

500 mW DO-34 Hermetically Sealed Glass Zener Voltage Regulators



AXIAL LEAD
DO34

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

Parameter	Value	Units
Power Dissipation	500	mW
Storage Temperature Range	-65 to +175	$^\circ\text{C}$
Operating Junction Temperature	+175	$^\circ\text{C}$
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



L =Tak Cheong Logo
xxx =Device Code TCMTZJxxx
T (tolerance) =A, B, C or D
Band color =Black

Specification Features:

- Zener Voltage Range 2.0 to 39 Volts
- DO-34 Package (JEDEC DO-204)
- Through-Hole Device Type Mounting
- Hermetically Sealed Glass
- Compression Bonded Construction
- All External Surfaces Are Corrosion Resistant And Lads Are Readily Solderable
- RoHS Compliant
- Solder Hot Dip Tin (Sn) Terminal Finish
- Cathode Indicated By Polarity Band



ELECTRICAL SYMBOL

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

Device Type	T 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						
TCMTZJ2V0	A	5.5%	1.880	1.990	2.100	5	100	1000	0.5	120	0.5
	B	4.3%	2.020	2.110	2.200						
TCMTZJ2V2	A	4.0%	2.120	2.210	2.300	5	100	1000	0.5	100	0.7
	B	4.1%	2.220	2.315	2.410						
TCMTZJ2V4	A	3.9%	2.330	2.425	2.520	5	100	1000	0.5	120	1.0
	B	4.0%	2.430	2.530	2.630						
TCMTZJ2V7	A	4.0%	2.540	2.645	2.750	5	110	1000	0.5	100	1.0
	B	3.9%	2.690	2.800	2.910						
TCMTZJ3V0	A	3.7%	2.850	2.960	3.070	5	120	1000	0.5	50	1.0
	B	3.4%	3.010	3.115	3.220						
TCMTZJ3V3	A	3.4%	3.160	3.270	3.380	5	120	1000	0.5	20	1.0
	B	3.1%	3.320	3.425	3.530						
TCMTZJ3V6	A	3.6%	3.455	3.575	3.695	5	100	1000	1	10	1.0
	B	3.3%	3.600	3.723	3.845						
TCMTZJ3V9	A	3.5%	3.740	3.875	4.010	5	100	1000	1	5	1.0
	B	3.3%	3.890	4.025	4.160						
TCMTZJ4V3	A	3.0%	4.040	4.165	4.290	5	100	1000	1	5	1.0
	B	3.0%	4.170	4.300	4.430						
	C	3.0%	4.300	4.435	4.570						

