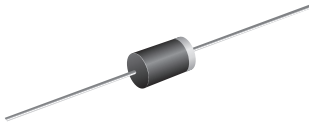




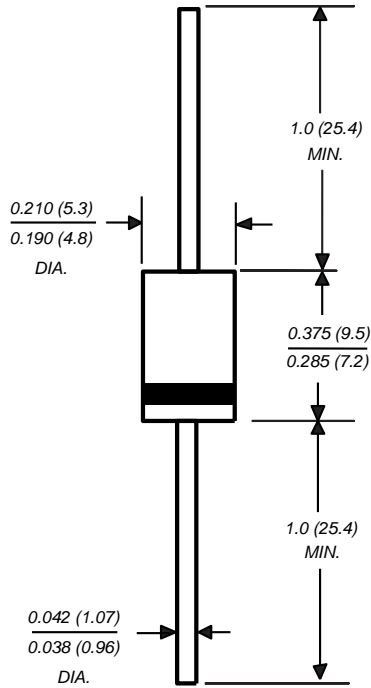
## TRANSZORB® Transient Voltage Suppressors



Stand Off Voltage 5.0 to 18V  
Peak Pulse Power 1500W

Extended  
Voltage Range

### Case Style 1.5KE



Dimensions in inches and (millimeters)

### Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated junction
- 1500W peak pulse power capability with a 10/1000µs waveform, repetition rate (duty cycle): 0.05%
- Excellent clamping capability
- Low incremental surge resistance
- Very fast response time
- Ideal for data and bus line applications
- High temperature soldering guaranteed: 265°C/10 seconds, 0.375" (9.5mm) lead length, 5lbs. (2.3 kg) tension
- Includes 1N6373 thru 1N6386

### Mechanical Data

**Case:** Molded plastic body over passivated junction

**Terminals:** Plated axial leads, solderable per MIL-STD-750, Method 2026

**Polarity:** For unidirectional types the color band denotes the cathode, which is positive with respect to the anode under normal TVS operation

**Mounting Position:** Any

**Weight:** 0.045 oz., 1.2 g

**Packaging Codes – Options (Antistatic):**

- 51 – 1K per Bulk box, 10K/carton
- 54 – 1.4K per 13" paper Reel (52mm horiz. tape), 4.2K/carton
- 73 – 1K per horiz. tape & Ammo box, 10K/carton

## Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

| Parameter  | Symbol                            | Limit           | Unit |
|--|-----------------------------------|-----------------|------|
| Peak pulse power dissipation with a 10/1000µs waveform <sup>(1)</sup> (Fig. 1)             | PPPM                              | Minimum 1500    | W    |
| Peak pulse current with a 10/1000µs waveform <sup>(1)</sup> (Fig. 3)                       | IPPM                              | See Table 1 & 2 | A    |
| Steady state power dissipation, T <sub>L</sub> = 75°C, at lead lengths 0.375" (9.5mm)      | P <sub>M(AV)</sub>                | 6.5             | W    |
| Peak forward surge current, 8.3ms single half sine-wave unidirectional only <sup>(2)</sup> | I <sub>FSM</sub>                  | 200             | A    |
| Maximum instantaneous forward voltage at 100A for unidirectional only                      | V <sub>F</sub>                    | 3.5             | V    |
| Operating junction and storage temperature range   | T <sub>J</sub> , T <sub>STG</sub> | -55 to +175     | °C   |

**Notes:** (1) Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub> = 25°C per Fig. 2  
(2) 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum



**Electrical Characteristics (JEDEC Registered Data) Table 1 – Unidirectional Types**

Ratings at 25°C ambient temperature unless otherwise specified.

| JEDEC Type Number     | General Semiconductor Part Number | Stand-Off Voltage<br>$V_{WM}$<br>(V) | Minimum <sup>(3)</sup> Breakdown Voltage at 1.0mA<br>$V_{(BR)}$<br>(V) | Maximum Reverse Leakage at $V_{WM}$<br>$I_D$<br>( $\mu$ A) | Maximum Clamping Voltage at $I_{PP} = 1.0A$<br>$V_C$<br>(V) | Maximum Clamping Voltage at $I_{PP} = 10A$<br>$V_C$<br>(V) | Maximum Peak Pulse Current<br>$I_{PP}$<br>(A) |
|-----------------------|-----------------------------------|--------------------------------------|--|--|---|--|---|
| 1N6373 <sup>(2)</sup> | ICTE-5 <sup>(2)</sup>             | 5.0                                  | 6.0  | 300  | 7.1   | 7.5  | 160   |
| 1N6374                | ICTE-8                            | 8.0                                  | 9.4  | 25.0   | 11.3  | 11.5   | 100   |
| 1N6375                | ICTE-10                           | 10.0                                 | 11.7   | 2.0  | 13.7  | 14.1   | 90  |
| 1N6376                | ICTE-12                           | 12.0                                 | 14.1   | 2.0  | 16.1  | 16.5   | 70  |
| 1N6377                | ICTE-15                           | 15.0                                 | 17.6   | 2.0  | 20.1  | 20.6   | 60  |
| 1N6378                | ICTE-18                           | 18.0                                 | 21.2   | 2.0  | 24.2  | 25.2   | 50  |

