

### FEATURES:

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number
- Available Non-RoHS (standard) or RoHS compliant (add PBF suffix)
- Unidirectional and bidirectional TVS series for thru-hole mounting
- Suppresses transients up to 1500 watts @ 10/1000  $\mu$ s
- $t_{clamping}$  (0 volts to  $V_{(BR)}$  min):
  - Unidirectional – Less than 100 pico seconds
  - Bidirectional – Less than 5 nano seconds
- Working voltage ( $V_{WM}$ ) range 5 V to 45 V
- Low clamping factor (ratio of actual  $V_C/V_{BR}$ ): 1.33 @ full rated power and 1.20 @ 50% rated power
- Economical plastic encapsulated TVS for thru-hole mount
- Surface mount equivalent packages also available

### MAXIMUM RATINGS

<b>1500 Watts for 10/1000 <math>\mu</math>s with repetition rate of 0.01% or less* at lead temperature (<math>T_L</math>) 25°C</b> (See figures 1, 2, & 4)	
<b>Operating and Storage Temperature:</b>	-65°C to +150°C
<b>Thermal Resistance:</b>	22°C/W junction to lead at $\frac{3}{8}$ " from body or 82°C/W junction to ambient when mounted on FR4 PC board with 4mm <sup>2</sup> copper pads and track width 1 mm, length 25mm
<b>Steady State Power Dissipation*:</b>	5 watts at $T_L \leq 40^\circ\text{C}$ , or 1.52 watts at $T_A = 25^\circ\text{C}$ when mounted on FR4 PC board described for thermal resistance
<b>Solder Temperatures:</b>	260°C for 10 s (maximum)

\* 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).

### ELECTRICAL CHARACTERISTICS UNIDIRECTIONAL ( $T_A = 25^\circ\text{C}$ )

Part Number	Direction	Stand-Off Voltage (Note 1)	Maximum Reverse Leakage @ $V_{WM}$	Minimum* Breakdown Voltage @ 1.0 mA	Maximum Clamping Voltage (Fig. 2) $I_{PP1} = 1A$	Maximum Clamping Voltage (Fig. 2) @ $I_{PP2} = 10A$	Maximum Peak Pulse Current
		$V_{WM}$	$I_D$	$V_{(BR)}$ (min)	$V_C$	$V_C$	$I_{PP3}$
		VOLTS	$\mu$ A	VOLTS	VOLTS	VOLTS	A
1N6373	Unidirectional	5.0	300	6.0	7.1	7.5	160
1N6374	Unidirectional	8.0	25	9.4	11.3	11.5	100
1N6375	Unidirectional	10.0	2	11.7	13.7	14.1	90
1N6376	Unidirectional	12.0	2	14.1	16.1	16.5	70
1N6377	Unidirectional	15.0	2	17.6	20.1	20.6	60
1N6378	Unidirectional	18.0	2	21.2	24.2	25.2	50
1N6379	Unidirectional	22.0	2	25.9	29.8	32.0	40
1N6380	Unidirectional	36.0	2	42.4	50.6	54.3	23
1N6381	Unidirectional	45.0	2	52.9	63.3	70.0	19
1N6382	Bidirectional	8.0	25	9.4	11.4	11.6	100
1N6383	Bidirectional	10.0	2	11.7	14.1	14.5	90

# 1N6373-1N6389

## Transient Voltage Suppressor 1500 Watt

<b>1N6384</b>	<b>Bidirectional</b>	12.0	2	14.1	16.7	17.1	70
<b>1N6385</b>	<b>Bidirectional</b>	15.0	2	17.6	20.8	21.4	60
<b>1N6386</b>	<b>Bidirectional</b>	18.0	2	21.2	24.8	25.5	50
<b>1N6387</b>	<b>Bidirectional</b>	22.0	2	25.9	30.8	32.0	40
<b>1N6388</b>	<b>Bidirectional</b>	36.0	2	42.4	50.6	54.3	23
<b>1N6389</b>	<b>Bidirectional</b>	45.0	2	52.9	63.3	70.0	19

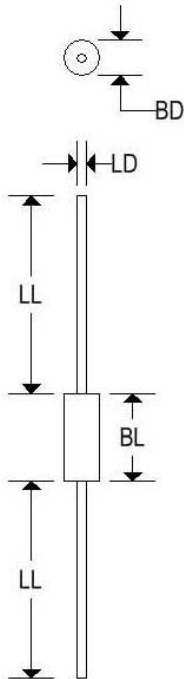
Note 1: TVS devices are normally selected according to the reverse "Stand Off Voltage" ( $V_{WM}$ ) which should be equal to or greater than dc or continuous peak operating voltage level.

- For bidirectional parts, add suffix C at end of the part number.