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 (uA) Max	V _R (V)
			Min	Nom	Max						
TCMTZJ4V7	A	2.6%	4.44	4.56	4.68	5	80	900	1	5	1.0
	B	2.8%	4.55	4.68	4.80						
	C	2.7%	4.68	4.81	4.93						
TCMTZJ5V1	A	2.6%	4.81	4.94	5.07	5	80	800	1	5	1.5
	B	2.6%	4.94	5.07	5.20						
	C	2.7%	5.09	5.23	5.37						
TCMTZJ5V6	A	2.4%	5.28	5.41	5.55	5	60	500	1	5	2.5
	B	2.5%	5.45	5.59	5.73						
	C	2.6%	5.61	5.76	5.91						
TCMTZJ6V2	A	2.7%	5.78	5.94	6.09	5	60	300	1	5	3.0
	B	2.6%	5.96	6.12	6.27						
	C	2.5%	6.12	6.28	6.44						
TCMTZJ6V8	A	2.6%	6.29	6.46	6.63	5	20	150	0.5	2	3.5
	B	2.6%	6.49	6.66	6.83						
	C	2.6%	6.66	6.84	7.01						
TCMTZJ7V5	A	2.7%	6.85	7.04	7.22	5	20	120	0.5	0.5	4.0
	B	2.6%	7.07	7.26	7.45						
	C	2.5%	7.29	7.48	7.67						
TCMTZJ8V2	A	2.6%	7.53	7.73	7.92	5	20	120	0.5	0.5	5.0
	B	2.6%	7.78	7.99	8.19						
	C	2.5%	8.03	8.24	8.45						
TCMTZJ9V1	A	2.6%	8.29	8.51	8.73	5	25	120	0.5	0.5	6.0
	B	2.5%	8.57	8.79	9.01						
	C	2.6%	8.83	9.07	9.30						
TCMTZJ10V	A	2.6%	9.12	9.36	9.59	5	30	120	0.5	0.2	7.0
	B	2.6%	9.41	9.66	9.90						
	C	2.5%	9.70	9.95	10.20						
	D	2.5%	9.94	10.19	10.44						
TCMTZJ11V	A	2.6%	10.18	10.45	10.71	5	30	120	0.5	0.2	8.0
	B	2.6%	10.50	10.78	11.05						
	C	2.5%	10.82	11.10	11.38						
TCMTZJ12V	A	2.5%	11.13	11.42	11.71	5	30	110	0.5	0.2	9.0
	B	2.6%	11.44	11.74	12.03						
	C	2.6%	11.74	12.05	12.35						
TCMTZJ13V	A	2.6%	12.11	12.43	12.75	5	35	110	0.5	0.2	10
	B	2.6%	12.55	12.88	13.21						
	C	2.6%	12.99	13.33	13.66						
TCMTZJ15V	A	2.5%	13.44	13.79	14.13	5	40	110	0.5	0.2	11
	B	2.6%	13.89	14.26	14.62						
	C	2.5%	14.35	14.72	15.09						
TCMTZJ16V	A	2.6%	14.80	15.19	15.57	5	40	150	0.5	0.2	12
	B	2.6%	15.25	15.65	16.04						
	C	2.5%	15.69	16.10	16.51						
TCMTZJ18V	A	2.5%	16.22	16.64	17.06	5	45	150	0.5	0.2	13
	B	2.5%	16.82	17.26	17.70						
	C	2.6%	17.42	17.88	18.33						
TCMTZJ20V	A	2.5%	18.02	18.49	18.96	5	55	200	0.5	0.2	15
	B	2.5%	18.63	19.11	19.59						
	C	2.5%	19.23	19.73	20.22						
	D	2.5%	19.72	20.22	20.72						

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 (uA) Max	V _R (V)
			Min	Nom	Max						
TCMTZJ22V	A	2.2%	20.15	20.68	21.20	5	30	200	0.5	0.2	17
	B	2.5%	20.64	21.18	21.71						
	C	2.5%	21.08	21.63	22.17						
	D	2.5%	21.52	22.08	22.63						
TCMTZJ24V	A	2.5%	22.05	22.62	23.18	5	35	200	0.5	0.2	19
	B	2.5%	22.61	23.19	23.77						
	C	2.5%	23.12	23.72	24.31						
	D	2.5%	23.63	24.24	24.85						
TCMTZJ27V	A	2.5%	24.26	24.89	25.52	5	45	250	0.5	0.2	21
	B	2.5%	24.97	25.62	26.26						
	C	2.5%	25.63	26.29	26.95						
	D	2.5%	26.29	26.97	27.64						
TCMTZJ30V	A	2.5%	26.99	27.69	28.39	5	55	250	0.5	0.2	23
	B	2.5%	27.70	28.42	29.13						
	C	2.5%	28.36	29.09	29.82						
	D	2.5%	29.02	29.77	30.51						
TCMTZJ33V	A	2.5%	29.68	30.45	31.22	5	65	250	0.5	0.2	25
	B	2.5%	30.32	31.10	31.88						
	C	2.5%	30.90	31.70	32.50						
	D	2.5%	31.49	32.30	33.11						
TCMTZJ36V	A	2.5%	32.14	32.97	33.79	5	75	250	0.5	0.2	27
	B	2.5%	32.79	33.64	34.49						
	C	2.5%	33.40	34.27	35.13						
	D	2.5%	34.01	34.89	35.77						
TCMTZJ39V	A	2.5%	34.68	35.58	36.47	5	85	250	0.5	0.2	30
	B	2.5%	35.36	36.28	37.19						
	C	2.5%	36.00	36.93	37.85						
	D	2.5%	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.

