

**UM2300  
 SERIES**

**PIN DIODE  
 SWITCH**

**Features**

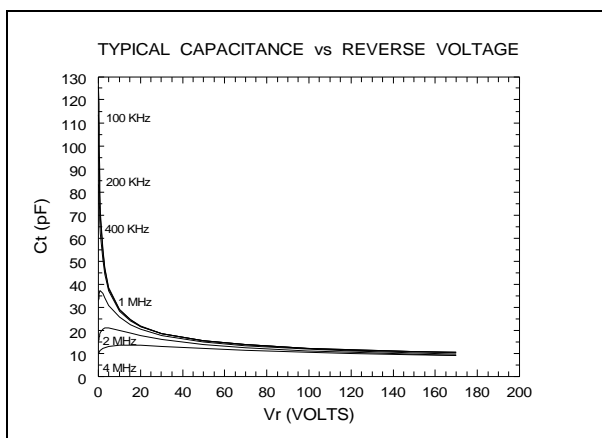
- LF band (100 KHz) PIN
- Long Lifetime (80  $\mu$ s typ.)
- High Power (1 KW CW)
- Low Loss (0.2 dB)
- Voltage Ratings to 1000 V
- High Isolation (35 dB)
- Very Low Distortion (IP3 = > 60 dBm)

**Description**

UM2300 Series PIN diodes are designed for transmit / receive switch and attenuator application in LF band ( 100 KHz ) and above. As series configured switches, these long lifetime (80  $\mu$ s typ) diodes can control up to 2.5 KW CW in a 50 ohm system. In MF band, insertion loss is less than 0.2 dB and isolation is greater than 35 dB ('off 'state).

The UM2300 series offers the lowest distortion performance in both transmit & receive modes. Less than 10 mA forward bias is required to obtain an IP3 of 60 dBm at 150 KHz with 1 watt per tone. The forward biased resistance/reactance vs. frequency characteristics are flat down to 10 KHz. Capacitance vs. reverse bias voltage characteristic is flat down to 1 MHz.

In attenuator configurations, the UM2300 produces extremely low distortion at low values of attenuator control current, & very low insertion loss ( 0.2 dB) in the ' 0 dB ' attenuator state.



**Voltage Ratings (25°C)**

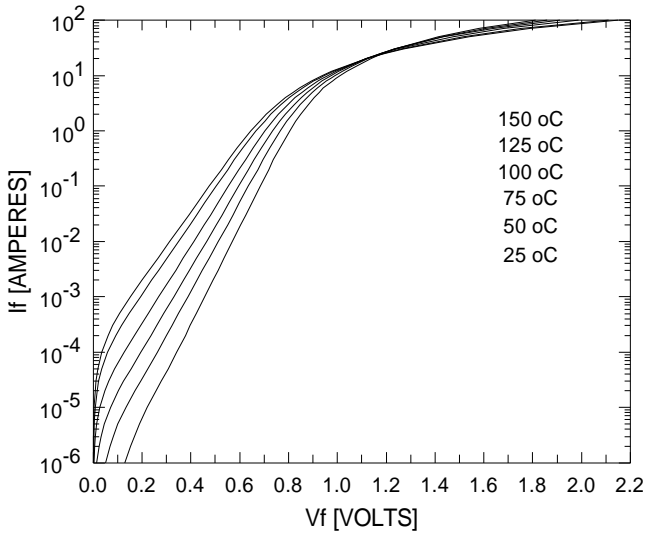
| Reverse Voltage ( V <sub>R</sub> )<br>@ I <sub>R</sub> = 10 mA | DEVICE |
|--|--------|
| 100 VOLTS.....   | UM2301 |
| 200 VOLTS.....   | UM2302 |
| 400 VOLTS.....   | UM2304 |
| 600 VOLTS.....   | UM2306 |
| 800 VOLTS.....   | UM2308 |
| 1000 VOLTS.....  | UM2310 |

