500mW, 2.4V - 75V Surface Mount Zener Diode

FEATURES

- Wide Zener voltage range selection: 2.4V to 75V
- V_Z Tolerance Selection of ± 2%
- Hermetically sealed glass
- RoHS Compliant

APPLICATIONS

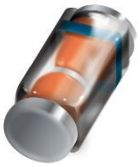
- Low voltage stabilzers or voltage references
- Adapters
- Lighting application
- On-board DC/DC converter

MECHANICAL DATA

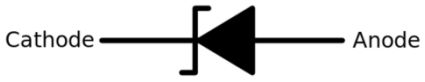
- Case: QMMELF
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: Indicated by cathode band
- Weight: 30.80mg (approximately)

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 = 10mA	1	V
$T_{J\ Max}$	175	°C
Package	QMMELF	
Configuration	Single die	

Pb-Free RoHS COMPLIANT



QMMELF



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

THERMAL PERFORMANCE			
PARAMETER	**SYMBOL**	**LIMIT**	**UNIT**
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	500	°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}[1]			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	
BZT55B2V4	2.35	2.4	2.45	5	85	600	1.0	50	1
BZT55B2V7	2.65	2.7	2.75	5	85	600	1.0	10	1
BZT55B3V0	2.94	3.0	3.06	5	85	600	1.0	4	1
BZT55B3V3	3.23	3.3	3.37	5	85	600	1.0	2	1
BZT55B3V6	3.53	3.6	3.67	5	85	600	1.0	2	1
BZT55B3V9	3.82	3.9	3.98	5	85	600	1.0	2	1
BZT55B4V3	4.21	4.3	4.39	5	75	600	1.0	1	1
BZT55B4V7	4.61	4.7	4.79	5	60	600	1.0	0.5	1
BZT55B5V1	5.00	5.1	5.20	5	35	550	1.0	0.1	1
BZT55B5V6	5..49	5.6	5.71	5	25	450	1.0	0.1	1
BZT55B6V2	6.08	6.2	6.32	5	10	200	1.0	0.1	2
BZT55B6V8	6.66	6.8	6.94	5	8	150	1.0	0.1	3
BZT55B7V5	7.35	7.5	7.65	5	7	50	1.0	0.1	5
BZT55B8V2	8.04	8.2	8.36	5	7	50	1.0	0.1	6.2
BZT55B9V1	8.92	9.1	9.28	5	10	50	1.0	0.1	6.8
BZT55B10	9.80	10.0	10.20	5	15	70	1.0	0.1	7.5
BZT55B11	10.78	11.0	11.22	5	20	70	1.0	0.1	8.2
BZT55B12	11.76	12.0	12.24	5	20	90	1.0	0.1	9.1
BZT55B13	12.74	13.0	13.26	5	26	110	1.0	0.1	10
BZT55B15	14.70	15.0	15.30	5	30	110	1.0	0.1	11
BZT55B16	15.68	16.0	16.32	5	40	170	1.0	0.1	12
BZT55B18	17.64	18.0	18.36	5	50	170	1.0	0.1	13
BZT55B20	19.60	20.0	20.40	5	55	220	1.0	0.1	15
BZT55B22	21.56	22.0	22.44	5	55	220	1.0	0.1	16
BZT55B24	23.52	24.0	24.48	5	80	220	1.0	0.1	18
BZT55B27	26.46	27.0	27.54	5	80	220	1.0	0.1	20
BZT55B30	29.40	30.0	30.60	5	80	220	1.0	0.1	22
BZT55B33	32.34	33.0	33.66	5	80	220	1.0	0.1	24
BZT55B36	35.28	36.0	36.72	5	80	220	1.0	0.1	27
BZT55B39	38.22	39.0	39.78	2.5	90	500	0.5	0.1	28
BZT55B43	42.14	43.0	43.86	2.5	90	600	0.5	0.1	32
BZT55B47	46.06	47.0	47.94	2.5	110	700	0.5	0.1	35
BZT55B51	49.98	51.0	52.02	2.5	125	700	0.5	0.1	38
BZT55B56	54.88	56.0	57.12	2.5	135	1000	0.5	0.1	42
BZT55B62	60.76	62.0	63.24	2.5	150	1000	0.5	0.1	47
BZT55B68	66.64	68.0	69.36	2.5	160	1000	0.5	0.1	51
BZT55B75	73.50	75.0	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 nomial Zener voltage of ±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 R_{MS} 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[1][2]	PACKAGE	PACKING
BZT55Bx L0	QMMELF	10,000 / 13" Tape & Reel
BZT55Bx L0G	QMMELF	10,000 / 13" Tape & Reel

