

## 500 mW DO-35 Hermetically Sealed Glass Zener Voltage Regulators



### Maximum Ratings (Note 1)

Rating	Symbol	Value	Units
Maximum Steady State Power Dissipation @TL≤75°C, Lead Length = 3/8"	P <sub>D</sub>	500	mW
Derate Above 75°C		4.0	mW/°C
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +200	°C

Note 1: Some part number series have lower JEDEC registered ratings.

### Specification Features:

- Zener Voltage Range = 6.8V to 100V
- ESD Rating of Class 3 (>6 KV) per Human Body Model
- DO-35 Package (DO-204AH)
- Double Slug Type Construction
- Metallurgical Bonded Construction
- RoHS Compliant
- Solder Hot Dip Tin (Sn) Lead Finish

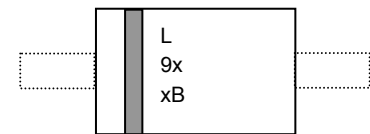
### Specification Features:

**Case** : Double slug type, hermetically sealed glass

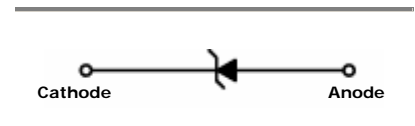
**Finish** : All external surfaces are corrosion resistant and leads are readily solderable

**Polarity** : Cathode indicated by polarity band

**Mounting:** Any



L = Logo  
 9xxB = 1N9xxB Device Code



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

Device (Note 2.)	Device Marking	Zener Voltage (Note 3.)				Zener Impedance (Note 4.)			Leakage Current		$I_{ZM}$ (Note 5.)
		$V_Z$ (Volts)			$@I_{ZT}$	$Z_{ZT}$ @ $I_{ZT}$	$Z_{ZK}$ @ $I_{ZK}$		IR @VR = 1V		
		Min	Nom	Max	(mA)	( $\Omega$ )	( $\Omega$ )	(mA)	( $\mu\text{A}$ )	(Volts)	
1N957B	1N957B	6.460	6.8	7.140	18.5	4.5	700	1	150	5.2	47
1N958B	1N958B	7.125	7.5	8.875	16.5	5.5	700	0.5	75	5.7	42
1N959B	1N959B	7.790	8.2	8.610	15	6.5	700	0.5	50	6.2	38
1N960B	1N960B	8.645	9.1	9.555	14	7.5	700	0.5	25	6.9	35
1N961B	1N961B	9.500	10	10.500	12.5	8.5	700	0.25	10	7.6	32
1N962B	1N962B	10.45	11	11.55	11.5	9.5	700	0.25	5	8.4	28
1N963B	1N963B	11.40	12	12.60	10.5	11.5	700	0.25	5	9.1	26
1N964B	1N964B	12.35	13	13.65	9.5	13	700	0.25	5	9.9	24
1N965B	1N965B	14.25	15	15.75	8.5	16	700	0.25	5	11.4	21
1N966B	1N966B	15.20	16	16.8	7.8	17	700	0.25	5	12.2	19
1N967B	1N967B	17.10	18	18.90	7	21	750	0.25	5	13.7	17
1N968B	1N968B	19.00	20	21.00	6.2	25	750	0.25	5	15.2	15
1N969B	1N969B	20.90	22	23.10	5.6	29	750	0.25	5	16.7	14
1N970B	1N970B	22.80	24	25.20	5.2	33	750	0.25	5	18.2	13
1N971B	1N971B	25.65	27	28.35	4.6	41	750	0.25	5	20.6	11
1N972B	1N972B	28.50	30	31.50	4.2	49	1000	0.25	5	22.8	10
1N973B	1N973B	31.35	33	34.65	3.8	58	1000	0.25	5	25.1	9.2
1N974B	1N974B	34.20	36	37.80	3.4	70	1000	0.25	5	27.4	8.5
1N975B	1N975B	37.05	39	40.95	3.2	80	1000	0.25	5	29.7	7.8
1N976B	1N976B	40.85	43	45.15	3.0	93	1500	0.25	5	32.7	7
1N977B	1N977B	44.65	47	49.35	2.7	105	1500	0.25	5	35.8	6.4
1N978B	1N978B	48.45	51	53.55	2.5	125	1500	0.25	5	38.8	5.9
1N979B	1N979B	53.20	56	58.80	2.2	150	2000	0.25	5	42.6	5.4
1N980B	1N980B	58.90	62	65.10	2.0	185	2000	0.25	5	47.1	4.9
1N981B	1N981B	64.60	68	71.40	1.8	230	2000	0.25	5	51.7	4.5
1N982B	1N982B	71.25	75	78.75	1.7	270	2000	0.25	5	56.0	4.1
1N983B	1N983B	77.90	82	85.10	1.5	330	3000	0.25	5	62.2	3.7
1N984B	1N984B	86.45	91	95.55	1.4	400	3000	0.25	5	69.2	3.3
1N985B	1N985B	95.00	100	105.0	1.3	500	3000	0.25	5	76.0	3.0
1N986B	1N986B	104.5	110	115.5	1.1	750	4000	0.25	5	83.6	2.7
1N987B	1N987B	114.0	120	126.0	1	900	4500	0.25	5	91.2	2.5
1N988B	1N988B	123.5	130	136.5	0.95	1100	5000	0.25	5	98.8	2.3
1N989B	1N989B	142.5	150	157.5	0.85	1500	6000	0.25	5	114.0	2.0
1N990B	1N990B	152.0	160	168.5	0.80	1700	6500	0.25	5	121.6	1.9
1N991B	1N991B	171.0	180	189.5	0.68	2200	7100	0.25	5	136.8	1.7
1N992B	1N992B	190.0	200	210.0	0.65	2500	8000	0.25	5	152.0	1.5

