

**ALSO
AVAILABLE IN
SURFACE
MOUNT**

Microsemi Corp.
The diode experts

SCOTTSDALE, AZ
For more information call:
(602) 941-6300

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

FEATURES

- DESIGNED TO PROTECT BIPOLAR, MOS, AND SCHOTTKY IMPROVED INTEGRATED CIRCUITS FROM ELECTRICAL DISTURBANCES.
- TRANSIENT PROTECTION FOR CMOS, MOS, BIPOLAR, ICs, (TTL, ECL, DTL, RTL AND LINEAR FUNCTIONS)
- VOLTAGE RANGE OF 5.0 to 45 VOLTS
- LOW CLAMPING RATIO

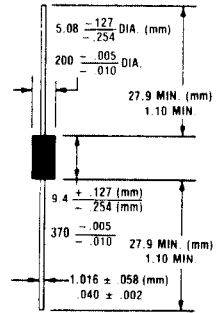
MAXIMUM RATINGS

1500 Watts of Peak Pulse Power dissipation at 25°C and 10 x 1000µs
 $t_{clamping}$ (0 volts to $V_{(BR)}$ min.): Unidirectional—Less than 1×10^{-12} seconds
 Bidirectional—Less than 5×10^{-9} seconds
 Operating and Storage Temperatures: -65° to +175°C
 Forward Surge Rating: 200 amps, 1/120 second at 25°C
 (Applies to Unidirectional or single direction only)
 Steady State power dissipation: 5.0 watts @ $T_L = 75^\circ\text{C}$, Lead Length = 3/8"
 Repetition rate (duty cycle): .05%

ELECTRICAL CHARACTERISTICS

Clamping Factor: 1.33 @ Full rated power
 1.20 @ 50% rated power
 Clamping Factor: The ratio of the actual V_C (Clamping Voltage) to the actual $V_{(BR)}$ (Breakdown Voltage) as measured on a specific device.

**TRANSIENT
ABSORPTION
ZENER**



**MECHANICAL
CHARACTERISTICS**

- CASE: Void free, molded thermal-setting plastic
- FINISH: Silver plated copper readily solderable
- POLARITY: Band denotes cathode
- WEIGHT: 1.5 grams (Appx.)
- MOUNTING POSITION: Any

ICTE-5 thru ICTE-45C

ELECTRICAL CHARACTERISTICS @ 25°C

| MICROSEMI PART NUMBER | STAND-OFF VOLTAGE (Note 1) V_{WM} VOLTS | MAXIMUM REVERSE LEAKAGE @ V_{WM} I_{RM} μA | MINIMUM* BREAKDOWN VOLTAGE @ 1 mA $V_{(BR)}$ (min.) VOLTS | MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ $I_{PP2} = 1A$ V_C VOLTS | MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ $I_{PP2} = 10A$ V_C VOLTS | MAXIMUM PEAK PULSE CURRENT @ $10 \times 1000 \mu s$ I_{PP3} A |
|-----------------------|---|---|---|---|--|--|
| 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 |

V_f at 100 amps peak, 8.3 msec sine wave equals 3.5 volts maximum

ELECTRICAL CHARACTERISTICS @ 25°C (Test Both Polarities)

| | | | | | | |
|----------|------|-----|------|------|------|-----|
| ICTE-5C | 5.0 | 300 | 6.0 | 7.1 | 7.5 | 160 |
| 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 |

C Suffix indicates Bidirectional

NOTE 1: TAZ are normally selected according to the reverse "Stand Off Voltage" V_{WM} which should be equal to or greater than the DC or continuous peak operating voltage level.

*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. Similar devices are available with reduced clamping voltages where tighter regulated power supply voltages are employed.

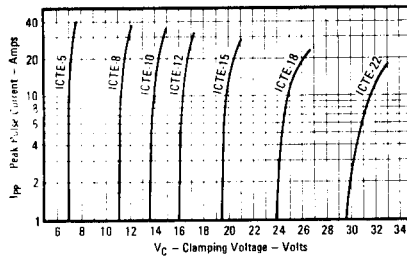
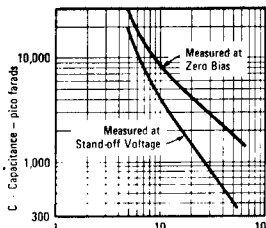
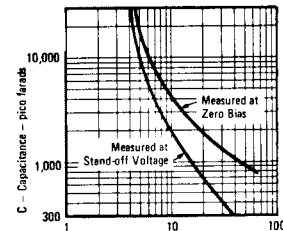


FIGURE 2
TYPICAL CHARACTERISTIC CLAMPING VOLTAGE VS PEAK PULSE CURRENT



$V_{(BR)}$ — Breakdown Voltage — Volts

FIGURE 3
TYPICAL CAPACITANCE VS BREAKDOWN VOLTAGE (UNIDIRECTIONAL TYPES)



$V_{(BR)}$ — Breakdown Voltage — Volts

FIGURE 4
TYPICAL CAPACITANCE VS BREAKDOWN VOLTAGE (BIDIRECTIONAL TYPES)



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