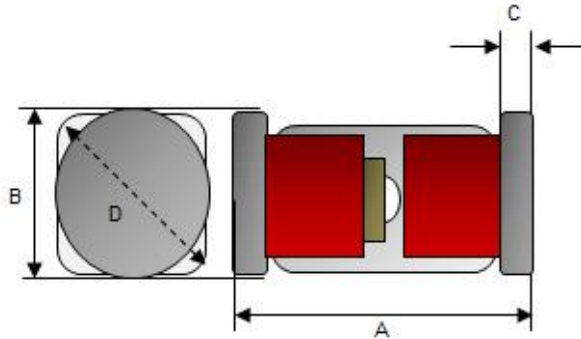


Fig. 3 Typical Capacitance



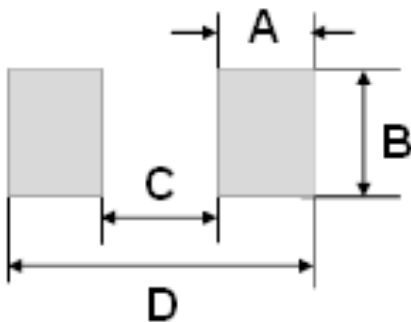
PACKAGE OUTLINE DIMENSION

Quadro 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	0.45	0.008	0.018
D	1.8 TYP.		0.071 TYP.	

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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