

## **1500 WATT BIDIRECTIONAL** TRANSIENT VOLTAGE SUPPRESSOR

#### DESCRIPTION APPEARANCE This popular Transient Voltage Suppressor (TVS) series for 1N6036 thru 1N6072A are JEDEC registered selections for bidirectional devices. All have the same high Peak Pulse Power rating of 1500 W with extremely fast response times. They are also available in military qualified selections as described in the Features section herein. They are most often used for protecting against transients from inductive switching environments, induced RF effects, or induced secondary lightning effects as found in lower surge levels of IEC61000-4-5. They are also very successful in protecting airborne avionics and electrical systems. Since their response **DO-13** time is virtually instantaneous, they can also protect from ESD and EFT per (DO-202AA) IEC61000-4-2 and IEC61000-4-4. IMPORTANT: For the most current data, consult MICROSEMI's website: http://www.microsemi.com **APPLICATIONS / BENEFITS** FEATURES Bidirectional TVS series for thru-hole mounting ٠ Protection from switching transients and induced RF ٠ Protection from ESD and EFT per IEC 61000-4-2 Suppresses transients up to 1500 watts @ 10/1000 • us (see Figure 1) and IEC 61000-4-4 Secondary lightning protection per IEC61000-4-5 Clamps transient in less than 100 pico seconds with 42 Ohms source impedance: Working voltage (V<sub>WM</sub>) range 5.5 V to 185 V Class 1: 1N6036 to 1N6072A Hermetic sealed DO-13 metal package Class 2: 1N6036 to 1N6067A JAN/TX/TXV military qualifications also available per Class 3: 1N6036 to 1N6061A MIL-PRF-19500/507 for the tighter tolerance "A" suffix types by adding the JAN, JANTX, or JANTXV Class 4: 1N6036 to 1N6054A prefix, e.g. JANTXV1N6036A, etc. Secondary lightning protection per IEC61000-4-5 For unidirectional TVS in the same DO-13 package, with 12 Ohms source impedance: see separate data sheet for the 1N5629 - 1N5665A Class 1: 1N6036 to 1N6064A series (also military qualified) Class 2: 1N6036 to 1N6057A Surface mount equivalent packages also available Class 3: 1N6036 to 1N6049A as SMCJ5.0C - SMCJ170CA or SMCG5.0C -Class 4: 1N6036 to 1N6042A SMCG170CA in separate data sheet (consult factory Secondary lightning protection per IEC61000-4-5 for other surface mount options) with 2 Ohms source impedance: Plastic axial-leaded equivalents available in the Class 2: 1N6036 to 1N6048A 1.5KE6.8C - 1.5KE220CA series in separate data sheet Class 3: 1N6036 to 1N6041A Inherently radiation hard as described in Microsemi MicroNote 050 **MAXIMUM RATINGS** MECHANICAL AND PACKAGING • 1500 Watts for 10/1000 µs with repetition rate of 0.01% or less\* at lead temperature (T<sub>L</sub>) 25°C (see Figs. 1, 2, & sealed metal and glass 4) Operating & Storage Temperatures: -65° to +175°C plated and solderable per MIL-STD-750 method 2026 • THERMAL RESISTANCE: 50°C/W junction to lead at 0.375 inches (10 mm) from body or 110 °C/W junction to POLARITY: Not applicable for bidirectional TVS ambient when mounted on FR4 PC board with 4 mm<sup>2</sup> MARKING: Part number copper pads (1oz) and track width 1 mm, length 25 mm WEIGHT: 1.4 grams. (Approx) • DC Power Dissipation\*: 1 Watt at $T_1 < +125^{\circ}C 3/8$ " (10 mm) from body (see derating in Fig 3 and note below) "TR" suffix to part number) Solder Temperatures: 260 ° C for 10 s (maximum) See package dimension on last page TVS devices are not typically used for dc power dissipation and are instead operated at or less than their rated standoff voltage $(V_{WM})$ except for transients that briefly drive the device into avalanche breakdown ( $V_{BR}$ to $V_C$ region).

