1N56 SERIES (1500 WATT) METAL AXIAL TRANSIENT VOLTAGE SUPPRESSORS (hermetically sealed package for harsh industrial environments)

FEATURES

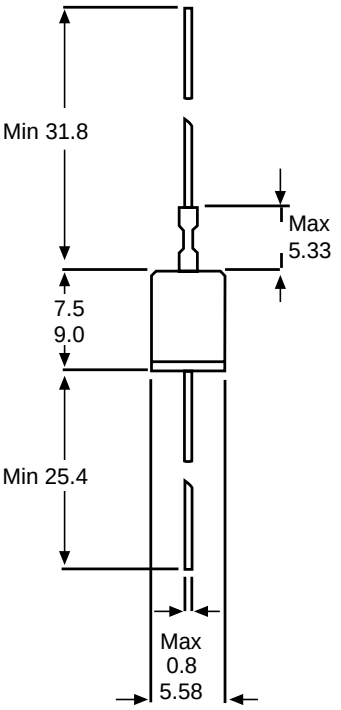
- Breakdown voltage range 6.8 - 200 volts
- Glass passivated junction
- Excellent clamping capability
- Low zener impedance
- 100% surge tested
- -55°C to +150°C
- Hermetically sealed
- Uni-polar

MAXIMUM RATING

- Peak Pulse Power (Ppk): 1500 Watts (10 x 1000µs)@25°C (see diagram on page 3 for wave form)
- 1 watt steady state
- Response time: 1 x 10^{-12} seconds (theoretical)
- Operating & storage temperature: -55°C to +150°C

MECHANICAL CHARACTERISTICS

- Case: Metal hermetically sealed DO-13 package
- Terminals: Axial leads, solderable per MIL-STD-202 Method 208
- Solderable leads = 230°C for 10 seconds (1.59mm from case)
- Polarity: cathode indicated by colour band
- Weight: 1.5 grammes (approx)



All dimensions in mm

Figure 1 - Peak Power Derating Curve
Peak pulse power in percent of 25ºC rating

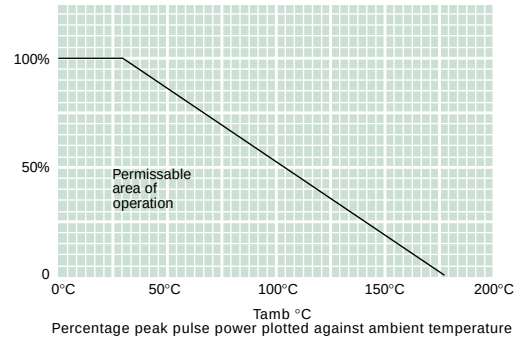


Figure 3 - Peak Pulse Power vs. Pulse Time

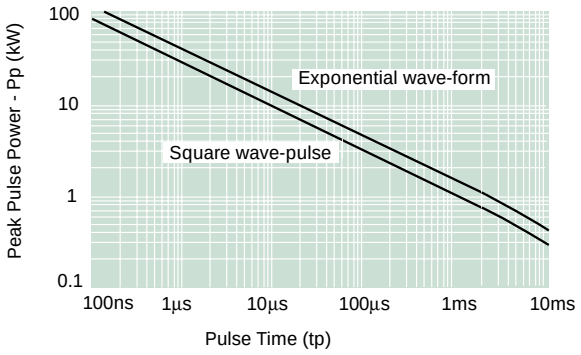


Figure 2 - Continuous D.C. Power Derating Curve
Continuous d.c. power dissipation

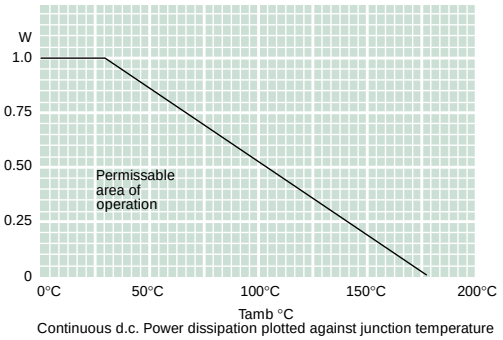
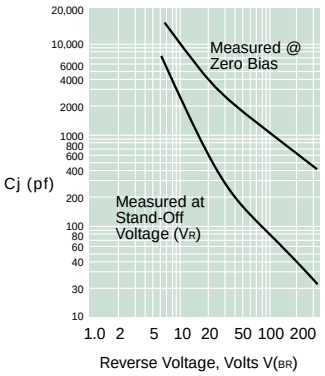


