TAK CHEONG®

SEMICONDUCTOR

500 mW DO-35 Hermetically Sealed Glass Zener Voltage Regulators

AXIAL LEAD
DO35

Absolute Maximum Ratings

T_A = 25°C unless otherwise noted

Parameter	Value	Units
Power Dissipation	500	mW
Storage Temperature Range	-65 to +175	°C
Operating Junction Temperature	+175	°C

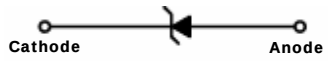
These ratings are limiting values above which the serviceability of the diode may be impaired.

DEVICE MARKING DIAGRAM

L : Logo
Device Code : TCBZX55Txxx
T : VZ tolerance B or C

Specification Features:

- Zener Voltage Range 2.0 to 75 Volts
- DO-35 Package (JEDEC)
- Through-Hole Device Type Mounting
- Hermetically Sealed Glass
- Compression Bonded Construction
- All External Surfaces Are Corrosion Resistant And Leads Are Readily Solderable
- RoHS Compliant
- Solder Hot Dip Tin (Sn) Terminal Finish
- Cathode Indicated By Polarity Band



ELECTRICAL SYMBOL

Electrical Characteristics

T_A = 25°C unless otherwise noted

Device Type	V_Z @ I_{ZT} (Volts)		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 (Volts)
	Min	Max						
TCBZX55C 2V0	1.88	2.11	5	100	1	600	100	1
TCBZX55C 2V2	2.08	2.33	5	100	1	600	100	1
TCBZX55C 2V4	2.28	2.56	5	85	1	600	50	1
TCBZX55C 2V7	2.51	2.89	5	85	1	600	10	1
TCBZX55C 3V0	2.8	3.2	5	85	1	600	4	1
TCBZX55C 3V3	3.1	3.5	5	85	1	600	2	1
TCBZX55C 3V6	3.4	3.8	5	85	1	600	2	1
TCBZX55C 3V9	3.7	4.1	5	85	1	600	2	1
TCBZX55C 4V3	4.0	4.6	5	75	1	600	1	1
TCBZX55C 4V7	4.4	5.0	5	60	1	600	0.5	1
TCBZX55C 5V1	4.8	5.4	5	35	1	550	0.1	1
TCBZX55C 5V6	5.2	6.0	5	25	1	450	0.1	1
TCBZX55C 6V2	5.8	6.6	5	10	1	200	0.1	2
TCBZX55C 6V8	6.4	7.2	5	8	1	150	0.1	3
TCBZX55C 7V5	7.0	7.9	5	7	1	50	0.1	5
TCBZX55C 8V2	7.7	8.7	5	7	1	50	0.1	6.2
TCBZX55C 9V1	8.5	9.6	5	10	1	50	0.1	6.8
TCBZX55C 10	9.4	10.6	5	15	1	70	0.1	7.5
TCBZX55C 11	10.4	11.6	5	20	1	70	0.1	8.2
TCBZX55C 12	11.4	12.7	5	20	1	90	0.1	9.1
TCBZX55C 13	12.4	14.1	5	26	1	110	0.1	10

Electrical Characteristics

T_A = 25°C unless otherwise noted

Device Type	V_Z @ I_{ZT} (Volts)		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 (Volts)
	Min	Max						
TCBZX55C 15	13.8	15.6	5	30	1	110	0.1	11
TCBZX55C 16	15.3	17.1	5	40	1	170	0.1	12
TCBZX55C 18	16.8	19.1	5	50	1	170	0.1	13
TCBZX55C 20	18.8	21.1	5	55	1	220	0.1	15
TCBZX55C 22	20.8	23.3	5	55	1	220	0.1	16
TCBZX55C 24	22.8	25.6	5	80	1	220	0.1	18
TCBZX55C 27	25.1	28.9	5	80	1	220	0.1	20
TCBZX55C 30	28	32	5	80	1	220	0.1	22
TCBZX55C 33	31	35	5	80	1	220	0.1	24
TCBZX55C 36	34	38	5	80	1	220	0.1	27
TCBZX55C 39	37	41	2.5	90	0.5	500	0.1	28
TCBZX55C 43	40	46	2.5	90	0.5	600	0.1	32
TCBZX55C 47	44	50	2.5	110	0.5	700	0.1	35
TCBZX55C 51	48	54	2.5	125	0.5	700	0.1	38
TCBZX55C 56	52	60	2.5	135	0.5	1000	0.1	42
TCBZX55C 62	58	66	2.5	150	0.5	1000	0.1	47
TCBZX55C 68	64	72	2.5	160	0.5	1000	0.1	51
TCBZX55C 75	70	80	2.5	170	0.5	1000	0.1	56

