

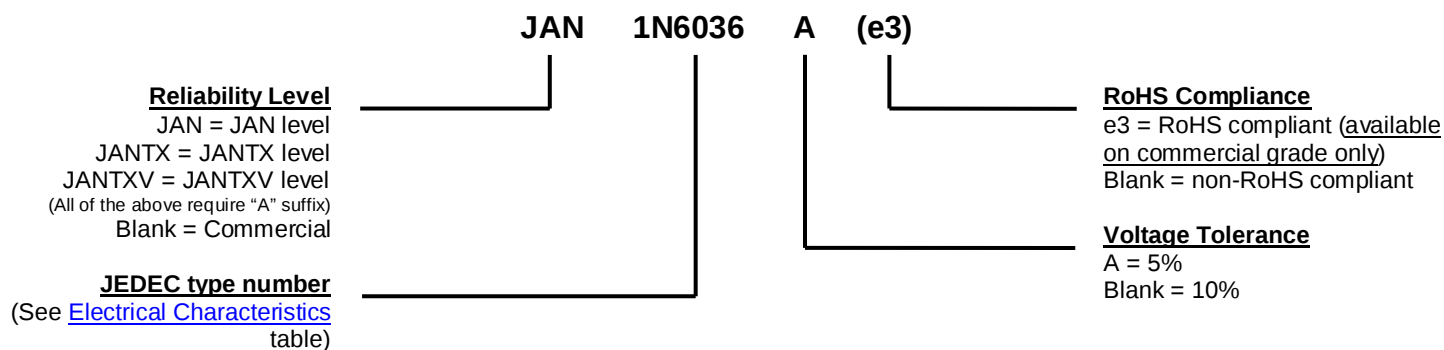
**MAXIMUM RATINGS**

| Parameters/Test Conditions                                          | Symbol              | Value       | Unit |
|---------------------------------------------------------------------|---------------------|-------------|------|
| Junction and Storage Temperature                                    | $T_J$ and $T_{STG}$ | -55 to +175 | °C   |
| Peak Pulse Power @ $T_L = +25$ °C <sup>(1)</sup>                    | $P_{PP}$            | 1500        | W    |
| Rated Average Power Dissipation @ $T_L \leq +125$ °C <sup>(2)</sup> | $P_{M(AV)}$         | 1           | W    |
| Solder Temperature @ 10 s                                           | $T_{SP}$            | 260         | °C   |

**Notes:** 1. At 10/1000 us with repetition rate of 0.01% or less (see [Figures 1, 2, & 4](#)).  
2. At 10 mm from body (see derating in [Figure 3](#) and note below).

**MECHANICAL and PACKAGING**

- CASE: DO-13 (DO-202AA), welded, hermetically sealed metal and glass.
- TERMINALS: All external metal surfaces are tin-lead plated and solderable per MIL-STD-750 method 2026.
- MARKING: Part number.
- POLARITY: Not applicable for bidirectional TVS.
- TAPE & REEL option: Standard per EIA-296 (add "TR" suffix to part number). Consult factory for quantities.
- WEIGHT: Approx 1.4 grams.
- See [Package Dimensions](#) on last page.

**PART NOMENCLATURE**

**SYMBOLS & DEFINITIONS**

| Symbol     | Definition                                                                                                                                                                                                                                                                                                                       |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $V_{WM}$   | Standoff Voltage: Applied Reverse Voltage to assure a nonconductive condition.                                                                                                                                                                                                                                                   |
| $V_{(BR)}$ | Breakdown Voltage: This is the Breakdown Voltage the device will exhibit at 25 °C.                                                                                                                                                                                                                                               |
| $V_C$      | Maximum Clamping Voltage: The maximum peak voltage appearing across the TVS when subjected to the peak pulse current in a one millisecond time interval. The peak pulse voltage is the combination of voltage rise due to both the series resistance and thermal rise and positive temperature coefficient ( $\alpha_{V(BR)}$ ). |
| $I_{PP}$   | Peak Pulse Current: The peak current during the impulse. (See <a href="#">Figure 2</a> )                                                                                                                                                                                                                                         |
| $P_{PP}$   | Peak Pulse Power: The pulse power as determined by the product of $V_C$ and $I_{PP}$ .                                                                                                                                                                                                                                           |
| $I_D$      | Standby Current: The current at the standoff voltage ( $V_{WM}$ ).                                                                                                                                                                                                                                                               |
| $I_{(BR)}$ | Breakdown Current: The current used for measuring Breakdown Voltage ( $V_{(BR)}$ ).                                                                                                                                                                                                                                              |

