

**Microsemi Corp.**

The diode experts

SANTA ANA, CA

For more information call:  
(714) 979-8220

ALSO  
AVAILABLE IN  
SURFACE  
MOUNT

★ JANS ★

**1N6103-1N6137**  
**1N6139-1N6173**  
**1N6103A-1N6137A**  
**1N6139A-1N6173A**

## FEATURES

- HIGH SURGE CAPACITY PROVIDES TRANSIENT PROTECTION FOR MOST CRITICAL CIRCUITS.
- TRIPLE LAYER PASSIVATION.
- SUBMINIATURE.
- METALLURGICALLY BONDED.
- VOIDLESS HERMETICALLY SEALED GLASS PACKAGE
- DYNAMIC IMPEDANCE AND REVERSE LEAKAGE LOWEST AVAILABLE.
- JAN/S/TX/TV TYPES AVAILABLE PER MIL-S-19500/516.

## MAXIMUM RATINGS

Operating Temperature:  $-65^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$ .

Storage Temperature:  $-65^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$ .

Surge Power 500W & 1500W

Power @ TL =  $75^{\circ}\text{C}$  (%) 3.0W 500W Type

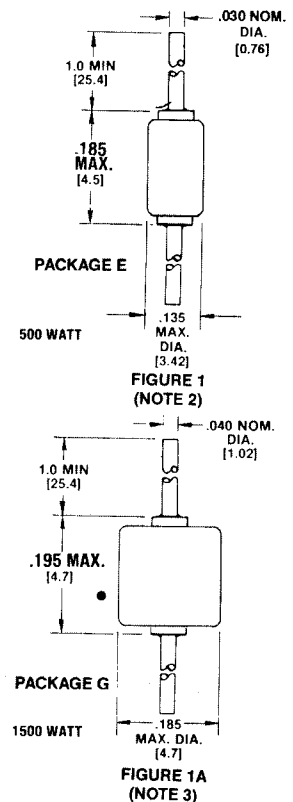
Power @ TL =  $50^{\circ}\text{C}$  (%) 5.0W 1500W Type

