

Silicon Planar Power Zener Diodes

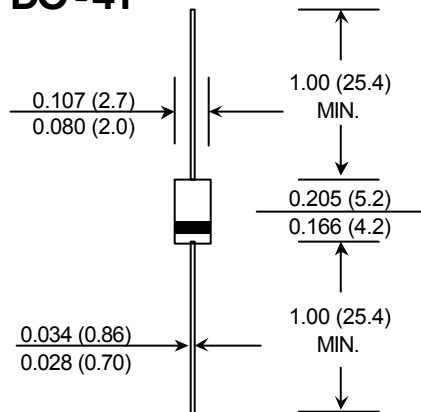
Features:

- * Complete Voltage Range 3.0 to 75 Volts
- * High peak reverse power dissipation
- * High reliability
- * Low leakage current
- * $\pm 5\%$ tolerance

Mechanical Data:

- * Case : DO-41 Molded plastic
- * Epoxy : UL94V-O rate flame retardant
- * Lead : Axial lead solderable per MIL-STD-202, method 208 guaranteed
- * Polarity : Color band denotes cathode end
- * Mounting position : Any
- * Weight : 0.339 gram

DO-41



Dimensions in inches and (millimeters)

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Power Dissipation	P_{tot}	1 ¹⁾	W
Junction Temperature	T_j	200	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 65 to + 200	$^\circ\text{C}$

¹⁾ Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.

Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction to Ambient Air	R_{thA}	170 ¹⁾	K/W
Forward Voltage at $I_F = 200\text{ mA}$	V_F	1.2	V

¹⁾ Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.

Characteristics at $T_a = 25\text{ }^{\circ}\text{C}$

Type	Zener Voltage Range ³⁾				Dynamic Resistance ¹⁾			Reverse Current		Maximum Surge Current ⁴⁾	Maximum Regulator Current ²⁾
	V _{Znom}	V _{ZT}		at I _{ZT}	Z _{ZT}	Z _{ZK}	at I _{ZK}	I _R	at V _R	at T _a = 25 °C	
	(V)	(V)		(mA)	Max.()	Max.()	(mA)	Max.(μA)	(V)	I _{ZSM} (mA)	I _{ZM} (mA)
1N4727A	3	2.85	3.15	83	10	400	1	150	1	1375	275
1N4728A	3.3	3.13	3.47	76	10	400	1	150	1	1375	275
1N4729A	3.6	3.42	3.78	69	10	400	1	100	1	1260	252
1N4730A	3.9	3.7	4.1	64	9	400	1	100	1	1190	234
1N4731A	4.3	4.08	4.52	58	9	400	1	50	1	1070	217
1N4732A	4.7	4.46	4.94	53	8	500	1	10	1	970	193
1N4733A	5.1	4.84	5.36	49	7	550	1	10	1	890	178
1N4734A	5.6	5.32	5.88	45	5	600	1	10	2	810	162
1N4735A	6.2	5.89	6.51	41	2	700	1	10	3	730	146
1N4736A	6.8	6.46	7.14	37	3.5	700	1	10	4	660	133
1N4737A	7.5	7.12	7.88	34	4	700	0.5	10	5	605	121
1N4738A	8.2	7.79	8.61	31	4.5	700	0.5	10	6	550	110
1N4739A	9.1	8.64	9.56	28	5	700	0.5	10	7	500	100
1N4740A	10	9.5	10.5	25	7	700	0.25	10	7.6	454	91
1N4741A	11	10.45	11.55	23	8	700	0.25	5	8.4	414	83
1N4742A	12	11.4	12.6	21	9	700	0.25	5	9.1	380	76
1N4743A	13	12.35	13.65	19	10	700	0.25	5	9.9	344	69
1N4744A	15	14.25	15.75	17	14	700	0.25	5	11.4	304	61
1N4745A	16	15.2	16.8	15.5	16	700	0.25	5	12.2	285	57
1N4746A	18	17.1	18.9	14	20	750	0.25	5	13.7	250	50
1N4747A	20	19	21	12.5	22	750	0.25	5	15.2	225	45
1N4748A	22	20.9	23.1	11.5	23	750	0.25	5	16.7	205	41
1N4749A	24	22.8	25.2	10.5	25	750	0.25	5	18.2	190	38
1N4750A	27	25.65	28.35	9.5	35	750	0.25	5	20.6	170	34
1N4751A	30	28.5	31.5	8.5	40	1000	0.25	5	22.8	150	30
1N4752A	33	31.35	34.65	7.5	45	1000	0.25	5	25.1	135	27
1N4753A	36	34.2	37.8	7	50	1000	0.25	5	27.4	125	25
1N4754A	39	37.05	40.95	6.5	60	1000	0.25	5	29.7	115	23
1N4755A	43	40.85	45.15	6	70	1500	0.25	5	32.7	110	22
1N4756A	47	44.65	49.35	5.5	80	1500	0.25	5	35.8	95	19
1N4757A	51	48.45	53.55	5	95	1500	0.25	5	38.8	90	18
1N4758A	56	53.2	58.8	4.5	110	2000	0.25	5	42.6	80	16
1N4759A	62	58.9	65.1	4	125	2000	0.25	5	47.1	70	14
1N4760A	68	64.6	71.4	3.7	150	2000	0.25	5	51.7	65	13
1N4761A	75	71.25	78.75	3.3	175	2000	0.25	5	56	60	12

