



**THE DATASHEET OF  
1N4731A-T**

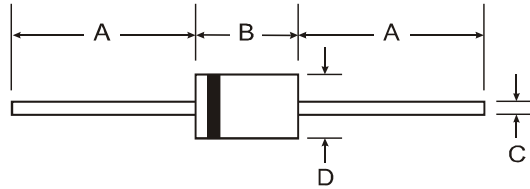


**Features**

- 1.0 Watt Power Dissipation
- 3.3V - 75V Nominal Zener Voltage
- Standard  $V_Z$  Tolerance is 5%
- **Lead Free Finish, RoHS Compliant (Note 2)**

**Mechanical Data**

- Case: DO-41
- Case Material: Glass. UL Flammability Classification Rating 94V-0
- Terminals: Finish — Sn96.5Ag3.5. Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Marking: Type Number
- Weight: 0.35 grams (approximate)



DO-41 Glass		
Dim	Min	Max
A	26.0	—
B	—	4.10
C	—	0.86
D	—	2.60
All Dimensions in mm		

**Maximum Ratings** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Value	Unit
Zener Current (see Table page 2)	$I_Z$	$P_d / V_Z$	mA
Power Dissipation	$P_d$	1.0	W
Derate Above $50^\circ\text{C}$ (Note 1)		6.67	mW/ $^\circ\text{C}$
Thermal Resistance - Junction to Ambient Air	$R_{\theta JA}$	175	$^\circ\text{C}/\text{W}$
Forward Voltage @ $I_F = 200\text{ mA}$	$V_F$	1.2	V
Operating and Storage Temperature Range	$T_i, T_{STG}$	-65 to + 175	$^\circ\text{C}$

- Notes:
1. Valid provided that leads are kept at TL @  $50^\circ\text{C}$  with lead length = 9.5mm (3/8") from case.
  2. EC Directive 2002/95/EC (RoHS) revision 13.2.2003. Glass and high temperature solder exemptions applied where applicable, see *EU Directive Annex Notes 5 and 7*.