**Electrical Characteristics (JEDEC Registered Data) Table 2 – Bidirectional Types**

Ratings at 25°C ambient temperature unless otherwise specified.

| JEDEC Type Number | General Semiconductor Part Number | Stand-Off Voltage<br>$V_{WM}$<br>(V) | Minimum <sup>(3)</sup> Breakdown Voltage at 1.0mA<br>$V_{(BR)}$<br>(V) | Maximum Reverse Leakage at $V_{WM}$<br>$I_D$<br>( $\mu$ A) | Maximum Clamping Voltage at $I_{PP} = 1.0A$<br>$V_C$<br>(V) | Maximum Clamping Voltage at $I_{PP} = 10A$<br>$V_C$<br>(V) | Maximum Peak Pulse Current<br>$I_{PP}$<br>(A) |
|-------------------|-----------------------------------|--------------------------------------|--|--|---|--|---|
| 1N6382            | ICTE-8C                           | 8.0                                  | 9.4  | 50.0   | 11.4  | 11.6   | 100   |
| 1N6383            | ICTE-10C                          | 10.0                                 | 11.7   | 2.0  | 14.1  | 14.5   | 90  |
| 1N6384            | ICTE-12C                          | 12.0                                 | 14.1   | 2.0  | 16.7  | 17.1   | 70  |
| 1N6385            | ICTE-15C                          | 15.0                                 | 17.6   | 2.0  | 20.8  | 21.4   | 60  |
| 1N6386            | ICTE-18C                          | 18.0                                 | 21.2   | 2.0  | 24.8  | 25.5   | 50  |

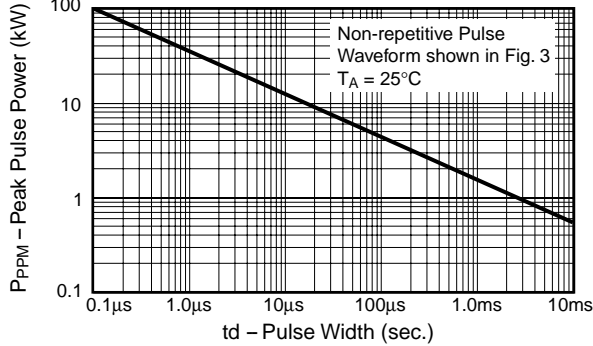
**Notes:**

- (1) " C " Suffix indicates bi-directional
- (2) ICTE-5 and 1N6373 are not available as bi-directional
- (3) 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. Please consult factory for devices that require reduced clamping voltages where tighter regulated power supply voltages are employed.
- (4) Clamping Factor: 1.33 at full rated power; 1.20 at 50% rated power; Clamping Factor: the ratio of the actual  $V_C$  (Clamping Voltage) to the  $V_{(BR)}$  (Breakdown Voltage) as measured on a specific device.

