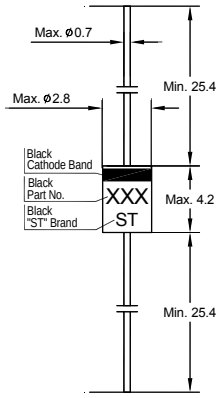
1N47xxxPF

Silicon Planar Power Zener Diodes

for use in stabilizing and clipping circuits with high power rating. Standard zener voltage tolerance is ±10%. Add suffix "A" for ±5% tolerance and suffix "B" for ±2% tolerance. Other tolerances are available upon request.



Glass Case DO-41
Dimensions in mm

Features

• Lead Free

Absolute Maximum Ratings (T_a = 25℃)

Parameter	Symbol	Value	Unit
Power Dissipation [1]	P_{tot}	1	W
Junction Temperature	T_j	175	℃
Storage Temperature Range	T_{stg}	- 65 to + 175	℃

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction to Ambient Air [1]	$R_{\theta JA}$	150	℃/W

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

Dated : 20/08/2021 Rev: 01

1N47xxxPF

Characteristics at T_a = 25℃ (V_F max : 1.2 V at I_F = 200 mA)

Type	Zener Voltage Range [3]				Dynamic Resistance [1]			Reverse Current		Maximum Surge Current [4]	Maximum Regulator Current [2]	Temperature coefficient at I_{ZT}
	V_{Znom}	V_{ZT}		at I_{ZT}	Z_{ZT}	Z_{ZK}	at I_{ZK}	I_R	at V_R			
	(V)	Min. (V)	Max. (V)	(mA)	Max. (Ω)	Max. (Ω)	(mA)	Max. (µA)	(V)	I_{ZSM} (mA)	I_{ZM} (mA)	%/°C
1N4727PF	3	2.7	3.3	83	10	400	1	150	1	1375	275	-0.08 to -0.05
1N4728PF	3.3	2.97	3.63	76	10	400	1	150	1	1375	275	-0.08 to -0.05
1N4729PF	3.6	3.24	3.96	69	10	400	1	100	1	1260	252	-0.08 to -0.05
1N4730PF	3.9	3.51	4.29	64	9	400	1	100	1	1190	234	-0.07 to -0.02
1N4731PF	4.3	3.87	4.73	58	9	400	1	50	1	1070	217	-0.07 to -0.01
1N4732PF	4.7	4.23	5.17	53	8	500	1	10	1	970	193	-0.03 to +0.04
1N4733PF	5.1	4.59	5.61	49	7	550	1	10	1	890	178	-0.01 to +0.04
1N4734PF	5.6	5.04	6.16	45	5	600	1	10	2	810	162	0.10 to +0.045
1N4735PF	6.2	5.58	6.82	41	2	700	1	10	3	730	146	+0.01 to +0.055
