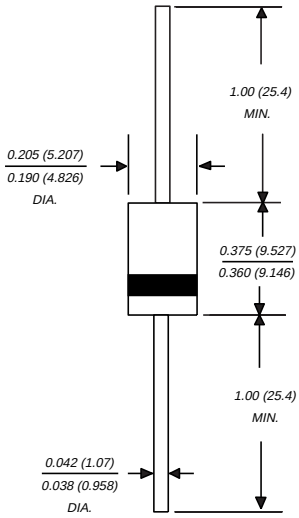
# ICTE5.0 THRU ICTE15C SERIES

## TRANSZORB™ TRANSIENT VOLTAGE SUPPRESSOR

***Stand-off Voltage -*** *5.0 to 15 Volts* ***Peak Pulse Power -*** *1500 Watts*

**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
- Fast response time: typically less than 1.0ps from 0 Volts to $V_{(BR)}$ for uni-directional and 5.0ns for bi-directional
- 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 1N6385

## MECHANICAL DATA

**Case:** Molded plastic over a passivated junction
**Terminals:** Plated Axial leads, solderable per MIL-STD-750, Method 2026
**Polarity:** For uni-directional 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 ounce, 1.2 grams

## MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| | *SYMBOL* | *VALUE* | *UNITS* |
|---|---|---|---|
| Peak pulse power dissipation with a 10/1000µs waveform (NOTE 1, FIG. 1) | $P_{PPM}$ | Minimum 1500 | Watts |
| Steady state power dissipation, $T_L$= 75°C at lead lengths 0.375" (9.5mm) | $P_{M(AV)}$ | 6.5 | Watts |
| Peak pulse current with a 10/1000µs waveform (NOTE 1, FIG. 3) | $I_{PPM}$ | SEE TABLE 1 & 2 | Amps |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load for uni-directional only (JEDEC Method) (NOTE 2) | $I_{FSM}$ | 200 | Amps |
| Maximum instantaneous forward voltage at 100A for uni-directional only | $V_F$ | 3.5 | Volts |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | -55 to +175 | °C |

**NOTES:**
(1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A$= 25°C per Fig. 2
(2) 8.3ms single half sine-wave, duty cycle=4 pulses per minute maximum

GENERAL SEMICONDUCTOR®

## ELECTRICAL CHARACTERISTICS at 25°C (JEDEC REGISTERED DATA) TABLE 1

| JEDEC TYPE NUMBER | GENERAL SEMICONDUCTOR PART NUMBER | STAND-OFF VOLTAGE $V_{WM}$ (VOLTS) | MINIMUM[3] BREAKDOWN VOLTAGE at 1.0mA. $V_{(BR)}$ (VOLTS) | MAXIMUM REVERSE LEAKAGE at $V_{WM}$ $I_D$ (μA) | MAXIMUM CLAMPING VOLTAGE at $I_{PP}$ = 1.0A Vc (VOLTS) | MAXIMUM CLAMPING VOLTAGE at $I_{PP}$ = 10A Vc (VOLTS) | MAXIMUM PEAK PULSE CURRENT $I_{PP}$ (Amps) |
|---|---|---|---|---|---|---|---|
| 1N6373[2] | ICTE-5[2] | 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 |

## ELECTRICAL CHARACTERISTICS AT 25°C (JEDEC REGISTERED DATA) TABLE 2

| JEDEC TYPE NUMBER | GENERAL SEMICONDUCTOR PART NUMBER | STAND-OFF VOLTAGE $V_{WM}$ (VOLTS) | MINIMUM[3] BREAKDOWN VOLTAGE at 1.0mA. $V_{(BR)}$ (VOLTS) | MAXIMUM REVERSE LEAKAGE at $V_{WM}$ $I_D$ (μA) | MAXIMUM CLAMPING VOLTAGE at $I_{PP}$ = 1A Vc (VOLTS) | MAXIMUM CLAMPING VOLTAGE at $I_{PP}$ = 10A Vc (VOLTS) | MAXIMUM PEAK PULSE CURRENT $I_{PP}$ (Amps) |
|---|---|---|---|---|---|---|---|
| 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 |

**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 ±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 lo rated power; 1.20 at 50% rated power; Clamping Factor: the ratio of the actual Vc (Clamping Voltage) to the $V_{(BR)}$ (Breakdown Voltage) as measured on a specific device.

