TAIWAN SEMICONDUCTOR

BZT55C2V4 - BZT55C75

500mW, 5% Tolerance SMD Zener Diode

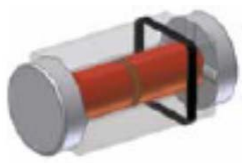
Small Signal Product

Features

- ◇ Wide zener voltage range selection : 2.4V to 75V
- ◇ V_Z tolerance selection of ±5%
- ◇ Moisture sensitivity level 1
- ◇ Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- ◇ Pb free version and RoHS compliant
- ◇ All external surfaces are corrosion resistant and leads are readily solderable

QUADRO Mini-MELF (LS34)

Hermetically Sealed Glass



Pb-Free

RoHS COMPLIANT

Mechanical Data

- ◇ Case : QUADRO Mini-MELF Package (JEDEC DO-213)
- ◇ High temperature soldering guaranteed : 270°C/10s
- ◇ Polarity : Indicated by cathode band
- ◇ Weight : 29 ± 2.5mg

Maximum Ratings and Electrical Characteristics

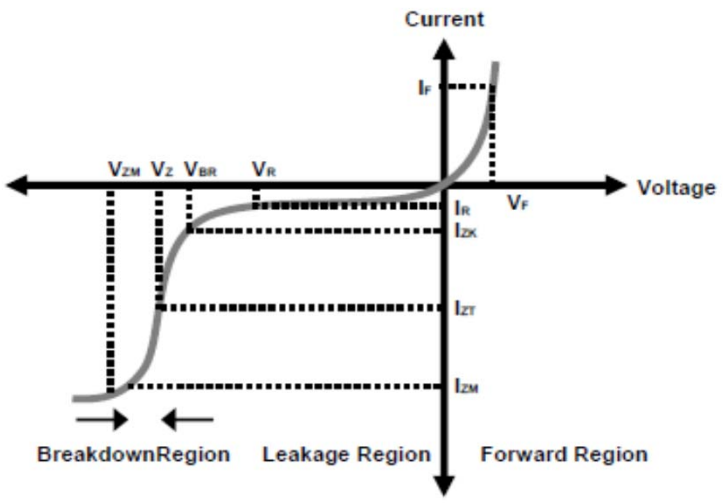
Rating at 25 °C ambient temperature unless otherwise specified.

Maximum Ratings

Parameter		Symbol	Value	Unit
Power Dissipation		P_D	500	mW
Forward Voltage	I_F=10mA	V_F	1.0	V
Thermal Resistance (Junction to Ambient)	(Note 1)	$R_{\theta JA}$	500	°C/W
Junction and Storage Temperature Range		T_J , T_{STG}	-65 to +175	°C

Note : Valid provided that electrodes are kept at ambient temperature.

Zener I vs. V Characteristics



V_{BR} : Voltage at I_{ZK}
I_{ZK} : Test current for voltage V_{BR}
Z_{ZK} : Dynamic impedance at I_{ZK}
I_{ZT} : Test current for voltage V_Z
V_Z : Voltage at current I_{ZT}
Z_{ZT} : Dynamic impedance at I_{ZT}
I_{ZM} : Maximum steady state current
V_{ZM} : Voltage at I_{ZM}

Electrical Characteristics (T_A= 25°C unless otherwise noted)

V_F Forward Voltage = 1.0V Maximum @ I_F = 10 mA for all part numbers

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

Notes： 1. The Zener Voltage (V_Z) is tested under pulse condition of 10ms.

2. The device numbers listed have a standard tolerance on the nomial zener voltage of ±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}.