¹⁾ The dynamic resistance 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_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK} . Dynamic resistance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.

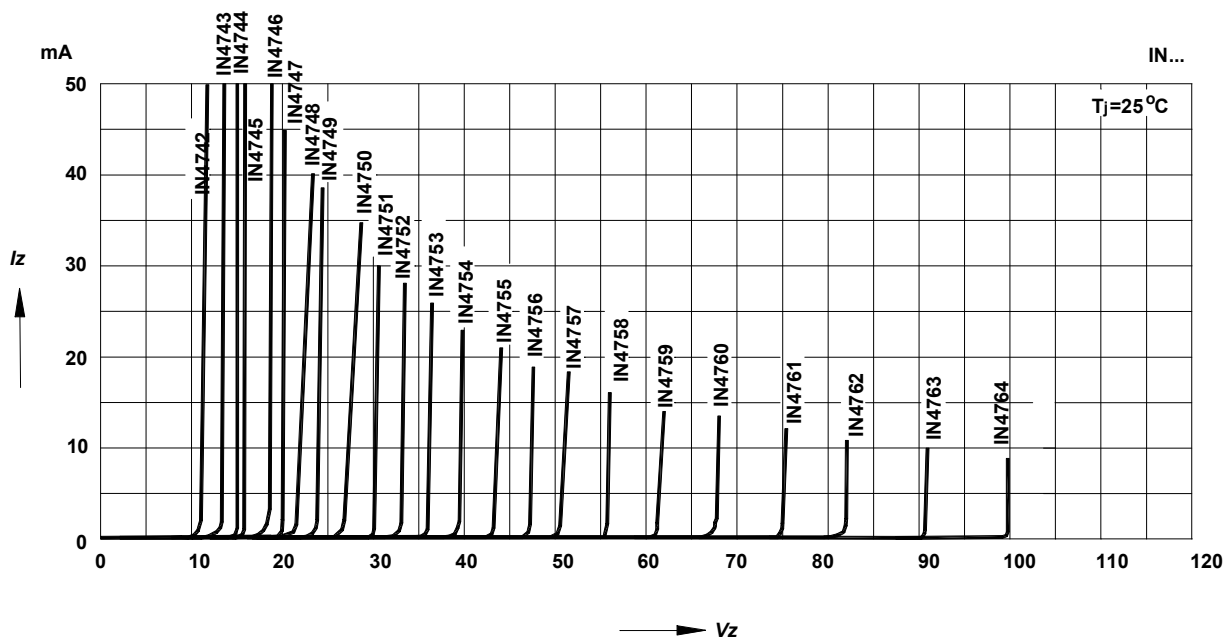
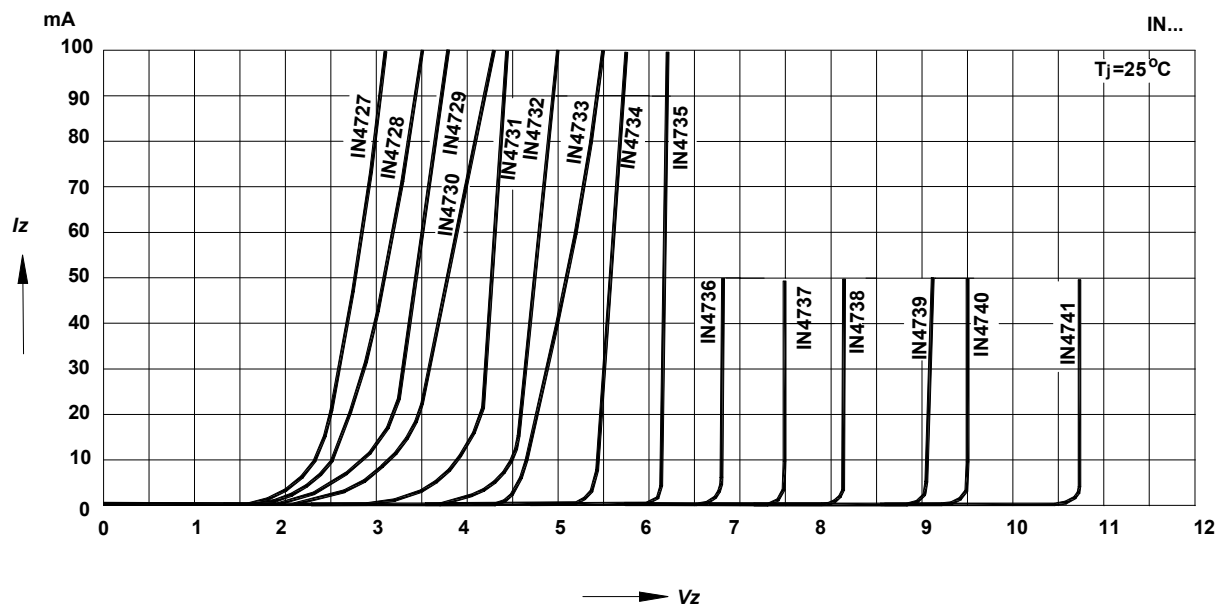
²⁾ Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.