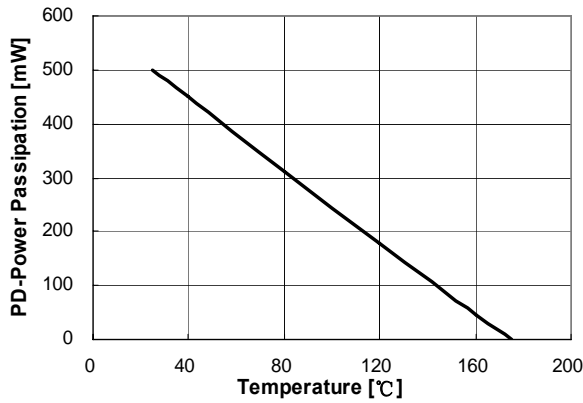
Typical Characteristics


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

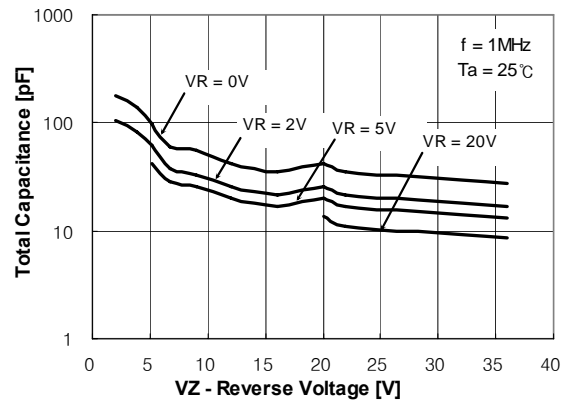


Figure 2. Total Capacitance

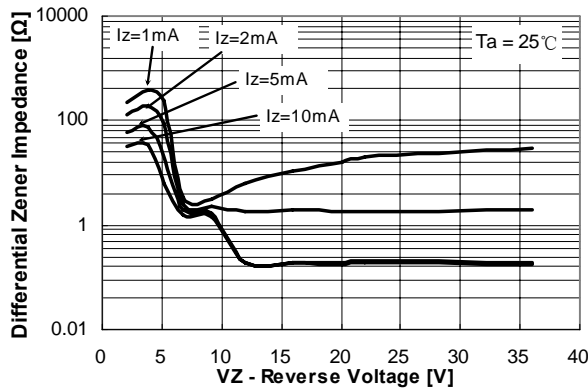


Figure 3. Differential Impedance vs. Zener Voltage

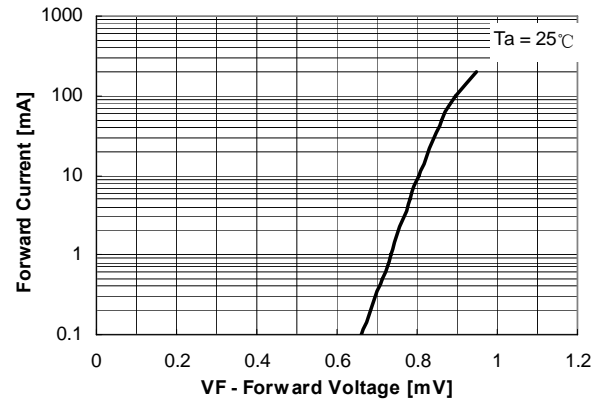


Figure 4. Forward Current vs. Forward Voltage

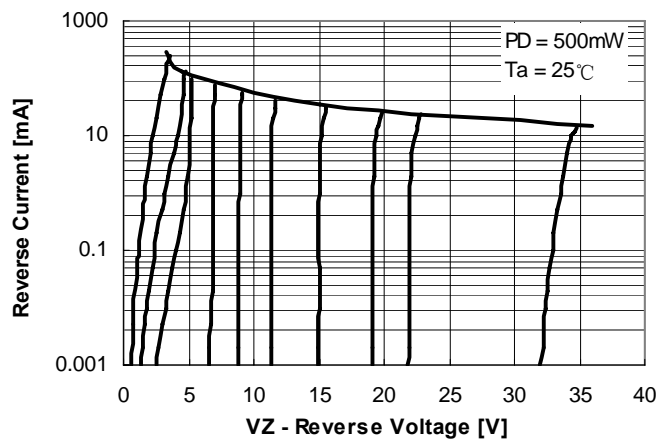
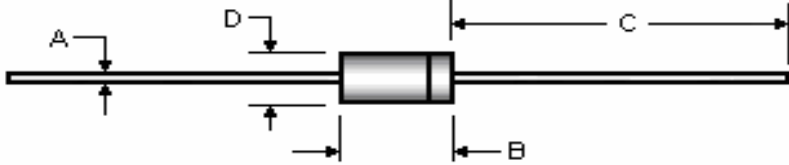


Figure 5. Reverse Current vs. Reverse Voltage

Package Outline

Package	Case Outline																																	
DO-34																																		
	<table border="1"> <thead> <tr> <th data-bbox="379 770 592 815" rowspan="3">Dimension</th> <th colspan="4" data-bbox="592 770 1423 815">DO-34</th> </tr> <tr> <th colspan="2" data-bbox="592 815 1007 875">Millimeters</th> <th colspan="2" data-bbox="1007 815 1423 875">Inches</th> </tr> <tr> <th data-bbox="592 875 799 936">Min</th> <th data-bbox="799 875 1007 936">Max</th> <th data-bbox="1007 875 1214 936">Min</th> <th data-bbox="1214 875 1423 936">Max</th> </tr> </thead> <tbody> <tr> <td data-bbox="379 936 592 987">A</td> <td data-bbox="592 936 799 987">0.46</td> <td data-bbox="799 936 1007 987">0.55</td> <td data-bbox="1007 936 1214 