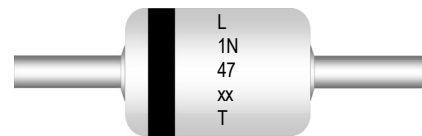


# 1 Watt DO-41 Hermetically Sealed Glass Zener Voltage Regulators


**AXIAL LEAD  
DO41**
**Absolute Maximum Ratings**  $T_A = 25^\circ\text{C}$  unless otherwise noted

Parameter	Value	Units
Storage Temperature Range	-65 to +200	$^\circ\text{C}$
Maximum Junction Operating Temperature	+200	$^\circ\text{C}$
Total Device Dissipation	1.0	Watt
Thermal Resistance Junction to Lead	53.5	$^\circ\text{C} / \text{W}$
Thermal Resistance Junction to Ambient	100	$^\circ\text{C} / \text{W}$

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

**DEVICE MARKING DIAGRAM**


L : Logo  
 Device Code : TC1N47xxT  
 VZ Tolerance (T) : A =  $\pm 5\%$   
 C =  $\pm 2\%$

**Specification Features:**

- Zener Voltage Range 3.3 to 56 Volts
- 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**  $T_A = 25^\circ\text{C}$  unless otherwise noted

Device Type	$V_Z @ I_{ZT}$ (Volts) Nominal	$I_{ZT}$ (mA)	$Z_{ZT} @ I_{ZT}$ ( $\Omega$ ) Max	$I_{ZK}$ (mA)	$Z_{ZK} @ I_{ZK}$ ( $\Omega$ ) Max	$I_R @ V_R$ ( $\mu\text{A}$ ) Max	$V_R$ (Volts)
TC1N4728A	3.3	76	10	1	400	100	1
TC1N4729A	3.6	69	10	1	400	100	1
TC1N4730A	3.9	64	9	1	400	50	1
TC1N4731A	4.3	58	9	1	400	10	1
TC1N4732A	4.7	53	8	1	500	10	1
TC1N4733A	5.1	49	7	1	550	10	1
TC1N4734A	5.6	45	5	1	600	10	2
TC1N4735A	6.2	41	2	1	700	10	3
TC1N4736A	6.8	37	3.5	1	700	10	4
TC1N4737A	7.5	34	4	0.5	700	10	5
TC1N4738A	8.2	31	4.5	0.5	700	10	6
TC1N4739A	9.1	28	5	0.5	700	10	7
TC1N4740A	10	25	7	0.25	700	10	7.6
TC1N4741A	11	23	8	0.25	700	5	8.4
TC1N4742A	12	21	9	0.25	700	5	9.1
TC1N4743A	13	19	10	0.25	700	5	9.9
TC1N4744A	15	17	14	0.25	700	5	11.4


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

Device Type	$V_Z @ I_{ZT}$ (Volts) Nominal	$I_{ZT}$ (mA)	$Z_{ZT} @ I_{ZT}$ ( $\Omega$ ) Max	$I_{ZK}$ (mA)	$Z_{ZK} @ I_{ZK}$ ( $\Omega$ ) Max	$I_R @ V_R$ ( $\mu\text{A}$ ) Max	$V_R$ (Volts)
TC1N4745A	16	15.5	16	0.25	700	5	12.2
TC1N4746A	18	14	20	0.25	700	5	13.7
TC1N4747A	20	12.5	22	0.25	750	5	15.2
TC1N4748A	22	11.5	23	0.25	750	5	16.7
TC1N4749A	24	10.5	25	0.25	750	5	18.2
TC1N4750A	27	9.5	35	0.25	750	5	20.6
TC1N4751A	30	8.5	40	0.25	1000	5	22.8
TC1N4752A	33	7.5	45	0.25	1000	5	25.1
TC1N4753A	36	7	50	0.25	1000	5	27.4
TC1N4754A	39	6.5	60	0.25	1000	5	29.7
TC1N4755A	43	6	70	0.25	1500	5	32.7
TC1N4756A	47	5.5	80	0.25	1500	5	35.8
TC1N4757A	51	5	95	0.25	1500	5	38.8
TC1N4758A	56	4.5	110	0.25	2000	5	42.6

 $V_F$  Forward Voltage = 1.2 V Maximum @  $I_F = 200$  mA for all types

**Notes:**
**1. TOLERANCE AND TYPE NUMBER DESIGNATION ( $V_Z$ )**

The type numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ . Device tolerance of  $\pm 2\%$  is indicated by a "C" instead of an "A".

**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**

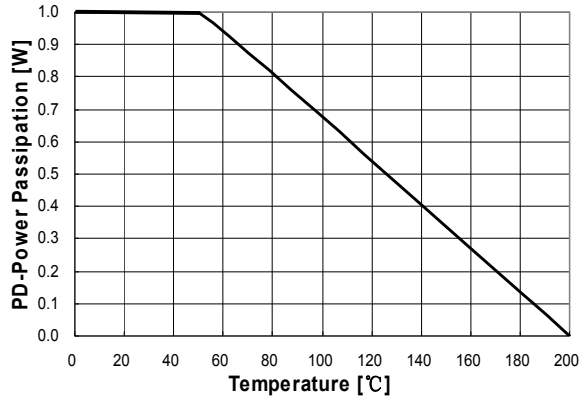
The zener voltage ( $V_Z$ ) is tested under pulse condition.

