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ICT-5  
thru  
ICT-45C

Microsemi Corp.

*The diode experts*

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## FEATURES

- THIS SERIES OF TAZ DEVICES IS DESIGNED TO PROTECT BIPOLAR, MOS AND SCHOTTKY IMPROVED INTEGRATED CIRCUITS.
- TRANSIENT PROTECTION FOR CMOS, MOS, BIPOLAR, ICS (TTL, ECL, DTL, RTL AND LINEAR FUNCTIONS)
- 5.0 TO 45 VOLTS
- LOW CLAMPING RATIO

## TRANSIENT ABSORPTION ZENER

## MAXIMUM RATINGS

1500 Watts of Peak Pulse Power dissipation at 25°C and  $10 \times 1000\mu\text{s}$   
 $t_{\text{clamping}}$  (0 volts to  $V_{(\text{BR})}$  min): Unidirectional—Less than  $1 \times 10^{-12}$  seconds  
Bidirectional—Less than  $5 \times 10^{-9}$  seconds

Operating and Storage temperatures:  $-65^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$

Forward surge rating: 200 amps, 1/120 second at  $25^{\circ}\text{C}$

(Applies to Unidirectional or single direction only)

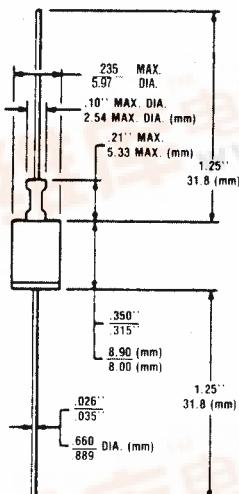
Steady State power dissipation: 1.0 watt

Repetition rate (duty cycle): .01%

## 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  $V_{(\text{BR})}$  (Breakdown Voltage) as measured on a specific device.



## MECHANICAL CHARACTERISTICS

CASE: DO-13 welded, hermetically sealed metal and glass.

FINISH: All external surfaces are corrosion resistant and leads solderable.

POLARITY: Cathode connected to case and marked. Bidirectional not marked.

WEIGHT: 1.4 grams (Appx.)

MOUNTING POSITION: Any

# ICT-5 thru ICT-45C

## ELECTRICAL CHARACTERISTICS @ 25°C

MICROSEMI PART NUMBER	STAND-OFF VOLTAGE (NOTE 1) V <sub>WM</sub> VOLTS	MAXIMUM REVERSE LEAKAGE @ V <sub>WM</sub> I <sub>D</sub> /A	MINIMUM* BREAKDOWN VOLTAGE @ 1 mA B (V <sub>BR</sub> ) (min.) VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I <sub>PP1</sub> = 1A V <sub>C</sub> VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I <sub>PP2</sub> = 10A V <sub>C</sub> VOLTS	MAXIMUM PEAK PULSE CURRENT @ 10 x 1000 μs I <sub>PP3</sub> A
ICT-5	5.0	300	6.0	7.1	7.5	160
ICT-8	8.0	25	9.4	11.3	11.5	100
ICT-10	10.0	2	11.7	13.7	14.1	90
ICT-12	12.0	2	14.1	16.1	16.5	70
ICT-15	15.0	2	17.6	20.1	20.6	60
ICT-18	18.0	2	21.2	24.2	25.2	50
ICT-22	22.0	2	25.9	29.8	32.0	40
ICT-36	36.0	2	42.4	50.6	54.3	23
ICT-45	45.0	2	52.9	63.3	70.0	19

V<sub>f</sub> at 100 amps peak, 8.3 ms sine wave equals 3.5 volts maximum

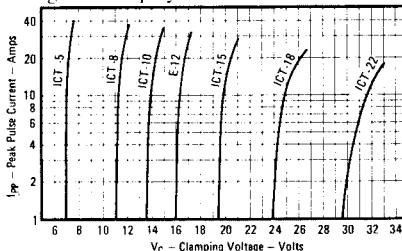
## ELECTRICAL CHARACTERISTICS @ 25°C (Test Both Polarities)

ICT-5C	5.0	300	6.0	7.1	7.5	160
ICT-8C	8.0	25	9.4	11.4	11.6	100
ICT-10C	10.0	2	11.7	14.1	14.5	90
ICT-12C	12.0	2	14.1	16.7	17.1	70
ICT-15C	15.0	2	17.6	20.8	21.4	60
ICT-18C	18.0	2	21.2	24.8	25.5	50
ICT-22C	22.0	2	25.9	30.8	32.0	40
ICT-36C	36.0	2	42.4	50.6	54.3	23
ICT-45C	45.0	2	52.9	63.3	70.0	19

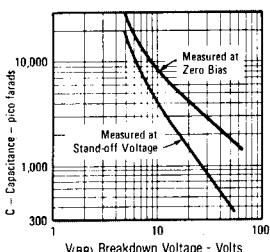
C Suffix indicates Bidirectional

**NOTE 1:** TAZ are normally selected according to the reverse "Stand Off Voltage" V<sub>WM</sub> which should be equal to or greater than the DC or repetitive peak operation voltage level.

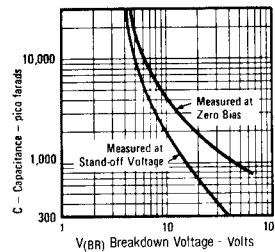
\*The minimum breakdown voltage as shown takes into consideration the  $\pm 1$  volt tolerance normally specified for power supply regulation on most integrated circuit manufacturers data sheets. Similar devices are available with reduced clamping voltages where tighter regulated power supply voltages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



**FIGURE 2**  
TYPICAL CHARACTERISTIC CLAMPING VOLTAGE VS PEAK PULSE CURRENT



**FIGURE 3**  
TYPICAL CAPACITANCE VS  
BREAKDOWN VOLTAGE



**FIGURE 4**  
TYPICAL CAPACITANCE VS  
BREAKDOWN VOLTAGE