



SEMICONDUCTOR

DATA SHEET

ZX2V0~ZX39V Series

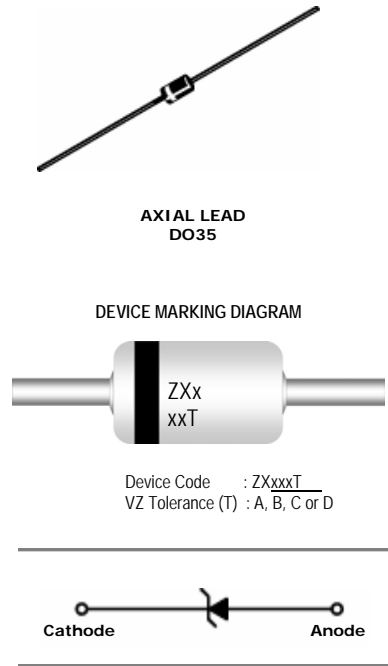


500 mW DO-35 Hermetically Sealed Glass Zener Voltage Regulators

Absolute Maximum Ratings T_A = 25°C unless otherwise noted

Parameter	Value	Units
Power Dissipation	500	mW
Storage Temperature Range	-65 to +200	°C
Operating Junction Temperature	+200	°C
Lead Temperature (1/16" from case for 10 seconds)	+230	°C

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



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 Characteristics T_A = 25°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 (μA) Max	V _R (V)
		Min	Nom	Max						
ZX2V0	A	1.880	1.990	2.100	5	100	1000	0.5	120	0.5
	B	2.020	2.110	2.200						
ZX2V2	A	2.120	2.210	2.300	5	100	1000	0.5	100	0.7
	B	2.220	2.315	2.410						
ZX2V4	A	2.330	2.425	2.520	5	100	1000	0.5	120	1.0
	B	2.430	2.530	2.630						
ZX2V7	A	2.540	2.645	2.750	5	110	1000	0.5	100	1.0
	B	2.690	2.800	2.910						
ZX3V0	A	2.850	2.960	3.070	5	120	1000	0.5	50	1.0
	B	3.010	3.115	3.220						
ZX3V3	A	3.160	3.270	3.380	5	120	1000	0.5	20	1.0
	B	3.320	3.425	3.530						
ZX3V6	A	3.455	3.575	3.695	5	100	1000	1	10	1.0
	B	3.600	3.723	3.845						
ZX3V9	A	3.740	3.875	4.010	5	100	1000	1	5	1.0
	B	3.890	4.025	4.160						
ZX4V3	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						
ZX4V7	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						
ZX5V1	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						

ZX2V0~ZX39V Series

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						
ZX5V6	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						
ZX6V2	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						
ZX6V8	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						
ZX7V5	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						
ZX8V2	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						
ZX9V1	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						
ZX10V	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						
ZX11V	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						
ZX12V	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						
ZX13V	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						
ZX15V	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						
ZX16V	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						
ZX18V	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						
ZX20V	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						
ZX22V	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						
ZX24V	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						
ZX27V	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						
ZX30V	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						

ZX2V0~ZX39V Series

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)	$I_R@V_R$ (μA) Max	V_R (V)
		Min	Nom	Max						
ZX33V	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						
ZX36V	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						
ZX39V	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 @ $I_F = 200\text{mA}$ for all types

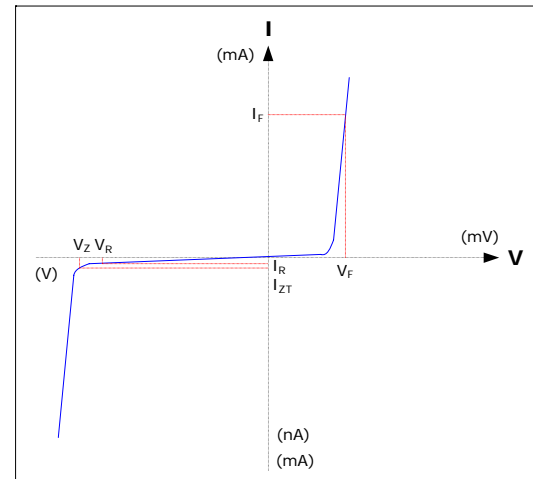
Note:

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



Typical Characteristics

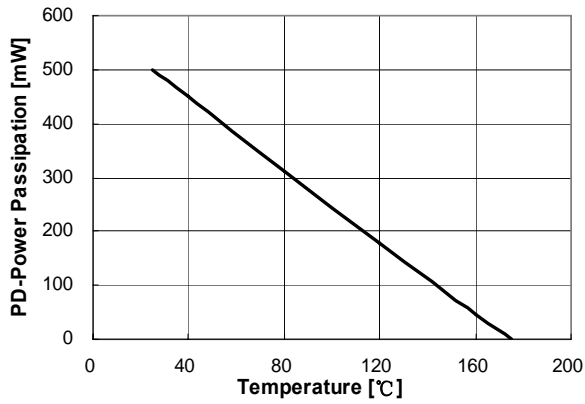


Figure 1. Power Dissipation vs Ambient Temperature
Valid provided leads at a distance of 0.8mm from case are kept at ambient temperature