**Electrical Specifications (25°C)**

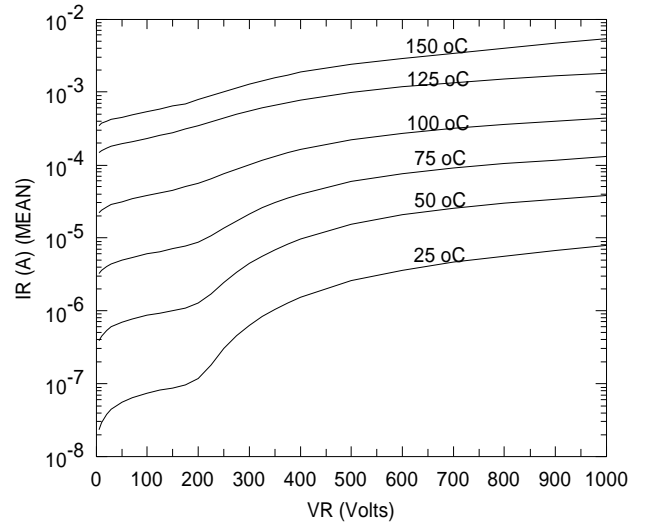
| Test                            | Min. | Typ. | Max. | Units  | Conditions   |
|---------------------------------|------|------|------|--------|--|
| Diode Resistance R <sub>S</sub> |      | 0.3  | 0.4  | W      | F <sub>1</sub> = 1 MHz, 100 mA   |
| Capacitance C <sub>T</sub>      |      | 15   | 20   | pF     | F <sub>2</sub> = 1 MHz, 100 V  |
| Reverse Current I <sub>R</sub>  |      |      | 10   | mA     | @ Rated Voltage  |
| Carrier Lifetime t              | 60   | 80   |      | ns     | I <sub>f</sub> = 10 mA / 100 V   |
| IP3                             | 50   | 60   |      | dBm    | 2 WATT total, I <sub>f</sub> = 25 mA<br>F <sub>1</sub> = 0.999 MHz, F <sub>2</sub> = 1.001 MHz |
|                                 |      |      |      |        | 1.0 WATT/ tone   |
| Thermal Resistance              |      |      | 1.0  | °C / W | 25°C Stud Temperature  |

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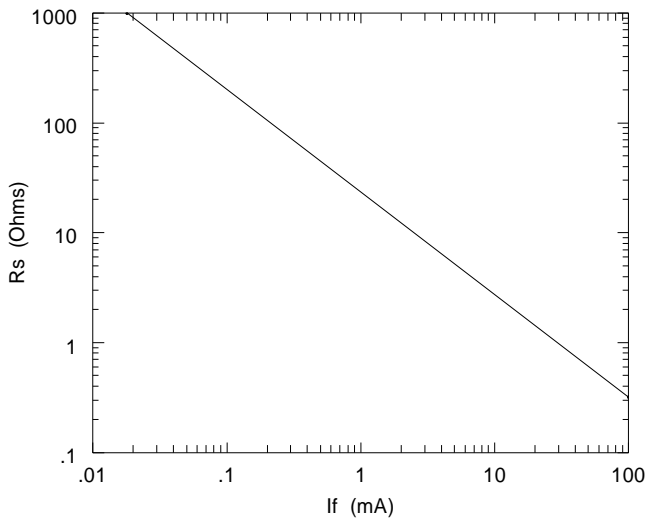
TYPICAL I-V CURVE



