

500mW 5% Zener Diodes

FEATURES

- Wide zener voltage range selection: 2.4V to 36V
- VZ Tolerance Selection of $\pm 5\%$
- Surface device type mountin
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

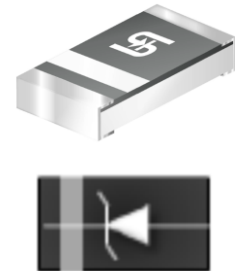
APPLICATIONS

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

MECHANICAL DATA

- Case: 0805
- Molding compound: UL flammability classification rating 94HB
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 0.006grams (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
V_Z	2.4-36	V
Test current I_{ZT}	5	mA
P_{tot}	500	mW
V_F at $I_F=10mA$	1.5	V
T_J Max.	150	$^{\circ}C$
Package	0805	
Configuration	Single dice	



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}C$ unless otherwise noted)			
PARAMETER	SYMBOL	PART NUMBER	UNIT
Forward voltage @ $I_F=10mA$	V_F	1.5	V
Total power dissipation	P_{tot}	500	mW
Junction temperature range	T_J	-55 to +150	$^{\circ}C$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}C$

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-ambient thermal resistance	$R_{\theta JA}$	300	$^{\circ}C/W$

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

PART NUMBER	MARKING CODE	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}	$V_Z @ I_{ZT}$	
		V			mA	Ω	Ω	mA	μA	V
		Min.	Nom.	Max.		Max.	Max.		Max.	
BZY55C2V4	2V4	2.28	2.40	2.52	5	85	600	1	50	1.0
BZY55C2V7	2V7	2.57	2.70	2.84	5	85	600	1	10	1.0
BZY55C3V0	3.0	2.85	3.00	3.15	5	85	600	1	4	1.0
BZY55C3V3	3V3	3.14	3.30	3.47	5	85	600	1	2	1.0
BZY55C3V6	3V6	3.42	3.60	3.78	5	85	600	1	2	1.0
BZY55C3V9	3V9	3.71	3.90	4.10	5	85	600	1	2	1.0
BZY55C4V3	4V3	4.09	4.30	4.52	5	80	600	1	1	1.0
BZY55C4V7	4V7	4.47	4.70	4.94	5	70	600	1	0.5	1.0
BZY55C5V1	5V1	4.85	5.10	5.36	5	50	550	1	0.1	1.0
BZY55C5V6	5V6	5.32	5.60	5.88	5	30	450	1	0.1	1.0
BZY55C6V2	6V2	5.89	6.20	6.51	5	10	200	1	0.1	2.0
BZY55C6V8	6V8	6.46	6.80	7.14	5	8	150	1	0.1	3.0
BZY55C7V5	7V5	7.13	7.50	7.88	5	7	50	1	0.1	5.0
BZY55C8V2	8V2	7.79	8.20	8.61	5	7	50	1	0.1	6.2
BZY55C9V1	9V1	8.65	9.10	9.56	5	10	50	1	0.1	6.8
BZY55C10	10	9.50	10.00	10.50	5	15	70	1	0.1	7.5
BZY55C11	11	10.45	11.00	11.55	5	20	70	1	0.1	8.2
BZY55C12	12	11.40	12.00	12.60	5	20	90	1	0.1	9.1
BZY55C13	13	12.35	13.00	13.65	5	26	110	1	0.1	10
BZY55C15	15	14.25	15.00	15.75	5	30	110	1	0.1	11
BZY55C16	16	15.20	16.00	16.80	5	40	170	1	0.1	12
BZY55C18	18	17.10	18.00	18.90	5	50	170	1	0.1	13
BZY55C20	20	19.00	20.00	21.00	5	55	220	1	0.1	15
BZY55C22	22	20.90	22.00	23.10	5	55	220	1	0.1	16
BZY55C24	24	22.80	24.00	25.20	5	80	220	1	0.1	18
BZY55C27	27	25.65	27.00	28.35	5	80	220	1	0.1	20
BZY55C30	30	28.50	30.00	31.50	5	80	220	1	0.1	22
BZY55C33	33	31.35	33.00	34.65	5	80	220	1	0.1	24
BZY55C36	36	34.20	36.00	37.80	5	80	220	1	0.1	27

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 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.	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
BZY55CXXX (Note 1&2)	RY	G	0805	5K / 7" Reel
	RB			10K / 13" Reel

