

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

### FEATURES

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

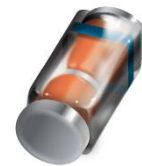
### APPLICATIONS

- Low voltage stabilizers 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 $I_F = 10\text{mA}$	1	V
$T_{J \text{ Max}}$	175	$^{\circ}\text{C}$
Package	QMMELF	
Configuration	Single die	



QMMELF



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

PARAMETER	SYMBOL	VALUE	UNIT
Power dissipation	$P_D$	500	mW
Forward voltage @ $I_F = 10\text{mA}$	$V_F$	1	V
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	LIMIT	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	
	$V_Z @ I_{ZT}^{(1)}$			$I_{ZT}$	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	$I_{ZK}$	$I_R @ V_R$	
	V			mA	$\Omega$	$\Omega$	mA	$\mu\text{A}$	V
	Min	Nom	Max		Max	Max		Max	
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 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  $R_{MS}$  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>ORDERING CODE<sup>(1)(2)</sup></b>	<b>PACKAGE</b>	<b>PACKING</b>
BZT55Bx L0	QMMELF	10,000 / 13" Tape & Reel
BZT55Bx L0G	QMMELF	10,000 / 13" Tape & Reel

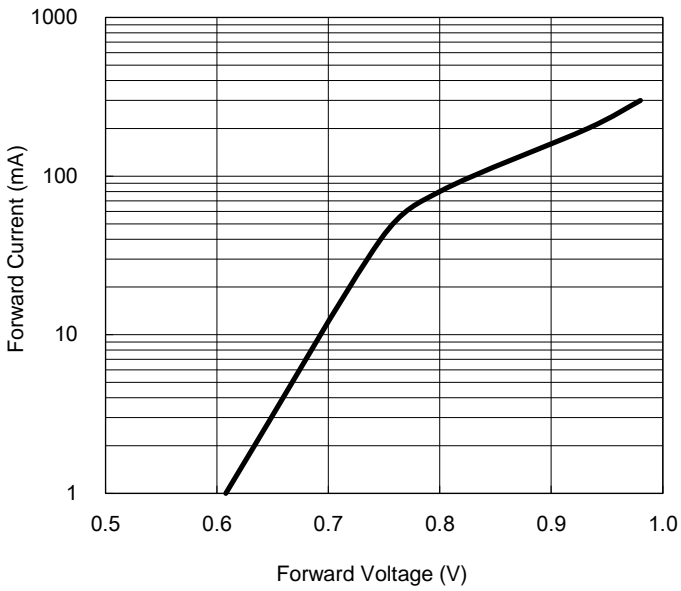
**Notes:**

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

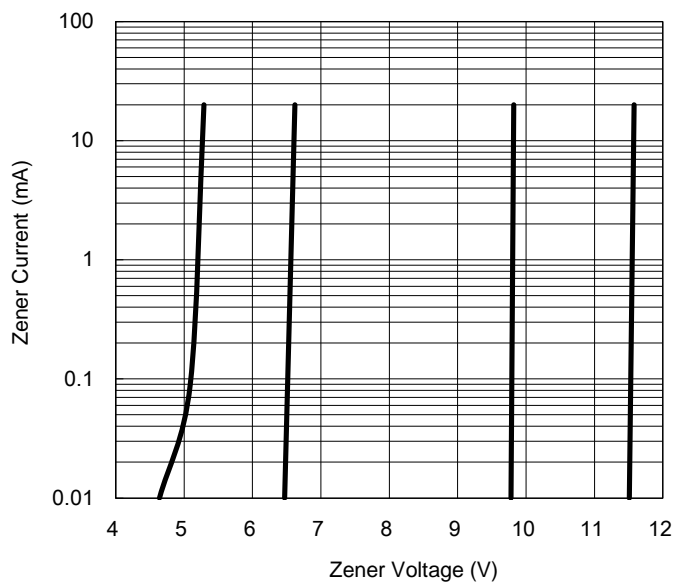
**CHARACTERISTICS CURVES**

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

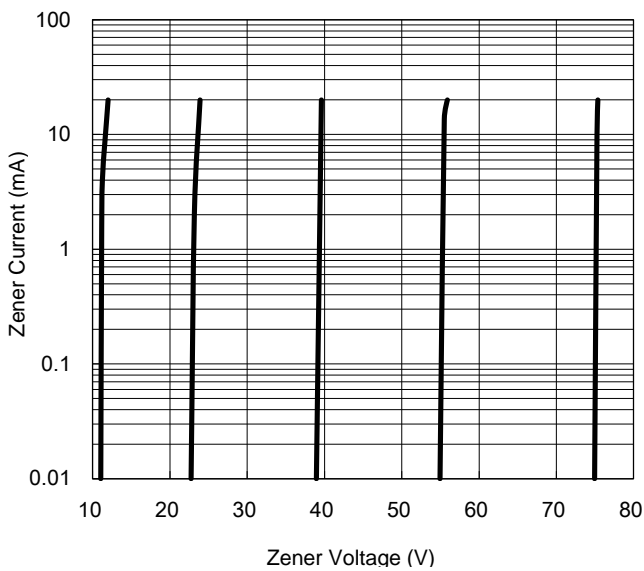
**Fig.1 Typical Forward Characteristics**



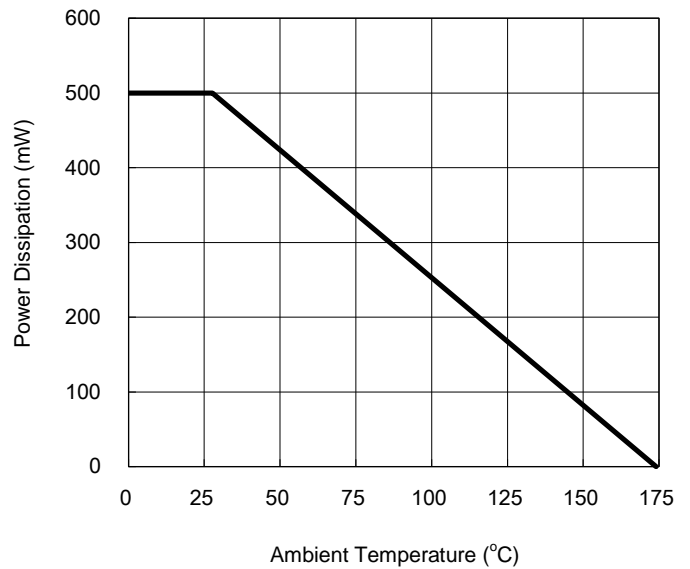
**Fig.2 Zener Breakdown Characteristics**



**Fig.3 Zener Breakdown Characteristics**



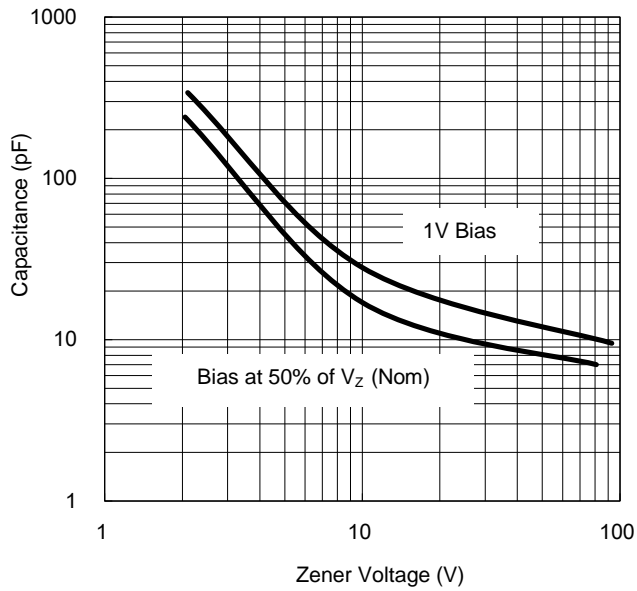
**Fig.4 Admissible Power Dissipation Curve**