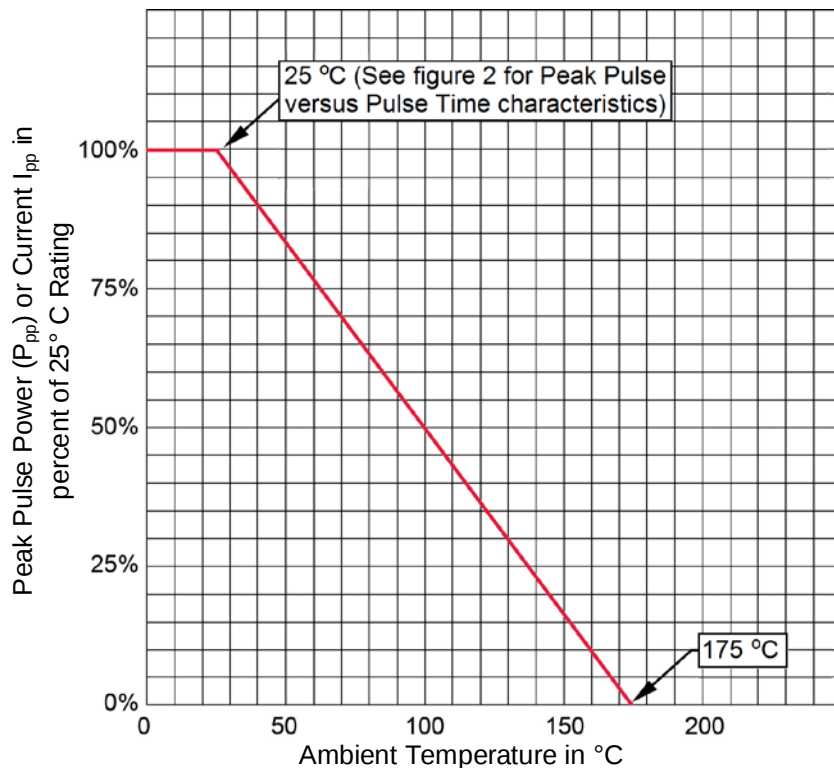
**ELECTRICAL CHARACTERISTICS @ 25 °C (Test Both Polarities)**