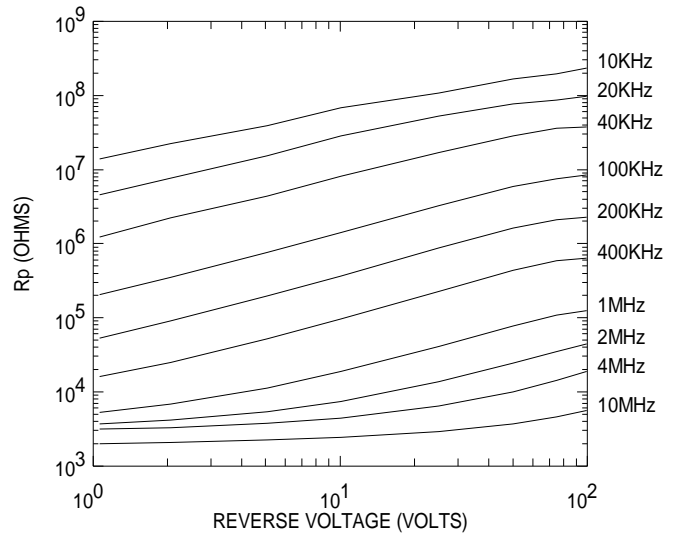
TYPICAL IR vs VR



TYPICAL RS vs FORWARD BIAS CURRENT

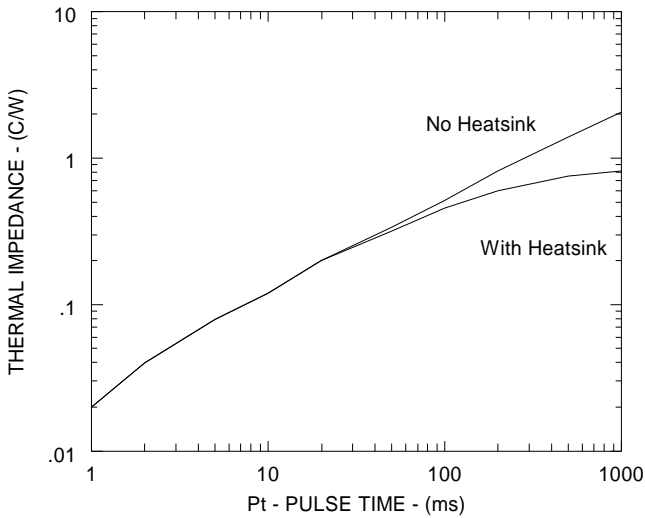


TYPICAL Rp vs REVERSE VOLTAGE

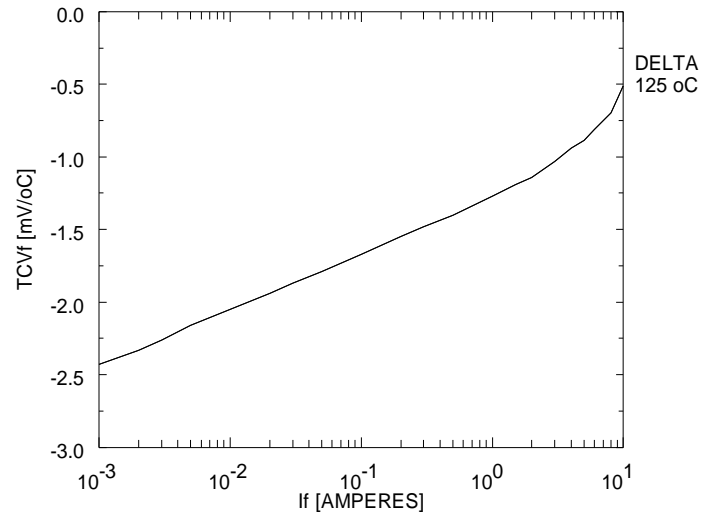


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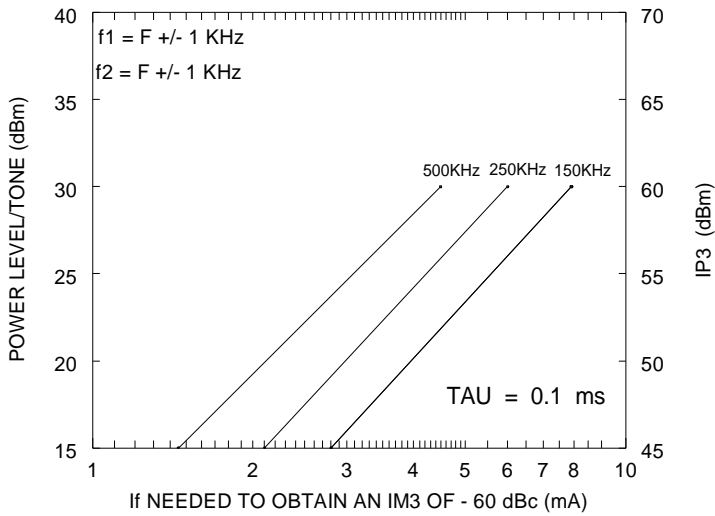
TYPICAL THERMAL IMPEDANCE