VF Forward Voltage = 1.5V max @  $I_F = 200\text{mA}$  for all types

**2. TOLERANCE AND VOLTAGE DESIGNATION**

The type numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ .

**3. ZENER VOLTAGE ( $V_Z$ ) MEASUREMENT**

The zener voltage ( $V_Z$ ) is tested under pulse condition. The measured  $V_Z$  is guaranteed to be within specification with device junction in thermal equilibrium.

**4. ZENER IMPEDANCE ( $Z_Z$ ) DERIVATION**

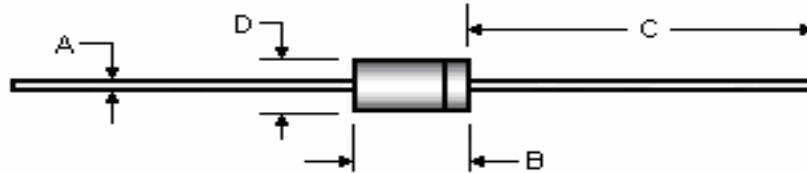
$Z_{ZT}$  and  $Z_{ZK}$  are measured by dividing the AC voltage drop across the device by the AC current applied. The specified limits are for  $I_{Z(AC)} = 0.1 I_{Z(DC)}$  with AC frequency = 60Hz.

**5. MAXIMUM ZENER CURRENT RATINGS ( $I_{ZM}$ )**

Values shown are based on the JEDEC rating of 400mW where the actual zener voltage ( $V_Z$ ) is known at the operation point, the zener current may be increased and is limited by the derating curve.

## Package Outline

### Case Outline




DIM	DO-35			
	Millimeters		Inches	
	Min	Max	Min	Max
A	0.46	0.56	0.018	0.022
B	3.05	5.08	0.120	0.200
C	25.40	38.10	1.000	1.500
D	1.52	2.29	0.060	0.090

**Note:** all dimensions are within JEDEC standard.

This datasheet presents technical data of Tak Cheong's Zener Diodes. Complete specifications for the individual devices are provided in the form of datasheets. A comprehensive Selector Guide is included to simplify the task of choosing the best set of components required for a specific application. For additional information, please visit our website <http://www.takcheong.com>.

Although information in this datasheet has been carefully checked, no responsibility for the inaccuracies can be assumed by Tak Cheong. Please consult your nearest Tak Cheong's sales office for further assistance.

Tak Cheong reserves the right to make changes without further notice to any products herein to further improve reliability, function or design, cost and productivity.

**TAK CHEONG**® and  are registered trademarks of Tak Cheong Electronics (Holdings) Co., Ltd.