

AMERICAN POWER DEVICES SELECTION GUIDE

APD devices cross-reference most Motorola part numbers, including low noise, low current and Motorola Class 3 devices.

ZENER AND AVALANCHE REGULATOR DIODES

	250mW	250mW	400mW	500mW			1 Watt	1.5 Watt
Nominal Zener Voltage	50µA Low Current Low Leakage	250µA Low Current Low Noise	Low Noise Low Leakage	Popular Industrial/Commercial			Popular Industrial/Commercial	
	Cathode = Polarity Mark							
DO-35 Glass Case							Do-41 Glass Case	
1.8	1N467B	1N4614	---	---	---	---	---	---
2.0	1N4679	1N4615	---	---	---	---	---	---
2.2	1N4680	1N4616	---	---	---	---	---	---
2.4	1N4681	1N4617	---	---	---	---	---	---
2.7	1N4682	1N4618	---	---	---	---	---	---
2.8	---	---	---	---	---	---	---	---
3.0	1N4683	1N4619	---	1N4372	1N5225B	1N5987B	---	---
3.3	1N4684	1N4620	1N5518B	1N746A	1N5226B	1N5988B	1N4728A	1N5913B
3.6	1N4685	1N4621	1N5519B	1N747A	1N5227B	1N5989B	1N4729A	1N5914B
3.9	1N4686	1N4622	1N5520B	1N748A	1N5228B	1N5990B	1N4730A	1N5915B
4.3	1N4687	1N4623	1N5521B	1N749A	1N5229B	1N5991B	1N4731A	1N5916B
4.7	1N4688	1N4624	1N5522B	1N750A	1N5230B	1N5992B	1N4732A	1N5917B
5.1	1N4689	1N4625	1N5523B	1N751A	1N5231B	1N5993B	1N4733A	1N5918B
5.6	1N4690	1N4626	1N5524B	1N752A	1N5232B	1N5994B	1N4734A	1N5919B
6.2	1N4691	1N4627	1N5525B	1N753A	1N5234B	1N5995B	1N4735A	1N5920B
6.8	1N4692	1N4099	1N5526B	1N754A	1N5235B	1N5996B	1N4736A	1N5921B
---	---	---	---	1N957B	---	---	---	---
7.5	1N4693	1N4100	1N5527B	1N755A	1N5236B	1N5997B	1N4737A	1N5922B
---	---	---	---	1N958B	---	---	---	---
8.2	1N4694	1N4101	1N5528B	1N756A	1N5237B	1N5998B	1N4738A	1N5923B
---	---	---	---	1N959B	---	---	---	---
8.7	1N4695	1N4102	---	---	1N5238B	---	---	---
9.1	1N4696	1N4103	1N5529B	1N757A	1N5239B	1N5999B	1N4739A	1N5924B
---	---	---	---	1N960B	---	---	---	---
10	1N4697	1N4104	1N5530B	1N758A	1N5240B	1N6000B	1N4740A	1N5925B
---	---	---	---	1N961B	---	---	---	---
11	1N4698	1N4105	1N5531B	1N962B	1N5241B	1N6001B	1N4741A	1N5926B
12	1N4699	1N4106	1N5532B	1N759A	1N5242B	1N6002B	1N4742A	1N5927B
---	---	---	---	1N963B	---	---	---	---
13	1N4700	1N4107	1N5533B	1N964B	1N5243B	1N6003B	1N4743A	1N5928B
14	1N4701	1N4108	1N5534B	---	1N5244B	---	---	---
15	1N4702	1N4109	1N5535B	1N965B	1N5245B	1N6004B	1N4744A	1N5929B
16	1N4703	1N4110	1N5536B	1N966B	1N5246B	1N6005B	1N4745A	1N5930B
17	1N4704	1N4111	1N5537B	---	1N5247B	---	---	---
18	1N4705	1N4112	1N5538B	1N967B	1N5248B	1N6006B	1N4746A	1N5931B
19	1N4706	1N4113	1N5539B	---	1N5249B	---	---	---
20	1N4707	1N4114	1N5540B	1N968B	1N5250B	1N6007B	1N4747A	1N5932B
22	1N4708	1N4115	1N5541B	1N969B	1N5251B	1N6008B	1N4748A	1N5933B
24	1N4709	1N4116	1N5542B	1N970B	1N5252B	1N6009B	1N4749A	1N5934B
25	1N4710	1N4117	1N5543B	---	1N5253B	---	---	---
27	1N4711	1N4118	---	1N971B	1N5254B	1N6010B	1N4750A	1N5935B
28	1N4712	1N4119	1N5544B	---	1N5255B	---	---	---
30	1N4713	1N4120	1N5545B	1N972B	1N5256B	1N6011B	1N4751A	1N5936B
33	1N4714	1N4121	1N5546B	1N973B	1N5257B	1N6012B	1N4752A	1N5937B
36	1N4715	1N4122	---	1N974B	1N5258B	1N6013B	1N4753A	1N5938B
39	1N4716	1N4123	---	1N975B	1N5259B	1N6014B	1N4754A	1N5939B
43	1N4717	1N4124	---	1N976B	1N5260B	1N6015B	1N4755A	1N5940B
47	---	1N4125	---	1N977B	1N5261B	1N6016B	1N4756A	1N5941B
51	---	1N4126	---	1N978B	1N5262B	1N6017B	1N4757A	1N5942B
56	---	1N4127	---	1N979B	1N5263B	1N6018B	1N4758A	1N5943B
60	---	1N4128	---	---	1N5264B	---	---	---
62	---	1N4129	---	1N980B	1N5265B	1N6019B	1N4759A	1N5944B
68	---	1N4130	---	1N981B	1N5266B	1N6020B	1N4760A	1N5945B
75	---	1N4131	---	1N982B	1N5267B	1N6021B	1N4761A	1N5946B
82	---	1N4132	---	1N983B	1N5268B	1N6022B	1N4762A	1N5947B
87	---	1N4133	---	---	1N5269B	---	---	---
91	---	1N4134	---	1N984B	1N5270B	1N6023B	1N4763A	1N5948B
100	---	1N4134	---	1N985B	1N5271B	1N6024B	1N4764A	1N5949B
110	---	---	---	1N986B	1N5271B	1N6025B	---	1N5950B