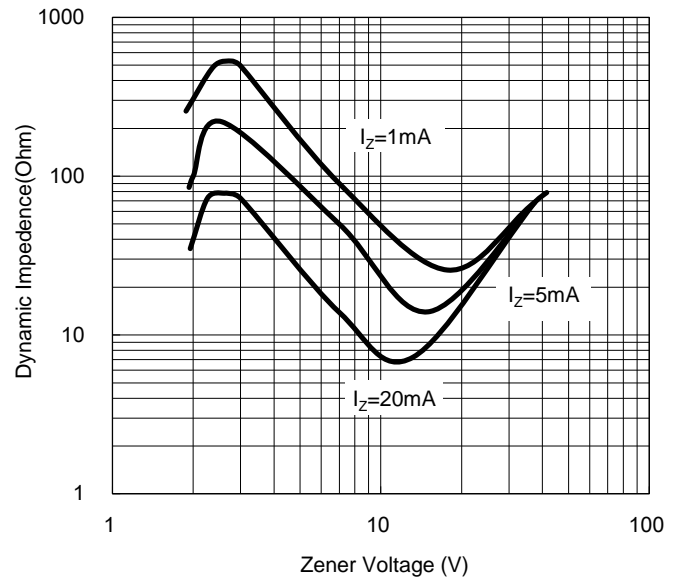
**CHARACTERISTICS CURVES**

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

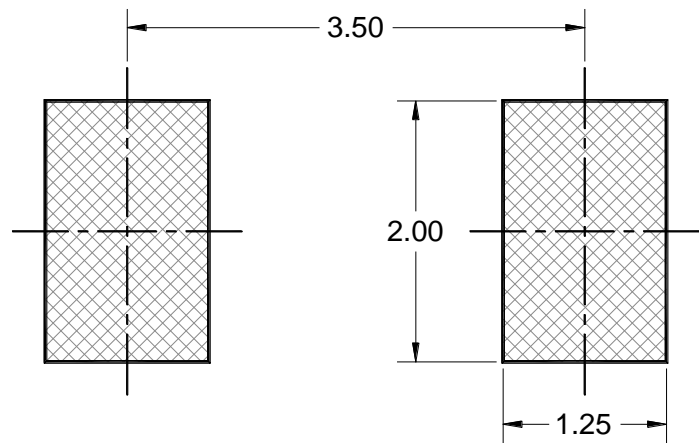
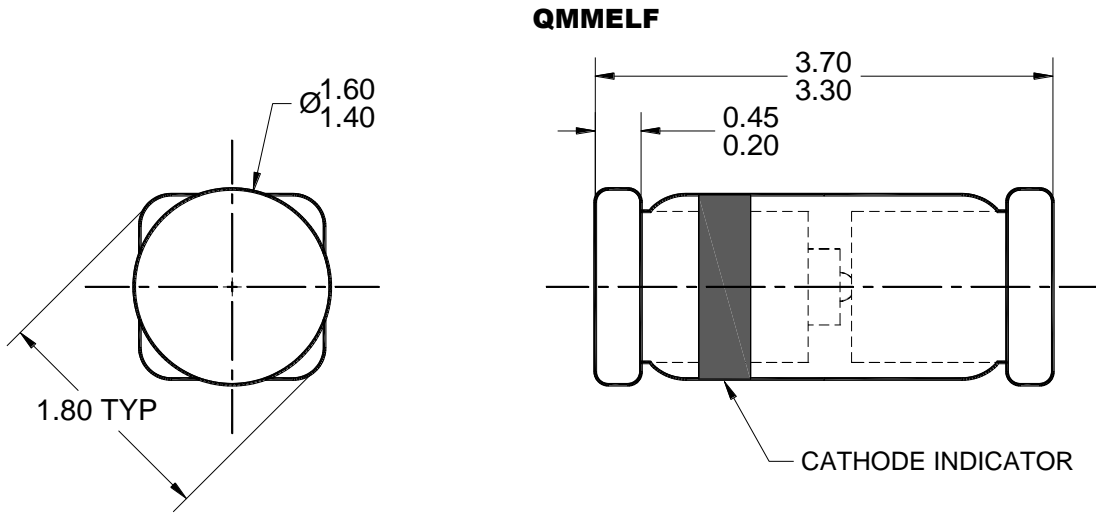
**Fig.5 Typical Capacitance**



**Fig.6 Effect of Zener Voltage on Impedance**



**PACKAGE OUTLINE DIMENSIONS**



**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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