

**TRANSIENT VOLTAGE SUPPRESSORS
FOR MICROPROCESSOR PROTECTION**

5.0 to 450 VOLTS

1500 WATT PEAK POWER 5.0 WATT STEADY STATE

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25 °C ambient unless otherwise specified

| RATING | SYMBOL | VALUE | UNITS |
|----------------------------------------------------------------------------------------------------|----------------|-----------------------|--------|
| Peak Power Dissipation at $T_A = 25^\circ\text{C}$, $T_p = 1\text{ms}$ (Note 1) | P_{PK} | 1.5 | kWatts |
| Steady State Power Dissipation at $T_A = 75^\circ\text{C}$ Lead Lengths .375" (9.5 mm) (Note 2) | P_D | 5.0 | Watts |
| Clamping Time 0 Volts to V_{BR} | $t_{clamping}$ | $< 1 \times 10^{-12}$ | Sec |
| Forward Surge Rating 1/120 sec (Uni-Polar Only) | I_{FS} | 200 | Amps |
| Operating and Storage Temperature Range | T_J, T_{STG} | -65 to +175 | °C |

UNI-POLAR CHARACTERISTICS AT 25°C

| PART NUMBER | REVERSE STAND-OFF VOLTAGE (Note 3) V_R Volts | MAXIMUM REVERSE LEAKAGE I_{R} uA @ V_R | MINIMUM BREAKDOWN VOLTAGE V_{BR} Volts @ 1.0 mA | MAXIMUM CLAMPING VOLTAGE V_C Volts @ $I_{PP} = 1\text{A}$ | MAXIMUM CLAMPING VOLTAGE V_C Volts @ $I_{PP} = 10\text{A}$ | MAXIMUM PEAK PULSE CURRENT (Fig. 2) I_{PP} Amps |
|-------------|---------------------------------------------------|-----------------------------------------------|------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------|
| ICTE-5 | 5.0 | 300 | 6.0 | 7.1 | 7.5 | 160 |
| ICTE-8 | 8.0 | 25 | 9.4 | 11.3 | 11.5 | 100 |
| ICTE-10 | 10.0 | 2 | 11.7 | 13.7 | 14.1 | 90 |
| ICTE-12 | 12.0 | 2 | 14.1 | 16.1 | 16.5 | 70 |
| ICTE-15 | 15.0 | 2 | 17.6 | 20.1 | 20.6 | 60 |
| ICTE-18 | 18.0 | 2 | 21.2 | 24.2 | 25.2 | 50 |
| ICTE-22 | 22.0 | 2 | 25.9 | 29.8 | 32.0 | 40 |
| ICTE-36 | 36.0 | 2 | 42.4 | 50.6 | 54.3 | 23 |
| ICTE-45 | 45.0 | 2 | 52.9 | 63.3 | 70.0 | 19 |

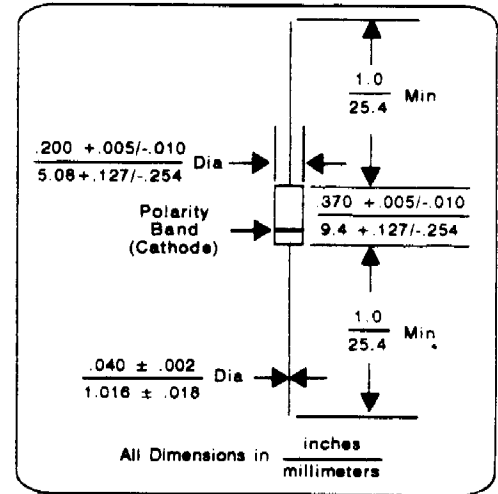
BI-POLAR CHARACTERISTICS AT 25°C

| | | | | | | |
|----------|------|----|------|------|------|-----|
| ICTE-8C | 8.0 | 25 | 9.4 | 11.4 | 11.6 | 100 |
| ICTE-10C | 10.0 | 2 | 11.7 | 14.1 | 14.5 | 90 |
| ICTE-12C | 12.0 | 2 | 14.1 | 16.7 | 17.1 | 70 |
| ICTE-15C | 15.0 | 2 | 17.6 | 20.8 | 21.4 | 60 |
| ICTE-18C | 18.0 | 2 | 21.2 | 24.8 | 25.5 | 50 |
| ICTE-22C | 22.0 | 2 | 25.9 | 30.8 | 32.0 | 40 |
| ICTE-36C | 36.0 | 2 | 42.4 | 50.6 | 54.3 | 23 |
| ICTE-45C | 45.0 | 2 | 52.9 | 63.3 | 70.0 | 19 |

Clamping Factor: 1.33 @ Full rated power
1.20 @ 50% rated power

Clamping Factor is the ratio of V_C to V_{BR}

**ICTE-5
thru
ICTE-45C**



MECHANICAL DATA

Case: Molded plastic over passivated junctions
Terminals: Axial leads.

Polarity: Band Denotes Cathode (Except Bi-Polar)
Mounting Position: Any
Weight: 0.053 ounce (1.5 grams)

FEATURES

- Transient Protection for CMOS, MOS, ICs, (TTL, ECL, DTL, RTL, and Linear Functions)
- Voltage range of 4.5 to 45 volts
- Low clamping ratio

NOTES TO CHARACTERISTICS

- Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ per Fig. 2
- Mounted on Copper Leaf area of 0.79 sq in (20 sq mm)
- V_{BR} measured after I_P applied for 300 us.
 I_P = Square Wave Pulse or equivalent.
- ICTE-5 not available as Bipolar

Figure 2: CLAMPING VOLTAGE vs PEAK PULSE CURRENT

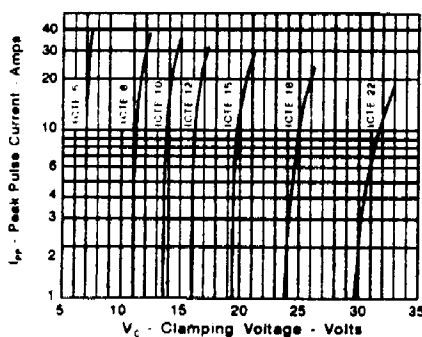


FIGURE 3 - PULSE WAVEFORM

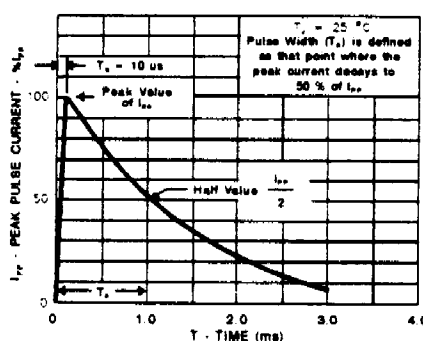
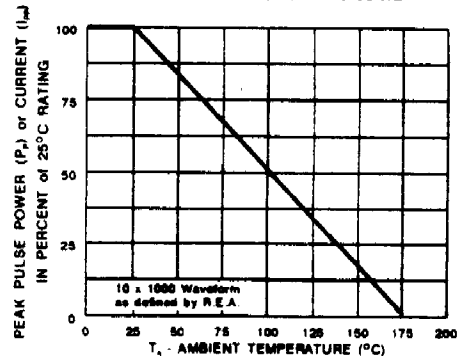


FIGURE 4 - PULSE DERATING CURVE



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