CASE: DO-13 (DO-202AA), welded, hermetically

- FINISH: All external metal surfaces are Tin-Lead
- TAPE & REEL option: Standard per EIA-296 (add

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1N6036 thru 1N6072A



# 1500 WATT BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

Vers     min     Vers     max     Voits $\mu$ A     Amps $\mu$ A       1N8036     6.5     6.75     8.25     10     11.7     1000     128     0.66       1N8037     6.5     7.38     9.02     10     12.5     500     120     0.66       1N8037     7.0     7.79     8.61     10     12.1     500     120     0.66       1N8038     7.0     8.19     10.00     10     13.8     200     109     0.66       1N8038     7.5     8.65     9.05     11.0     1     15.0     50     1003     .077       1N8040     8.5     9.9     12.1     1     16.2     10     9.8     .071       1N8041     9.0     10.8     13.2     1     17.3     5     87     .077       1N8042     10.0     11.7     14.3     1     9.90     .071     1.084     .071     1.08     .071     1.084     .071     .084     .071<	JEDEC Type	Rated Standoff Voltage V <sub>WM</sub> (NOTE 1)	Breakdown Voltage V <sub>(BR)</sub>			Maximum Clamping Voltage V <sub>C</sub> @ IPP	Maximum Standby Current I <sub>D</sub> @ Vwм	Maximum Peak Pulse Current I <sub>PP</sub>	Maximum Temperature Coefficient of V <sub>(BR)</sub>
Voits     Voits     mA     Voits     μA     Amps     %μ       1N8036     5.5     6.75     8.25     10     11.7     1000     128     .066       1N8037     7.0     7.79     8.61     10     11.3     1000     132     .066       1N8038     7.0     7.79     8.61     10     12.1     500     124     .066       1N8038     7.5     8.65     9.56     10     13.4     200     1109     .067       1N8039     8.5     9.5     10.5     1     14.5     50     103     .077       1N8040     8.5     9.9     12.1     1     16.6     10     93     .077       1N8040     8.0     10.15     1.65     1     16.7     5     90     .077       1N8042     10.0     11.7     14.3     1     19.0     5     82     .08       1N8042     10.0     11.4     12.6     7     7     5     64 </th <th>No.</th> <th></th> <th>V<sub>(BR)</sub> min</th> <th>V<sub>(BR)</sub> max</th> <th>@ I<sub>(BR)</sub></th> <th></th> <th></th> <th>(See Fig. 2)</th> <th></th>	No.		V <sub>(BR)</sub> min	V <sub>(BR)</sub> max	@ I <sub>(BR)</sub>			(See Fig. 2)	
***Ne036A 6.0 7.13 7.88 10 11.3 1000 132 0.66 ****Ne037A 7.0 7.79 8.61 10 12.5 5000 120 0.666 **********************************		Volts	Volts	Volts	mA	Volts	μA	Amps	α <sub>V(BR)</sub> %/°C
INEG037     6.5     7.38     9.02     10     12.5     500     120     .066       INE038     7.0     8.19     10.00     10     13.8     200     110     .066       INE038     7.5     8.65     9.55     10     13.4     200     112     .066       INE039     8.0     9.0     11.0     1     15.0     50     100     .077       INE040     8.5     9.5     10.5     1     14.5     50     103     .077       INE041     9.0     10.5     11.6     1     15.6     10     96     .077       INE041     9.0     10.5     11.6     1     16.2     10     .67     79     .086       INE043     11.0     12.4     13.7     1     12.2     5     68     .097       INE043     12.0     14.4     17.5     1     23.5     5     64     .066       INE044     12.0     14.4     17.5     1<	1N6036			8.25	10		1000		.061