APD CAN SELECT THE ABOVE PARTS TO 1% AND 2% TOLERANCES
BURN-IN AND SPECIAL TESTING CAN ALSO BE PROVIDED AS REQUIRED



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1N4728A-1N4764A

Standard tolerances are 5%
10%, 2% & 1% are available

1 W silicon zener diodes

FEATURES

- Zener voltage 3.3 to 33 V
- Hermetically sealed glass package
- APD can select any voltage in tolerances 1%, 2%, 5% and 10% at your application's test current.

MAXIMUM RATINGS

- Junction Temperature: -65°C to +200°C
- Storage Temperature: -65°C to +200°C
- DC Power Dissipation: 1.0 W @ $T_L = 100^\circ\text{C}$
- Derate above 100°C: 10 mW/°C
- Forward Voltage @ 200 mA: 1.2 Volts

*ELECTRICAL CHARACTERISTICS @ 25°C

JEDEC TYPE NUMBER (Note 1)	ZENER VOLTAGE (V_Z) (NOTE 4)	TEST CURRENT (I_{ZT})	MAXIMUM DYNAMIC IMPEDANCE (Z_{ZT} @ I_{ZT}) (Note 2)	MAXIMUM REVERSE CURRENT (I_R @ V_R)	TEST VOLTAGE (V_R)	MAXIMUM REGULATOR CURRENT (I_{ZM}) $T_A = 50^\circ\text{C}$	MAXIMUM KNEE IMPEDANCE (Z_{ZK} @ I_{ZK}) (Note 2)	TEST CURRENT (I_{ZK})	MAXIMUM (SURGE) CURRENT (I_S) (Note 3)
	VOLTS	mA	OHMS	μA	VOLTS	mA	OHMS	mA	mA
1N4728A	3.3	76	10	100	1	276	400	1.0	1380
1N4729A	3.6	69	10	100	1	252	400	1.0	1260
1N4730A	3.9	64	9	50	1	234	400	1.0	1190
1N4731A	4.3	58	9	10	1	217	400	1.0	1070
1N4732A	4.7	53	8	10	1	193	500	1.0	970
1N4733A	5.1	49	7	10	1	178	550	1.0	890
1N4734A	5.6	45	5	10	2	162	600	1.0	810
1N4735A	6.2	41	2	10	3	146	700	1.0	730
1N4736A	6.8	37	3.5	10	4	133	700	1.0	660
1N4737A	7.5	34	4.0	10	5	121	700	0.5	605
1N4738A	8.2	31	4.5	10	6	110	700	0.5	550
1N4739A	9.1	28	5.0	10	7	100	700	0.5	500
1N4740A	10	25	7	10	7.6	91	700	0.25	454
1N4741A	11	23	8	5	8.4	83	700	0.25	414
1N4742A	12	21	9	5	9.1	76	700	0.25	380
1N4743A	13	19	10	5	9.9	69	700	0.25	344
1N4744A	15	17	14	5	11.4	61	700	0.25	304
1N4745A	16	15.5	16	5	12.2	57	700	0.25	285
1N4746A	18	14	20	5	13.7	50	750	0.25	250
1N4747A	20	12.5	22	5	15.2	45	750	0.25	225
1N4748A	22	11.5	23	5	16.7	41	750	0.25	205
1N4749A	24	10.5	25	5	18.2	38	750	0.25	190
1N4750A	27	9.5	35	5	20.6	34	750	0.25	170
1N4751A	30	8.5	40	5	22.8	30	1000	0.25	150
1N4752A	33	7.5	45	5	25.1	27	1000	0.25	135
1N4753A	36	7.0	50	5	27.4	25	1000	0.25	125
1N4754A	39	6.5	60	5	29.7	23	1000	0.25	115
1N4755A	43	6.0	70	5	32.7	22	1500	0.25	110
1N4756A	47	5.5	80	5	35.8	19	1500	0.25	95
1N4757A	51	5.0	95	5	38.8	18	1500	0.25	90
1N4758A	56	4.5	110	5	42.6	16	2000	0.25	80
1N4759A	62	4.0	125	5	47.1	14	2000	0.25	70
1N4760A	68	3.7	150	5	51.7	13	2000	0.25	65
1N4761A	75	3.3	175	5	56.0	12	2000	0.25	60
1N4762A	82	3.0	200	5	62.2	11	3000	0.25	55
1N4763A	91	2.8	250	5	69.2	10	3000	0.25	50
1N4764A	100	2.5	350	5	76.0	9	3000	0.25	45