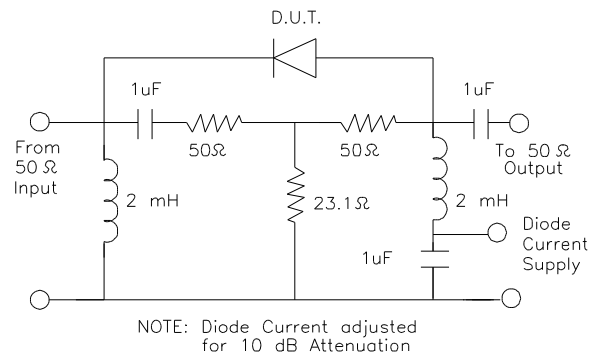
TYPICAL TCVf vs If



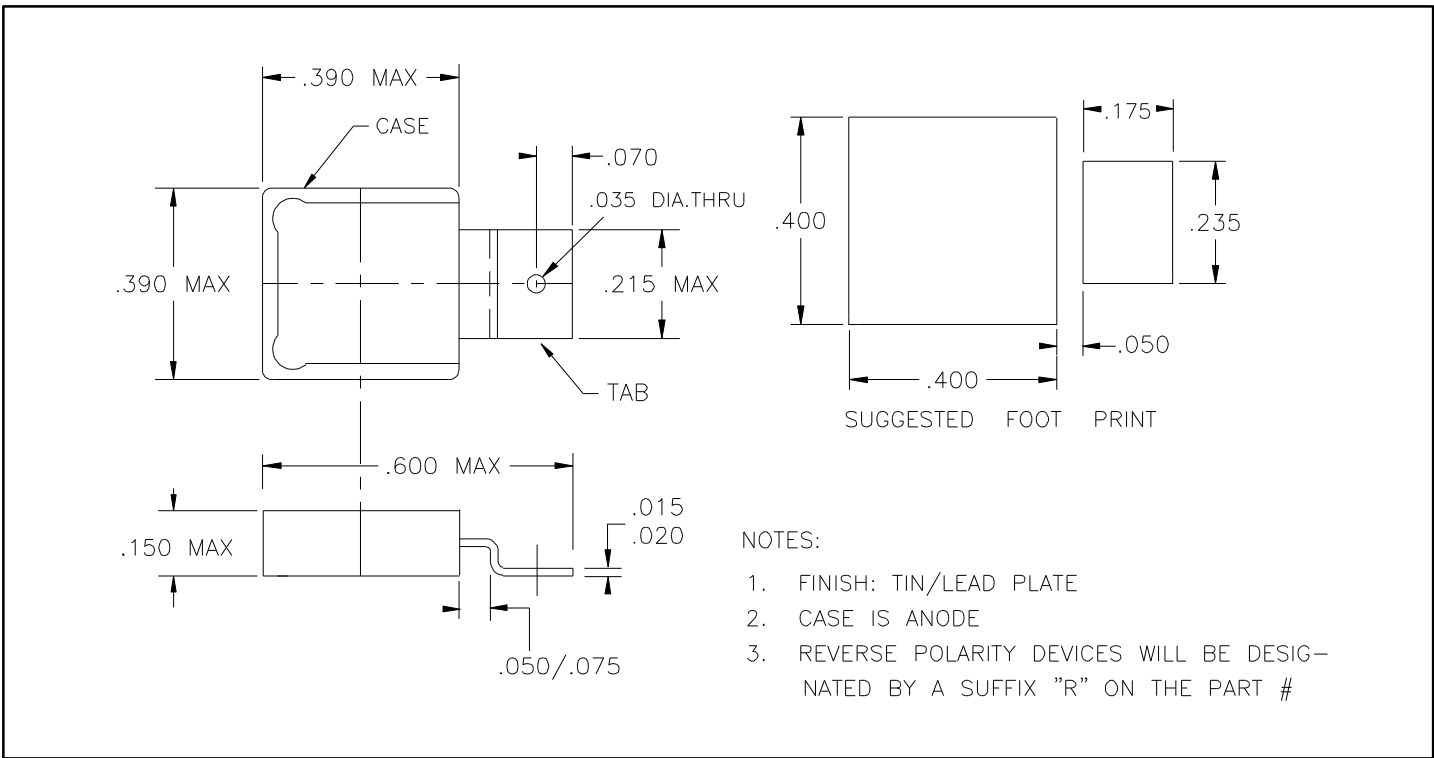
TYPICAL POWER LEVEL vs FORWARD BIAS CURRENT