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*1*N6038A     7.5     8.65     9.55     10     13.4     200     112     .066       *1N6039A     8.5     9.5     10.5     1     14.5     50     100     0.77       *1N6040     8.5     9.9     12.1     1     16.2     10     93     .073       *1N6040     9.0     10.5     11.6     1     15.6     10     93     .073       *1N6041     9.0     10.8     13.2     1     7.3     5     87     .077       *1N6042     10.0     11.7     14.3     1     19.0     6     79     .067       *1N6042     11.0     13.5     16.5     1     22.0     5     68     .088       *1N6043     11.0     13.5     16.5     1     22.5     5     67     .088       *1N6044     12.0     14.4     17.6     1     23.5     5     64     .086       *1N6045A     15.0     17.1     18.9     1     2									
INBO39     8.0     9.0     11.0     1     15.0     50     1000     077       INBO40     8.5     9.9     12.1     1     16.2     100     93     .077       INBO40     9.0     10.5     11.6     1     15.6     100     96     .077       INBO41     9.0     10.5     11.6     1     15.6     10     96     .077       INBO42     10.0     11.4     12.6     1     67.7     90     .077       INBO43     11.0     12.4     13.7     1     18.2     5     82     .087       INBO43     11.0     13.5     16.5     1     22.5     5     64     .086       INBO44     13.0     15.2     16.8     1     22.5     5     65.5     .086       INBO45     14.0     16.2     19.8     1     26.5     5     56.5     .088       INBO46     15.0     19.0     21.0     1     27.7     5									
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**1N604A 13.0 15.2 16.8 1 22.5 5 67 088 **1N6045 14.0 16.2 19.8 1 26.5 5 56.5 088 **1N6046 15.0 17.1 18.9 25.2 5 59.5 088 **1N6046 17.0 19.0 21.0 1 29.1 5 51.5 099 **1N6046 17.0 19.8 24.2 1 31.9 5 47 099 **1N6047 17.0 19.8 24.2 1 31.9 5 47 099 **1N6048 19.0 21.6 26.4 1 34.7 5 43 099 **1N6048 20.0 22.8 25.2 1 33.2 5 45 099 **1N6049 21.0 24.3 29.7 1 39.1 5 38.5 099 **1N6049A 22.0 25.7 28.4 1 37.5 5 40 099 **1N6049A 22.0 25.7 28.4 1 37.5 5 40 099 **1N6050 24.0 27.0 33.0 1 43.5 5 34.5 099 **1N6051A 28.0 31.4 34.7 1 45.7 5 31.5 099 **1N6053 31.0 35.1 42.9 1 56.4 5 26.5 100 **1N6053 31.0 35.1 42.9 1 56.4 5 26.5 100 **N6053 40.0 44.7 49.4 1 64.8 5 23.2 100 **N6055 40.0 44.7 49.4 1 67.8 5 23.2 100 **N6055 40.0 44.7 49.4 1 67.8 5 23.2 100 **N6055 40.0 44.7 49.4 1 67.8 5 23.2 100 **N6056 41.0 45.9 56.1 1 73.5 5 20.4 100 **N6056 41.0 45.9 56.1 1 73.5 5 20.4 100 **N6056 41.0 45.9 56.1 1 70.1 5 11.4 100 **N6056 45.0 50.4 61.6 1 80.0 5 15.3 100 **N6057 45.0 50.4 61.6 1 80.0 5 15.3 100 **N6057 45.0 50.4 61.6 1 80.0 5 15.3 100 **N6058 45.0 64.6 71.4 1 92.0 5 16.3 100 **N6059 55.0 61.2 74.8 1 98.0 5 16.3 100 **N6059 55.0 61.2 74.8 1 98.0 5 16.3 100 **N6059 55.0 61.2 74.8 1 98.0 5 16.3 100 **N6059 55.0 61.2									.084
1N6045     14.0     16.2     19.8     1     26.5     5     56.5     088       1N6046     16.0     18.0     12.0     1     29.1     5     51.5     099       *1N6046A     17.0     19.0     21.0     1     29.1     5     51.5     099       *1N6047     17.0     19.8     24.2     1     31.9     5     47     099       1N6048     19.0     21.6     26.4     1     34.7     5     43     099       *1N6047A     18.0     22.0     25.7     28.4     1     37.5     5     45     099       *1N6049A     22.0     25.7     28.4     1     37.5     5     40     099       *1N6050     24.0     27.0     33.0     1     47.7     5     31.5     099       *1N6051     26.0     29.7     36.3     1     47.7     5     33.0     99       *1N6052A     30.0     34.2     37.8     1		12.0	14.4	17.5	1	23.5	5	64	.086