## ELECTRICAL CHARACTERISTICS

| SERIES TYPE |         | BREAKDOWN VOLTAGE<br>V(BR)<br>MIN. | TEST CURRENT<br>I <sub>T</sub> | WORKING PEAK VOLTAGE<br>V <sub>WM</sub> | MAX LEAKAGE CURRENT<br>I <sub>D</sub> | MAX CLAMPING VOLTAGE<br>V <sub>C</sub> (MAX) | MAX PEAK PULSE CURRENT<br>I <sub>P</sub> | MAX. TEMP. COEFF. OF<br>V(BR) |       |      |
|-------------|---------|------------------------------------|--------------------------------|-----------------------------------------|---------------------------------------|----------------------------------------------|------------------------------------------|-------------------------------|-------|------|
| 500W        | 1500W   | Vdc                                | mAdc                           | Vdc                                     | μAdc                                  | μAdc                                         | V(pk)                                    | A(pk)                         | A(pk) | %/°C |
| 1N6103A     | 1N6139A | 7.13                               | 175                            | 5.7                                     | 50                                    | 300                                          | 11.2                                     | 44.6                          | 133.9 | .06  |
| 1N6104A     | 1N6140A | 7.79                               | 150                            | 6.2                                     | 10                                    | 100                                          | 12.1                                     | 41.3                          | 124.0 | .06  |
| 1N6105A     | 1N6141A | 8.65                               | 150                            | 6.9                                     | 10                                    | 100                                          | 13.4                                     | 37.3                          | 111.9 | .06  |
| 1N6106A     | 1N6142A | 9.50                               | 125                            | 7.6                                     | 10                                    | 100                                          | 14.5                                     | 34.5                          | 103.4 | .07  |
| 1N6107A     | 1N6143A | 10.45                              | 125                            | 8.4                                     | 1                                     | 10                                           | 15.6                                     | 32.0                          | 96.2  | .07  |
| 1N6108A     | 1N6144A | 11.40                              | 100                            | 9.1                                     | 1                                     | 10                                           | 16.9                                     | 29.6                          | 88.8  | .07  |
| 1N6109A     | 1N6145A | 12.35                              | 100                            | 9.9                                     | 1                                     | 10                                           | 18.2                                     | 27.5                          | 82.4  | .08  |
| 1N6110A     | 1N6146A | 14.25                              | 75                             | 11.4                                    | 1                                     | 10                                           | 21.0                                     | 23.8                          | 71.4  | .08  |
| 1N6111A     | 1N6147A | 15.20                              | 75                             | 12.2                                    | 1                                     | 10                                           | 22.3                                     | 22.4                          | 67.3  | .08  |
| 1N6112A     | 1N6148A | 17.10                              | 65                             | 13.7                                    | 1                                     | 10                                           | 25.1                                     | 19.9                          | 59.8  | .085 |
| 1N6113A     | 1N6149A | 19.0                               | 65                             | 15.2                                    | 1                                     | 5                                            | 27.7                                     | 18.0                          | 54.2  | .085 |
| 1N6114A     | 1N6150A | 20.9                               | 50                             | 16.7                                    | 1                                     | 5                                            | 30.5                                     | 16.4                          | 49.2  | .085 |
| 1N6115A     | 1N6151A | 22.8                               | 50                             | 18.2                                    | 1                                     | 5                                            | 33.3                                     | 15.0                          | 45.0  | .09  |
| 1N6116A     | 1N6152A | 25.7                               | 50                             | 20.6                                    | 1                                     | 5                                            | 37.4                                     | 13.4                          | 40.1  | .09  |
| 1N6117A     | 1N6153A | 28.5                               | 40                             | 22.8                                    | 1                                     | 5                                            | 41.6                                     | 12.0                          | 36.0  | .09  |
| 1N6118A     | 1N6154A | 31.4                               | 40                             | 25.1                                    | 1                                     | 5                                            | 45.7                                     | 10.9                          | 32.8  | .095 |
| 1N6119A     | 1N6155A | 34.2                               | 30                             | 27.4                                    | 1                                     | 5                                            | 49.9                                     | 10.0                          | 30.1  | .095 |
| 1N6120A     | 1N6156A | 37.1                               | 30                             | 29.7                                    | 1                                     | 5                                            | 53.6                                     | 9.3                           | 28.0  | .095 |
| 1N6121A     | 1N6157A | 40.9                               | 30                             | 32.7                                    | 1                                     | 5                                            | 59.1                                     | 8.5                           | 25.4  | .095 |
| 1N6122A     | 1N6158A | 44.7                               | 25                             | 35.8                                    | 1                                     | 5                                            | 64.6                                     | 7.7                           | 23.2  | .095 |
| 1N6123A     | 1N6159A | 48.5                               | 25                             | 38.8                                    | 1                                     | 5                                            | 70.1                                     | 7.1                           | 21.4  | .095 |
| 1N6124A     | 1N6160A | 53.2                               | 20                             | 42.6                                    | 1                                     | 5                                            | 77.0                                     | 6.5                           | 19.5  | .095 |
| 1N6125A     | 1N6161A | 58.9                               | 20                             | 47.1                                    | 1                                     | 5                                            | 85.3                                     | 5.9                           | 17.6  | .100 |
| 1N6126A     | 1N6162A | 64.6                               | 20                             | 51.7                                    | 1                                     | 5                                            | 97.1                                     | 5.1                           | 15.4  | .100 |
| 1N6127A     | 1N6163A | 71.3                               | 20                             | 56.0                                    | 1                                     | 5                                            | 103.1                                    | 4.8                           | 14.5  | .100 |
| 1N6128A     | 1N6164A | 77.9                               | 15                             | 62.2                                    | 1                                     | 5                                            | 112.8                                    | 4.4                           | 13.3  | .100 |
| 1N6129A     | 1N6165A | 86.5                               | 15                             | 69.2                                    | 1                                     | 5                                            | 125.1                                    | 4.0                           | 12.0  | .100 |
| 1N6130A     | 1N6166A | 95.0                               | 12                             | 76.0                                    | 1                                     | 5                                            | 137.6                                    | 3.6                           | 10.9  | .100 |
| 1N6131A     | 1N6167A | 104.5                              | 12                             | 86.6                                    | 1                                     | 5                                            | 151.3                                    | 3.3                           | 9.9   | .100 |
| 1N6132A     | 1N6168A | 114.0                              | 10                             | 91.2                                    | 1                                     | 5                                            | 165.1                                    | 3.0                           | 9.1   | .100 |
| 1N6133A     | 1N6169A | 123.5                              | 10                             | 98.8                                    | 1                                     | 5                                            | 178.8                                    | 2.8                           | 8.4   | .105 |
| 1N6134A     | 1N6170A | 142.5                              | 8                              | 114.0                                   | 1                                     | 5                                            | 206.3                                    | 2.4                           | 7.3   | .105 |
| 1N6135A     | 1N6171A | 152.0                              | 8                              | 121.6                                   | 1                                     | 5                                            | 218.4                                    | 2.3                           | 6.9   | .105 |
| 1N6136A     | 1N6172A | 171.0                              | 5                              | 136.8                                   | 1                                     | 5                                            | 245.7                                    | 2.0                           | 6.1   | .110 |
| 1N6137A     | 1N6173A | 190.0                              | 5                              | 152.0                                   | 1                                     | 5                                            | 273.0                                    | 1.8                           | 5.5   | .110 |
| Note 4      |         | 1                                  | 1                              | 1                                       | 2                                     | 3                                            | 1                                        | 2                             | 3     | 1    |