V_F Forward Voltage = 1.0 V Maximum @ I_F = 100 mA for all types

Device Type	V_Z @ I_{ZT} (Volts)		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 (Volts)
	Min	Max						
TCBZX55B 2V4	2.35	2.45	5	85	1	600	50	1
TCBZX55B 2V7	2.65	2.75	5	85	1	600	10	1
TCBZX55B 3V0	2.94	3.06	5	85	1	600	4	1
TCBZX55B 3V3	3.23	3.37	5	85	1	600	2	1
TCBZX55B 3V6	3.53	3.67	5	85	1	600	2	1
TCBZX55B 3V9	3.82	3.98	5	85	1	600	2	1
TCBZX55B 4V3	4.21	4.39	5	75	1	600	1	1
TCBZX55B 4V7	4.61	4.79	5	60	1	600	0.5	1
TCBZX55B 5V1	5.00	5.20	5	35	1	550	0.1	1
TCBZX55B 5V6	5.49	5.71	5	25	1	450	0.1	1
TCBZX55B 6V2	6.08	6.32	5	10	1	200	0.1	2
TCBZX55B 6V8	6.66	6.94	5	8	1	150	0.1	3
TCBZX55B 7V5	7.33	7.63	5	7	1	50	0.1	5
TCBZX55B 8V2	8.04	8.36	5	7	1	50	0.1	6.2
TCBZX55B 9V1	8.92	9.28	5	10	1	50	0.1	6.8
TCBZX55B 10	9.80	10.20	5	15	1	70	0.1	7.5
TCBZX55B 11	10.78	11.22	5	20	1	70	0.1	8.2
TCBZX55B 12	11.76	12.24	5	20	1	90	0.1	9.1
TCBZX55B 13	12.74	13.26	5	26	1	110	0.1	10
TCBZX55B 15	14.70	15.30	5	30	1	110	0.1	11
TCBZX55B 16	15.68	16.32	5	40	1	170	0.1	12
TCBZX55B 18	17.64	18.36	5	50	1	170	0.1	13
TCBZX55B 20	19.60	20.40	5	55	1	220	0.1	15
TCBZX55B 22	21.56	22.44	5	55	1	220	0.1	16
TCBZX55B 24	23.52	24.48	5	80	1	220	0.1	18
TCBZX55B 27	26.46	27.54	5	80	1	220	0.1	20
TCBZX55B 30	29.40	30.60	5	80	1	220	0.1	22
TCBZX55B 33	32.34	33.66	5	80	1	220	0.1	24
TCBZX55B 36	35.28	36.72	5	80	1	220	0.1	27
TCBZX55B 39	38.22	39.78	2.5	90	0.5	500	0.1	28
TCBZX55B 43	42.14	43.86	2.5	90	0.5	600	0.1	32
TCBZX55B 47	46.06	47.94	2.5	110	0.5	700	0.1	35

Electrical Characteristics

T_A = 25°C unless otherwise noted

Device Type	V_Z @ I_{ZT} (Volts)		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 (Volts)
	Min	Max						
TCBZX55B 51	49.98	52.02	2.5	125	0.5	700	0.1	38
TCBZX55B 56	54.88	57.12	2.5	135	0.5	1000	0.1	42
TCBZX55B 62	60.76	63.24	2.5	150	0.5	1000	0.1	47
TCBZX55B 68	66.64	69.36	2.5	160	0.5	1000	0.1	51
TCBZX55B 75	73.50	76.50	2.5	170	0.5	1000	0.1	56

V_F Forward Voltage = 1.0 V Maximum @ I_F = 100 mA for all types

Notes:

1. TOLERANCE AND VOLTAGE DESIGNATION

The type numbers listed have zener voltage as shown.

2. SPECIALS AVAILABLE INCLUDE

Nominal zener voltages between the voltages shown and tighter voltage, for detailed information on price, availability and delivery, contact you nearest Tak Cheong representative.

3. ZENER VOLTAGE (V_Z) MEASUREMENT

The zener voltage is measured under pulse conditions such that T_J is no more than 2℃ above T_A.

4. ZENER IMPEDANCE (Z_Z) DERIVATION

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}) is superimposed to I_{ZT} .

Typical Characteristics

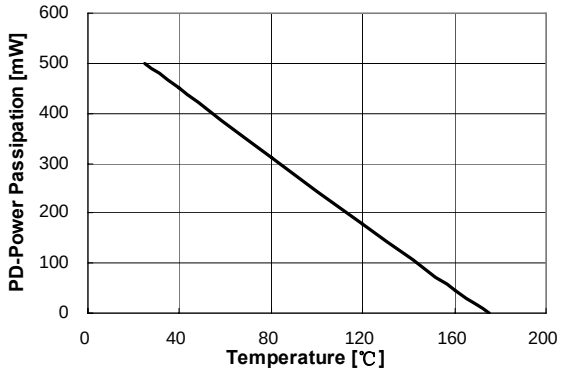


Figure 1. Power Dissipation vs Ambient Temperature
Valid provided leads at a distance of 0.8mm from case are kept at ambient temperature