| JEDEC<br>Type<br>No. | Rated<br>Standoff<br>Voltage<br>$V_{WM}$ | Breakdown<br>Voltage<br>$V_{(BR)}$ |                        |                    | Maximum<br>Clamping<br>Voltage<br>$V_C @ I_{PP}$ | Maximum<br>Standby<br>Current<br>$I_D @ V_{WM}$ | Maximum<br>Peak Pulse<br>Current<br>$I_{PP}$<br>(See Fig. 2) | Maximum<br>Temperature<br>Coefficient of<br>$V_{(BR)}$ |
|----------------------|------------------------------------------|------------------------------------|------------------------|--------------------|--------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------|
|                      | Volts                                    | $V_{(BR)min}$<br>Volts             | $V_{(BR)max}$<br>Volts | @ $I_{(BR)}$<br>mA | Volts                                            | $\mu A$                                         | Amps                                                         | $\alpha_{V(BR)}$<br>%/°C                               |
| 1N6036               | 5.5                                      | 6.75                               | 8.25                   | 10                 | 11.7                                             | 1000                                            | 128                                                          | .061                                                   |
| *1N6036A             | 6.0                                      | 7.13                               | 7.88                   | 10                 | 11.3                                             | 1000                                            | 132                                                          | .061                                                   |
| 1N6037               | 6.5                                      | 7.38                               | 9.02                   | 10                 | 12.5                                             | 500                                             | 120                                                          | .065                                                   |
| *1N6037A             | 7.0                                      | 7.79                               | 8.61                   | 10                 | 12.1                                             | 500                                             | 124                                                          | .065                                                   |
| 1N6038               | 7.0                                      | 8.19                               | 10.00                  | 10                 | 13.8                                             | 200                                             | 109                                                          | .068                                                   |
| *1N6038A             | 7.5                                      | 8.65                               | 9.55                   | 10                 | 13.4                                             | 200                                             | 112                                                          | .068                                                   |
| 1N6039               | 8.0                                      | 9.0                                | 11.0                   | 1                  | 15.0                                             | 50                                              | 100                                                          | .073                                                   |
| *1N6039A             | 8.5                                      | 9.5                                | 10.5                   | 1                  | 14.5                                             | 50                                              | 103                                                          | .073                                                   |
| 1N6040               | 8.5                                      | 9.9                                | 12.1                   | 1                  | 16.2                                             | 10                                              | 93                                                           | .075                                                   |
| *1N6040A             | 9.0                                      | 10.5                               | 11.6                   | 1                  | 15.6                                             | 10                                              | 96                                                           | .075                                                   |
| 1N6041               | 9.0                                      | 10.8                               | 13.2                   | 1                  | 17.3                                             | 5                                               | 87                                                           | .078                                                   |
| *1N6041A             | 10.0                                     | 11.4                               | 12.6                   | 1                  | 16.7                                             | 5                                               | 90                                                           | .078                                                   |
| 1N6042               | 10.0                                     | 11.7                               | 14.3                   | 1                  | 19.0                                             | 5                                               | 79                                                           | .081                                                   |
| *1N6042A             | 11.0                                     | 12.4                               | 13.7                   | 1                  | 18.2                                             | 5                                               | 82                                                           | .081                                                   |
| 1N6043               | 11.0                                     | 13.5                               | 16.5                   | 1                  | 22.0                                             | 5                                               | 68                                                           | .084                                                   |
| *1N6043A             | 12.0                                     | 14.3                               | 15.8                   | 1                  | 21.2                                             | 5                                               | 71                                                           | .084                                                   |
| 1N6044               | 12.0                                     | 14.4                               | 17.5                   | 1                  | 23.5                                             | 5                                               | 64                                                           | .086                                                   |
| *1N6044A             | 13.0                                     | 15.2                               | 16.8                   | 1                  | 22.5                                             | 5                                               | 67                                                           | .086                                                   |
| 1N6045               | 14.0                                     | 16.2                               | 19.8                   | 1                  | 26.5                                             | 5                                               | 56.5                                                         | .088                                                   |
| *1N6045A             | 15.0                                     | 17.1                               | 18.9                   | 1                  | 25.2                                             | 5                                               | 59.5                                                         | .088                                                   |
| 1N6046               | 16.0                                     | 18.0                               | 22.0                   | 1                  | 29.1                                             | 5                                               | 51.5                                                         | .090                                                   |
| *1N6046A             | 17.0                                     | 19.0                               | 21.0                   | 1                  | 27.7                                             | 5                                               | 54                                                           | .090                                                   |
| 1N6047               | 17.0                                     | 19.8                               | 24.2                   | 1                  | 31.9                                             | 5                                               | 47                                                           | .092                                                   |
| *1N6047A             | 18.0                                     | 20.9                               | 23.1                   | 1                  | 30.6                                             | 5                                               | 49                                                           | .092                                                   |
| 1N6048               | 19.0                                     | 21.6                               | 26.4                   | 1                  | 34.7                                             | 5                                               | 43                                                           | .094                                                   |
| *1N6048A             | 20.0                                     | 22.8                               | 25.2                   | 1                  | 33.2                                             | 5                                               | 45                                                           | .094                                                   |
| 1N6049               | 21.0                                     | 24.3                               | 29.7                   | 1                  | 39.1                                             | 5                                               | 38.5                                                         | .095                                                   |
| *1N6049A             | 22.0                                     | 25.7                               | 28.4                   | 1                  | 37.5                                             | 5                                               | 40                                                           | .096                                                   |
| 1N6050               | 24.0                                     | 27.0                               | 33.0                   | 1                  | 43.5                                             | 5                                               | 34.5                                                         | .097                                                   |
| *1N6050A             | 25.0                                     | 28.5                               | 31.5                   | 1                  | 41.4                                             | 5                                               | 36                                                           | .097                                                   |
| 1N6051               | 26.0                                     | 29.7                               | 36.3                   | 1                  | 47.7                                             | 5                                               | 31.5                                                         | .098                                                   |
| *1N6051A             | 28.0                                     | 31.4                               | 34.7                   | 1                  | 45.7                                             | 5                                               | 33                                                           | .098                                                   |
| 1N6052               | 29.0                                     | 32.4                               | 39.6                   | 1                  | 52.0                                             | 5                                               | 29                                                           | .099                                                   |
| *1N6052A             | 30.0                                     | 34.2                               | 37.8                   | 1                  | 49.9                                             | 5                                               | 30                                                           | .099                                                   |
| 1N6053               | 31.0                                     | 35.1                               | 42.9                   | 1                  | 56.4                                             | 5                                               | 26.5                                                         | .100                                                   |
| *1N6053A             | 33.0                                     | 37.1                               | 41.0                   | 1                  | 53.9                                             | 5                                               | 28                                                           | .100                                                   |
| 1N6054               | 34.0                                     | 38.7                               | 47.3                   | 1                  | 61.9                                             | 5                                               | 24                                                           | .101                                                   |
| *1N6054A             | 36.0                                     | 40.9                               | 45.2                   | 1                  | 59.3                                             | 5                                               | 25.3                                                         | .101                                                   |
| 1N6055               | 38.0                                     | 42.3                               | 51.7                   | 1                  | 67.8                                             | 5                                               | 22.2                                                         | .101                                                   |
| *1N6055A             | 40.0                                     | 44.7                               | 49.4                   | 1                  | 64.8                                             | 5                                               | 23.2                                                         | .101                                                   |
| 1N6056               | 41.0                                     | 45.9                               | 56.1                   | 1                  | 73.5                                             | 5                                               | 20.4                                                         | .102                                                   |
| *1N6056A             | 43.0                                     | 48.5                               | 53.6                   | 1                  | 70.1                                             | 5                                               | 21.4                                                         | .102                                                   |
| 1N6057               | 45.0                                     | 50.4                               | 61.6                   | 1                  | 80.5                                             | 5                                               | 18.6                                                         | .103                                                   |
| *1N6057A             | 47.0                                     | 53.2                               | 58.8                   | 1                  | 77.0                                             | 5                                               | 19.5                                                         | .103                                                   |
| 1N6058               | 48.0                                     | 55.8                               | 68.2                   | 1                  | 89.0                                             | 5                                               | 16.9                                                         | .104                                                   |
| *1N6058A             | 53.0                                     | 58.9                               | 65.1                   | 1                  | 85.0                                             | 5                                               | 17.7                                                         | .104                                                   |
| 1N6059               | 55.0                                     | 61.2                               | 74.8                   | 1                  | 98.0                                             | 5                                               | 15.3                                                         | .104                                                   |
| *1N6059A             | 58.0                                     | 64.6                               | 71.4                   | 1                  | 92.0                                             | 5                                               | 16.3                                                         | .104                                                   |
| 1N6060               | 60.0                                     | 67.5                               | 82.5                   | 1                  | 108.0                                            | 5                                               | 13.9                                                         | .105                                                   |
| *1N6060A             | 64.0                                     | 71.3                               | 78.8                   | 1                  | 103.0                                            | 5                                               | 14.6                                                         | .105                                                   |
| 1N6061               | 66.0                                     | 73.8                               | 90.2                   | 1                  | 118.0                                            | 5                                               | 12.7                                                         | .105                                                   |
| *1N6061A             | 70.0                                     | 77.9                               | 86.1                   | 1                  | 113.0                                            | 5                                               | 13.3                                                         | .105                                                   |