³⁾ Tested with pulses $t_p = 20\text{ ms}$.

⁴⁾ The rating listed in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current I_{ZT} .

Breakdown characteristics

$T_J = \text{constant (pulsed)}$



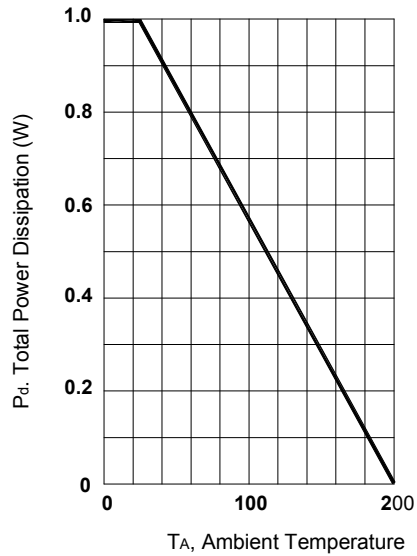


Fig. 1 Power Dissipation vs Ambient Temperature

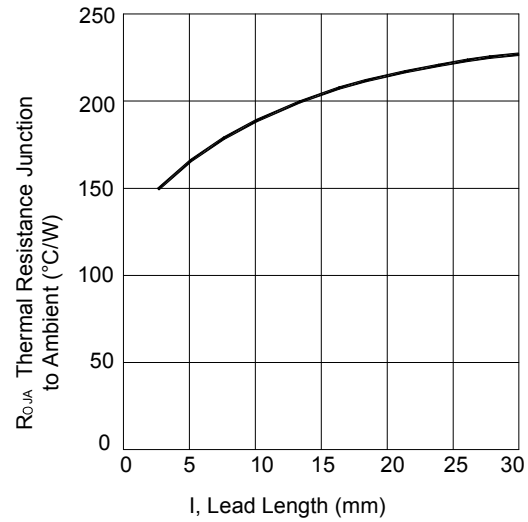


Fig. 2 Typical Thermal Resistance vs. Lead Length

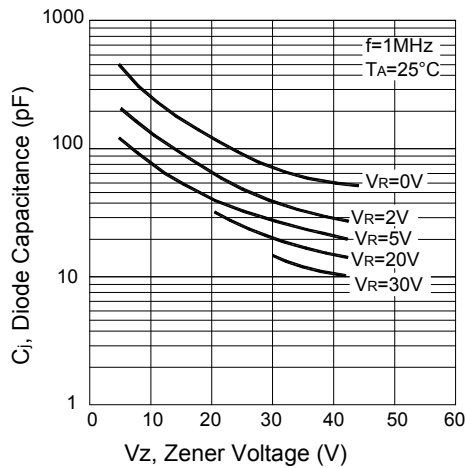


Fig. 3 Junction Capacitance vs Zener Voltage

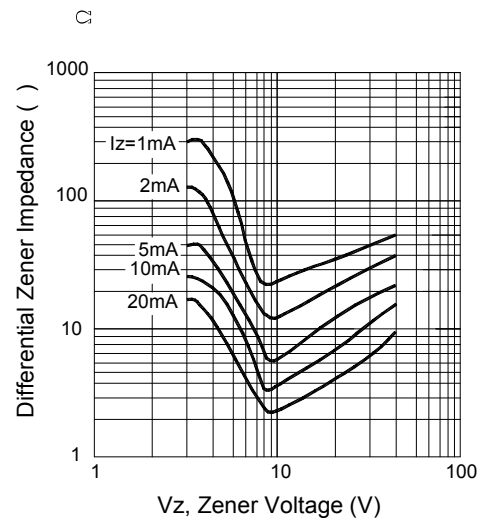


Fig. 4 Typical Zener Impedance vs. Zener Voltage