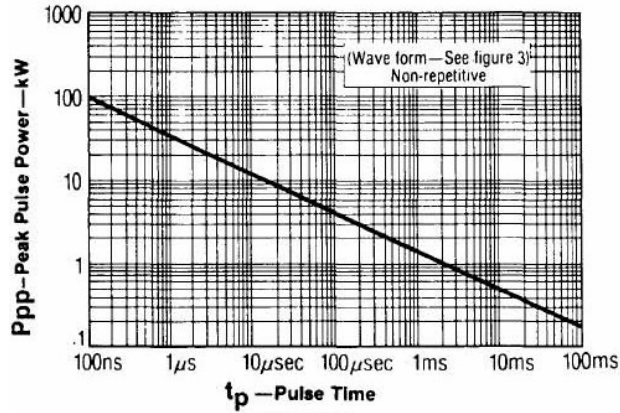
\* The minimum breakdown voltage as shown takes into consideration the  $\pm 1$  volt tolerance normally specified for power supply regulation on most integrated circuit manufacturers data sheets. Similar devices are available with reduced clamping voltages where tighter regulated power supply voltages are employed.

### MECHANICAL CHARACTERISTICS

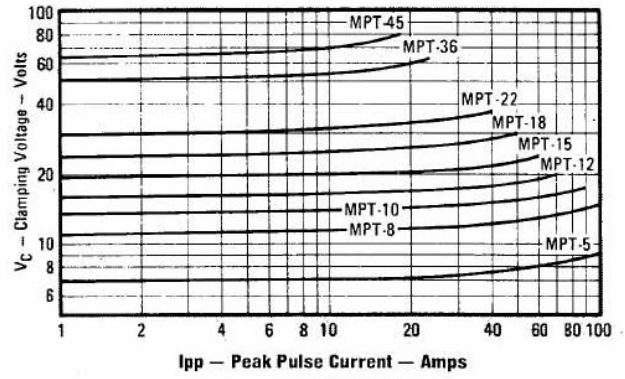
<b>Case</b>	DO-201
<b>Marking</b>	Alpha-numeric
<b>Polarity</b>	Cathode band



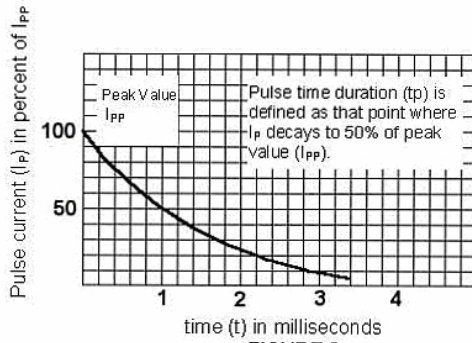
	DO-201			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	0.190	0.250	4.826	6.350
BL	0.285	0.375	7.240	9.530
LD	0.038	0.042	0.970	1.070
LL	1.000	-	25.400	-



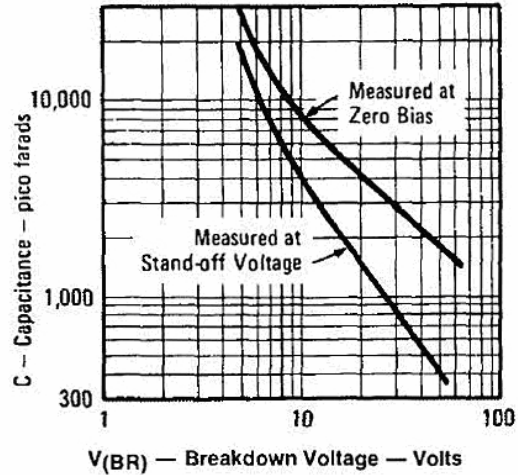
**FIGURE 1**  
Peak Pulse Power vs. Pulse Time



**FIGURE 2**  
Typical Characteristic Clamping Voltage  
vs. Peak Pulse Current



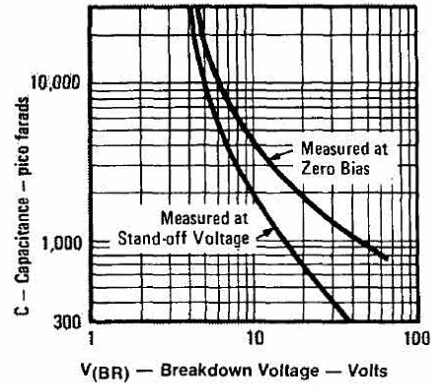
**FIGURE 3**  
Pulse wave form for exponential surge



**FIGURE 4**  
Typical Capacitance vs. Breakdown Voltage  
(Unidirectional Types)

# 1N6373-1N6389

Transient Voltage Suppressor  
1500 Watt



**FIGURE 5**  
Typical Capacitance vs. Breakdown Voltage  
(Bidirectional Types)