TEST CIRCUIT FOR DISTORTION MEASUREMENTS

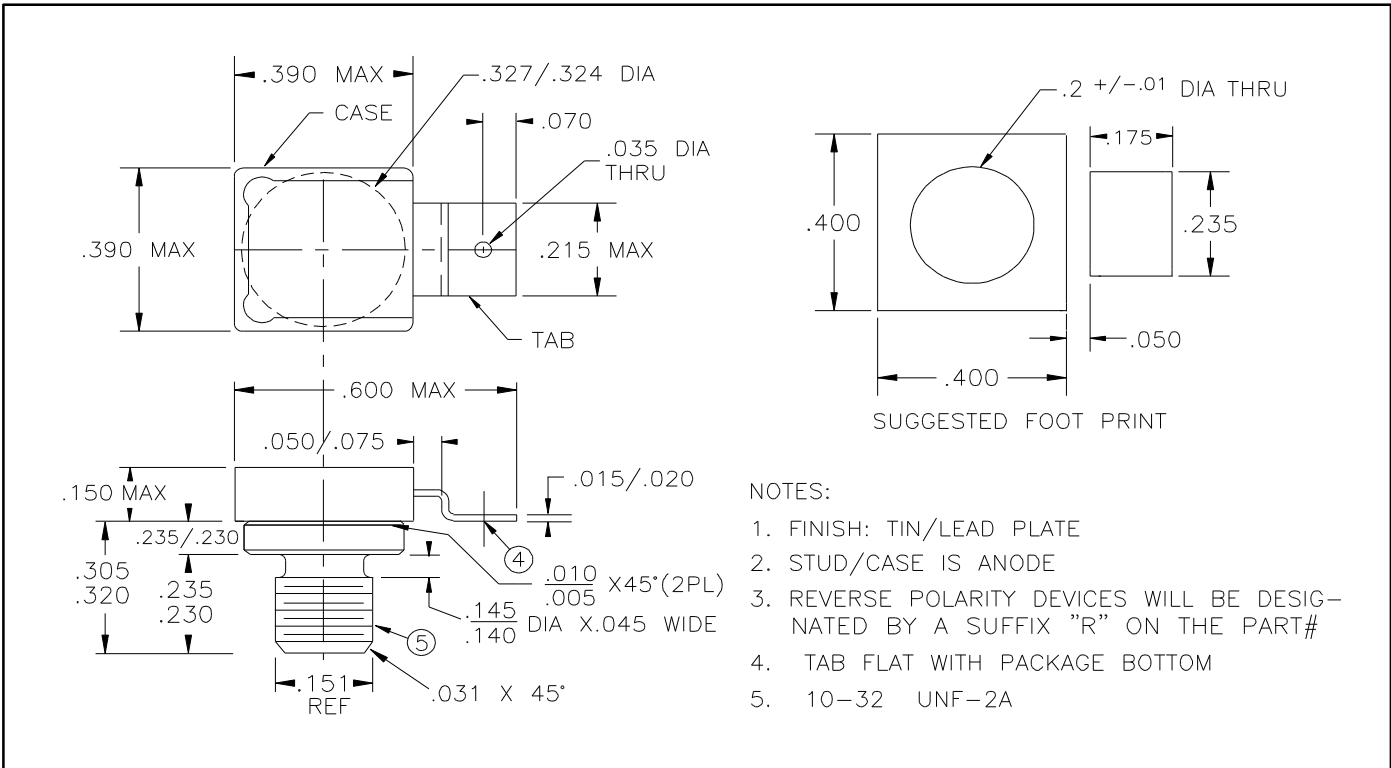


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**UM2300S**