Microsemi Corp.
The diode experts

SANTA ANA, CA

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For more information call:
(602) 941-6300

1N5629 thru 1N5665

TRANSIENT ABSORPTION ZENER

FEATURES

- PROTECTS CIRCUITS FROM HARMFUL TRANSIENTS
- ABSORBS 1 MS TRANSIENTS UP TO 1500 WATTS
- CLAMPS TRANSIENT IN 1 PICO SECOND
- 1 WATT CONTINUOUS POWER DISSIPATION
- WORKING VOLTAGE RANGE 5V TO 171V
- HERMETIC DO-13 METAL PACKAGE
- JAN/TX/TXV AVAILABLE PER MIL-S-19500/500

MAXIMUM RATINGS

1500 watts for 1 ms at lead temp (T_L) 25°C
See rating curves Figs. 1 thru 4
Operating and storage temp -65° to 175°C
DC power dissipation 1 watt at T_L = 25°C, 3/8″ from body.
Derate at 6.67 mW/°C
Forward surge current 200 amps for 8.3 ms at T_L = 25°C

ELECTRICAL CHARACTERISTICS

See following table
No suffix 10% tolerance
Suffix A 5% tolerance

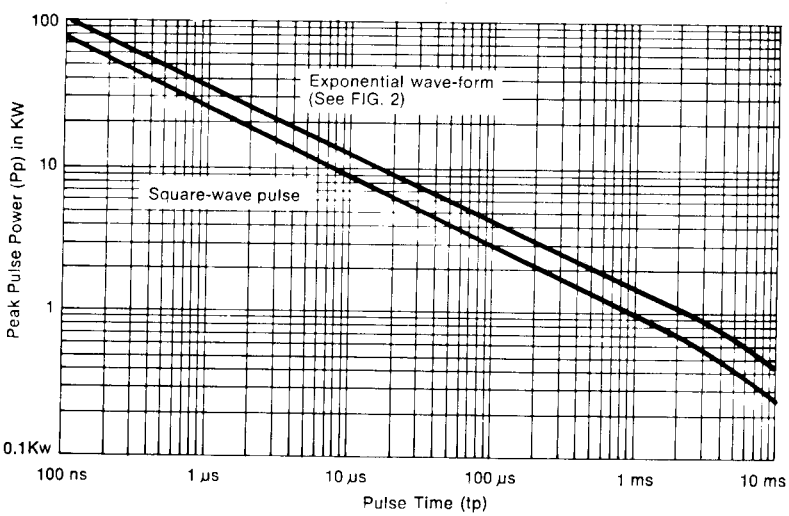
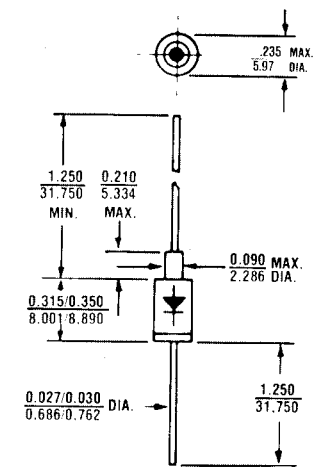


FIG. 1. Non- repetitive peak pulse power rating curve

Note: Peak power defined as peak voltage times peak current



All dimensions in INCH / m.m.

MECHANICAL CHARACTERISTICS

CASE: DO-13, welded, hermetically sealed metal and glass.

FINISH: All external surfaces are corrosion resistant and leads solderable.

THERMAL RESISTANCE: 50°C/W (Typical) junction to lead at 0.375-inches from body.

POLARITY: Cathode connected to case. Polarity indicated by diode symbol.

WEIGHT: 1.4 grams (Appx.)

MOUNTING POSITION: Any.