Notes:

1. "x" defines voltage from 2.4V (BZT55B2V4) to 75V (BZT55B75)
2. Above ordering codes L0/L0G refer to physically identical parts without any differences

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Typical Forward Characteristics

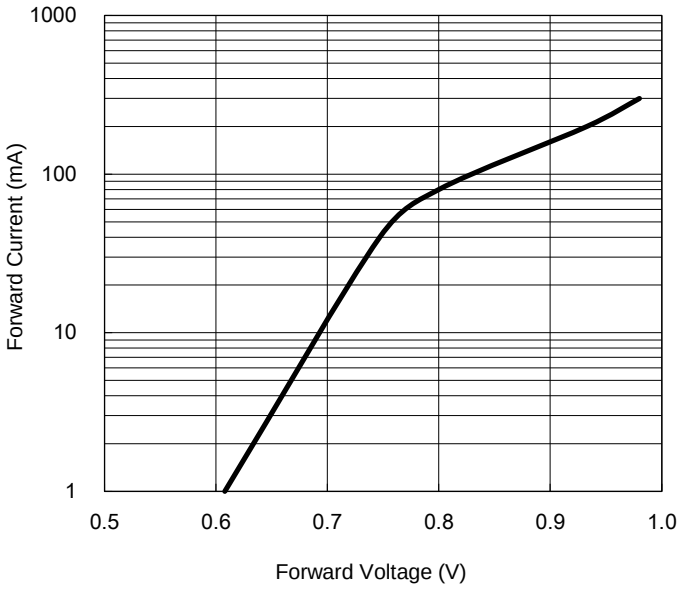


Fig.2 Zener Breakdown Characteristics

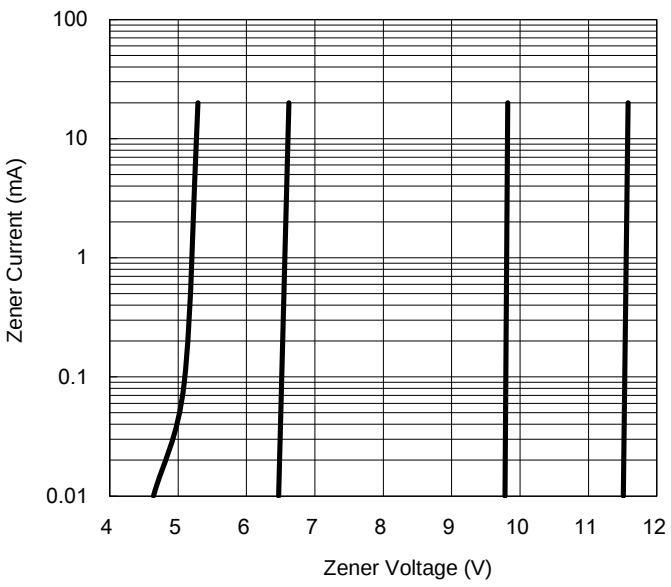


Fig.3 Zener Breakdown Characteristics

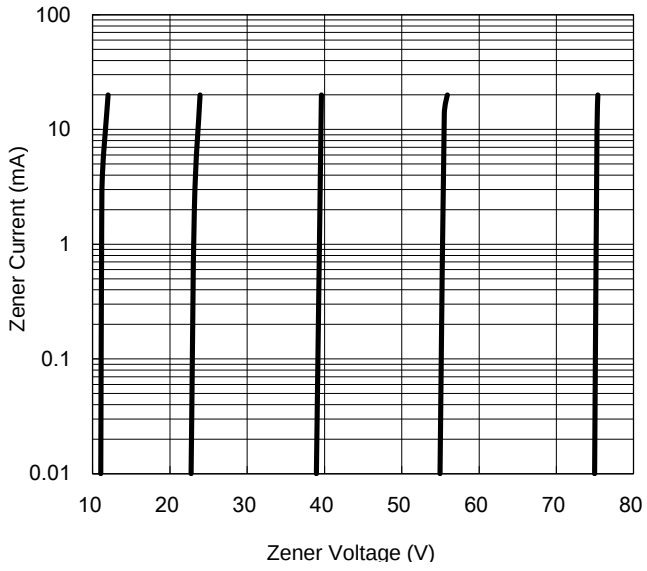
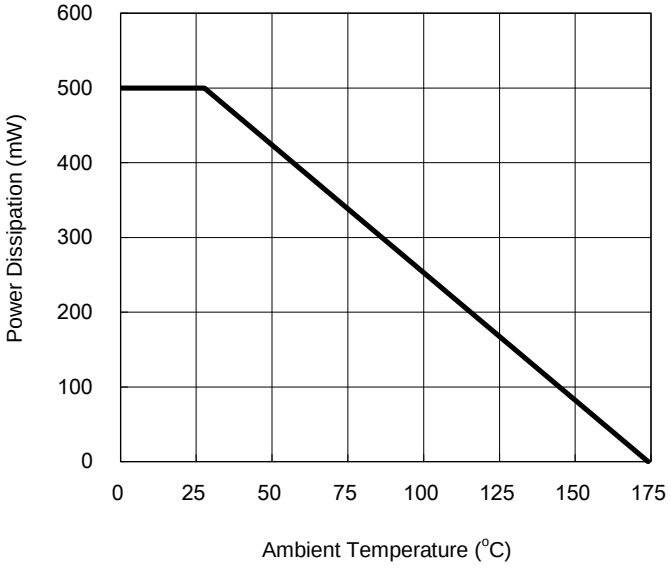