## Electrical Characteristics

@T<sub>A</sub> = 25°C unless otherwise specified

Type Number	Nominal Zener Voltage (Note 3)	Test Current	Maximum Zener Impedance (Note 4)			Maximum Reverse Leakage Current		Max Surge Current 8.3ms	Temperature Coefficient @ I <sub>ZT</sub>
	V <sub>Z</sub> @ I <sub>ZT</sub>	I <sub>ZT</sub>	Z <sub>ZT</sub> @ I <sub>ZT</sub>	Z <sub>ZK</sub> @ I <sub>ZK</sub>	I <sub>ZK</sub>	I <sub>R</sub>	@ V <sub>R</sub>	I <sub>ZS</sub>	%/°C
	(V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	(mA)	
1N4728A	3.3	76	10	400	1.0	100	1.0	1380	-0.08 to -0.05
1N4729A	3.6	69	10	400	1.0	100	1.0	1260	-0.08 to -0.05
1N4730A	3.9	64	9.0	400	1.0	50	1.0	1190	-0.07 to -0.02
1N4731A	4.3	58	9.0	400	1.0	10	1.0	1070	-0.07 to -0.01
1N4732A	4.7	53	8.0	500	1.0	10	1.0	970	-0.03 to +0.04
1N4733A	5.1	49	7.0	550	1.0	10	1.0	890	-0.01 to +0.04
1N4734A	5.6	45	5.0	600	1.0	10	2.0	810	0 to +0.045
1N4735A	6.2	41	2.0	700	1.0	10	3.0	730	+0.01 to +0.055
1N4736A	6.8	37	3.5	700	1.0	10	4.0	660	+0.015 to +0.06
1N4737A	7.5	34	4.0	700	0.5	10	5.0	605	+0.02 to +0.065
1N4738A	8.2	31	4.5	700	0.5	10	6.0	550	0.03 to 0.07
1N4739A	9.1	28	5.0	700	0.5	10	7.0	500	0.035 to 0.075
1N4740A	10	25	7.0	700	0.25	10	7.6	454	0.04 to 0.08
1N4741A	11	23	8.0	700	0.25	5.0	8.4	414	0.045 to 0.08
1N4742A	12	21	9.0	700	0.25	5.0	9.1	380	0.045 to 0.085
1N4743A	13	19	10	700	0.25	5.0	9.9	344	0.05 to 0.085
1N4744A	15	17	14	700	0.25	5.0	11.4	304	0.055 to 0.09
1N4745A	16	15.5	16	700	0.25	5.0	12.2	285	0.055 to 0.09
1N4746A	18	14	20	750	0.25	5.0	13.7	250	0.06 to 0.09
1N4747A	20	12.5	22	750	0.25	5.0	15.2	225	0.06 to 0.09
1N4748A	22	11.5	23	750	0.25	5.0	16.7	205	0.06 to 0.095
1N4749A	24	10.5	25	750	0.25	5.0	18.2	190	0.06 to 0.095
1N4750A	27	9.5	35	750	0.25	5.0	20.6	170	0.06 to 0.095
1N4751A	30	8.5	40	1000	0.25	5.0	22.8	150	0.06 to 0.095
1N4752A	33	7.5	45	1000	0.25	5.0	25.1	135	0.06 to 0.095
1N4753A	36	7.0	50	1000	0.25	5.0	27.4	125	0.06 to 0.095
1N4754A	39	6.5	60	1000	0.25	5.0	29.7	115	0.06 to 0.095
1N4755A	43	6.0	70	1500	0.25	5.0	32.7	110	0.06 to 0.095
1N4756A	47	5.5	80	1500	0.25	5.0	35.8	95	0.06 to 0.095
1N4757A	51	5.0	95	1500	0.25	5.0	38.8	90	0.06 to 0.095
1N4758A	56	4.5	110	2000	0.25	5.0	42.6	80	0.06 to 0.095
1N4759A	62	4.0	125	2000	0.25	5.0	47.1	70	0.06 to 0.095
1N4760A	68	3.7	150	2000	0.25	5.0	51.7	65	0.06 to 0.095
1N4761A	75	3.3	175	2000	0.25	5.0	56.0	60	0.06 to 0.095

- Notes:
3. Measured under thermal equilibrium and dc (I<sub>ZT</sub>) test conditions.
  4. The Zener impedance is derived from the 60 Hz ac voltage which results when an ac current having an rms value equal to 10% of the Zener current (I<sub>ZT</sub> or I<sub>ZK</sub>) is superimposed on I<sub>ZT</sub> or I<sub>ZK</sub>. Zener impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.

