TAK CHEONG®

SEMICONDUCTOR

500 mW DO-35 Hermetically Sealed Glass Zener Voltage Regulators

AXIAL LEAD
DO35

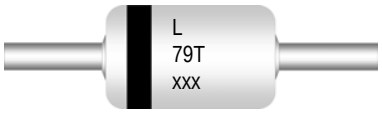
Absolute Maximum Ratings

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 : TCBZX79Txxx
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						
TCBZX79C 2V0	1.88	2.12	5	100	1	600	150	1
TCBZX79C 2V2	2.08	2.33	5	100	1	600	150	1
TCBZX79C 2V4	2.28	2.56	5	100	1	600	100	1
TCBZX79C 2V7	2.51	2.89	5	100	1	600	75	1
TCBZX79C 3V0	2.8	3.2	5	95	1	600	50	1
TCBZX79C 3V3	3.1	3.5	5	95	1	600	25	1
TCBZX79C 3V6	3.4	3.8	5	90	1	600	15	1
TCBZX79C 3V9	3.7	4.1	5	90	1	600	10	1
TCBZX79C 4V3	4	4.6	5	90	1	600	5	1
TCBZX79C 4V7	4.4	5	5	80	1	500	3	2
TCBZX79C 5V1	4.8	5.4	5	60	1	480	2	2
TCBZX79C 5V6	5.2	6	5	40	1	400	1	2
TCBZX79C 6V2	5.8	6.6	5	10	1	150	3	4
TCBZX79C 6V8	6.4	7.2	5	15	1	80	2	4
TCBZX79C 7V5	7	7.9	5	15	1	80	1	5
TCBZX79C 8V2	7.7	8.7	5	15	1	80	0.7	5
TCBZX79C 9V1	8.5	9.6	5	15	1	100	0.5	6
TCBZX79C 10	9.4	10.6	5	20	1	150	0.2	7
TCBZX79C 11	10.4	11.6	5	20	1	150	0.1	8
TCBZX79C 12	11.4	12.7	5	25	1	150	0.1	8
TCBZX79C 13	12.4	14.1	5	30	1	170	0.1	8

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						
TCBZX79C 15	13.8	15.6	5	30	1	200	0.05	10.5
TCBZX79C 16	15.3	17.1	5	40	1	200	0.05	11.2
TCBZX79C 18	16.8	19.1	5	45	1	225	0.05	12.6
TCBZX79C 20	18.8	21.2	5	55	1	225	0.05	14
TCBZX79C 22	20.8	23.3	5	55	1	250	0.05	15.4
TCBZX79C 24	22.8	25.6	5	70	1	250	0.05	16.8
TCBZX79C 27	25.1	28.9	2	80	0.5	300	0.05	18.9
TCBZX79C 30	28	32	2	80	0.5	300	0.05	21
TCBZX79C 33	31	35	2	80	0.5	325	0.05	23.1
TCBZX79C 36	34	38	2	90	0.5	350	0.05	25.2
TCBZX79C 39	37	41	2	130	0.5	350	0.05	27.3
TCBZX79C 43	40	46	2	150	0.5	375	0.05	30.1
TCBZX79C 47	44	50	2	170	0.5	375	0.05	32.9
TCBZX79C 51	48	54	2	180	0.5	400	0.05	35.7
TCBZX79C 56	52	60	2	200	0.5	425	0.05	39.2
TCBZX79C 62	58	66	2.5	215	0.5	1000	0.05	43.4
TCBZX79C 68	64	72	2.5	240	0.5	1000	0.05	47.6
TCBZX79C 75	70	80	2.5	255	0.5	1000	0.05	52.5