Figure 4 - Typical Junction Capacitance



ORDERING INFORMATION

1 N 5 6 X X A _

Voltage Reference
5% Voltage Tolerance
Packaging Option

B = Bulk (500 pcs)

ELECTRICAL SPECIFICATION @ Tamb 25°C

Part Number	Reverse Stand Off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T MIN	MAX	(mA)	Maximum Reverse Leakage I_R @ V_R (µA)	Maximum Clamping Voltage V_C @ I_{PP} (Volts)	Maximum Peak Pulse Current I_{PP} (A)	Max Voltage Temperature Variation of V_{BR} (mV/°C)
1N5629*	5.50	6.12	7.48	10	1000.0	10.8	139.0	5.0
1N5629A*	5.80	6.45	7.14	10	1000.0	10.5	143.0	5.0
1N5630	6.05	6.75	8.25	10	500.0	11.7	128.0	5.0
1N5630A	6.40	7.13	7.88	10	500.0	11.3	132.0	5.0
1N5631	6.63	7.38	9.02	10	200.0	12.5	120.0	6.0
1N5631A	7.02	7.79	8.61	10	200.0	12.1	124.0	6.0
1N5632	7.37	8.19	10.00	1.0	50.0	13.8	109.0	7.0
1N5632A	7.78	8.65	9.55	1.0	50.0	13.4	112.0	7.0
1N5633	8.10	9.00	11.00	1.0	10.0	15.0	100.0	8.0
1N5633A	8.55	9.50	10.50	1.0	10.0	14.5	103.0	8.0
1N5634	8.92	9.90	12.10	1.0	5.0	16.2	93.0	9.0
1N5634A	9.40	10.50	11.60	1.0	5.0	15.6	96.0	9.0
1N5635	9.72	10.80	13.20	1.0	5.0	17.3	87.0	10.0
1N5635A	10.20	11.40	12.60	1.0	5.0	16.7	90.0	10.0
1N5636	10.50	11.70	14.30	1.0	5.0	19.0	79.0	11.0
1N5636A	11.10	12.40	13.70	1.0	5.0	18.2	82.0	11.0
1N5637*	12.10	13.50	16.50	1.0	5.0	22.0	68.0	13.0
1N5637A*	12.80	14.30	15.80	1.0	5.0	21.2	71.0	12.0
1N5638*	12.90	14.40	17.60	1.0	5.0	23.5	64.0	16.0
1N5638A*	13.60	15.20	16.80	1.0	5.0	22.5	67.0	14.0
1N5639*	14.50	16.20	19.80	1.0	5.0	26.5	56.5	17.0
1N5639A*	15.30	17.10	18.90	1.0	5.0	25.2	59.5	19.0
1N5640	16.20	18.00	22.00	1.0	5.0	29.1	51.5	20.0
1N5640A	17.10	19.00	21.00	1.0	5.0	27.7	54.0	19.0
1N5641	17.80	19.80	24.20	1.0	5.0	31.9	47.0	21.0
1N5641A	18.80	20.90	23.10	1.0	5.0	30.6	49.0	20.0
1N5642	19.40	21.60	26.40	1.0	5.0	34.7	43.0	25.0
1N5642A	20.50	22.80	25.20	1.0	5.0	33.2	45.0	23.0
1N5643*	21.80	24.30	29.70	1.0	5.0	39.1	38.5	28.0
1N5643A*	23.10	25.70	28.40	1.0	5.0	37.5	40.0	25.0
1N5644*	24.30	27.00	33.00	1.0	5.0	43.5	34.5	31.0
1N5644A	25.60	28.50	31.50	1.0	5.0	41.4	36.0	28.0
1N5645	26.80	29.70	36.30	1.0	5.0	47.7	31.5	31.0
1N5645A	28.20	31.40	34.70	1.0	5.0	45.7	33.0	30.0
1N5646*	29.10	32.40	39.60	1.0	5.0	52.0	29.0	35.0
1N5646A*	30.80	34.20	37.80	1.0	5.0	49.9	30.0	31.0
1N5647	31.60	35.10	42.90	1.0	5.0	56.4	26.5	39.0
1N5647A	33.30	37.10	41.00	1.0	5.0	53.9	28.0	36.0
1N5648	34.80	38.70	47.30	1.0	5.0	61.9	24.0	46.0
1N5648A	36.80	40.90	45.20	1.0	5.0	59.3	25.3	44.0
1N5649*	38.10	42.30	51.70	1.0	5.0	67.8	22.2	50.0
1N5649A*	40.20	44.70	49.40	1.0	5.0	64.8	23.2	48.0
1N5650	41.30	45.90	56.10	1.0	5.0	73.5	20.4	55.0
1N5650A	43.60	48.50	53.60	1.0	5.0	70.1	21.4	51.0

