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1N5555
1N5556
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TRANSIENT ABSORPTION ZENER

FEATURES

- PROTECTS CIRCUITS FROM HARMFUL TRANSIENTS
- ABSORBS TRANSIENTS UP TO 1500 WATTS FOR 1MS
- CLAMPING RESPONSE TIME OF 1 PICO SECOND
- 1 WATT CONTINUOUS POWER DISSIPATION
- WORKING VOLTAGE RANGE FROM 30.5 V TO 175 V
- HERMETIC SEALED DO-13 METAL PACKAGE
- JAN/TX/TXV AVAILABLE PER MIL-S-19500/500

DESCRIPTION

Transient Absorption Zeners are PN silicon junction zeners. Unlike the voltage regulation characteristics of a zener diode, the TAZ is designed for transient voltage suppression. Due to the TAZ's fast response time, protection level, and high discharge capability, its application area is very wide for protection against induced lighting, inductive and switching type transients, and can protect any kind of transient sensitive component/equipment, i.e., integrated circuits including secondary protection device in connection with SVP's in telecommunication applications. The use of TAZ devices in airborne avionics and electrical systems has proven to be highly effective.

MAXIMUM RATINGS

1500 Watts for 1 ms at Lead Temperature (TZ) 25°C (See Derating Curves Figs. 1-4)
Operating and Storage Temperatures: -65° to +175°C
D.C. Power Dissipation: 1 Watt at TZ = +25°C 3/8" from body
Forward Surge Rating: 200 Amps for 8.3 ms at T_A = +25°C Duty Cycle of 4 pulses per minute maximum.

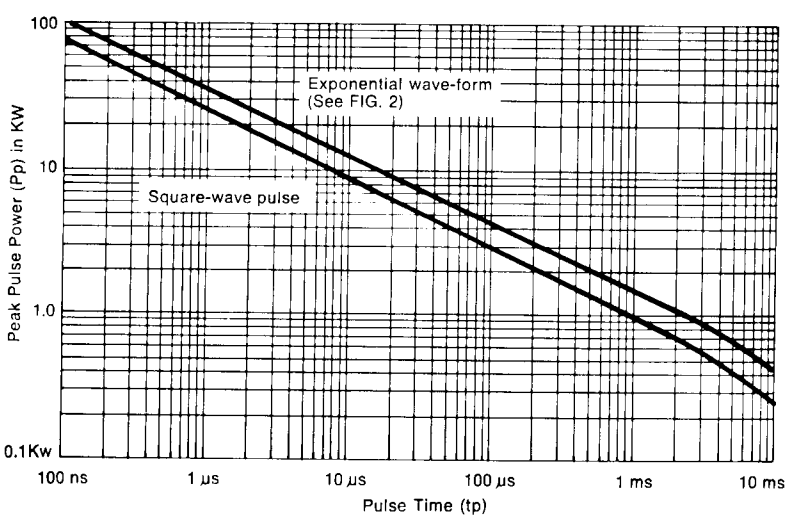
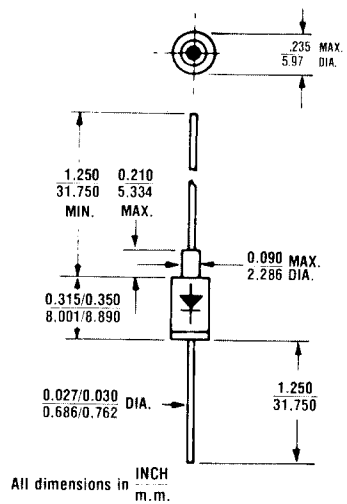


FIG. 1. Non- repetitive peak pulse power rating curve

Note: Peak power defined as peak voltage times peak current



MECHANICAL CHARACTERISTICS

CASE: DO-13 (DO-202AA), welded, hermetically sealed metal and glass.

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

THERMAL RESISTANCE: 100°C/W (Typical) junction to ambient.

POLARITY: Cathode connected to case and marked.

WEIGHT: 1.4 grams.

MOUNTING POSITION: Any.

ELECTRICAL CHARACTERISTICS

Jedec Type No.	Minimum Breakdown Voltage V_{BR} at I_T	Test Current (I_t)	Rated Standoff Voltage (V_{WM})	Maximum (RMS) Reverse Voltage V_{rwm}	Maximum Reverse Leakage Current (I_D) at V_{WM}	Maximum Peak Reverse Voltage (V_C Max.) at Ipp	Maximum Reverse Surge Current (I_{pp})	Maximum Temperature Coefficient of $V_{(BR)}$ α_{VZ} (T_A) -55°C to 100°C at 1.0 mAdc
	Vdc	mAdc	Vdc	V_{rms}	μAdc	V	A	%/°C
1N5555	33.0	1.0	30.5	21.5	5	47.5	32	+ .093
1N5556	43.7	1.0	40.3	28.5	5	63.5	24	+ .094
1N5557	54.0	1.0	49.3	34.5	5	78.5	19	+ .096
1N5558	191.0	1.0	175.0	124.0	5	265.0	5.7	+ .100

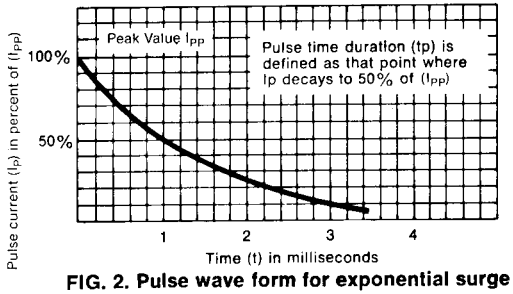


FIG. 2. Pulse wave form for exponential surge

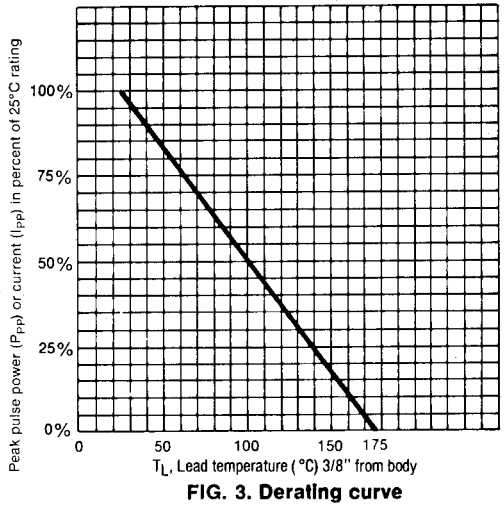


FIG. 3. Derating curve

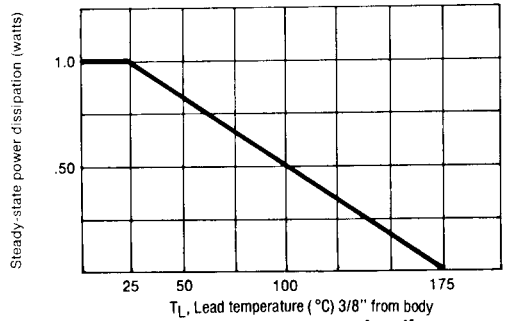


FIG. 4. Steady-state power derating curve

ABBREVIATIONS AND SYMBOLS

V_{WM} Stand Off Voltage: Applied Reverse Voltage to assure a nonconductive condition. (See Note 1.) $V_{(BR)}$ This is the minimum 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 TAZ 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 reverse "Stand Off Voltage" (V_{WM}) which should be equal to or greater than the DC or continuous peak operating voltage level.