*JEDEC Registered Data

Nota 1 The JEDEC type numbers shown with an A suffix have a 5% tolerance on nominal V_Z . No suffix indicates a $\pm 10\%$ tolerance. Suffix C denotes a $\pm 2\%$ tolerance and suffix D denotes a $\pm 1\%$ tolerance.

Nota 2 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 DC zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK} . Zener impedance is measured at two points to insure a sharp knee at breakdown thus eliminating unstable devices..

Nota 3 Reverse surge current is measured at 25°C ambient using a half square wave or equivalent sine wave of 1/120 second duration.

Nota 4 Voltage measurement performed 90 seconds after application of DC current.

MECHANICAL CHARACTERISTICS

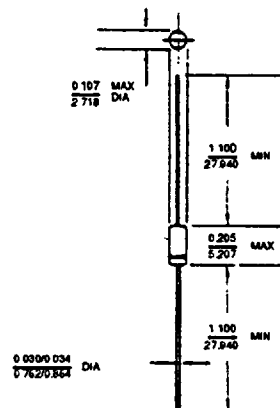


FIGURE 1 all dimensions in INCH
mm

CASE: Hermetically sealed
glass package (DO-41)

FINISH: Corrosion resistant.

Leads are tin plated

THERMAL RESISTANCE:
100°C/W junction to lead at
0.375-inches from body

POLARITY: Cathode banded
WEIGHT: 0.378 grams (typ)

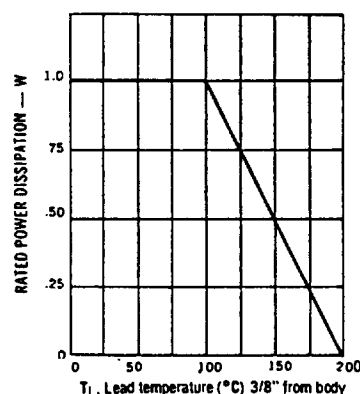


Figure 2 POWER DERATING



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1N4728A-1N4764A

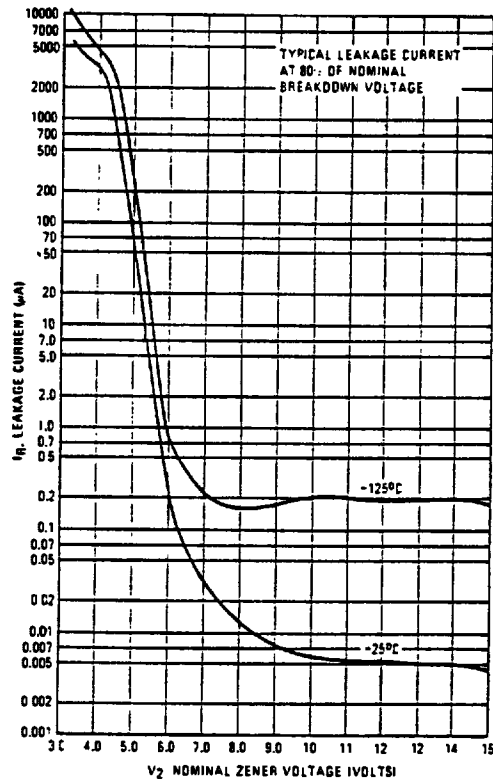


Figure 3 TYPICAL LEAKAGE CURRENT

(-55°C to +150°C temperature range, 00% of the units are in the indicated range.)

