

### DESCRIPTION

The 1N61xx series of transient voltage suppressors are designed to protect military and commercial electronic equipment from overvoltages caused by lightning, ESD, EFT, inductive load switching, and EMP. These devices are constructed using two p-n junction TVS diodes in a back-to-back configuration, hermetically sealed in a voidless glass package. The hermetically sealed package provides high reliability in harsh environmental conditions. TVS diodes are further characterized by their high surge capability, low operating and clamping voltages, and a theoretically instantaneous response time. This makes them ideal for use as board level protection for sensitive semiconductor components.

### FEATURES:

- 500 Watts Peak Pulse Power ( $t_p = 10/1000\mu s$ )
- Voidless hermetically sealed glass package
- Metallurgically bonded
- High surge capacity
- Military & Industrial applications
- Available in JAN, JTX, and JTXV versions per MIL-S-19500/516

### MECHANICAL CHARACTERISTICS:

- Hermetically sealed glass package
- Tinned copper leads
- Marking : P/N, date code, logo

### MAXIMUM RATINGS

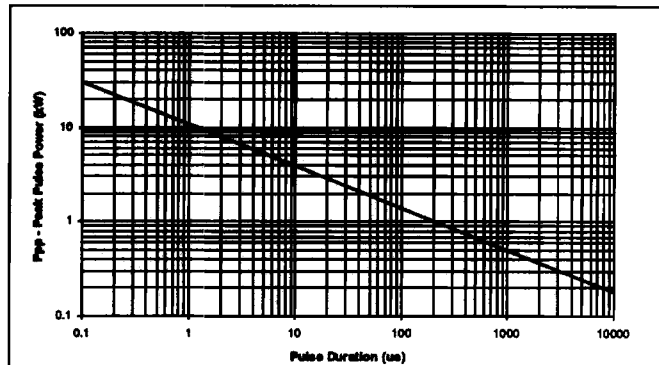
| RATING                                                     | SYMBOL | VALUE       | UNIT  |
|------------------------------------------------------------|--------|-------------|-------|
| Peak Pulse Power ( $t_p = 10 \times 1000 \mu s$ )          | Ppk    | 500         | Watts |
| Operating Temperature                                      | TJ     | -65 to +175 | °C    |
| Storage Temperature                                        | Tstg   | -65 to +175 | °C    |
| Steady-State Power Dissipation @ $T_L = 75^\circ C$ (3/8") | PD     | 3           | Watts |

### ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise specified)

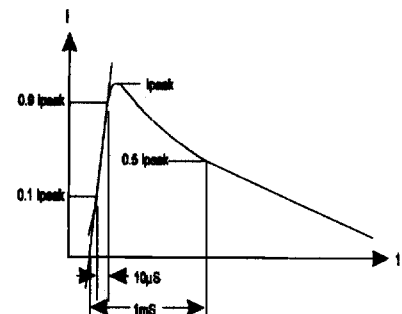
| DEVICE TYPE | REVERSE STAND-OFF VOLTAGE $V_{RWM}$ | REVERSE LEAKAGE CURRENT $I_R$ | MINIMUM BREAKDOWN VOLTAGE $V_{BR} @ I_T$ | TEST CURRENT $I_T$ | MAXIMUM CLAMPING VOLTAGE $V_C @ I_{pp}$ | PEAK PULSE CURRENT $I_{pp}$ $t_p = 1mS$ | TEMPERATURE COEFFICIENT OF $V_{BR}$ $\alpha V_Z$ | MAXIMUM REVERSE LEAKAGE CURRENT (I <sub>R2</sub> ) $T_A = +150^\circ C$ |
|-------------|-------------------------------------|-------------------------------|------------------------------------------|--------------------|-----------------------------------------|-----------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------|
|             | (V)                                 | ( $\mu A$ )                   | (V)                                      | (mA)               | (V)                                     | (A)                                     | % / °C                                           | (A)                                                                     |
| 1N6102A     | 5.2                                 | 100                           | 6.46                                     | 175                | 10.8                                    | 47.6                                    | 0.05                                             | 4000                                                                    |
| 1N6103A     | 5.7                                 | 50                            | 7.13                                     | 175                | 11.2                                    | 44.6                                    | 0.06                                             | 750                                                                     |
| 1N6104A     | 6.2                                 | 20                            | 7.79                                     | 150                | 12.1                                    | 41.3                                    | 0.06                                             | 500                                                                     |
| 1N6105A     | 6.9                                 | 20                            | 8.65                                     | 150                | 13.4                                    | 37.3                                    | 0.06                                             | 300                                                                     |
| 1N6106A     | 7.6                                 | 20                            | 9.50                                     | 125                | 14.5                                    | 34.5                                    | 0.07                                             | 200                                                                     |
| 1N6107A     | 8.4                                 | 20                            | 10.45                                    | 125                | 15.6                                    | 32.0                                    | 0.07                                             | 200                                                                     |
| 1N6108A     | 9.1                                 | 20                            | 11.40                                    | 100                | 16.9                                    | 29.6                                    | 0.07                                             | 150                                                                     |
| 1N6109A     | 9.9                                 | 20                            | 12.35                                    | 100                | 18.2                                    | 27.5                                    | 0.08                                             | 150                                                                     |
| 1N6110A     | 11.4                                | 20                            | 14.25                                    | 75                 | 21.0                                    | 23.8                                    | 0.08                                             | 100                                                                     |
| 1N6111A     | 12.2                                | 20                            | 15.20                                    | 75                 | 22.3                                    | 22.4                                    | 0.08                                             | 100                                                                     |
| 1N6112A     | 13.7                                | 1                             | 17.10                                    | 65                 | 25.1                                    | 19.9                                    | 0.085                                            | 100                                                                     |
| 1N6113A     | 15.2                                | 1                             | 19.0                                     | 65                 | 27.7                                    | 18.0                                    | 0.085                                            | 100                                                                     |
| 1N6114A     | 16.7                                | 1                             | 20.9                                     | 50                 | 30.5                                    | 16.4                                    | 0.085                                            | 100                                                                     |
| 1N6115A     | 18.2                                | 1                             | 22.8                                     | 50                 | 33.3                                    | 15.0                                    | 0.09                                             | 100                                                                     |
| 1N6116A     | 20.6                                | 1                             | 25.7                                     | 50                 | 37.4                                    | 13.4                                    | 0.09                                             | 100                                                                     |
| 1N6117A     | 22.8                                | 1                             | 28.5                                     | 40                 | 41.6                                    | 12.0                                    | 0.09                                             | 100                                                                     |
| 1N6118A     | 25.1                                | 1                             | 31.4                                     | 40                 | 45.7                                    | 10.9                                    | 0.095                                            | 100                                                                     |
| 1N6119A     | 27.4                                | 1                             | 34.2                                     | 30                 | 49.9                                    | 10.0                                    | 0.095                                            | 100                                                                     |
| 1N6120A     | 29.7                                | 1                             | 37.1                                     | 30                 | 53.6                                    | 9.3                                     | 0.095                                            | 100                                                                     |
| 1N6121A     | 32.7                                | 1                             | 40.9                                     | 30                 | 59.1                                    | 8.5                                     | 0.095                                            | 100                                                                     |
| 1N6122A     | 35.8                                | 1                             | 44.7                                     | 25                 | 64.6                                    | 7.7                                     | 0.095                                            | 100                                                                     |
| 1N6123A     | 38.8                                | 1                             | 48.5                                     | 25                 | 70.1                                    | 7.1                                     | 0.095                                            | 100                                                                     |
| 1N6124A     | 42.6                                | 1                             | 53.2                                     | 20                 | 77.0                                    | 6.5                                     | 0.095                                            | 100                                                                     |
| 1N6125A     | 47.1                                | 1                             | 58.9                                     | 20                 | 85.3                                    | 5.9                                     | 0.100                                            | 100                                                                     |
| 1N6126A     | 51.7                                | 1                             | 64.6                                     | 20                 | 97.1                                    | 5.1                                     | 0.100                                            | 100                                                                     |
| 1N6127A     | 56.0                                | 1                             | 71.3                                     | 20                 | 103.1                                   | 4.8                                     | 0.100                                            | 100                                                                     |
| 1N6128A     | 62.2                                | 1                             | 77.9                                     | 15                 | 112.8                                   | 4.4                                     | 0.100                                            | 100                                                                     |
| 1N6129A     | 69.2                                | 1                             | 86.5                                     | 15                 | 125.1                                   | 4.0                                     | 0.100                                            | 100                                                                     |
| 1N6130A     | 78.0                                | 1                             | 95.0                                     | 12                 | 137.6                                   | 3.6                                     | 0.100                                            | 100                                                                     |
| 1N6131A     | 83.6                                | 1                             | 104.5                                    | 12                 | 151.3                                   | 3.3                                     | 0.100                                            | 100                                                                     |
| 1N6132A     | 91.2                                | 1                             | 114.0                                    | 10                 | 165.1                                   | 3.0                                     | 0.100                                            | 100                                                                     |
| 1N6133A     | 98.8                                | 1                             | 123.5                                    | 10                 | 178.8                                   | 2.8                                     | 0.105                                            | 100                                                                     |
| 1N6134A     | 114.0                               | 1                             | 142.5                                    | 8                  | 206.3                                   | 2.4                                     | 0.105                                            | 100                                                                     |
| 1N6135A     | 121.6                               | 1                             | 152.0                                    | 8                  | 218.4                                   | 2.3                                     | 0.105                                            | 100                                                                     |
| 1N6136A     | 136.3                               | 1                             | 171.0                                    | 5                  | 245.7                                   | 2.0                                     | 0.110                                            | 100                                                                     |
| 1N6137A     | 152.0                               | 1                             | 190.0                                    | 5                  | 273.0                                   | 1.8                                     | 0.110                                            | 100                                                                     |