1N4736PF	6.8	6.12	7.48	37	3.5	700	1	10	4	660	133	+0.015 to +0.06
1N4737PF	7.5	6.75	8.25	34	4	700	0.5	10	5	605	121	+0.02 to +0.065
1N4738PF	8.2	7.38	9.02	31	4.5	700	0.5	10	6	550	110	0.03 to 0.07
1N4739PF	9.1	8.19	10.01	28	5	700	0.5	10	7	500	100	0.035 to 0.075
1N4740PF	10	9	11	25	7	700	0.25	10	7.6	454	91	0.04 to 0.08
1N4741PF	11	9.9	12.1	23	8	700	0.25	5	8.4	414	83	0.045 to 0.08
1N4742PF	12	10.8	13.2	21	9	700	0.25	5	9.1	380	76	0.045 to 0.085
1N4743PF	13	11.7	14.3	19	10	700	0.25	5	9.9	344	69	0.05 to 0.085
1N4744PF	15	13.5	16.5	17	14	700	0.25	5	11.4	304	61	0.055 to 0.09
1N4745PF	16	14.4	17.6	15.5	16	700	0.25	5	12.2	285	57	0.055 to 0.09
1N4746PF	18	16.2	19.8	14	20	750	0.25	5	13.7	250	50	0.06 to 0.09
1N4747PF	20	18	22	12.5	22	750	0.25	5	15.2	225	45	0.06 to 0.09
1N4748PF	22	19.8	24.2	11.5	23	750	0.25	5	16.7	205	41	0.06 to 0.095
1N4749PF	24	21.6	26.4	10.5	25	750	0.25	5	18.2	190	38	0.06 to 0.095
1N4750PF	27	24.3	29.7	9.5	35	750	0.25	5	20.6	170	34	0.06 to 0.095
1N4751PF	30	27	33	8.5	40	1000	0.25	5	22.8	150	30	0.06 to 0.095
1N4752PF	33	29.7	36.3	7.5	45	1000	0.25	5	25.1	135	27	0.06 to 0.095
1N4753PF	36	32.4	39.6	7	50	1000	0.25	5	27.4	125	25	0.06 to 0.095
1N4754PF	39	35.1	42.9	6.5	60	1000	0.25	5	29.7	115	23	0.06 to 0.095
1N4755PF	43	38.7	47.3	6	70	1500	0.25	5	32.7	110	22	0.06 to 0.095
1N4756PF	47	42.3	51.7	5.5	80	1500	0.25	5	35.8	95	19	0.06 to 0.095
1N4757PF	51	45.9	56.1	5	95	1500	0.25	5	38.8	90	18	0.06 to 0.095
1N4758PF	56	50.4	61.6	4.5	110	2000	0.25	5	42.6	80	16	0.06 to 0.095
1N4759PF	62	55.8	68.2	4	125	2000	0.25	5	47.1	70	14	0.06 to 0.095
1N4760PF	68	61.2	74.8	3.7	150	2000	0.25	5	51.7	65	13	0.06 to 0.095
1N4761PF	75	67.5	82.5	3.3	175	2000	0.25	5	56	60	12	0.06 to 0.095