Suffix 'A' denotes 5% tolerance device, no suffix denotes a 10% tolerance device.

1N5629 to 1N5647A V_F max = 3.5V at I_F = 50A 300 µS square wave pulse.

1N5648 to 1N5665A V_F max = 5.0V at I_F = 50A 300 µS square wave pulse.

* Preferred voltages.

ELECTRICAL SPECIFICATION @ Tamb 25°C

Part Number	Reverse Stand Off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T			Maximum Reverse Leakage I_R @ V_R (µA)	Maximum Clamping Voltage V_C @ I_{PP} (Volts)	Maximum Peak Pulse Current I_{PP} (A)	Max Voltage Temperature Variation of V_{BR} (mV/°C)
		MIN	MAX	(mA)				
1N5651	45.4	50.4	61.6	1.0	5.0	80.5	18.6	58.0
1N5651A	47.8	53.2	58.8	1.0	5.0	77.0	19.5	56.0
1N5652	50.2	55.8	68.2	1.0	5.0	89.0	16.9	65.0
1N5652A	53.0	58.9	65.1	1.0	5.0	85.0	17.7	62.0
1N5653	55.1	61.2	74.8	1.0	5.0	98.0	15.3	71.0
1N5653A	58.1	64.6	71.4	1.0	5.0	92.0	16.3	69.0
1N5654	60.7	67.5	82.5	1.0	5.0	108.0	13.9	80.0
1N5654A	64.1	71.3	78.8	1.0	5.0	103.0	14.6	76.0
1N5655*	66.4	73.8	90.2	1.0	5.0	118.0	12.7	90.0
1N5655A*	70.1	77.9	86.1	1.0	5.0	113.0	13.3	86.0
1N5656*	73.7	81.9	100.0	1.0	5.0	131.0	11.4	99.0
1N5656A*	77.8	86.5	95.5	1.0	5.0	125.0	12.0	94.0
1N5657	81.0	90.0	110.0	1.0	5.0	144.0	10.4	109.0
1N5657A	85.5	95.0	105.0	1.0	5.0	137.0	11.0	104.0
1N5658	89.2	99.0	121.0	1.0	5.0	158.0	9.5	120.0
1N5658A	94.0	105.0	116.0	1.0	5.0	152.0	9.9	115.0
1N5659	97.2	108.0	132.0	1.0	5.0	173.0	8.7	131.0
1N5659A	102.0	114.0	126.0	1.0	5.0	165.0	9.1	125.0
1N5660*	105.0	117.0	143.0	1.0	5.0	187.0	8.0	142.0
1N5660A*	111.0	124.0	137.0	1.0	5.0	179.0	8.4	136.0
1N5661	121.0	135.0	165.0	1.0	5.0	215.0	7.0	164.0
1N5661A	128.0	143.0	158.0	1.0	5.0	207.0	7.2	157.0
1N5662	130.0	144.0	176.0	1.0	5.0	230.0	6.5	175.0
1N5662A	136.0	152.0	168.0	1.0	5.0	219.0	6.8	167.0
1N5663	138.0	153.0	187.0	1.0	5.0	244.0	6.2	186.0
1N5663A	145.0	162.0	179.0	1.0	5.0	234.0	6.4	188.0
1N5664	146.0	162.0	198.0	1.0	5.0	258.0	5.8	197.0
1N5664A	154.0	171.0	189.0	1.0	5.0	246.0	6.1	188.0
1N5665	162.0	180.0	220.0	1.0	5.0	287.0	5.2	219.0
1N5665A	171.0	190.0	210.0	1.0	5.0	274.0	5.5	209.0

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* Preferred voltages.