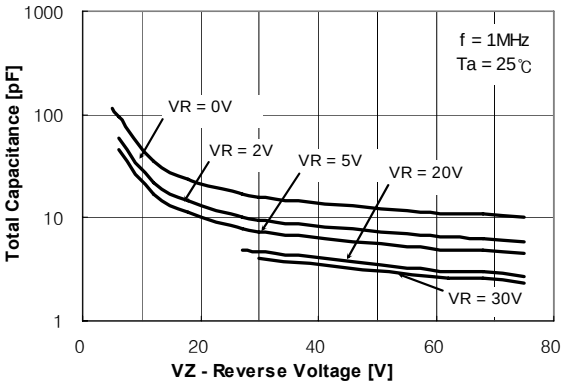


Figure 2. Total Capacitance

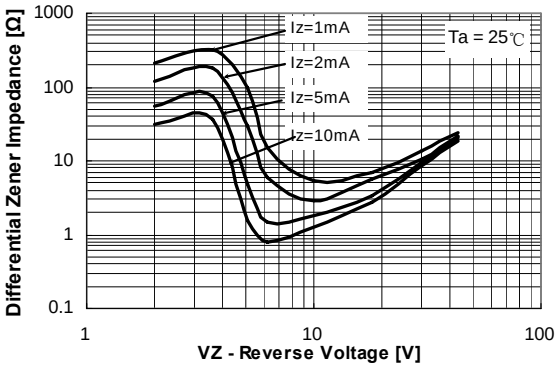


Figure 3. Differential Impedance vs. Zener Voltage

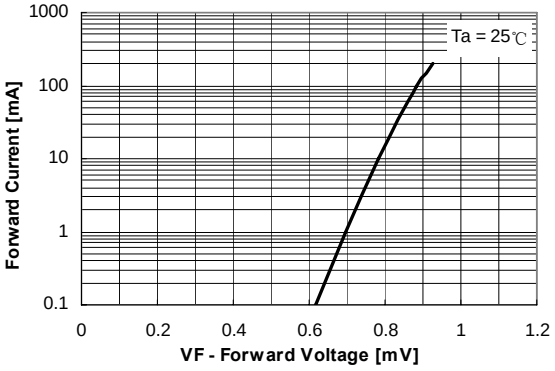


Figure 4. Forward Current vs. Forward Voltage

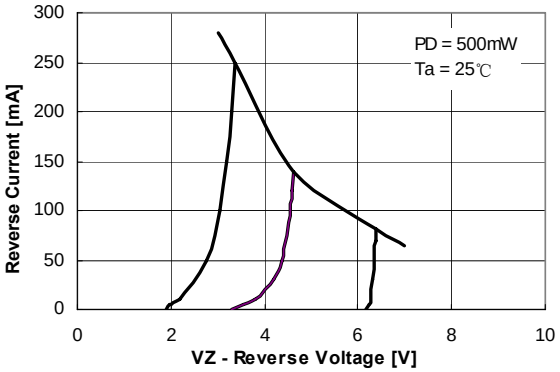


Figure 5. Reverse Current vs. Reverse Voltage

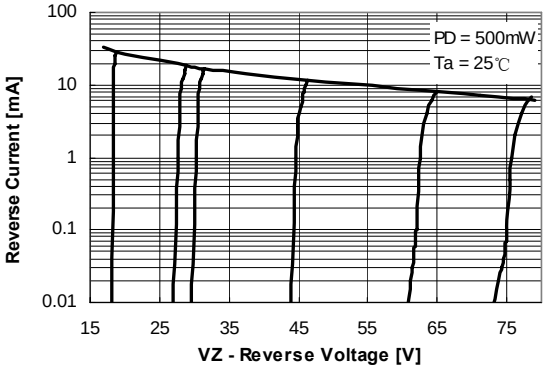
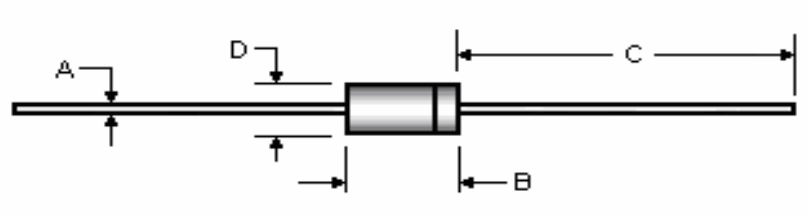


Figure 6. Reverse Current vs. Reverse Voltage

Package Outline

Package	Case Outline

DO-35



DIM	DO-35			
	Millimeters		Inches	
	Min	Max	Min	Max
A	0.46	0.55	0.018	0.022
B	3.05	5.08	0.120	0.200
C	25.40	38.10	1.000	1.500
D	1.53	2.28	0.060	0.090

Notes:

1. All dimensions are within JEDEC standard.
2. DO35 polarity denoted by cathode band.

NOTICE

The information presented in this document is for reference only. Tak Cheong reserves the right to make changes without notice for the specification of the products displayed herein.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Tak Cheong Semiconductor Co., Ltd., or anyone on its behalf, assumes no responsibility or liability for any damagers resulting from such improper use of sale.

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