RATINGS AND CHARACTERISTICS CURVES

Fig. 1 Typical Forward Characteristics

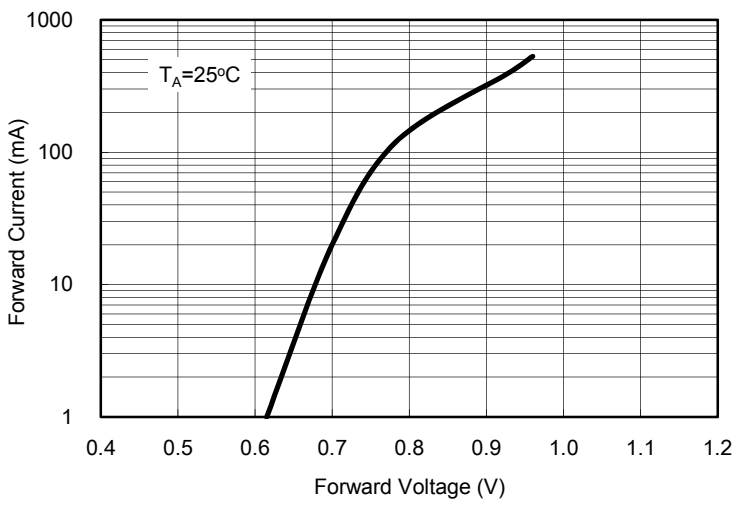


Fig. 2 Zener Breakdown Characteristics

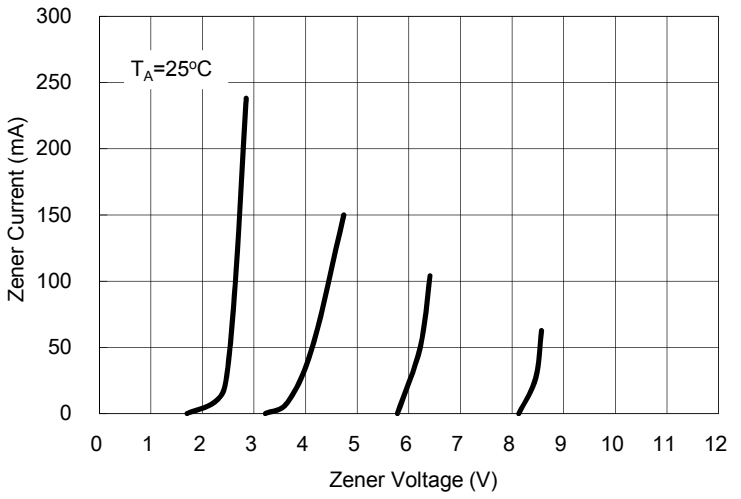


Fig. 3 Zener Breakdown Characteristics

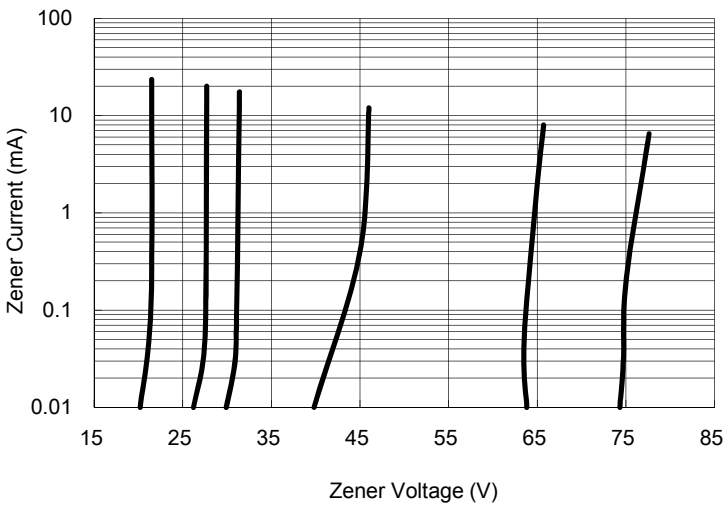


Fig. 4 Admissible Power Dissipation Curve

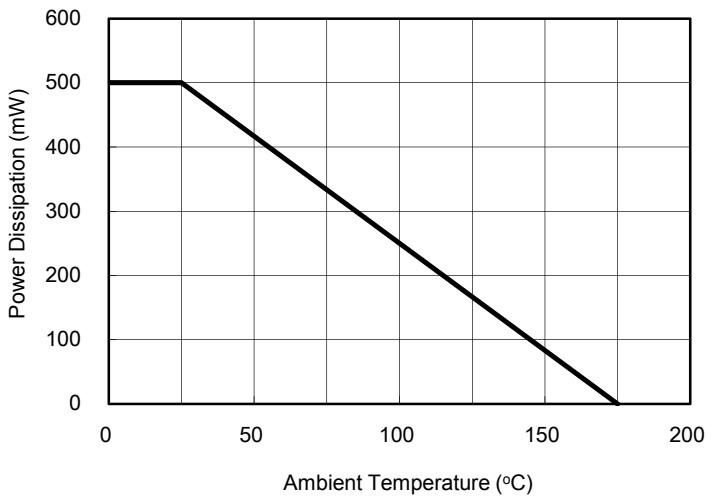


Fig. 5 Typical Capacitance

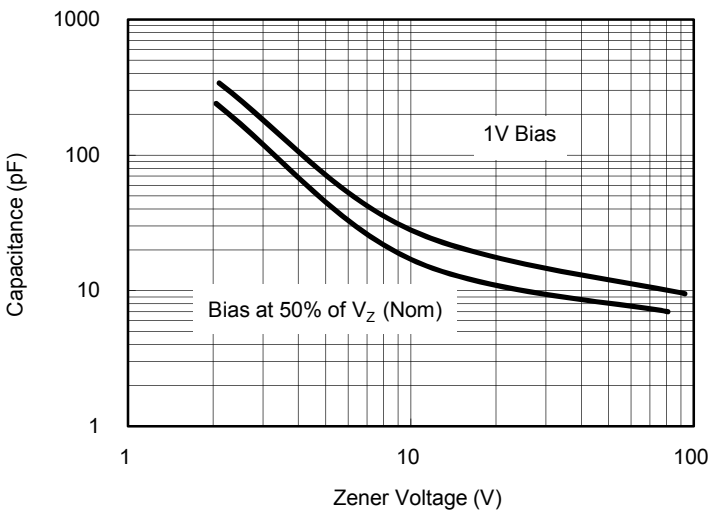
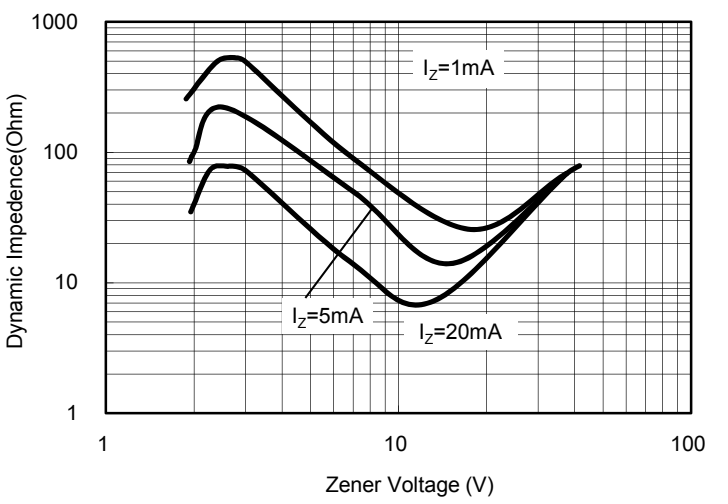


Fig. 6 Effect of Zener Voltage on Impedence