V_F Forward Voltage = 1.5 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						
TCBZX79B 2V4	2.35	2.45	5	100	1	600	100	1
TCBZX79B 2V7	2.65	2.75	5	100	1	600	75	1
TCBZX79B 3V0	2.94	3.06	5	95	1	600	50	1
TCBZX79B 3V3	3.23	3.37	5	95	1	600	25	1
TCBZX79B 3V6	3.53	3.67	5	90	1	600	15	1
TCBZX79B 3V9	3.82	3.98	5	90	1	600	10	1
TCBZX79B 4V3	4.21	4.39	5	90	1	600	5	1
TCBZX79B 4V7	4.61	4.79	5	80	1	500	3	2
TCBZX79B 5V1	5.00	5.20	5	60	1	480	2	2
TCBZX79B 5V6	5.49	5.71	5	40	1	400	1	2
TCBZX79B 6V2	6.08	6.32	5	10	1	150	3	4
TCBZX79B 6V8	6.66	6.94	5	15	1	80	2	4
TCBZX79B 7V5	7.33	7.63	5	15	1	80	1	5
TCBZX79B 8V2	8.04	8.36	5	15	1	80	0.7	5
TCBZX79B 9V1	8.92	9.28	5	15	1	100	0.5	6
TCBZX79B 10	9.80	10.20	5	20	1	150	0.2	7
TCBZX79B 11	10.78	11.22	5	20	1	150	0.1	8
TCBZX79B 12	11.76	12.24	5	25	1	150	0.1	8
TCBZX79B 13	12.74	13.26	5	30	1	170	0.1	8
TCBZX79B 15	14.70	15.30	5	30	1	200	0.05	10.5
TCBZX79B 16	15.68	16.32	5	40	1	200	0.05	11.2
TCBZX79B 18	17.64	18.36	5	45	1	225	0.05	12.6
TCBZX79B 20	19.60	20.40	5	55	1	225	0.05	14
TCBZX79B 22	21.56	22.44	5	55	1	250	0.05	15.4
TCBZX79B 24	23.52	24.48	5	70	1	250	0.05	16.8
TCBZX79B 27	26.46	27.54	2	80	0.5	300	0.05	18.9
TCBZX79B 30	29.40	30.60	2	80	0.5	300	0.05	21
TCBZX79B 33	32.34	33.66	2	80	0.5	325	0.05	23.1
TCBZX79B 36	35.28	36.72	2	90	0.5	350	0.05	25.2
TCBZX79B 39	38.22	39.78	2	130	0.5	350	0.05	27.3
TCBZX79B 43	42.14	43.86	2	150	0.5	375	0.05	30.1
TCBZX79B 47	46.06	47.94	2	170	0.5	375	0.05	32.9
TCBZX79B 51	49.98	52.02	2	180	0.5	400	0.05	35.7

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						
TCBZX79B 56	54.88	57.12	2	200	0.5	425	0.05	39.2
TCBZX79B 62	60.76	63.24	2.5	215	0.5	430	0.05	43.4
TCBZX79B 68	66.64	69.36	2.5	240	0.5	447	0.05	47.6
TCBZX79B 75	73.50	76.50	2.5	255	0.5	470	0.05	52.5

V_F Forward Voltage = 1.5 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

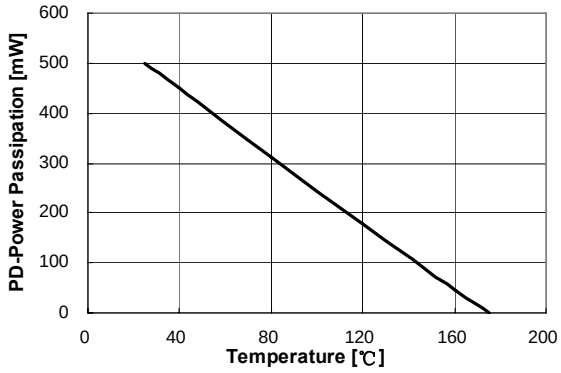


Figure 1. Power Dissipation vs Ambient Temperature
Valid provided leads at a distance of 0.8mm from case are kept at ambient temperature