987">0.018</td> <td data-bbox="1214 936 1423 987">.0022</td> </tr> <tr> <td data-bbox="379 987 592 1039">B</td> <td data-bbox="592 987 799 1039">2.16</td> <td data-bbox="799 987 1007 1039">3.04</td> <td data-bbox="1007 987 1214 1039">0.085</td> <td data-bbox="1214 987 1423 1039">0.120</td> </tr> <tr> <td data-bbox="379 1039 592 1090">C</td> <td data-bbox="592 1039 799 1090">25.40</td> <td data-bbox="799 1039 1007 1090">38.10</td> <td data-bbox="1007 1039 1214 1090">1.000</td> <td data-bbox="1214 1039 1423 1090">1.500</td> </tr> <tr> <td data-bbox="379 1090 592 1142">D</td> <td data-bbox="592 1090 799 1142">1.27</td> <td data-bbox="799 1090 1007 1142">1.90</td> <td data-bbox="1007 1090 1214 1142">0.050</td> <td data-bbox="1214 1090 1423 1142">0.075</td> </tr> </tbody> </table>	Dimension	DO-34				Millimeters		Inches		Min	Max	Min	Max	A	0.46	0.55	0.018	.0022	B	2.16	3.04	0.085	0.120	C	25.40	38.10	1.000	1.500	D	1.27	1.90	0.050	0.075
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Note:

- 1.0 All dimensions are within JEDEC standard.
- 2.0 DO-34 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 which 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 damages resulting from such improper use of sale.

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