Notes:

1. "xxx" defines voltage from 2.4V (BZY55C2V4) to 36V (BZY55C36)
2. Whole series with green compound

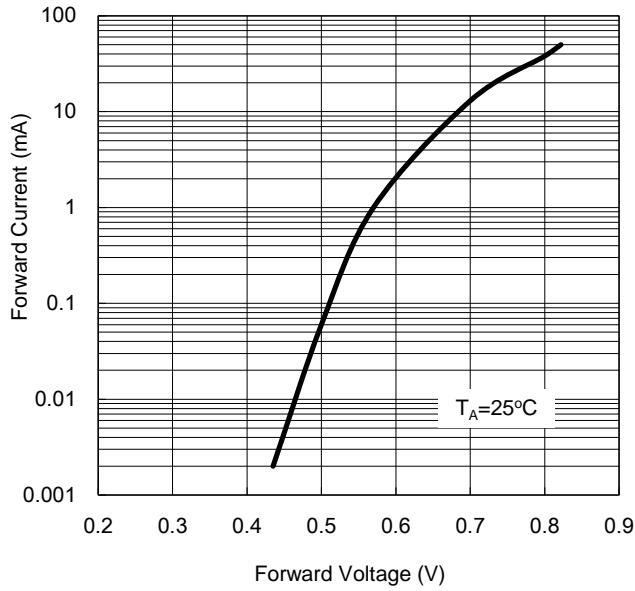
EXAMPLE

EXAMPLE P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
BZY55C36 RYG	BZY55C36	RY	G	Green compound

