General Semiconductor Industries, Inc.

DLZ-5 THRU 30 SERIES
DATA LINE ZORB® TRANSZORB™ FAMILY

FEATURES

- **Multiple TransZorb® TVS Array**
- **Unidirectional or Bidirectional**
- **Military Environment Capability**
- **Dual-In-Line, 16 pin Hermetic Package**
- **Available with high reliability processing per MIL-S-19500**
- **μP/mP Compatible Package**
- **Low Capacitance**
- **Voltage range of 5V to 100V available**
- **Common Bus Configuration**

MAXIMUM RATINGS

- 500 Watts Peak Pulse Power/Position (@25° C) (8 x 20μs)
- $t_{clamping}$ (0 volts to BV min.) Less than 1×10^{-12} seconds (theoretical) (unipolar); 5×10^{-9} seconds (bi-polar) (theoretical)
- Operating and Storage Temperatures: -55° C to +150° C
- Forward Surge Rating: 10 Amps, 1/120 sec. @ 25° C (uni-polar)
- Rep Rate (duty cycle): .01%

MECHANICAL CHARACTERISTICS

- Ceramic, 16 pin Dual-in-Line Case (.300" row spacing)
- Weight: 3.5 grams (approximate)
- Pin No. 1 marked with flag on lead and dot on top of package. Body marked with Logo and type Number

DESCRIPTION

The TransZorb TVS family of devices is packaged in a dual-in-line, ceramic, hermetically sealed package. Developed specifically for *military environments*, these components offer *15 protective devices; unidirectional and bidirectional*, common bus connections, per package. The dual-in-line design allows *compatible* packaging for microprocessors, memories, and controllers and is designed specifically for *data line protection*, at the PC board level, TTL and MOS voltages are available for protection of input/output data circuits.

DLZ series TransZorb TVS arrays are available with MIL processing to JANTX equivalent levels per MIL-S-19500. Specify DLZ part number with suffix "-H1" for 100% TX-level screening, and suffix "-H2" for 100% screening with Group B processing. See Appendix B for MIL processing.

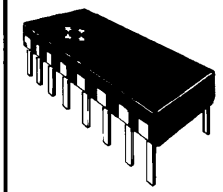
BENEFITS

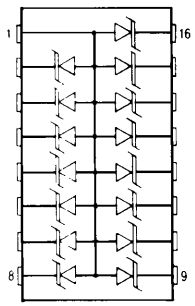
- Saves Space
- Saves Production Time
- Military Compatibility
- Ease of Design
- Protection for Data Lines
- EMP/ESD Protection
- Satisfies Military NEMP requirements
- Protection of I/O Devices

DEVICE TYPES AVAILABLE

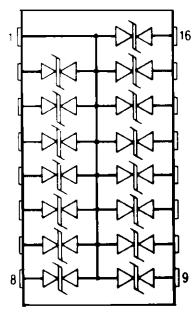
UNIDIRECTIONAL	BIDIRECTIONAL
DLZ-5, A	DLZ-8C, CA
DLZ-12, A	DLZ-13C, CA
DLZ-17, A	DLZ-19C, CA
DLZ-24, A	DLZ-30C, CA
DLZ-30, A	

CASE 29





Typical Uni-polar Schematic



Typical Bi-polar Schematic

FIGURE 1 — Peak Pulse Power vs Pulse Time (per position)

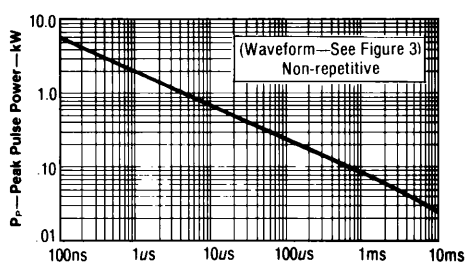
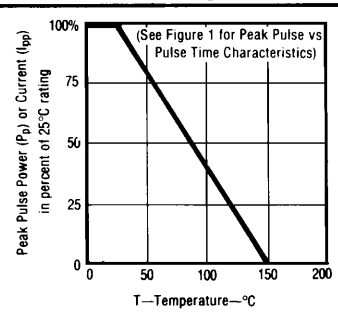