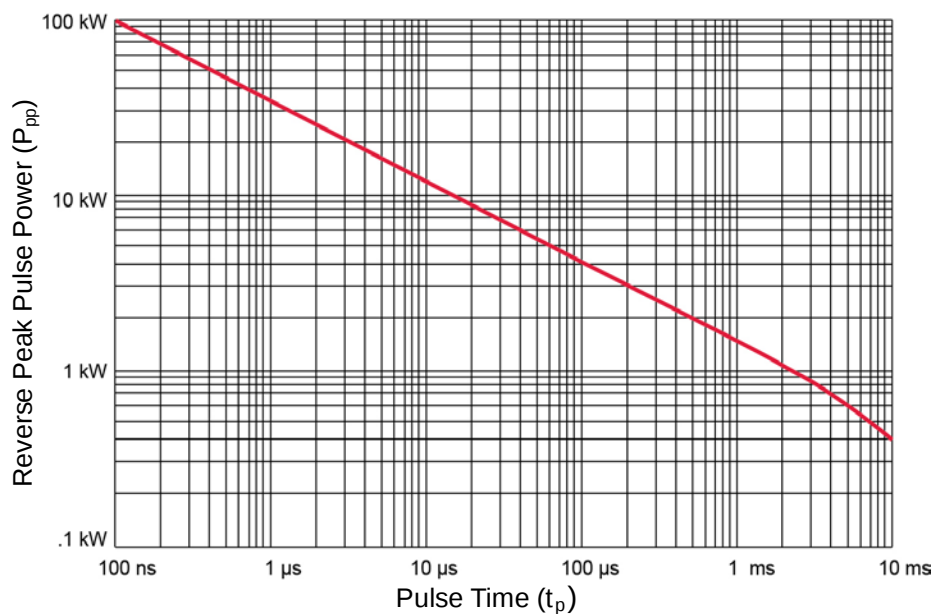
**ELECTRICAL CHARACTERISTICS @ 25 °C (Test Both Polarities)**

