

500 mW DO-35 Hermetically Sealed Glass Zener Voltage Regulators

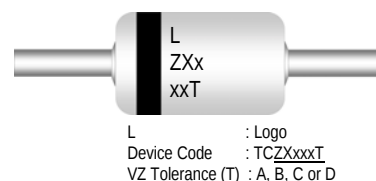


Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Parameter	Value	Units
Power Dissipation	500	mW
Storage Temperature Range	-65 to +200	$^\circ\text{C}$
Operating Junction Temperature	+200	$^\circ\text{C}$
Lead Temperature (1/16" from case for 10 seconds)	+230	$^\circ\text{C}$

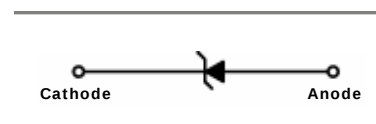
These ratings are limiting values above which the serviceability of the diode may be impaired.

DEVICE MARKING DIAGRAM



Specification Features:

- Zener Voltage Range 2.0 to 39 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
- Cathode indicated by polarity band



ELECTRICAL SYMBOL

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Device Type	VZ Tolerance	VZ@IZT			Izt (mA)	Zzt@Izt (Ohms) Max	Zzk@Izk (Ohms) Max	Izk (mA)	I _R @V _R (uA) Max	V _R (V)
		Min	Nom	Max						
TCZX2V0	A	1.880	1.990	2.100	5	100	1000	0.5	120	0.5
	B	2.020	2.110	2.200						
TCZX2V2	A	2.120	2.210	2.300	5	100	1000	0.5	100	0.7
	B	2.220	2.315	2.410						
TCZX2V4	A	2.330	2.425	2.520	5	100	1000	0.5	120	1.0
	B	2.430	2.530	2.630						
TCZX2V7	A	2.540	2.645	2.750	5	110	1000	0.5	100	1.0
	B	2.690	2.800	2.910						
TCZX3V0	A	2.850	2.960	3.070	5	120	1000	0.5	50	1.0
	B	3.010	3.115	3.220						
TCZX3V3	A	3.160	3.270	3.380	5	120	1000	0.5	20	1.0
	B	3.320	3.425	3.530						
TCZX3V6	A	3.455	3.575	3.695	5	100	1000	1	10	1.0
	B	3.600	3.723	3.845						
TCZX3V9	A	3.740	3.875	4.010	5	100	1000	1	5	1.0
	B	3.890	4.025	4.160						
TCZX4V3	A	4.040	4.165	4.290	5	100	1000	1	5	1.0
	B	4.170	4.300	4.430						
	C	4.300	4.435	4.570						
TCZX4V7	A	4.44	4.56	4.68	5	80	900	1	5	1.0
	B	4.55	4.68	4.80						
	C	4.68	4.81	4.93						
TCZX5V1	A	4.81	4.94	5.07	5	80	800	1	5	1.5
	B	4.94	5.07	5.20						
	C	5.09	5.23	5.37						