[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 tp = 20 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}.

Characteristics at T_a = 25℃ (V_F max : 1.2 V at I_F = 200 mA)

Type	Zener Voltage Range [3]				Dynamic Resistance [1]			Reverse Current		Maximum Surge Current [4]	Maximum Regulator Current [2]	Temperature coefficient at I_{ZT}
	V_{Znom}	V_{ZT}		at I_{ZT}	Z_{ZT}	Z_{ZK}	at I_{ZK}	I_R	at V_R			
	(V)	Min. (V)	Max. (V)	(mA)	Max. (Ω)	Max. (Ω)	(mA)	Max. (µA)	(V)	I_{ZSM} (mA)	I_{ZM} (mA)	%/°C
1N4727APF	3	2.85	3.15	83	10	400	1	150	1	1375	275	-0.08 to -0.05
1N4728APF	3.3	3.14	3.47	76	10	400	1	150	1	1375	275	-0.08 to -0.05
1N4729APF	3.6	3.42	3.78	69	10	400	1	100	1	1260	252	-0.08 to -0.05
1N4730APF	3.9	3.71	4.1	64	9	400	1	100	1	1190	234	-0.07 to -0.02
1N4731APF	4.3	4.09	4.52	58	9	400	1	50	1	1070	217	-0.07 to -0.01
1N4732APF	4.7	4.47	4.94	53	8	500	1	10	1	970	193	-0.03 to +0.04
1N4733APF	5.1	4.85	5.36	49	7	550	1	10	1	890	178	-0.01 to +0.04
1N4734APF	5.6	5.32	5.88	45	5	600	1	10	2	810	162	0.10 to +0.045
1N4735APF	6.2	5.89	6.51	41	2	700	1	10	3	730	146	+0.01 to +0.055
1N4736APF	6.8	6.46	7.14	37	3.5	700	1	10	4	660	133	+0.015 to +0.06
1N4737APF	7.5	7.13	7.88	34	4	700	0.5	10	5	605	121	+0.02 to +0.065
1N4738APF	8.2	7.79	8.61	31	4.5	700	0.5	10	6	550	110	0.03 to 0.07
1N4739APF	9.1	8.65	9.56	28	5	700	0.5	10	7	500	100	0.035 to 0.075
1N4740APF	10	9.5	10.5	25	7	700	0.25	10	7.6	454	91	0.04 to 0.08
1N4741APF	11	10.45	11.55	23	8	700	0.25	5	8.4	414	83	0.045 to 0.08
1N4742APF	12	11.4	12.6	21	9	700	0.25	5	9.1	380	76	0.045 to 0.085
1N4743APF	13	12.35	13.65	19	10	700	0.25	5	9.9	344	69	0.05 to 0.085
1N4744APF	15	14.25	15.75	17	14	700	0.25	5	11.4	304	61	0.055 to 0.09
1N4745APF	16	15.2	16.8	15.5	16	700	0.25	5	12.2	285	57	0.055 to 0.09
1N4746APF	18	17.1	18.9	14	20	750	0.25	5	13.7	250	50	0.06 to 0.09
1N4747APF	20	19	21	12.5	22	750	0.25	5	15.2	225	45	0.06 to 0.09
1N4748APF	22	20.9	23.1	11.5	23	750	0.25	5	16.7	205	41	0.06 to 0.095
1N4749APF	24	22.8	25.2	10.5	25	750	0.25	5	18.2	190	38	0.06 to 0.095
1N4750APF	27	25.65	28.35	9.5	35	750	0.25	5	20.6	170	34	0.06 to 0.095
1N4751APF	30	28.5	31.5	8.5	40	1000	0.25	5	22.8	150	30	0.06 to 0.095
1N4752APF	33	31.35	34.65	7.5	45	1000	0.25	5	25.1	135	27	0.06 to 0.095
1N4753APF	36	34.2	37.8	7	50	1000	0.25	5	27.4	125	25	0.06 to 0.095
1N4754APF	39	37.05	40.95	6.5	60	1000	0.25	5	29.7	115	23	0.06 to 0.095
1N4755APF	43	40.85	45.15	6	70	1500	0.25	5	32.7	110	22	0.06 to 0.095
1N4756APF	47	44.65	49.35	5.5	80	1500	0.25	5	35.8	95	19	0.06 to 0.095
1N4757APF	51	48.45	53.55	5	95	1500	0.25	5	38.8	90	18	0.06 to 0.095
1N4758APF	56	53.2	58.8	4.5	110	2000	0.25	5	42.6	80	16	0.06 to 0.095
1N4759APF	62	58.9	65.1	4	125	2000	0.25	5	47.1	70	14	0.06 to 0.095
1N4760APF	68	64.6	71.4	3.7	150	2000	0.25	5	51.7	65	13	0.06 to 0.095
1N4761APF	75	71.25	78.75	3.3	175	2000	0.25	5	56	60	12	0.06 to 0.095

[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 tp = 20 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}.

Characteristics at T_a = 25℃ (V_F max : 1.2 V at I_F = 200 mA)