NOTES: 1. Applies to both 500W and 1500W series. 4. Non -A part has 5% higher max surge voltage, 5% lower  $V_{BR}$  min.,  $I_{SM}$ .  
2. Applies to only 500W series.  
3. Applies to only 1500W series.

## BIDIRECTIONAL TRANSIENT SUPPRESSORS



## MECHANICAL CHARACTERISTICS

Case: Hermetically sealed glass case.

Lead Material: Tinned copper or silver clad copper.

Marking: Body painted, alpha numeric.

Polarity: No marking with 4-13 bi directional devices.

# 1N6103-1N6137, 1N6139-1N6173, 1N6103A-1N6137A, 1N6139A-1N6173A

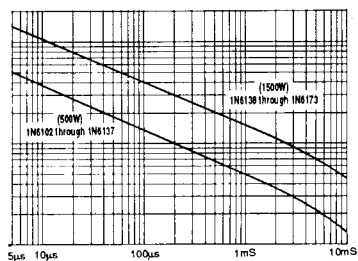


FIGURE 2  
PEAK SURGE POWER VS. PULSE TIME

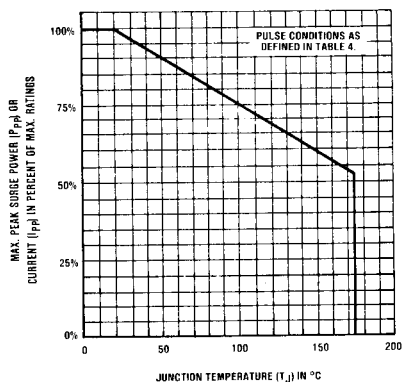


FIGURE 3  
PULSE DERATING CURVE

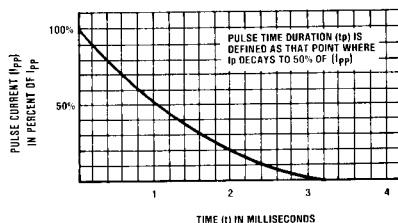


FIGURE 4  
PULSE WAVE FORM

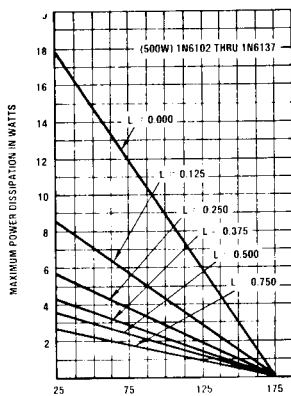


FIGURE 5  
MAXIMUM POWER vs. LEAD TEMPERATURE

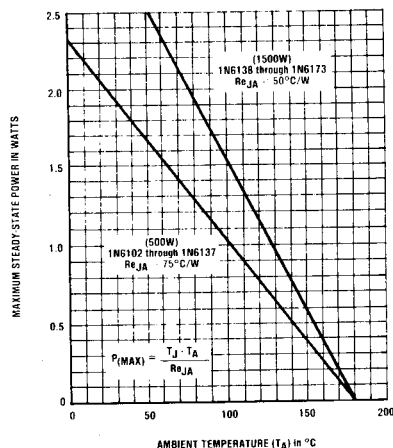
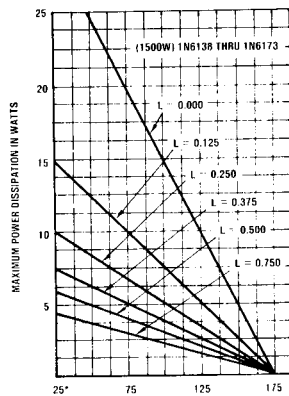


FIGURE 6  
STEADY STATE DERATING CURVE  
FOR FREE AIR MOUNTING

Maximum lead temperature in °C ( $T_L$ ) at point "L" from body  
(for maximum operating junction temperature with equal two-lead conditions).