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Small Signal Product

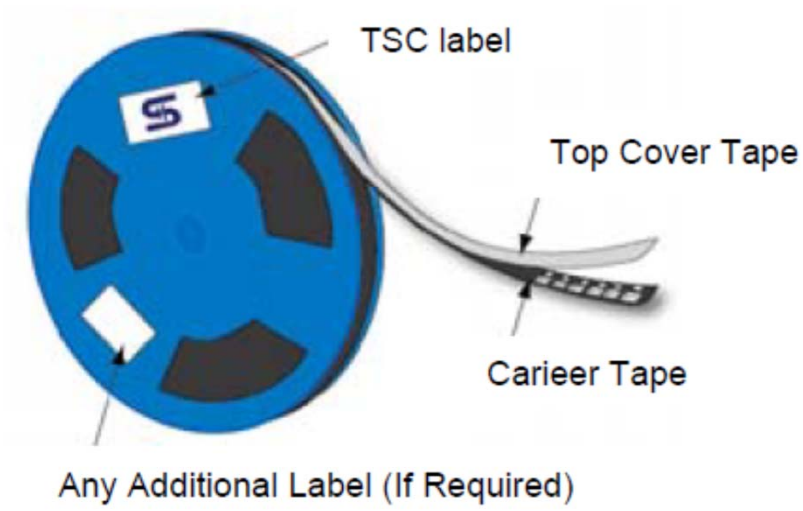
Ordering information (Example)

Part No.	Package	Packing	Packing code	Packing code (Green)	Manufacture code
BZT55CXX (Note 1)	QMMELF	10K / 13" Reel	L0	L0G	(Note 2)
		2.5K / 7" Reel	L1	L1G	
BZT55C2V4	QMMELF	10K / 13" Reel	L0	L0G	
BZT55C2V4	QMMELF	10K / 13" Reel	L0	L0G	L0
BZT55C2V4	QMMELF	10K / 13" Reel	L0	L0G	B0

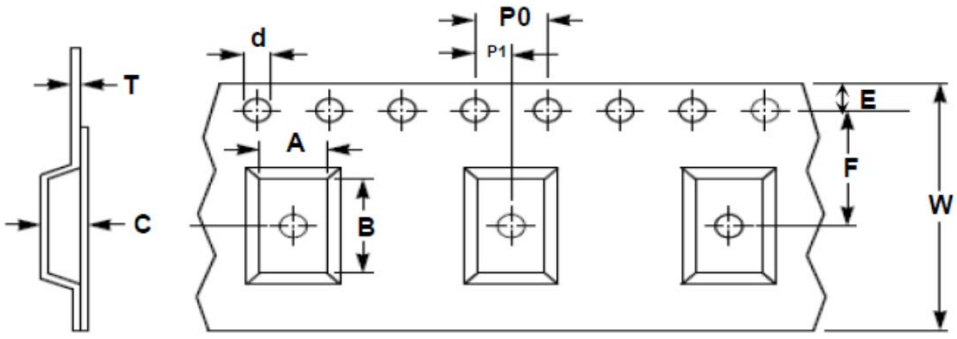
Note 1 : "xx" is Device Code from "2V4" thru "75".