FIGURE 2 — Derating Curve

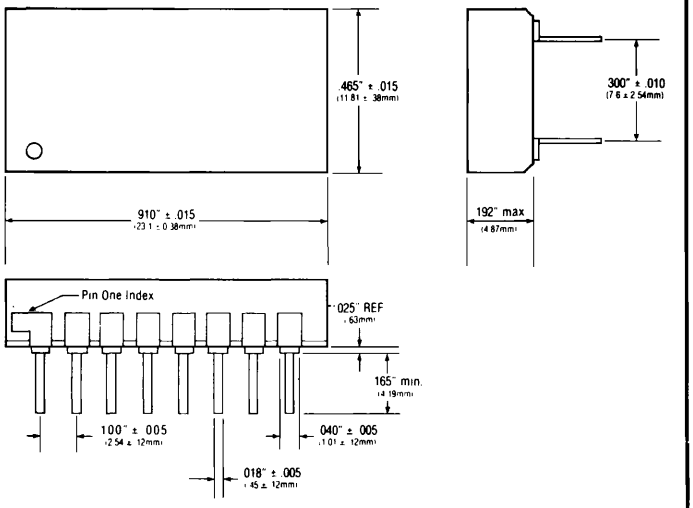


ELECTRICAL CHARACTERISTICS @ 25°C AMBIENT

GENERAL SEMICONDUCTOR PART NUMBER	REVERSE STAND-OFF VOLTAGE @ VR VOLTS	MINIMUM BREAKDOWN VOLTAGE @ 1ma BV (min) VOLTS	MAXIMUM CLAMPING VOLTAGE @ Ipp1 1A (8 x 20μsec) VC1 VOLTS	MAXIMUM CLAMPING VOLTAGE @ Ipp2 10A (8 x 20μsec) VC2 VOLTS	MAXIMUM REVERSE LEAKAGE @ VR IR μA	MAXIMUM CAPACITANCE @ 0V, 1MHz C pF	MAXIMUM VOLTAGE TEMPERATURE VARIATION OF BV MV/°C
UNI-POLAR							
DLZ-5	5	6.0	10.2	12.5	200	880	5
DLZ-5A	5	6.0	9.5	10.6	200	880	5
DLZ-12	12	13.3	21.1	26.0	2	440	18
DLZ-12A	12	13.3	19.1	23.5	2	440	18
DLZ-17	17	19.2	30.4	37.4	2	330	20
DLZ-17A	17	19.2	27.5	33.9	2	330	20
DLZ-24	24	26.7	42.3	52.1	2	275	31
DLZ-24A	24	26.7	38.3	47.2	2	275	31
DLZ-30	30	33.3	52.8	65.0	2	220	39
DLZ-30A	30	33.3	47.8	58.8	2	220	39
BI-POLAR							
DLZ-8C	8	8.5	13.4	16.6	10	440	9
DLZ-8CA	8	8.5	12.2	15.0	10	440	9
DLZ-13C	13	14.4	22.8	28.1	4	385	18
DLZ-13CA	13	14.4	20.6	25.4	4	385	18
DLZ-19C	19	21.6	34.2	42.1	4	275	24
DLZ-19CA	19	21.6	31.0	38.1	4	275	24
DLZ-30C	30	33.3	52.8	65.0	4	165	39
DLZ-30CA	30	33.3	47.8	58.8	4	165	39

"A", "CA" suffix denotes selected clamping voltage.

CASE OUTLINE — CASE 29



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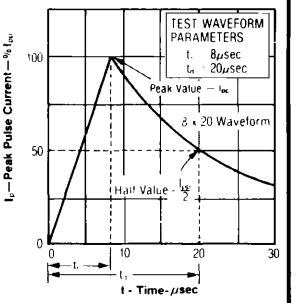
DATA LINE ZORB®

UNIDIRECTIONAL & BIDIRECTIONAL

FIGURE 3 — Pulse Waveform



NOTES

Note 1: A TransZorb is normally selected according to the reverse "Stand Off Voltage" (V_R) which should be equal to or greater than the DC or continuous peak operating voltage level.

ABBREVIATIONS & SYMBOLS

- V_R — Stand-Off Voltage: Applied Reverse Voltage to assure a nonconductive condition (See Note 1)
- BV(min) — 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(max) — Maximum Clamping Voltage: The maximum peak voltage appearing across the TransZorb 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 3
- I_p — Peak Pulse Power
- I_R — Reverse Leakage