1N5629 thru 1N5665

*ELECTRICAL CHARACTERISTICS at $T_A = 25°C$

Type No.	Breakdown Voltage (V_{BR}) Min.	Breakdown Voltage (V_{BR}) Max.	Test Current (I_T)	Rated Standoff Voltage (V_{WM})	Maximum Reverse Leakage Current (I_D at V_{WM})	Maximum Peak Reverse Voltage (V_C max. at Ipp)	Maximum Peak Pulse Current (Ipp)	Maximum Temperature Coefficient of $V_{(BR)}$ α_{VZ} (T_A) -55°C to 100°C
	Vdc	Vdc	mAdc	V	μAdc	V	A	%°C
1N5629	6.12	7.48	10	5.50	1000	10.8	139	.057
1N5629A	6.45	7.14	10	5.80	1000	10.5	143	.057
1N5630	6.75	8.25	10	6.05	500	11.7	128	.061
1N5630A	7.13	7.88	10	6.40	500	11.3	132	.061
1N5631	7.38	9.02	10	6.63	200	12.5	120	.065
1N5631A	7.79	8.61	10	7.02	200	12.1	124	.065
1N5632	8.19	10.0	1	7.37	50	13.8	109	.068
1N5632A	8.65	9.55	1	7.78	50	13.4	112	.068
1N5633	9.00	11.0	1	8.10	10	15.0	100	.073
1N5633A	9.5	10.5	1	8.55	10	14.5	103	.073
1N5634	9.9	12.1	1	8.92	5	16.2	93	.075
1N5634A	10.5	11.6	1	9.40	5	15.6	96	.075
1N5635	10.8	13.2	1	9.72	5	17.3	87	.078
1N5635A	11.4	12.6	1	10.2	5	16.7	90	.078
1N5636	11.7	14.3	1	10.5	5	19.0	79	.081
1N5636A	12.4	13.7	1	11.1	5	18.2	82	.081
1N5637	13.5	16.5	1	12.1	5	22.0	68	.084
1N5637A	14.3	15.8	1	12.8	5	21.2	71	.084
1N5638	14.4	17.6	1	12.9	5	23.5	64	.086
1N5638A	15.2	16.8	1	13.6	5	22.5	67	.086
1N5639	16.2	19.8	1	14.5	5	26.5	56.5	.088
1N5639A	17.1	18.9	1	15.3	5	25.2	59.5	.088
1N5640	18.0	22.0	1	16.2	5	29.1	51.5	.090
1N5640A	19.0	21.0	1	17.1	5	27.7	54	.090
1N5641	19.8	24.2	1	17.8	5	31.9	47	.092
1N5641A	20.9	23.1	1	18.8	5	30.6	49	.092
1N5642	21.6	26.4	1	19.4	5	34.7	43	.094
1N5642A	22.8	25.2	1	20.5	5	33.2	45	.094
1N5643	24.3	29.7	1	21.8	5	39.1	38.5	.096
1N5643A	25.7	28.4	1	23.1	5	37.5	40	.096
1N5644	27.0	33.0	1	24.3	5	43.5	34.5	.097
1N5644A	28.5	31.5	1	25.6	5	41.4	36	.097
1N5645	29.7	36.3	1	26.8	5	47.7	31.5	.098
1N5645A	31.4	34.7	1	28.2	5	45.7	33	.098
1N5646	32.4	39.6	1	29.1	5	52.0	29	.099
1N5646A	34.2	37.8	1	30.8	5	49.9	30	.099
1N5647	35.1	42.9	1	31.6	5	56.4	26.5	.100
1N5647A	37.1	41.0	1	33.3	5	53.9	28	.100
1N5648	38.7	47.3	1	34.8	5	61.9	24	.101
1N5648A	40.9	45.2	1	36.8	5	59.3	25.3	.101
1N5649	42.3	51.7	1	38.1	5	67.8	22.2	.101
1N5649A	44.7	49.4	1	40.2	5	64.8	23.2	.101
1N5650	45.9	56.1	1	41.3	5	73.5	20.4	.102
1N5650A	48.5	53.6	1	43.6	5	70.1	21.4	.102
1N5651	50.4	61.6	1	45.4	5	80.5	18.6	.103
1N5651A	53.2	58.8	1	47.8	5	77.0	19.5	.103
1N5652	55.8	68.2	1	50.2	5	89.0	16.9	.104
1N5652A	58.9	65.1	1	53.0	5	85.0	17.7	.104
1N5653	61.2	74.8	1	55.1	5	98.0	15.3	.104
1N5653A	64.6	71.4	1	58.1	5	92.0	16.3	.104
1N5654	67.5	82.5	1	60.7	5	108	13.9	.105
1N5654A	71.3	78.8	1	64.1	5	103	14.6	.105
1N5655	73.8	90.2	1	66.4	5	118	12.7	.105
1N5655A	77.9	86.1	1	70.1	5	113	13.3	.105
1N5656	81.9	100.0	1	73.7	5	131	11.4	.106
1N5656A	86.5	95.5	1	77.8	5	125	12.0	.106
1N5657	90	110	1	81.0	5	144	10.4	.106
1N5657A	95	105	1	85.5	5	137	11.0	.106
1N5658	99	121	1	89.2	5	158	9.5	.107
1N5658A	105	116	1	94.0	5	152	9.9	.107
1N5659	108	132	1	97.2	5	173	8.7	.107
1N5659A	114	126	1	102	5	165	9.1	.107
1N5660	117	143	1	105	5	187	8.0	.107
1N5660A	124	137	1	111	5	179	8.4	.107
1N5661	135	165	1	121	5	215	7.0	.108
1N5661A	143	158	1	128	5	207	7.2	.108
1N5662	144	176	1	130	5	230	6.5	.108
1N5662A	152	168	1	136	5	219	6.8	.108
1N5663	153	187	1	138	5	244	6.2	.108
1N5663A	162	179	1	145	5	234	6.4	.108
1N5664	162	198	1	146	5	258	5.8	.108
1N5664A	171	189	1	154	5	246	6.1	.108
1N5665	180	220	1	162	5	287	5.2	.108
1N5665A	190	210	1	171	5	274	5.5	.108