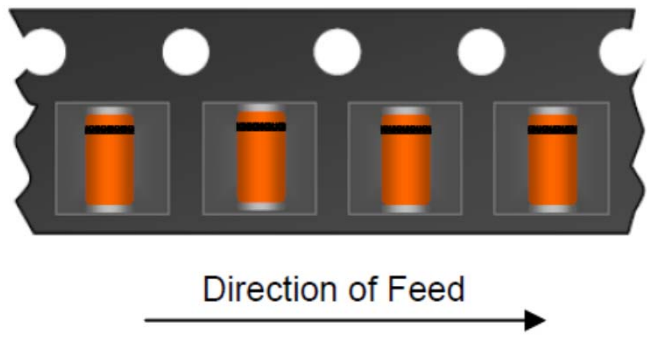
Note 2 : Manufacture special control, if empty means no special control requirement.

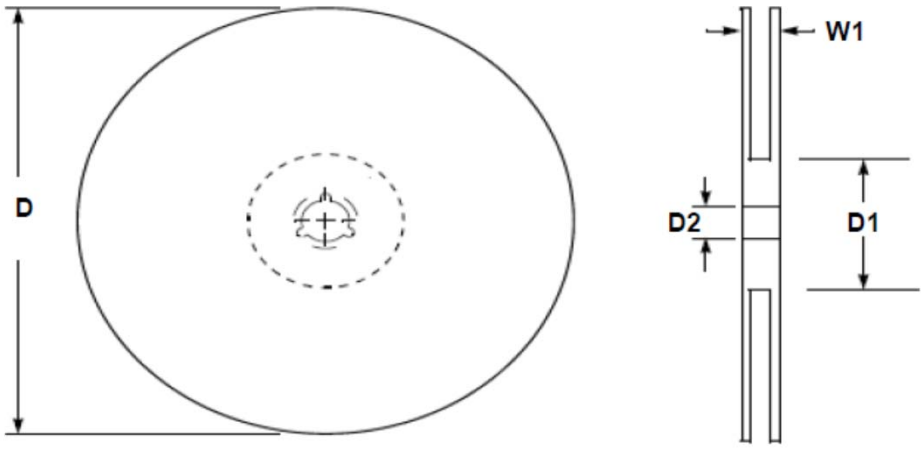
Tape & Reel specification



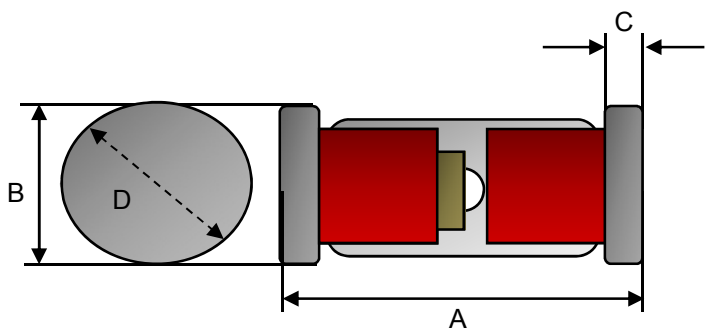
Item	Symbol	Dimension	
Carrier width	A	1.83 ±0.10	
Carrier length	B	3.73 ±0.10	
Carrier depth	C	1.80 ±0.10	
Sprocket hole	d	1.50 ± 0.10	
Reel outside diameter	D	178 ± 1	330 ± 1
Reel inner diameter	D1	55 Min	100 Min
Feed hole width	D2	13.0 ± 0.20	
Sprocket hole position	E	1.75 ±0.10	
Punch hole position	F	3.50 ±0.05	
Sprocket hole pitch	P0	4.00 ±0.10	
Embossment center	P1	2.00 ±0.05	
Overall tape thickness	T	0.23 ±0.005	
Tape width	W	8.00 ±0.30	
Reel width	W1	14.4 Max	





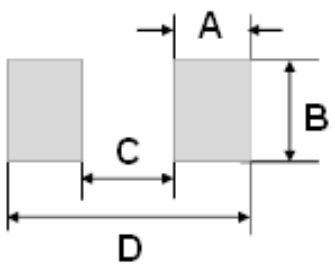


Dimensions



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.	

Suggested 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