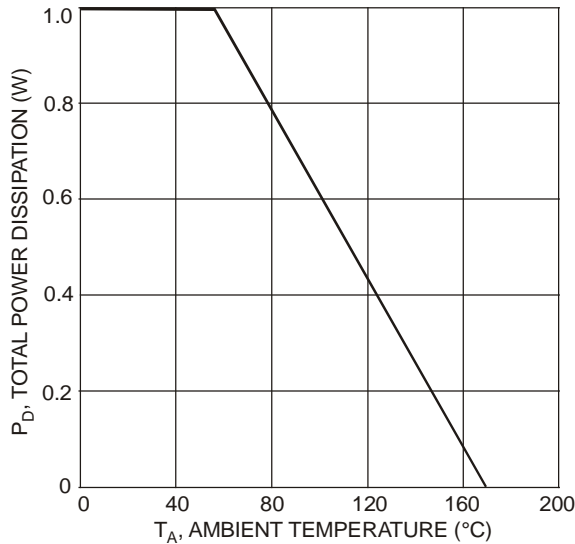


Fig. 1 Power Dissipation vs. Ambient Temperature

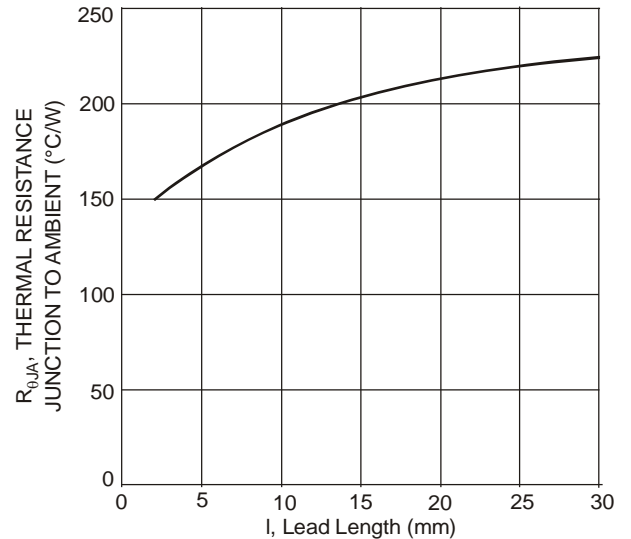


Fig. 2 Typical Thermal Resistance vs. Lead Length

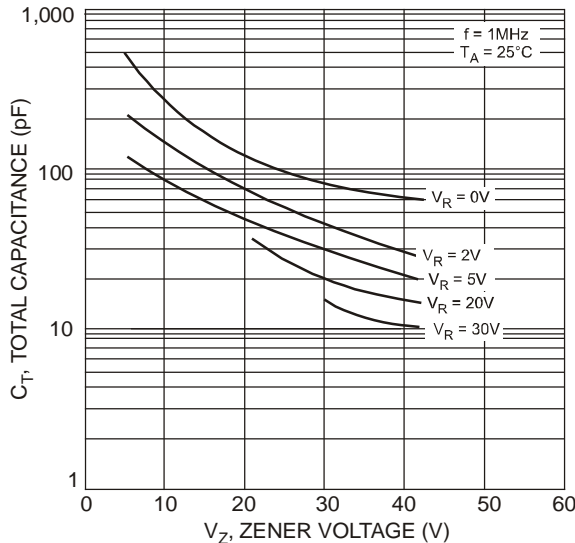


Fig. 3 Typical Total Capacitance vs. Zener Voltage

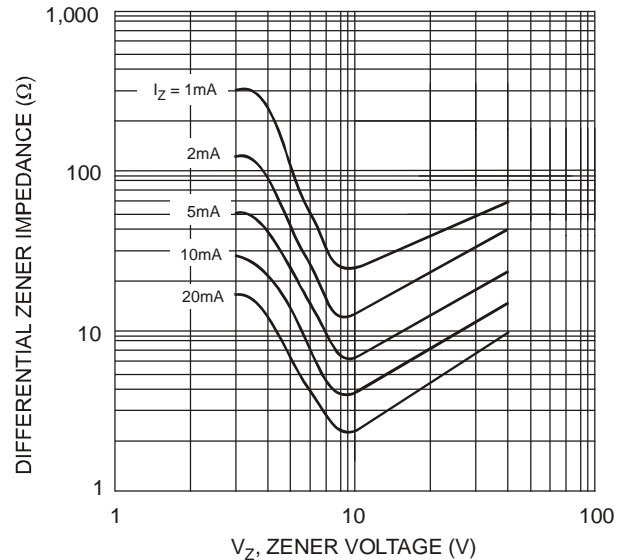


Fig. 4 Typical Zener Impedance vs. Zener Voltage

## Ordering Information (Notes 5 & 6)

Device	Packaging	Shipping
(Type Number)-A*	DO-41 Glass	5K/Ammo Pack
(Type Number)-T*	DO-41 Glass	5K/Tape & Reel

- Notes: 5. \*Add "-A" or "-T" to the appropriate type number in Electrical Characteristics Table. Example: 6.2V Zener = 1N4735A-A for ammo pack.  
6. For packaging details, visit our website at <http://www.diodes.com/datasheets/ap02008.pdf>

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