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Device Type	T Tolerance	V _Z @I _{ZT}			I _{ZT} (mA)	Z _{zt} @I _{ZT} (Ohms) Max	Z _{zk} @I _{ZK} (Ohms) Max	I _{ZK} (mA)	I _R @V _R (μ A) Max	V _R (V)
		Min	Nom	Max						
TCZX5V6	A	5.28	5.41	5.55	5	60	500	1	5	2.5
	B	5.45	5.59	5.73						
	C	5.61	5.76	5.91						
TCZX6V2	A	5.78	5.94	6.09	5	60	300	1	5	3.0
	B	5.96	6.12	6.27						
	C	6.12	6.28	6.44						
TCZX6V8	A	6.29	6.46	6.63	5	20	150	0.5	2	3.5
	B	6.49	6.66	6.83						
	C	6.66	6.84	7.01						
TCZX7V5	A	6.85	7.04	7.22	5	20	120	0.5	0.5	4.0
	B	7.07	7.26	7.45						
	C	7.29	7.48	7.67						
TCZX8V2	A	7.53	7.73	7.92	5	20	120	0.5	0.5	5.0
	B	7.78	7.99	8.19						
	C	8.03	8.24	8.45						
TCZX9V1	A	8.29	8.51	8.73	5	25	120	0.5	0.5	6.0
	B	8.57	8.79	9.01						
	C	8.83	9.07	9.30						
TCZX10V	A	9.12	9.36	9.59	5	30	120	0.5	0.2	7.0
	B	9.41	9.66	9.90						
	C	9.70	9.95	10.20						
	D	9.94	10.19	10.44						
TCZX11V	A	10.18	10.45	10.71	5	30	120	0.5	0.2	8.0
	B	10.50	10.78	11.05						
	C	10.82	11.10	11.38						
TCZX12V	A	11.13	11.42	11.71	5	30	110	0.5	0.2	9.0
	B	11.44	11.74	12.03						
	C	11.74	12.05	12.35						
TCZX13V	A	12.11	12.43	12.75	5	35	110	0.5	0.2	10
	B	12.55	12.88	13.21						
	C	12.99	13.33	13.66						
TCZX15V	A	13.44	13.79	14.13	5	40	110	0.5	0.2	11
	B	13.89	14.26	14.62						
	C	14.35	14.72	15.09						
TCZX16V	A	14.80	15.19	15.57	5	40	150	0.5	0.2	12
	B	15.25	15.65	16.04						
	C	15.69	16.10	16.51						
TCZX18V	A	16.22	16.64	17.06	5	45	150	0.5	0.2	13
	B	16.82	17.26	17.70						
	C	17.42	17.88	18.33						
TCZX20V	A	18.02	18.49	18.96	5	55	200	0.5	0.2	15
	B	18.63	19.11	19.59						
	C	19.23	19.73	20.22						
	D	19.72	20.22	20.72						
TCZX22V	A	20.15	21.68	21.20	5	30	200	0.5	0.2	17
	B	20.64	21.18	21.71						
	C	21.08	21.63	22.17						
	D	21.52	22.08	22.63						
TCZX24V	A	22.05	22.62	23.18	5	35	200	0.5	0.2	19
	B	22.61	23.19	23.77						
	C	23.12	23.72	24.31						
	D	23.63	24.24	24.85						
TCZX27V	A	24.26	24.89	25.52	5	45	250	0.5	0.2	21
	B	24.97	25.62	26.26						
	C	25.63	26.29	26.95						
	D	26.29	26.97	27.64						
TCZX30V	A	26.99	27.69	28.39	5	55	250	0.5	0.2	23
	B	27.70	28.42	29.13						
	C	28.36	29.09	29.82						
	D	29.02	29.77	30.51						

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Device Type	T Tolerance	V _Z @I _{ZT}			I _{ZT} (mA)	Z _{zt} @I _{ZT} (Ohms) Max	Z _{zk} @I _{Zk} (Ohms) Max	I _{zk} (mA)	I _R @V _R (μ A) Max	V _R (V)
		Min	Nom	Max						
TCZX33V	A	29.68	30.45	31.22	5	65	250	0.5	0.2	25
	B	30.32	31.10	31.88						
	C	30.90	31.70	32.50						
	D	31.49	32.30	33.11						
TCZX36V	A	32.14	32.97	33.79	5	75	250	0.5	0.2	27
	B	32.79	33.64	34.49						
	C	33.40	34.27	35.13						
	D	34.01	34.89	35.77						
TCZX39V	A	34.68	35.58	36.47	5	85	250	0.5	0.2	30
	B	35.36	36.28	37.19						
	C	36.00	36.93	37.85						
	D	36.63	37.58	38.52						

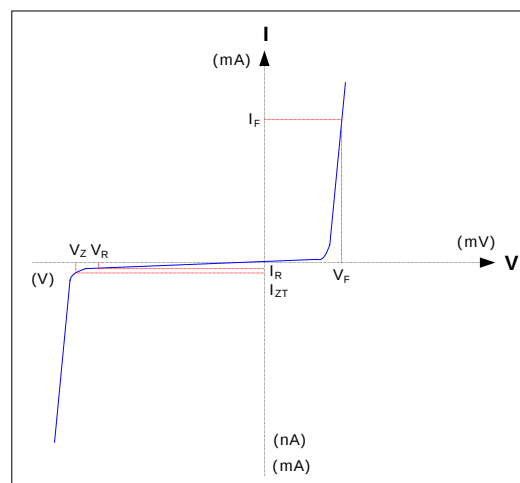
V_F (forward voltage) = 1.2 V maximum @ I_F = 200mA for all types