*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   .099     1N6047   17.0   19.0   21.0   1   27.7   5   54   .099     1N6047   17.0   19.8   24.2   1   31.9   5   47   .092     1N6048   19.0   21.6   26.4   1   34.7   5   43   .099     1N6048   20.0   22.8   25.2   1   33.2   5   45   .099     1N6049   21.0   24.3   29.7   1   39.1   5   38.5   .099     *1N6049A   22.0   25.7   28.4   1   37.5   5   40   .099     *1N6050A   25.0   28.5   31.5   1   41.4   5   36   .099     *1N6051   26.0   29.7   36.3   1   47.7   5   31.5   .099     *1N6052   29.0   32.4   39.6 </td <td>*1N6044A</td> <td>13.0</td> <td>15.2</td> <td>16.8</td> <td>1</td> <td>22.5</td> <td>5</td> <td>67</td> <td>.086</td>	*1N6044A	13.0	15.2	16.8	1	22.5	5	67	.086
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	1N6045		16.2						.088
*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 38.5 099 *1N6049A 22.0 25.7 28.4 1 37.5 5 40 099 1N6050 24.0 27.0 33.0 1 43.5 5 34.5 099 *1N6050 24.0 27.0 33.0 1 43.5 5 34.5 099 *1N6050 24.0 27.0 33.0 1 43.5 5 34.5 099 *1N6051 26.0 29.7 36.3 1 47.7 5 31.5 099 *1N6051A 28.0 31.4 34.7 1 45.7 5 33 099 *1N6052 29.0 32.4 39.6 1 52.0 5 29 099 *1N6052 31.0 35.1 42.9 1 56.4 5 26.5 100 *1N6053 31.0 35.1 42.9 1 56.4 5 26.5 100 *1N6053 33.0 37.1 41.0 1 53.9 5 28 100 *1N6054 36.0 40.9 45.2 1 69.3 5 28.5 100 *1N6055 38.0 42.3 51.7 1 67.8 5 22.2 .10 *1N6055 40.0 44.7 49.4 1 64.8 5 23.2 .10 *1N6055 40.0 44.7 49.4 1 64.8 5 23.2 .10 *1N6055 40.0 44.7 49.4 1 64.8 5 .23.2 .10 *1N6056 41.0 45.9 56.1 1 73.5 5 20.4 .10 N6056 41.0 45.9 56.1 1 70.1 5 21.4 .10 N6057 45.0 50.4 61.6 1 80.5 5 18.6 .10 *1N6057 45.0 50.4 61.6 1 80.5 5 18.6 .10 *1N6058 48.0 55.8 68.2 1 70.1 5 .16.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .16.9 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .16.9 .10 *1N6059 48.0 55.8 68.2 1 70.1 5 .16.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .16.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .16.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .15.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .16.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .16.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .16.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .15.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .16.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .16.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5 .16.3 .10 *1N6059 55.0 61.2 74.8 1 98.0 5	*1N6045A								.088
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$									.090
*1N6047A18.020.923.11 $30.6$ 549 $.092$ 1N604819.021.626.41 $34.7$ 543 $.092$ *1N6048A20.022.825.21 $33.2$ 545 $.094$ 1N604921.024.329.71 $39.1$ 5 $38.5$ $.099$ *1N6049A22.025.728.41 $37.5$ 540 $.099$ 1N605024.027.033.01 $43.5$ 5 $34.5$ $.099$ *1N6050A25.028.531.51 $41.4$ 5 $36$ $.099$ 1N605126.029.7 $36.3$ 1 $47.7$ 5 $31.5$ $.099$ *1N6052A29.032.4 $39.6$ 1 $52.0$ 529 $.099$ *1N6052A30.0 $34.2$ $37.8$ 1 $49.9$ 5 $30$ $.099$ 1N605331.0 $35.1$ $42.9$ 1 $56.4$ 5 $26.5$ $.100$ *1N605A36.0 $40.9$ $45.2$ 1 $59.3$ 5 $22.3$ $.100$ *1N605A36.0 $40.9$ $45.2$ 1 $59.3$ $5$ $22.2$ $.100$ 1N6055 $38.0$ $42.3$ $51.7$ 1 $67.8$ $5$ $22.2$ $.100$ 1N6056 $41.0$ $45.9$ $56.6$ 1 $70.5$ $5$ $20.4$ $.100$ *1N6056A $43.0$ $48.5$ $53.6$ 1 $70.1$ <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>.090</td>									.090
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     .094       *1N6049A     22.0     25.7     28.4     1     37.5     5     40     .094       1N6050     24.0     27.0     33.0     1     43.5     5     34.5     .097       1N6051     26.0     29.7     36.3     1     47.7     5     31.5     .097       1N6051     26.0     29.7     36.3     1     47.7     5     33     .098       *1N6052     29.0     32.4     39.6     1     52.0     5     29     .098       *1N6053     31.0     35.1     42.9     1     56.4     5     26.5     .100       1N6053     33.0     37.1     41.0     1     5					-		5		