| JEDEC<br>Type<br>No. | Rated<br>Standoff<br>Voltage<br>$V_{WM}$ | Breakdown<br>Voltage<br>$V_{(BR)}$ |               |              | Maximum<br>Clamping<br>Voltage<br>$V_C @ I_{PP}$ | Maximum<br>Standby<br>Current<br>$I_D @ V_{WM}$ | Maximum<br>Peak Pulse<br>Current<br>$I_{PP}$<br>(See <a href="#">Fig. 2</a> ) | Maximum<br>Temperature<br>Coefficient of<br>$V_{(BR)}$ |
|----------------------|------------------------------------------|------------------------------------|---------------|--------------|--------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------|
|                      |                                          | $V_{(BR)min}$                      | $V_{(BR)max}$ | @ $I_{(BR)}$ |                                                  |                                                 |                                                                               |                                                        |
|                      | Volts                                    | Volts                              | Volts         | mA           | Volts                                            | $\mu A$                                         | Amps                                                                          | $\alpha_{V(BR)}$<br>%/°C                               |
| 1N6062               | 73.0                                     | 81.9                               | 100.0         | 1            | 131.0                                            | 5                                               | 11.4                                                                          | .106                                                   |
| *1N6062A             | 75.0                                     | 86.5                               | 95.5          | 1            | 125.0                                            | 5                                               | 12.0                                                                          | .106                                                   |
| 1N6063               | 81.0                                     | 90.0                               | 110.0         | 1            | 144.0                                            | 5                                               | 10.4                                                                          | .106                                                   |
| *1N6063A             | 82.0                                     | 95.0                               | 105.0         | 1            | 137.0                                            | 5                                               | 11.0                                                                          | .106                                                   |
| 1N6064               | 90.0                                     | 99.0                               | 121.0         | 1            | 158.0                                            | 5                                               | 9.5                                                                           | .107                                                   |
| *1N6064A             | 94.0                                     | 105.0                              | 116.0         | 1            | 152.0                                            | 5                                               | 9.9                                                                           | .107                                                   |
| 1N6065               | 95.0                                     | 108.0                              | 132.0         | 1            | 176.0                                            | 5                                               | 8.5                                                                           | .107                                                   |
| *1N6065A             | 100.0                                    | 114.0                              | 126.0         | 1            | 168.0                                            | 5                                               | 8.9                                                                           | .107                                                   |
| 1N6066               | 105.0                                    | 117.0                              | 143.0         | 1            | 191.0                                            | 5                                               | 7.8                                                                           | .107                                                   |
| *1N6066A             | 110.0                                    | 124.0                              | 137.0         | 1            | 182.0                                            | 5                                               | 8.2                                                                           | .107                                                   |
| 1N6067               | 121.0                                    | 135.0                              | 165.0         | 1            | 223.0                                            | 5                                               | 6.7                                                                           | .108                                                   |
| *1N6067A             | 128.0                                    | 143.0                              | 158.0         | 1            | 213.0                                            | 5                                               | 7.0                                                                           | .108                                                   |
| 1N6068               | 137.0                                    | 153.0                              | 187.0         | 1            | 258.0                                            | 5                                               | 5.8                                                                           | .108                                                   |
| *1N6068A             | 145.0                                    | 162.0                              | 179.0         | 1            | 245.0                                            | 5                                               | 6.1                                                                           | .108                                                   |
| 1N6069               | 145.0                                    | 162.0                              | 198.0         | 1            | 274.0                                            | 5                                               | 5.5                                                                           | .108                                                   |
| *1N6069A             | 150.0                                    | 171.0                              | 189.0         | 1            | 261.0                                            | 5                                               | 5.7                                                                           | .108                                                   |
| 1N6070               | 155.0                                    | 171.0                              | 210.0         | 1            | 292.0                                            | 5                                               | 5.1                                                                           | .108                                                   |
| *1N6070A             | 160.0                                    | 181.0                              | 200.0         | 1            | 278.0                                            | 5                                               | 5.4                                                                           | .108                                                   |
| 1N6071               | 165.0                                    | 180.0                              | 220.0         | 1            | 308.0                                            | 5                                               | 4.9                                                                           | .108                                                   |
| *1N6071A             | 170.0                                    | 190.0                              | 210.0         | 1            | 294.0                                            | 5                                               | 5.1                                                                           | .108                                                   |
| 1N6072               | 175.0                                    | 198.0                              | 242.0         | 1            | 344.0                                            | 5                                               | 4.3                                                                           | .108                                                   |
| *1N6072A             | 185.0                                    | 209.0                              | 231.0         | 1            | 328.0                                            | 5                                               | 4.6                                                                           | .108                                                   |