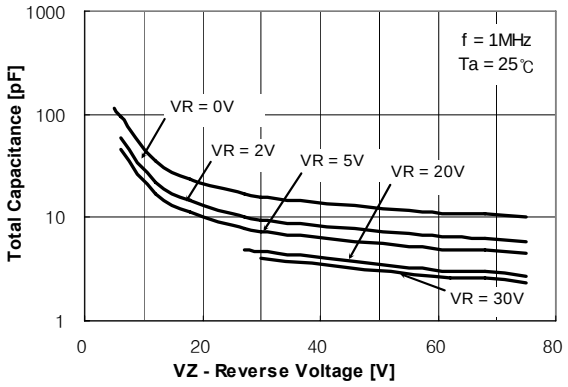


Figure 2. Total Capacitance

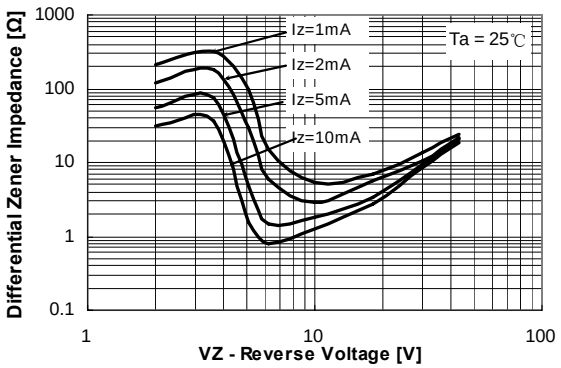


Figure 3. Differential Impedance vs. Zener Voltage

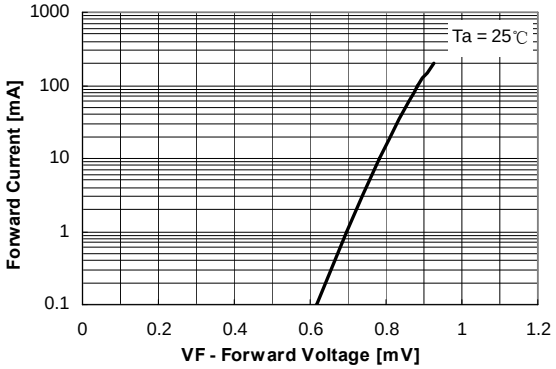


Figure 4. Forward Current vs. Forward Voltage

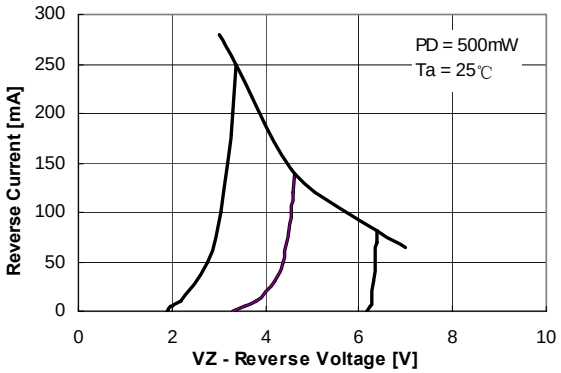


Figure 5. Reverse Current vs. Reverse Voltage

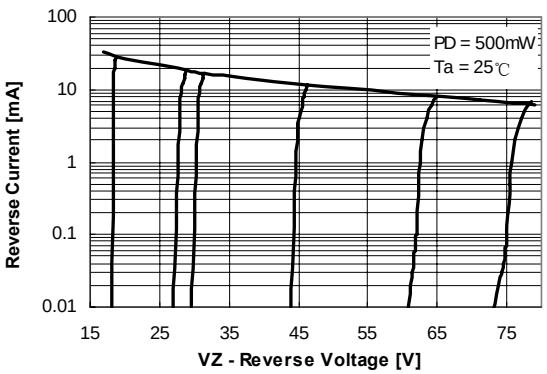
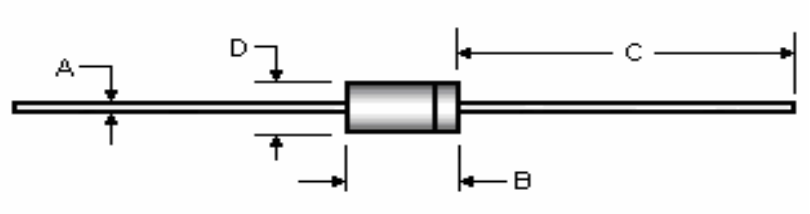


Figure 6. Reverse Current vs. Reverse Voltage

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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