Fig.4 Admissible Power Dissipation Curve



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Typical Capacitance

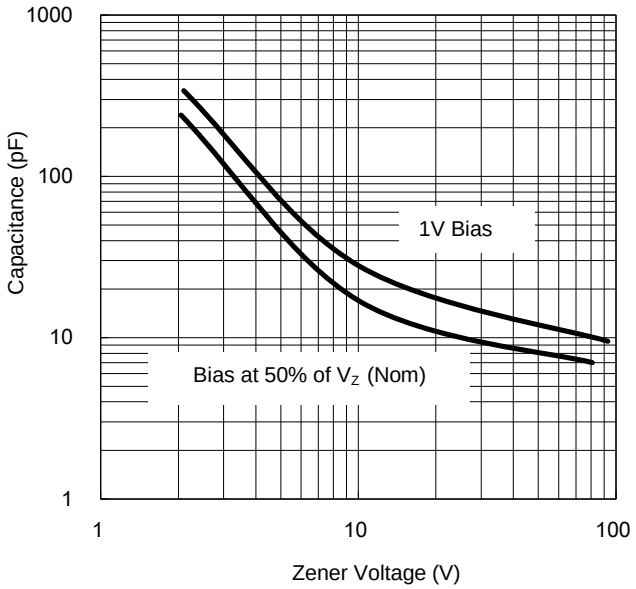
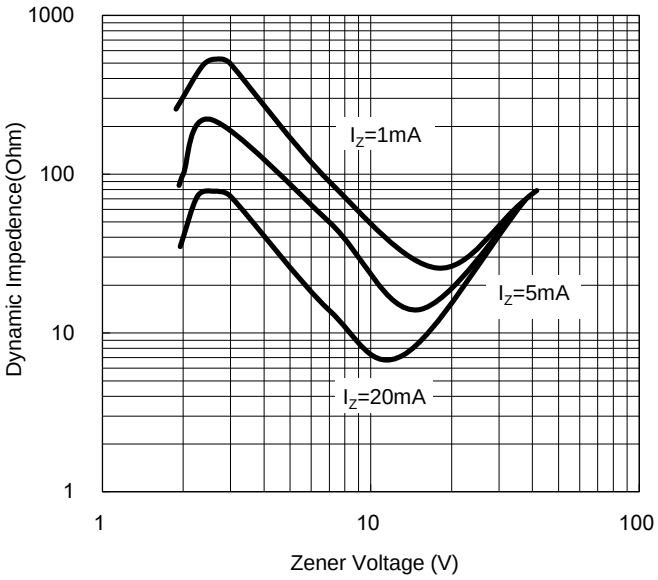
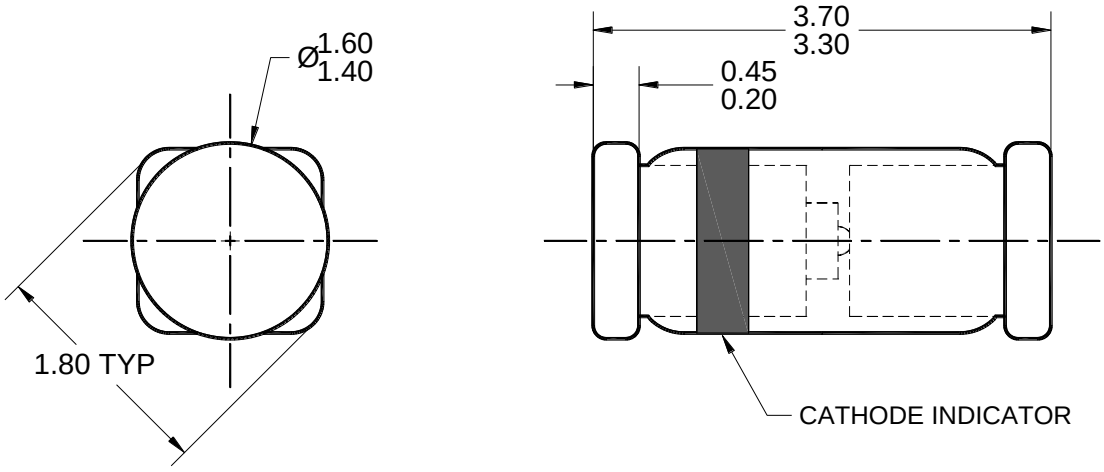


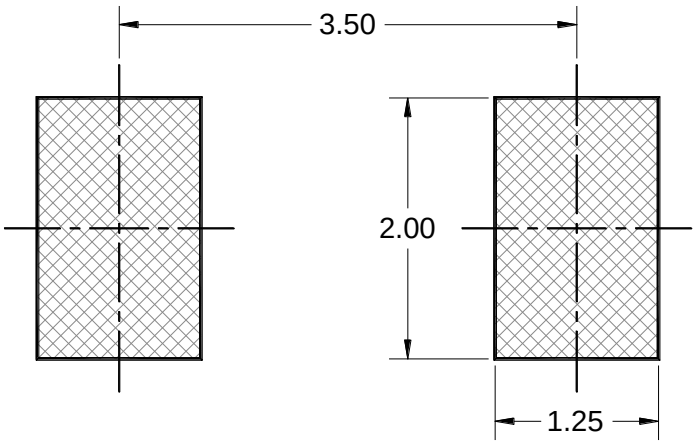
Fig.6 Effect of Zener Voltage on Impedence



PACKAGE OUTLINE DIMENSIONS

QMMELF





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-QMMELF-061 REV A.

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