1. Non-A Part has 5% higher clamping voltage, 5% lower minimum breakdown voltage, and 5% lower peak pulse current.

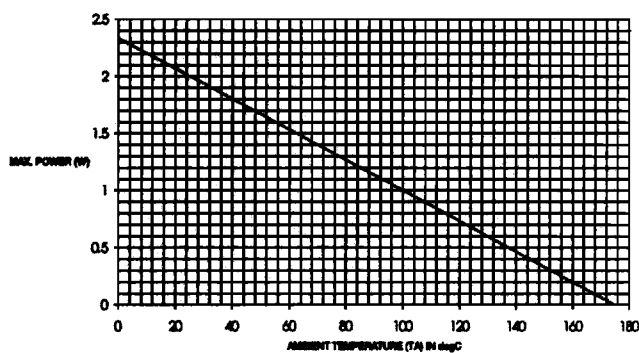
## PEAK PULSE POWER vs. PULSE TIME



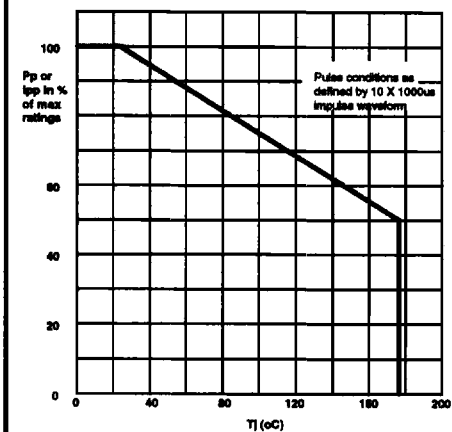
## 10x1000μs IMPULSE WAVEFORM



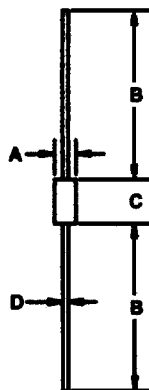
## STEADY STATE DERATING CHARACTERISTICS FOR FREE AIR MOUNTING



## PULSE DERATING CURVE



## MECHANICAL OUTLINE



| DIMENSIONS       |        |       |      |      |      |
|------------------|--------|-------|------|------|------|
| DIM <sup>N</sup> | INCHES |       | MM   |      | NOTE |
|                  | MIN    | MAX   | MIN  | MAX  |      |
| A                | 0.085  | 0.140 | 2.1  | 3.6  |      |
| B                | 1.00   | 1.300 | 25.4 | 33.0 |      |
| C                | 0.140  | 0.245 | 3.5  | 6.3  | 2    |
| D                | 0.025  | 0.033 | 0.65 | 0.84 |      |

### NOTES :

1. Controlling dimension is inches.
2. Includes uncontrolled area of device leads.

## SCHEMATIC