*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   .099     *1N6049A   22.0   25.7   28.4   1   37.5   5   40   .099     *1N6050   24.0   27.0   33.0   1   43.5   5   34.5   .099     *1N6050   24.0   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     *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   .098     *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   .107     *1N6055A   40.0   44									
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     .095       1N6050     24.0     27.0     33.0     1     43.5     5     34.5     .095       *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     .096       *1N6051A     28.0     31.4     34.7     1     45.7     5     33     .096       *1N6052A     30.0     34.2     37.8     1     49.9     5     30     .098       *1N6053     31.0     35.1     42.9     1     56.4     5     26.5     .100       *1N6054     34.0     38.7     47.3     1     61.9     5     22.2     .100       *1N6054     34.0     38.7     47.3     1				-		-			
*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       *1N6051A     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     .098       *1N6053A     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     .107       *1N6055     38.0     42.3     51.7     1									
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				-	-				
*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     *1N6052A   29.0   32.4   39.6   1   52.0   5   29   .098     *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   .107     *1N6055A   40.0   44.7   49.4   1   64.8   5   23.2   .100     *1N6055A   40.0   44.7   49.4   1   64.8   5   23.2   .100     *1N6055A   43.0   48.5 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>									
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     .098       *1N6052A     30.0     34.2     37.8     1     49.9     5     30     .098       *1N6053A     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     .100       *1N6055A     38.0     42.3     51.7     1     67.8     5     22.2     .100       *1N6055A     40.0     44.7     49.4     1     64.8     5     23.2     .100       *1N6056A     41.0     45.9     56.1     1					-				
*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   .098     *1N6052A   30.0   34.2   37.8   1   49.9   5   30   .098     *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     *1N6054A   36.0   40.9   45.2   1   59.3   5   22.3   .100     *1N6055   38.0   42.3   51.7   1   67.8   5   22.2   .100     *1N6055   38.0   42.3   51.7   1   67.8   5   23.2   .100     *1N6055   38.0   42.3   51.7   1   67.8   5   20.4   .102     *1N6056   41.0   45.9   56.1   1   70.1   5   20.4   .102     *1N6057   45.0   50.4   <									
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					-				
*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   .100     *1N6054   36.0   40.9   45.2   1   59.3   5   25.3   .100     *1N6055   38.0   42.3   51.7   1   67.8   5   22.2   .100     *1N6055A   40.0   44.7   49.4   1   64.8   5   23.2   .100     *1N6056   41.0   45.9   56.1   1   70.1   5   21.4   .102     *1N6056A   43.0   48.5   53.6   1   70.1   5   21.4   .102     *1N6057A   47.0   53.2   58.8   1   77.0   5   19.5   .102     *1N6058   48.0   55.8									