Type	Zener Voltage Range [3]				Dynamic Resistance [1]			Reverse Current		Maximum Surge Current [4]	Maximum Regulator Current [2]	Temperature coefficient at I_{ZT}
	V_{Znom}	V_{ZT}		at I_{ZT}	Z_{ZT}	Z_{ZK}	at I_{ZK}	I_R	at V_R			
	(V)	Min. (V)	Max. (V)	(mA)	Max. (Ω)	Max. (Ω)	(mA)	Max. (µA)	(V)	I_{ZSM} (mA)	I_{ZM} (mA)	%/°C
1N4727BPF	3	2.94	3.06	83	10	400	1	150	1	1375	275	-0.08 to -0.05
1N4728BPF	3.3	3.23	3.37	76	10	400	1	150	1	1375	275	-0.08 to -0.05
1N4729BPF	3.6	3.53	3.67	69	10	400	1	100	1	1260	252	-0.08 to -0.05
1N4730BPF	3.9	3.82	3.98	64	9	400	1	100	1	1190	234	-0.07 to -0.02
1N4731BPF	4.3	4.21	4.39	58	9	400	1	50	1	1070	217	-0.07 to -0.01
1N4732BPF	4.7	4.61	4.79	53	8	500	1	10	1	970	193	-0.03 to +0.04
1N4733BPF	5.1	5	5.2	49	7	550	1	10	1	890	178	-0.01 to +0.04
1N4734BPF	5.6	5.49	5.71	45	5	600	1	10	2	810	162	0.10 to +0.045
1N4735BPF	6.2	6.08	6.32	41	2	700	1	10	3	730	146	+0.01 to +0.055
1N4736BPF	6.8	6.66	6.94	37	3.5	700	1	10	4	660	133	+0.015 to +0.06
1N4737BPF	7.5	7.35	7.65	34	4	700	0.5	10	5	605	121	+0.02 to +0.065
1N4738BPF	8.2	8.04	8.36	31	4.5	700	0.5	10	6	550	110	0.03 to 0.07
1N4739BPF	9.1	8.92	9.28	28	5	700	0.5	10	7	500	100	0.035 to 0.075
1N4740BPF	10	9.8	10.2	25	7	700	0.25	10	7.6	454	91	0.04 to 0.08
1N4741BPF	11	10.78	11.22	23	8	700	0.25	5	8.4	414	83	0.045 to 0.08
1N4742BPF	12	11.76	12.24	21	9	700	0.25	5	9.1	380	76	0.045 to 0.085
1N4743BPF	13	12.74	13.26	19	10	700	0.25	5	9.9	344	69	0.05 to 0.085
1N4744BPF	15	14.70	15.30	17	14	700	0.25	5	11.4	304	61	0.055 to 0.09
1N4745BPF	16	15.68	16.32	15.5	16	700	0.25	5	12.2	285	57	0.055 to 0.09
1N4746BPF	18	17.64	18.36	14	20	750	0.25	5	13.7	250	50	0.06 to 0.09
1N4747BPF	20	19.6	20.4	12.5	22	750	0.25	5	15.2	225	45	0.06 to 0.09
1N4748BPF	22	21.56	22.44	11.5	23	750	0.25	5	16.7	205	41	0.06 to 0.095
1N4749BPF	24	23.52	24.48	10.5	25	750	0.25	5	18.2	190	38	0.06 to 0.095
1N4750BPF	27	26.46	27.54	9.5	35	750	0.25	5	20.6	170	34	0.06 to 0.095
1N4751BPF	30	29.4	30.6	8.5	40	1000	0.25	5	22.8	150	30	0.06 to 0.095
1N4752BPF	33	32.34	33.66	7.5	45	1000	0.25	5	25.1	135	27	0.06 to 0.095
1N4753BPF	36	35.28	36.72	7	50	1000	0.25	5	27.4	125	25	0.06 to 0.095
1N4754BPF	39	38.22	39.78	6.5	60	1000	0.25	5	29.7	115	23	0.06 to 0.095
1N4755BPF	43	42.14	43.86	6	70	1500	0.25	5	32.7	110	22	0.06 to 0.095
1N4756BPF	47	46.06	47.94	5.5	80	1500	0.25	5	35.8	95	19	0.06 to 0.095
1N4757BPF	51	49.98	52.02	5	95	1500	0.25	5	38.8	90	18	0.06 to 0.095
1N4758BPF	56	54.88	57.12	4.5	110	2000	0.25	5	42.6	80	16	0.06 to 0.095
1N4759BPF	62	60.76	63.24	4	125	2000	0.25	5	47.1	70	14	0.06 to 0.095
1N4760BPF	68	66.64	69.36	3.7	150	2000	0.25	5	51.7	65	13	0.06 to 0.095
1N4761BPF	75	73.5	76.5	3.3	175	2000	0.25	5	56	60	12	0.06 to 0.095

[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 tp = 20 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}.