*$V_{(BR)}$ is measured after I_T has been applied for ≤ 300 ms.
Forward voltage V_F at 100 amps peak 8.3 msec is 3.5 volts max.
Forward current I_F shall be applied for 30 secs. before V_F is measured.

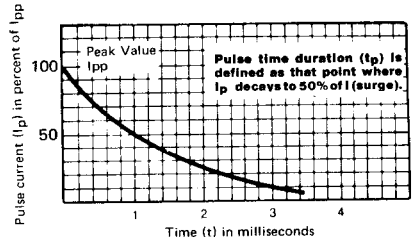


FIG. 2. Pulse wave form for exponential surge

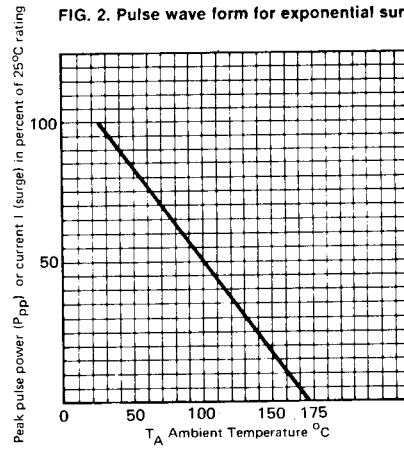


FIG. 3. Derating curve

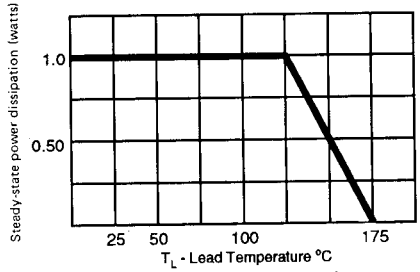


FIG. 4. Steady-state power derating curve

ABBREVIATIONS AND SYMBOLS

V_{WM} Stand Off Voltage: Applied Reverse Voltage to assure a nonconductive condition. (See Note 1.)

$V_{(BR)}$ This is the Breakdown Voltage the device will exhibit and is used to assure that conduction does not occur prior to this voltage level at 25°C.

V_C Maximum Clamping Voltage. The maximum peak voltage appearing across the Zener when subjected to the peak pulse current in a one millisecond time interval. The peak pulse voltages are the combination of voltage rise due to both the series resistance and thermal rise.

I_{pp} Peak Pulse Current—See Figure 2.

P_{pp}—Peak Pulse Power.

I_D—Reverse Leakage.

I_T—Current that $V_{(BR)}$ is measured at.

Note 1:
A TAZ is normally selected according to the rated "Stand Off Voltage" V_{WM} which should be equal to or greater than the DC or continuous peak operating voltage level.