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     .100       *1N6054     36.0     40.9     45.2     1     59.3     5     25.3     .100       *1N6055     38.0     42.3     51.7     1     67.8     5     22.2     .100       *1N6055     38.0     42.3     51.7     1     67.8     5     22.2     .100       *1N6055     38.0     42.3     51.7     1     67.8     5     22.2     .100       *1N6056     41.0     45.9     56.1     1     73.5     5     20.4     .100       *1N6056     41.0     48.5     53.6     1     70.1     5     21.4     .100       1N6057     45.0     50.4     61.6     1					-				.099
*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     .100       *1N6054A     36.0     40.9     45.2     1     59.3     5     25.3     .100       1N6055     38.0     42.3     51.7     1     67.8     5     22.2     .100       *1N6055A     40.0     44.7     49.4     1     64.8     5     23.2     .100       *1N6056     41.0     45.9     56.1     1     73.5     5     20.4     .100       *1N6056A     43.0     48.5     53.6     1     70.1     5     21.4     .100       *1N6057A     47.0     53.2     58.8     1     77.0     5     19.5     .100       1N6057A     47.0     53.2     58.8     1     77.0     5     19.5     .100       *1N6058A     48.0     55.8     68.2     1							5		.100
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$									.100
*1N6054A   36.0   40.9   45.2   1   59.3   5   25.3   .107     1N6055   38.0   42.3   51.7   1   67.8   5   22.2   .107     *1N6055A   40.0   44.7   49.4   1   64.8   5   23.2   .107     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   .102     1N6057A   47.0   53.2   58.8   1   77.0   5   19.5   .102     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	1N6054	34.0	38.7	47.3	1	61.9	5	24	.101
1N6055     38.0     42.3     51.7     1     67.8     5     22.2     .10       *1N6055A     40.0     44.7     49.4     1     64.8     5     23.2     .10       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     .102       *1N6057A     47.0     53.2     58.8     1     77.0     5     19.5     .103       *1N6058A     48.0     55.8     68.2     1     89.0     5     16.9     .104       1N6058A     53.0     55.1     1     85.0     5     17.7     .104       1N6059A     55.0     61.2     74.8     1     98.0     5     15.3     .104       *1N6059A     58.0     64.6     71.4     1     92.0 <td>*1N6054A</td> <td>36.0</td> <td>40.9</td> <td></td> <td>1</td> <td>59.3</td> <td></td> <td>25.3</td> <td>.101</td>	*1N6054A	36.0	40.9		1	59.3		25.3	.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     .102       *1N6057A     47.0     53.2     58.8     1     77.0     5     19.5     .103       *1N6058A     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	1N6055	38.0	42.3	51.7	1	67.8	5	22.2	.101
*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     .102       *1N6057A     47.0     53.2     58.8     1     77.0     5     19.5     .102       1N6058     48.0     55.8     68.2     1     89.0     5     16.9     .102       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									.101
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									.102
*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									.102
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									.103
*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									.103
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									.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									.104
1N6060 60.0 67.5 82.5 1 108.0 5 13.9 .105									.104
									.104
105.   14.6   103.0   103.0   104.0   14.6   105.0   105.0   14.6   105.0   10									.105
									.105 .105