Note:

1. The zener voltage subdivision (V_Z) is measured 40mS after diode is powered up.
2. The operating resistance (Z_{zt} and Z_{zk}) is measured by superimposing a minute alternation current in the regulated current (I_Z).
3. When ordering, please specify tolerance A, B, C or D.

Electrical Symbol Definition

Symbol	Parameter
V _Z	Reverse Zener Voltage @ I _{ZT}
I _{ZT}	Reverse Current
Z _{ZT}	Maximum Zener Impedance @ I _{ZT}
I _{ZK}	Reverse Current
Z _{ZK}	Maximum Zener Impedance @ I _{ZK}
I _R	Reverse Leakage Current @ V _R
V _R	Breakdown Voltage
I _F	Forward Current
V _F	Forward Voltage @ I _F

Typical Characteristics

Ordering Information

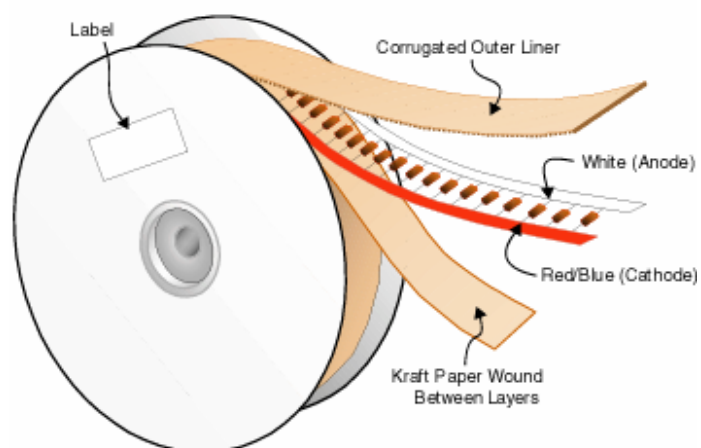
Device	Package	Quantity
TCZXxxx	Bulk	10,000
TCZXxxx.TB	Tape and Ammo (52mm)	5,000
TCZXxxx.TR	Tape and Reel	10,000
TCZXxxx.T26B	Tape and Ammo (26mm)	5,000
TCZXxxx	Others (...contact Tak Cheong sales representatives)	

Axial-Lead Tape Packaging Standards

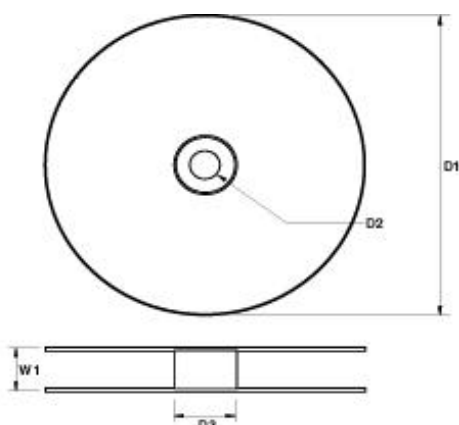
This axial-lead component's packaging requirements use in automatic testing and assembly equipment. And this standard practices for lead-tape packaging of axial-lead components meets the requirements of EIA Standard RS-296-D "Lead-taping of Components on Axial Lead Configuration for Automatic Insertion".