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

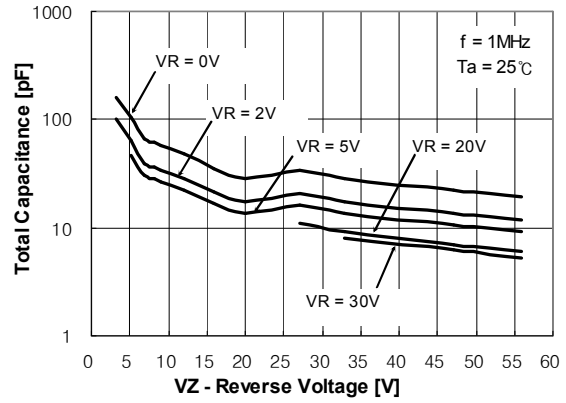
The zener impedance is derived from the 60 cycle AC voltage, which results when an AC current having an RMS value equal to 10% of the DC zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed on  $I_{ZT}$  or  $I_{ZK}$ .



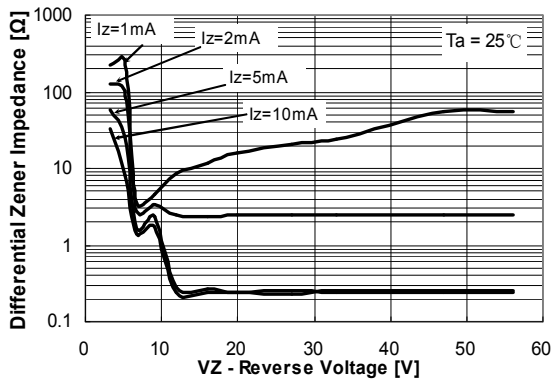
**Typical Characteristics**



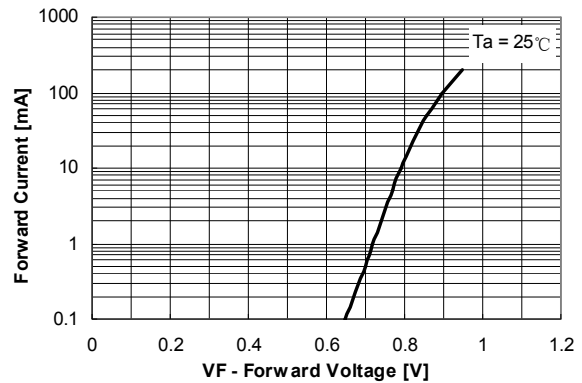
**Figure 1. Power Dissipation vs Ambient Temperature**  
Valid provided leads at a distance of 0.8mm from case are kept at ambient temperature



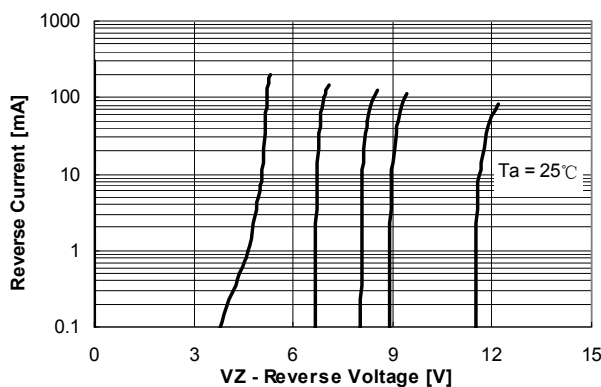
**Figure 2. Total Capacitance**



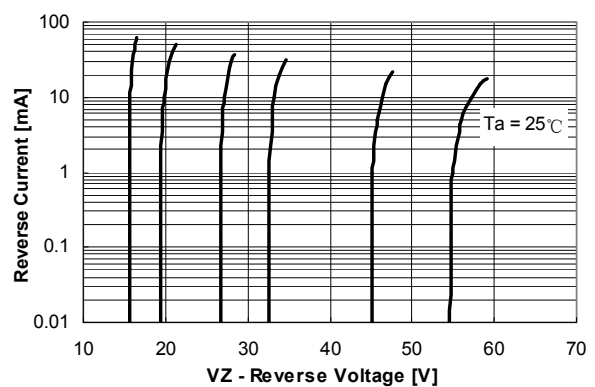
**Figure 3. Differential Impedance vs. Zener Voltage**



**Figure 4. Forward Current vs. Forward Voltage**

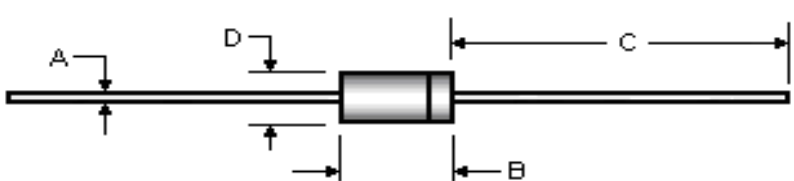


**Figure 5. Reverse Current vs. Reverse Voltage**



**Figure 6. Reverse Current vs. Reverse Voltage**

**Package Outline**

Package	Case Outline				
DO-41					
	<b>D0-41</b>				
	<b>DIM</b>	<b>Millimeters</b>		<b>Inches</b>	
		Min	Max	Min	Max
	<b>A</b>	0.68	0.81	0.027	0.032
	<b>B</b>	3.70	4.25	0.146	0.167
<b>C</b>	25.40	---	1.000	---	
<b>D</b>	2.10	2.60	0.083	0.102	

**Notes:**

- DO41 polarity denoted by cathode band.