1N6036 thru 1N6072A



# **1500 WATT BIDIRECTIONAL** TRANSIENT VOLTAGE SUPPRESSOR

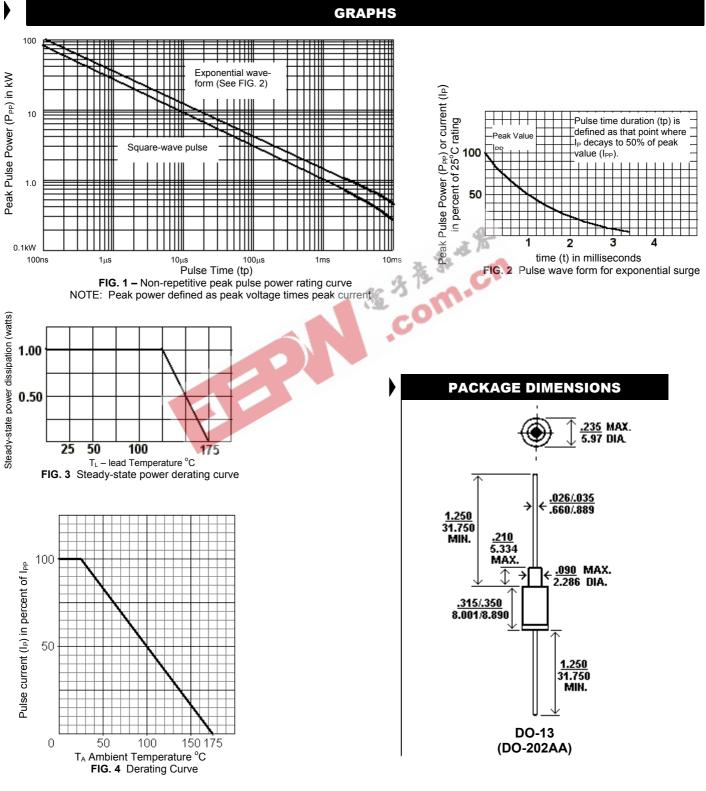
JEDEC Type No.	Rated Standoff Voltage V <sub>WM</sub> (NOTE 1)	В	reakdown Voltage V <sub>(BR)</sub>		Maximum Clamping Voltage V <sub>C</sub> @ I <sub>PP</sub>	Maximum Standby Current I <sub>D</sub> @ V <sub>WM</sub>	Maximum Peak Pulse Current I <sub>PP</sub>	Maximum Temperature Coefficient of V <sub>(BR)</sub>
NO.		V <sub>(BR)</sub> min	V <sub>(BR)</sub> max	@ I <sub>(BR)</sub>			(See Fig. 2)	
	Volts	Volts	Volts	mA	Volts	μA	Amps	Volts
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.
NOTE 1: A TVS is normally selected according to the rated "Standoff Voltage" V<sub>WM</sub> that should be equal to or greater than the dc or continuous peak operating voltage level.

•	SYMBOLS & DEFINITIONS
Symbol	Definition
V <sub>WM</sub>	Standoff Voltage: Applied Reverse Voltage to assure a nonconductive condition. (See Note 1 above)
V <sub>(BR)</sub>	Breakdown Voltage: This is the Breakdown Voltage the device will exhibit at 25°C
V <sub>C</sub>	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 <sub>PP</sub>	Peak Pulse Current: The peak current during the impulse (See Figure 2)
P <sub>PP</sub>	Peak Pulse Power: The pulse power as determined by the product of $V_C$ and $I_{PP}$
I <sub>D</sub>	Standby Current: The current at the standoff voltage (V <sub>WM</sub> )
I <sub>(BR)</sub>	Breakdown Current: The current used for measuring Breakdown Voltage (V <sub>(BR)</sub> )



## 1500 WATT BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR



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