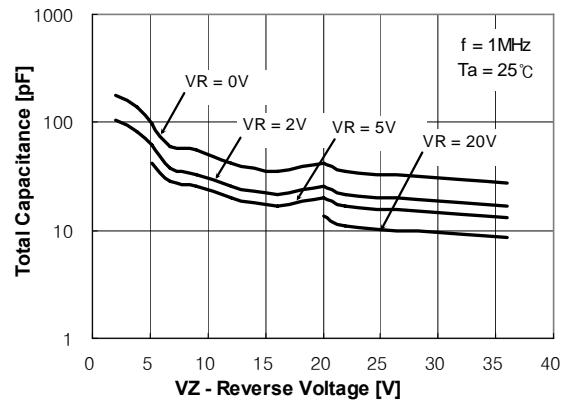


Figure 2. Total Capacitance

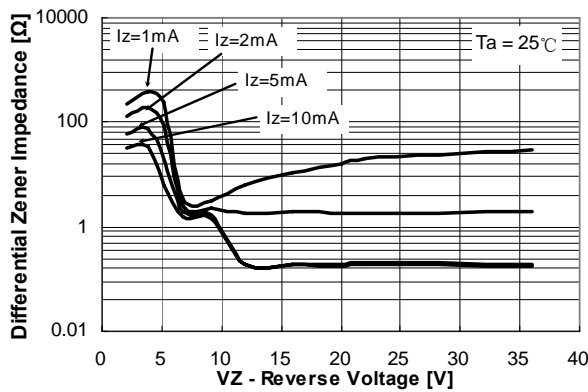


Figure 3. Differential Impedance vs. Zener Voltage

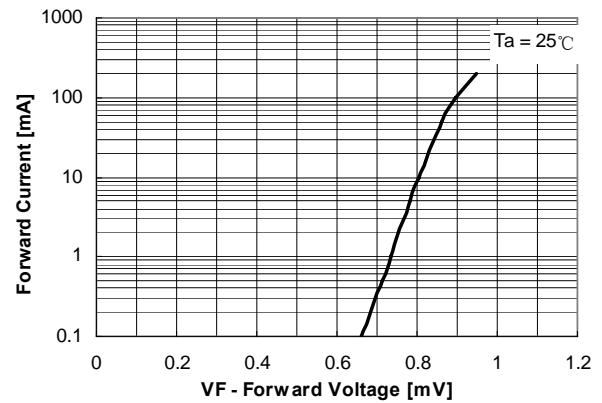


Figure 4. Forward Current vs. Forward Voltage

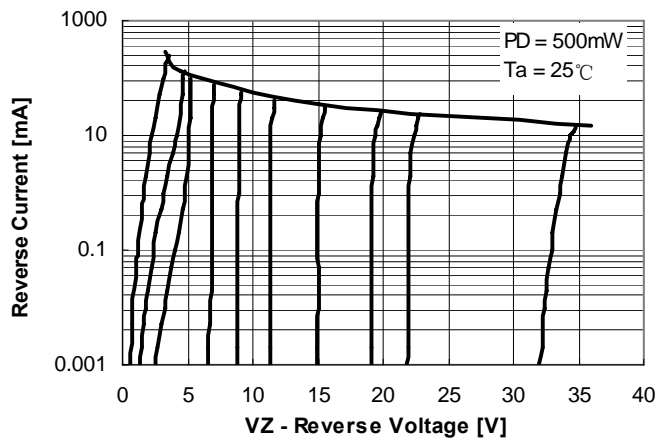
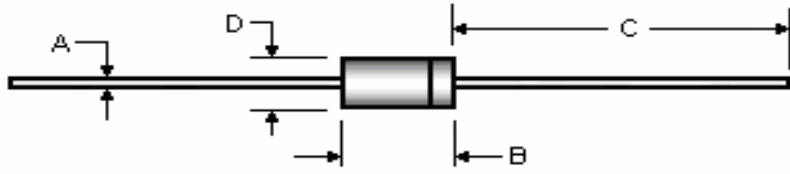


Figure 5. Reverse Current vs. Reverse Voltage

PACKAGE OUTLINE & DIMENSIONS

ZX2V0~ZX39V Series

Package Outline

Package	Case Outline				
DO-35					
	DO-35				
	DIM	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.