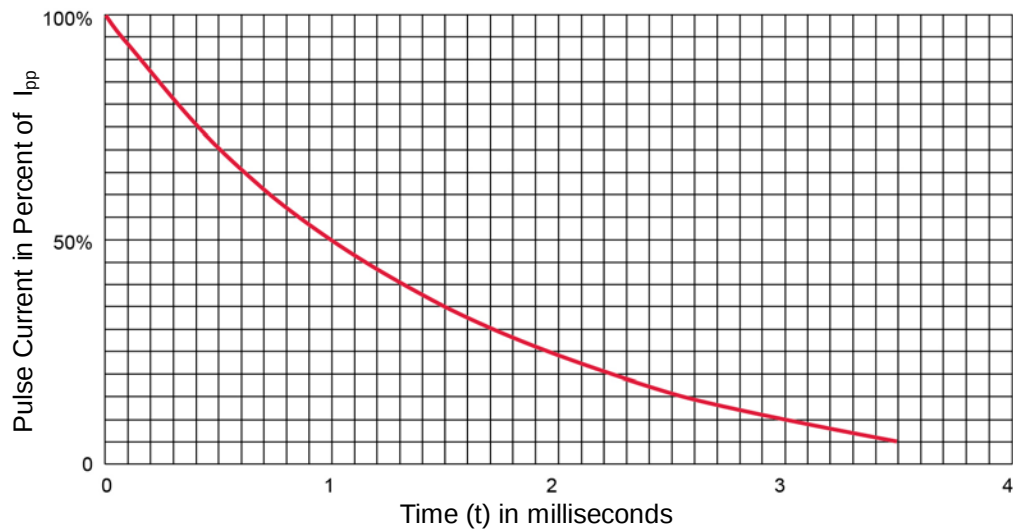
\* Also available in military qualified types by adding the prefix JAN, JANTX or JANTXV per MIL-PRF-19500/507.

