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Microsemi Corp.

The diode experts

SCOTTSDALE, AZ

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**GMP-5
SERIES**

APPLICATION

The GMP-5 is a low voltage transient suppressor designed for the protection of integrated circuits. Characterized by a very low clamping voltage together with a low standoff voltage, GMP-5's afford a high degree of protection to: TTL, ECL, DTL, MOS, CMOS, VMOS, HMOS, NMOS and static memory circuits susceptible to 5-volt line transients.

DESCRIPTION/FEATURES

Transient Absorption Zeners (TAZ) are PN silicon junction zeners designed for transient voltage suppression. Due to the TAZ's fast response time, protection level and high discharge capability, they are extremely effective in providing protection against pulses generated by: voltage reversals, capacitive or inductive load switching, electromechanical switching, electrostatic discharge and electromagnetic coupling. Since integrated circuits are more susceptible to damage from these pulses, TAZ devices offer effective protection.

- 500 WATTS PEAK PULSE POWER DISSIPATION
- WORKING VOLTAGE OF 5 VOLTS
- PROTECTS TTL, ECL, DTL, MOS, CMOS, AND MSI INTEGRATED CIRCUITS
- LOW CLAMPING FACTOR

MAXIMUM RATINGS

500 Watts of Peak Pulse Power dissipation at 25°C

t_{clamping} (0 volts to BV min.): Less than 1×10^{-12} seconds (theoretical)

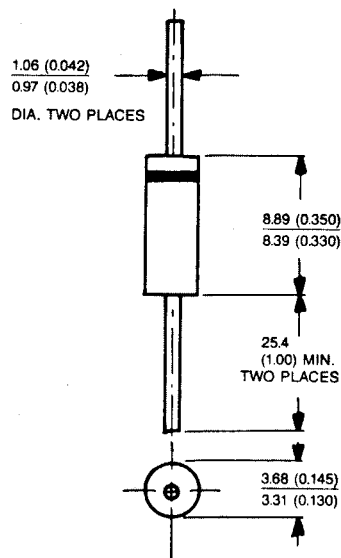
Operating and Storage Temperatures: -65°C to +175°C

Forward surge rating: 50 amps 1/120 second at 25°C

Steady State power dissipation: 5.0 W @ $T_L = 75^\circ\text{C}$, Lead Length = 3/8"

Repetition rate (duty cycle): .05%

TRANSIENT ABSORPTION ZENER



Cathode Indicated by Band
All Dimensions in Millimeters (Inches)

MECHANICAL CHARACTERISTICS

CASE: Void free transfer molded
thermosetting plastic

FINISH: Silver plated copper, read-
ily solderable

POLARITY: Band denotes cath-
ode

WEIGHT: 0.7 gram (Appx.)

MOUNTING POSITION: Any

GMP-5

ELECTRICAL CHARACTERISTICS @ 25°C

MICROSEMI CORP. PART NUMBER	STAND OFF VOLTAGE Note 1 V _{WM} Volts	MAXIMUM REVERSE LEAKAGE @ V _{WM} I _D μA	MINIMUM BREAKDOWN VOLTAGE @ 1mA V (min) V (BR) Volts	MAXIMUM CLAMPING VOLTAGE @ I _{pp1} =1A (Fig 2) VC Volts	MAXIMUM CLAMPING VOLTAGE @ I _{pp2} =10A (Fig 2) VC Volts	MAXIMUM PEAK PULSE CURRENT (Fig 2) I _{pp3} Amps	MAXIMUM PEAK PULSE CURRENT (1.2x50 μsec) Amps
GMP - 5	5.0	300	5.3	6.7	6.9	70	215
GMP - 5A	5.0	100	5.5	6.7	6.9	70	215
GMP - 5B	5.0	300	5.3	6.4	6.6	70	215

Note 1: A TAZ is usually 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.

V_f at 50 amps peak, 8.3 msec sine wave = 3.5 volts maximum

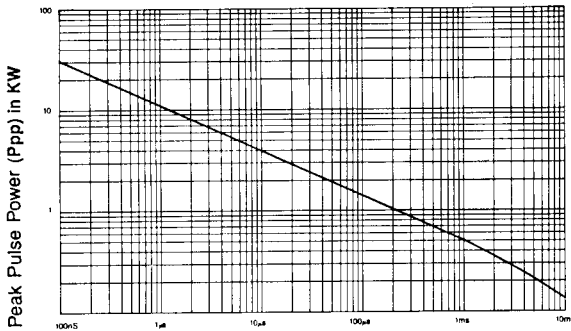
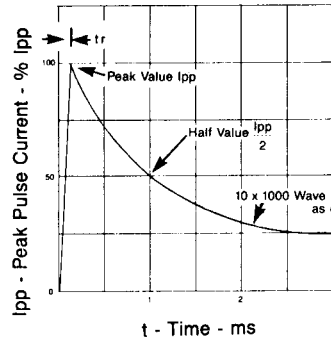


FIGURE 1
PEAK PULSE POWER VS PULSE TIME



Test waveform parameters
t_r = 10 μsec
t_p = 1000 μsec

FIGURE 2
PULSE WAVE FORM

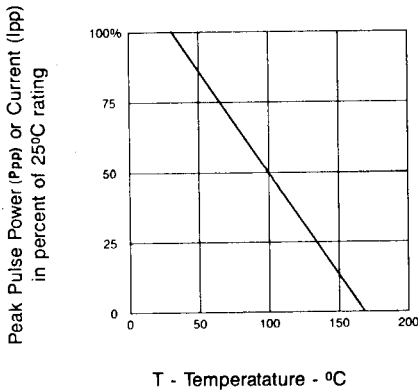


FIGURE 3
DERATING CURVE

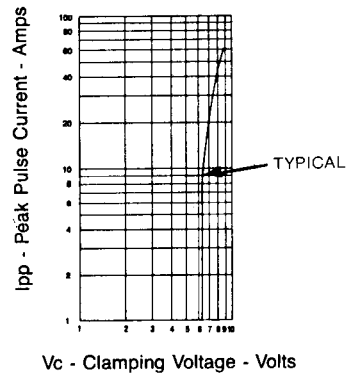


FIGURE 4
TYPICAL CHARACTERISTIC CLAMPING VOLTAGE (V_C) VS PEAK PULSE CURRENT (I_{pp})