**FIG. 1 - PEAK PULSE POWER RATING CURVE**

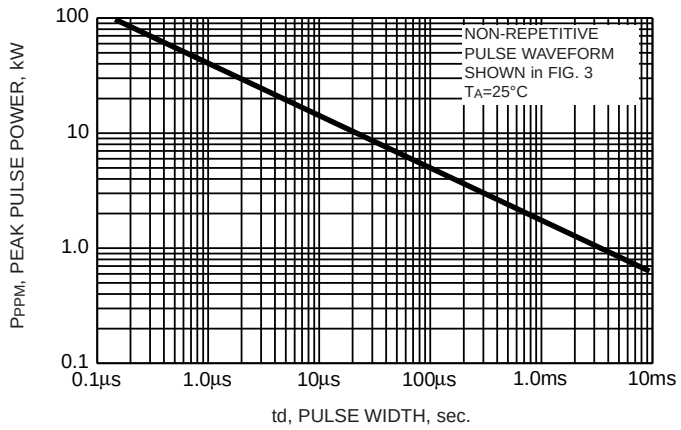



**FIG. 2 - PULSE DERATING CURVE**

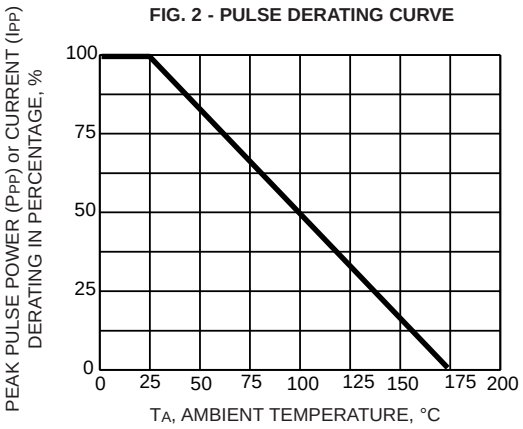



**FIG. 3 - PULSE WAVEFORM**

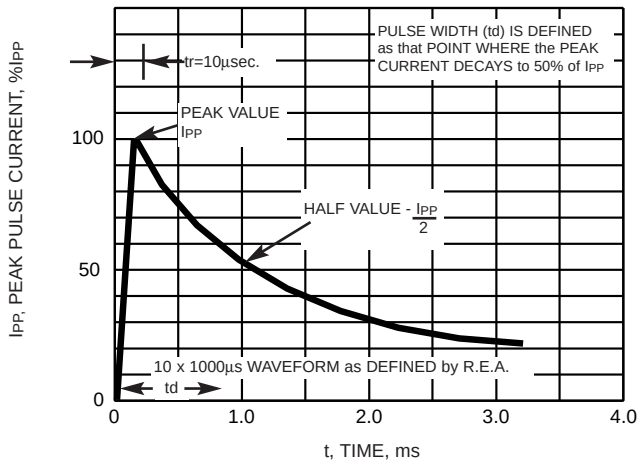
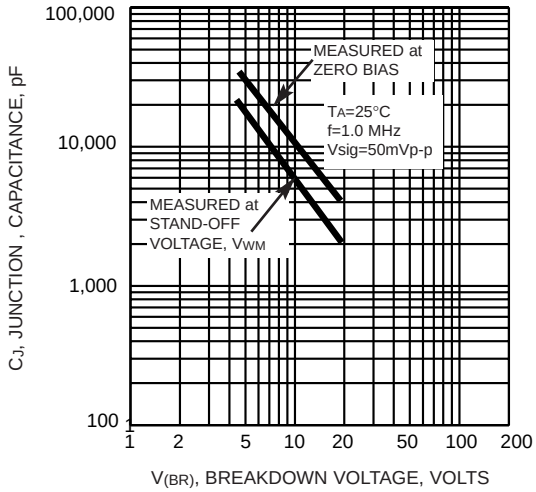



**FIG. 4 - TYPICAL JUNCTION CAPACITANCE UNI-DIRECTIONAL TYPE**




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**FIG. 5 - TYPICAL JUNCTION CAPACITANCE BIDIRECTIONAL TYPE**

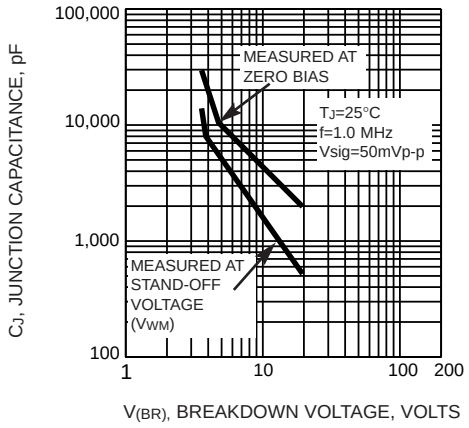



**FIG. 6 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**

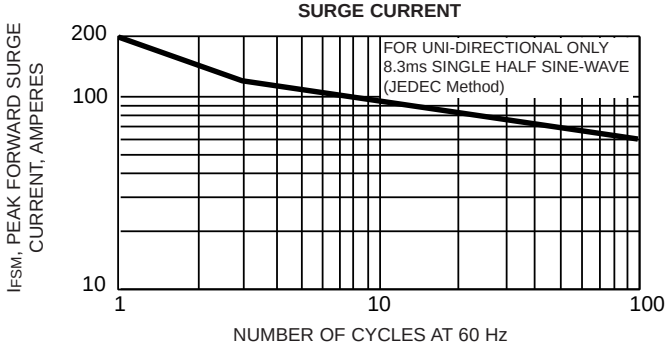



**FIG. 7 - TYPICAL CHARACTERISTIC CLAMPING VOLTAGE**