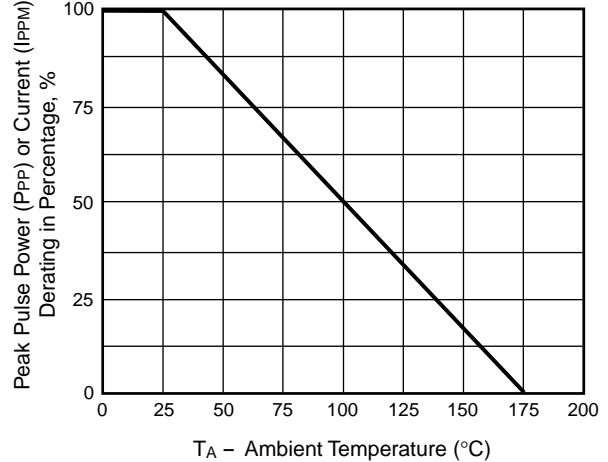


**Ratings and Characteristic Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

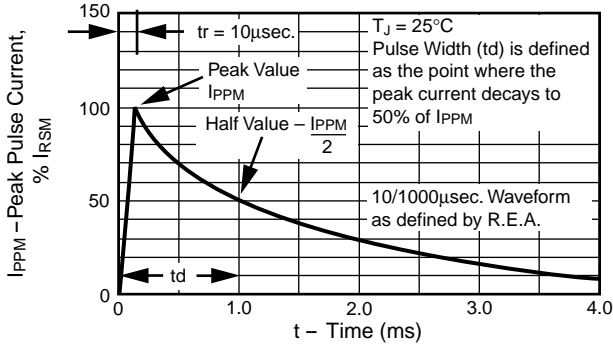
**Fig. 1 – Peak Pulse Power Rating Curve**



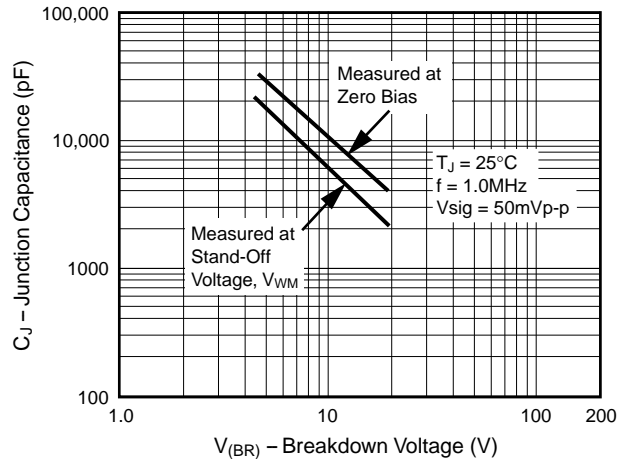
**Fig. 2 – Pulse Derating Curve**



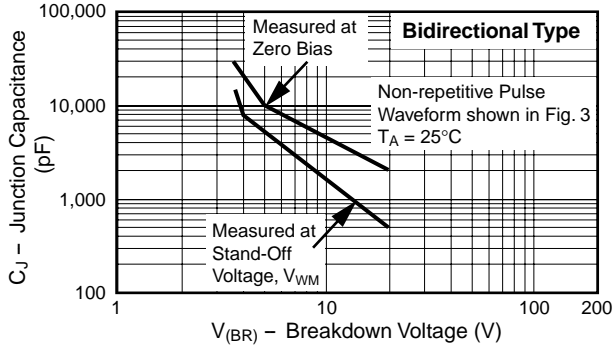
**Fig. 3 – Pulse Waveform**



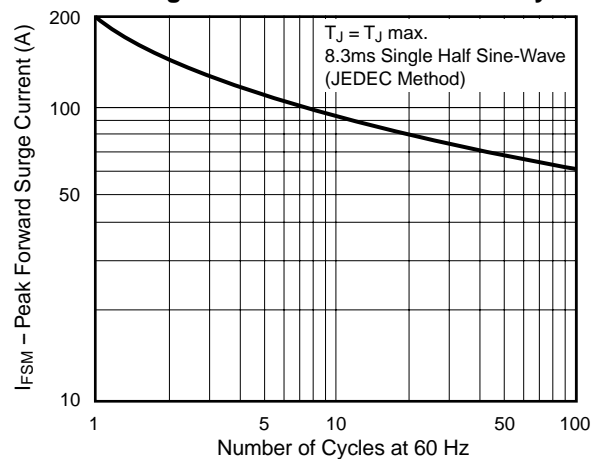
**Fig. 4 – Typical Junction Capacitance Uni-Directional**



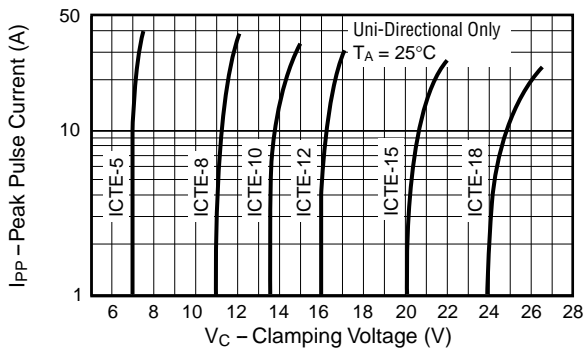
**Fig. 5 – Typical Junction Capacitance Bidirectional Type**



**Fig. 6 – Maximum Non-Repetitive Forward Surge Current Uni-Directional Only**



**Fig. 7 – Typical Characteristics Clamping Voltage**





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