Electrical Characteristics Curves

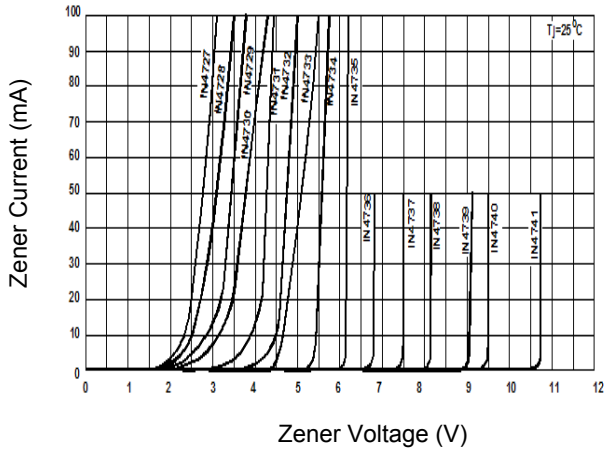


Fig 1. Zener Characteristics Curve

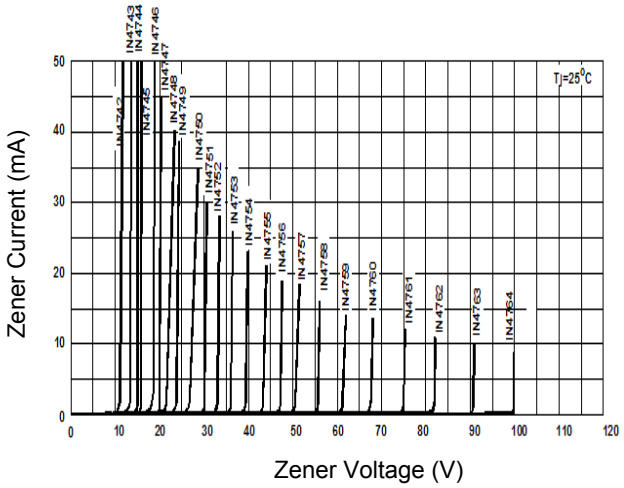


Fig 2. Zener Characteristics Curve

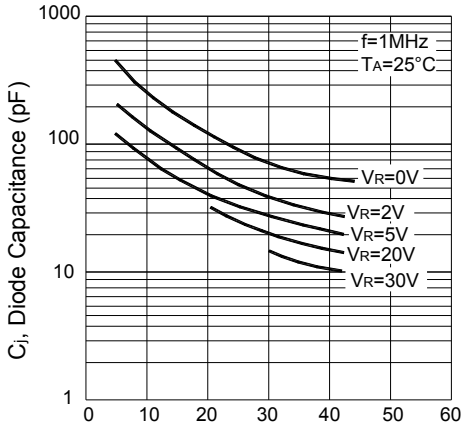


Fig. 3 Junction Capacitance vs Zener Voltage

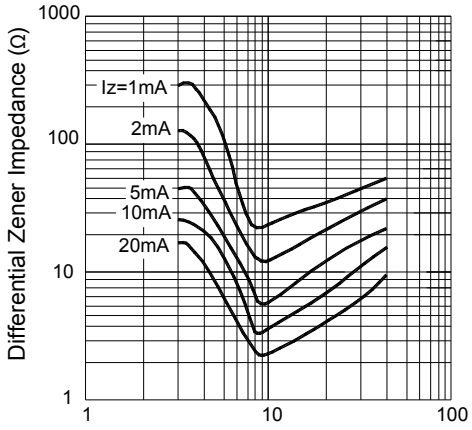


Fig. 4 Typical Zener Impedance vs. Zener Voltage

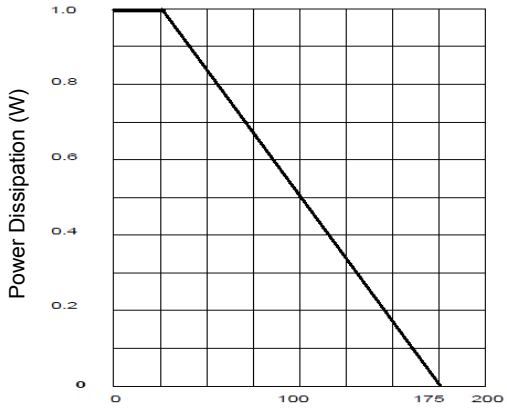


Fig 5. Power Derating Curve

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