Tape & Reel Packaging Information

Tape & Reel Outline



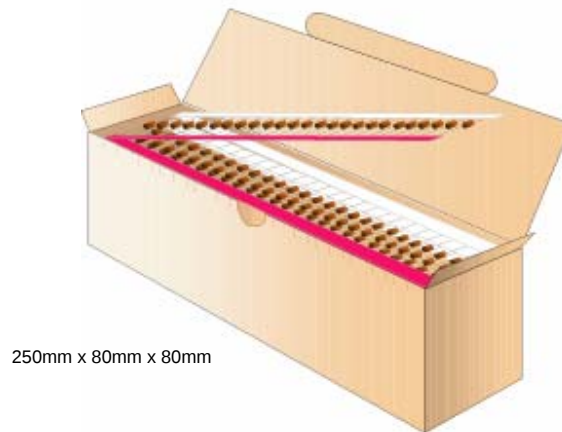
Reel Dimensions



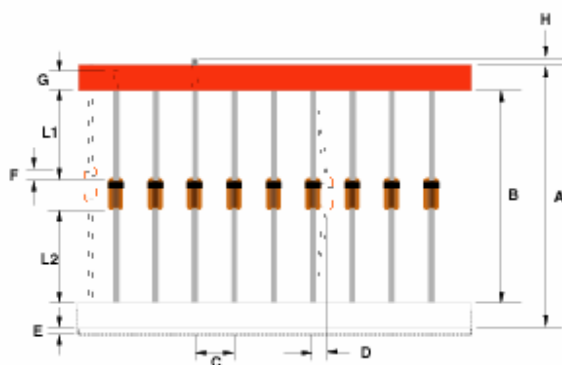
DIM	Millimeters
D1	356
D2	30
D3	84
W1	77.5

Quantity Per Reel

PKG Type	Quantity Per Reel
DO-35	10,000

Tape & Ammo Packaging Information
Tape & Ammo Outline

Quantity Per Ammo Box

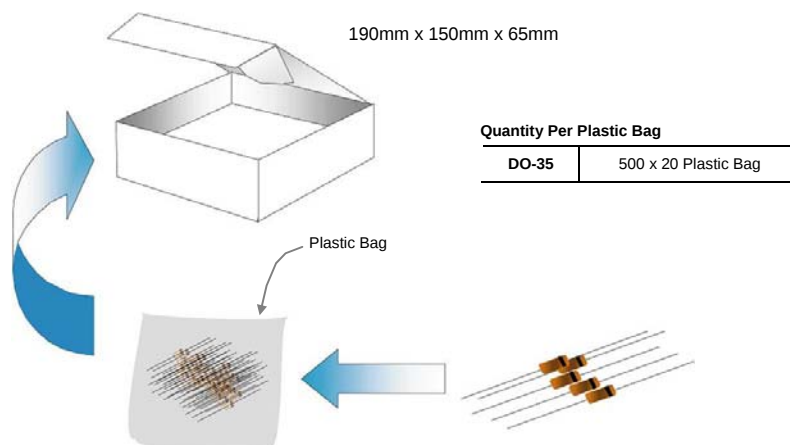
PKG Type	Quantity Per Box
DO-35	5,000

Taping Dimensions


Description	Millimeters	
Standard Width	52	26
Tape Spacing (B)	52 ± 0.69	$26 +0.5 / -0$
Component Pitch (C)	5.08 ± 0.4	5.08 ± 0.4
Untaped Lead (L1 – L2)	± 0.69	± 0.69
Glass Offset (F)	± 0.69	± 0.69
Bent (D)	1.2 Max	1.2 Max
Tape Width (G)	6.138 ± 0.576	6.138 ± 0.576
Tape Mismatch (E)	0.55 Max	0.55 Max
Taped Lead (G)	3.2 Min	3.2 Min
Lead Beyond Tape (H)	0	0

Bulk Packaging Information

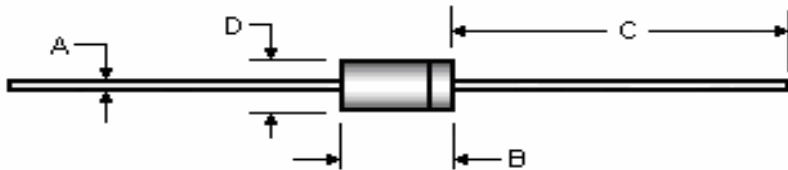
Bulk Outline



Quantity Per Box

PKG Type	Quantity Per Box
DO-35	10,000

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.