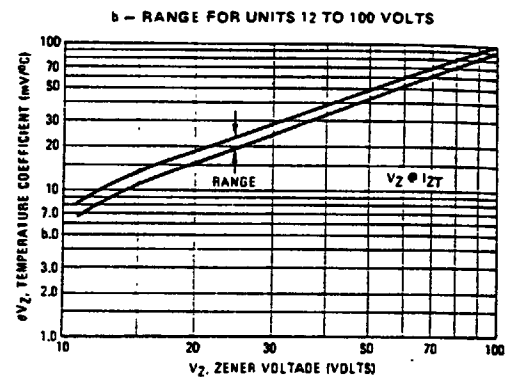
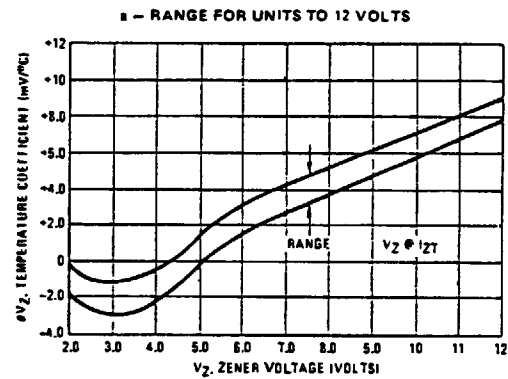


Figure 4 TEMPERATURE COEFFICIENTS

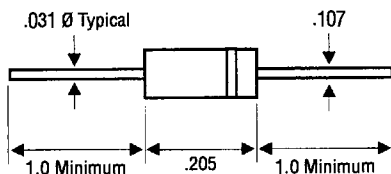
ZENER DIODES

1W (cont.)

Part #	Nominal Zener Voltage	Test Current	Maximum Dynamic Impedance
	V_Z (V)	I_{ZT} (mA)	Z_{ZT} (Ω)
1N5564B	11.0	23.0	—
1N5565B	12.0	21.0	—
1N5566B	13.0	19.0	—
1N5567B	15.0	17.0	—
1N5568B	16.0	15.0	—
1N5569B	18.0	14.0	—
1N5570B	20.0	12.0	—
1N5571B	22.0	11.0	—
1N5572B	24.0	10.0	—
1N5573B	27.0	9.5	—
1N5574B	30.0	8.5	—
1N5575B	33.0	7.5	—

Part #	Nominal Zener Voltage at Test Current			Part #	Nominal Zener Voltage at Test Current		
	V_Z	@	I_{ZT} (V)		V_Z	@	I_{ZT} (V)
1N4728A	3.3	@	76	1N4746A	18	@	14.0
1N4729A	3.6	@	69	1N4747A	20	@	12.5
1N4730A	3.9	@	64	1N4748A	22	@	11.5
1N4731A	4.3	@	58	1N4749A	24	@	10.5
1N4732A	4.7	@	53	1N4750A	27	@	9.5
1N4733A	5.1	@	49	1N4751A	30	@	8.5
1N4734A	5.6	@	45	1N4752A	33	@	7.5
1N4735A	6.2	@	41	1N4753A	36	@	7
1N4736A	6.8	@	37	1N4754A	39	@	6.5
1N4737A	7.5	@	34	1N4755A	43	@	6
1N4738A	8.2	@	31	1N4756A	47	@	5.5
1N4739A	9.1	@	28	1N4757A	51	@	5
1N4740A	10.0	@	25	1N4758A	56	@	4.5
1N4741A	11	@	23.0	1N4759A	62	@	4
1N4742A	12	@	21.0	1N4760A	68	@	3.7
1N4743A	13	@	19.0	1N4761A	75	@	3.3
1N4744A	15	@	17.0	1N4762A	82	@	3
1N4745A	16	@	15.5	1N4763A	91	@	2.8

D0-41



Operating temperature -65°C to +175°C

5% standard tolerance; Special tolerances available upon request