**GRAPHS**


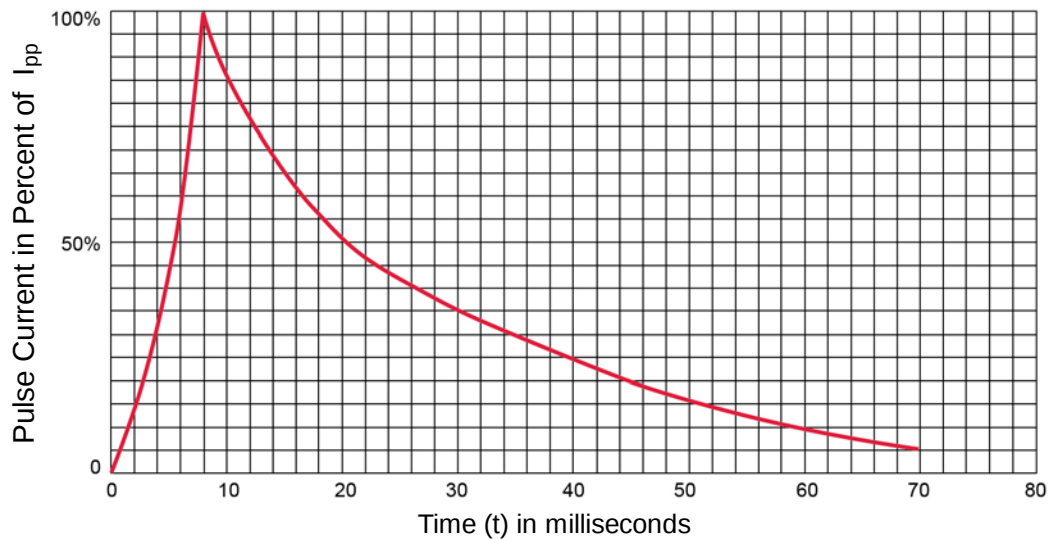
**FIGURE 1**  
Derating Curve



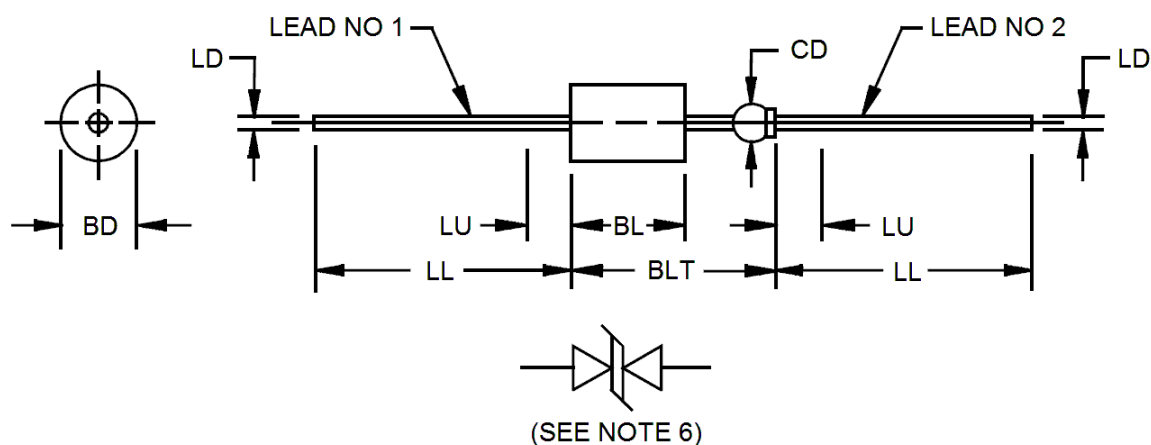
**FIGURE 2**  
Peak Pulse Power versus Pulse Time

**GRAPHS**


**FIGURE 3**  
Current impulse waveform ( $I_{PP} = 10 \mu s$ )



**FIGURE 4**  
Current impulse waveform ( $I_{PP} = 8 \mu s$ )

**PACKAGE DIMENSIONS**

**NOTES:**

- 1 Dimensions are in inches.
- 2 Millimeter equivalents are given for general information only.
- 3 The major diameter is essentially constant along its length.
- 4 Within this zone, diameter may vary to allow for lead finishes and irregularities.
- 5 Dimension to allow for pinch or seal deformation anywhere along tubulation.
- 6 Symbol for bidirectional transient suppressor.
- 7 Lead 1 shall be electrically connected to the case.
- 8 In accordance with ASME Y14.5M, diameters are equivalent to  $\Phi \times$  symbology.

| Symbol | Dimensions |       |             |       | Notes |
|--------|------------|-------|-------------|-------|-------|
|        | Inches     |       | Millimeters |       |       |
|        | Min        | Max   | Min         | Max   |       |
| BD     | .215       | .235  | 5.46        | 5.97  |       |
| BL     | .293       | .357  | 7.44        | 9.07  | 3     |
| BLT    |            | .570  |             | 14.48 |       |
| CD     | .045       | .100  | 1.14        | 2.54  | 5     |
| LD     | .025       | .035  | 0.64        | 0.89  |       |
| LL     | 1.000      | 1.625 | 25.40       | 41.28 |       |
| LU     |            | .188  |             | 4.78  | 4     |