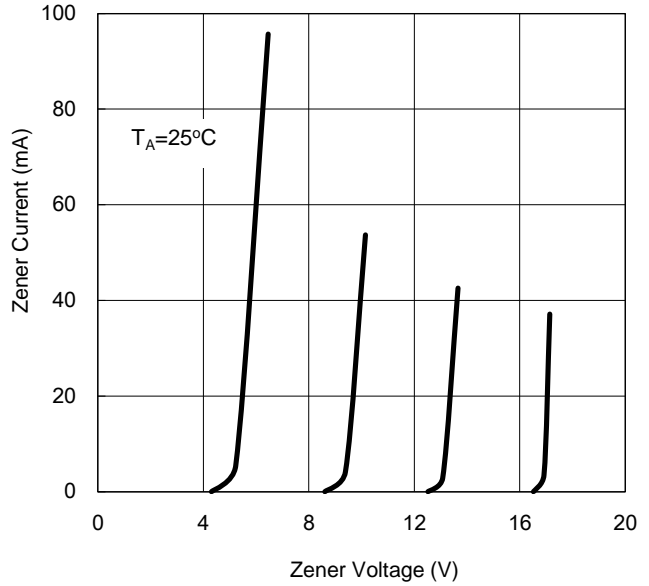
CHARACTERISTICS CURVES

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

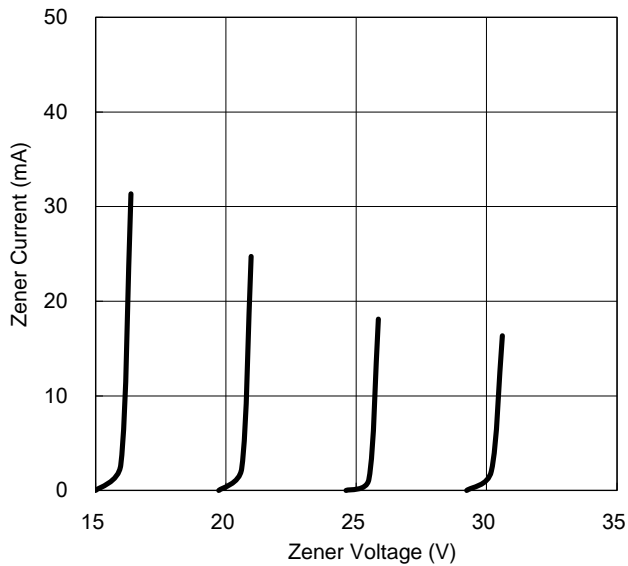
Typical Forward Characteristics



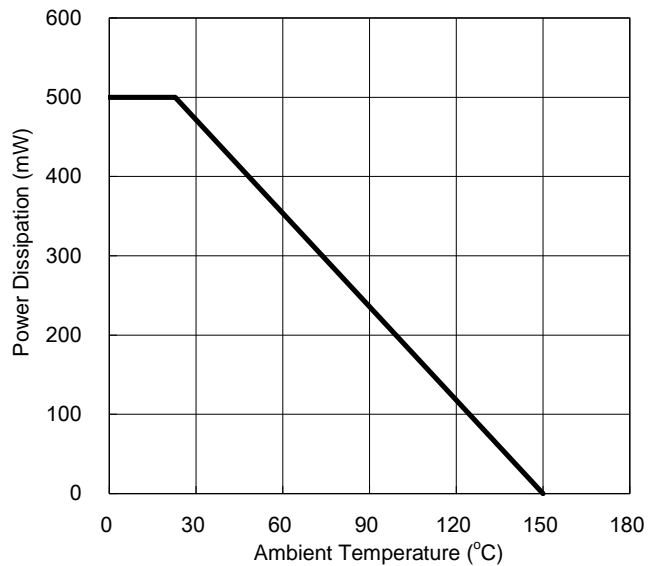
Zener Breakdown Characteristics



Zener Breakdown



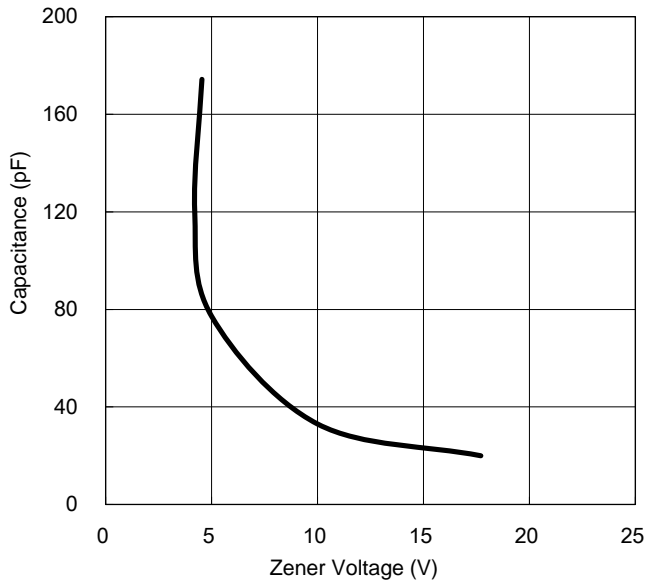
Admissible Power Dissipation Curve



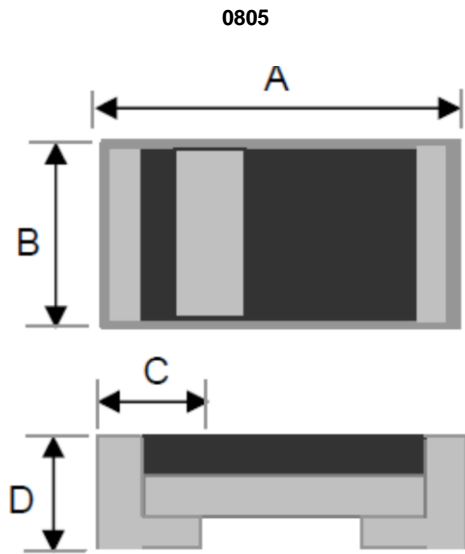
CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Typical Capacitance

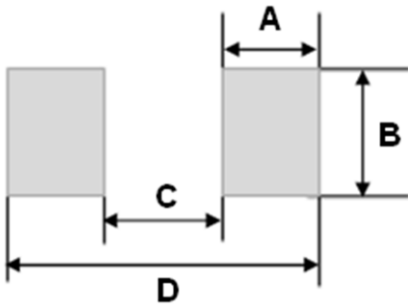


PACKAGE OUTLINE DIMENSION



DIM.	Unit(mm)		Unit(inch)	
	Min	Max	Min	Max
A	1.80	2.20	0.071	0.087
B	1.05	1.45	0.041	0.057
C	0.25	0.65	0.010	0.026
D	0.65	0.85	0.026	0.033

SUGGEST PAD LAYOUT



DIM.	Unit(mm)	Unit(inch)
	Typ	Typ
A	1.10	0.043
B	1.40	0.055
C	1.20	0.047
D	3.40	0.134

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