FEATURES

- HF band (2-30 MHz) PIN
- Long Lifetime (25µs typ.)
- High Power (1KW, CW)
- High Isolation (32dB)
- Low Loss (0.25dB)
- Very Low Distortion (IP3=60dBm)
- Voltage Ratings to 1000V

DESCRIPTION

UM2100 Series PIN diodes are designed for transmit/receive switch and attenuator applications in HF band (2-30MHz) and below. As series configured switches, these long lifetime (25µs typ) diodes can control up to 2.5KW, CW in a 50 ohm system. In HF band, insertion loss is less than 0.25dB and isolation is greater then 32dB (off-state).

The UM2100 series offers the lowest distortion performance in both the transmit and receive modes. Less than 50 mA forward bias is required to obtain an IP3 of 60 dBm at 300 KHz with 1 watt per tone. The forward biased resistance/reactance vs. frequency characteristics are flat down to 10 KHz. The capacitance vs. reverse bias voltage characteristic is flat down to 2 MHz.

In attenuator configurations, the UM2100 produces extremely low distortion at low values of attenuator control current, and very low insertion loss (0.2dB) in the "0dB" attenuator state.

MAXIMUM RATINGS

Average Power Dissipation and Thermal Resistance

Package	Condition	UM2100	
		P_D	Ø
A	25°C Pin Temperature	25W	6°C/W
B&E (Axial Leads)	1/2 in. (12.7mm) Total Length to 25°C Contact	12W	12.5°C/W
B&E (Axial Leads)	Free Air	2.5W	—
C (Studded)	25°C Stud Temperature	25W	6°C/W
D (Insulated Stud)	25°C Stud Temperature	18.75W	8°C/W
Melf B	25°C End Cap Temperature	15W	10°C/W

Peak Power Dissipation Rating

All Packages	1µs Pulse (Single) at 25°C Ambient	100KW

Operating and Storage Temperature Range:	-65°C to +175°C

Microsemi Corp. Watertown the diode experts

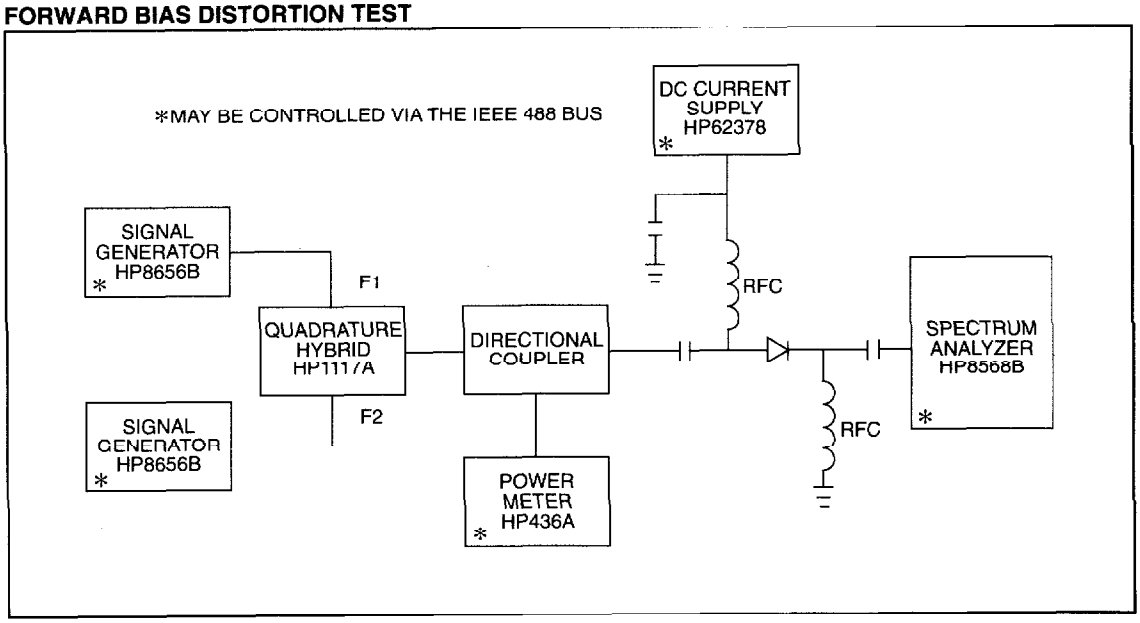
VOLTAGE RATINGS (25°C)

Reverse Voltage (V_R) – Volts I_R = 10µA	Part type
100V	UM2101
200V	UM2102
400V	UM2104
600V	UM2106
800V	UM2108
1000V	UM2110

ELECTRICAL SPECIFICATIONS (25°C)

Test	Min.	Typ.	Max.	Units	Conditions
Diode Resistance Rs		1.0	2.0	Ω	2MHz, 100mA
Capacitance C_T		1.9	2.5	pF	1MHz, 100V
Reverse Current I_R			10	µA	@ Rated Voltage
Carrier Lifetime t	20	25		µs	I = 10 mA/100V
IP3	50	60		dBm	2W total, If = 25mA F1 = 1.999 MHz F2 = 2.001 MHz 1.0 W/tone

FORWARD BIAS DISTORTION TEST



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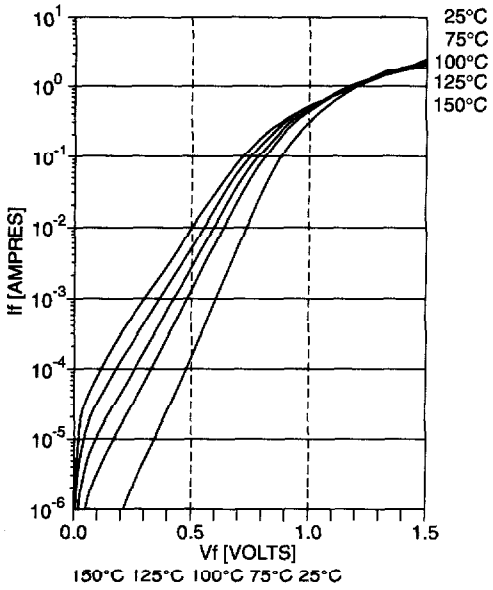
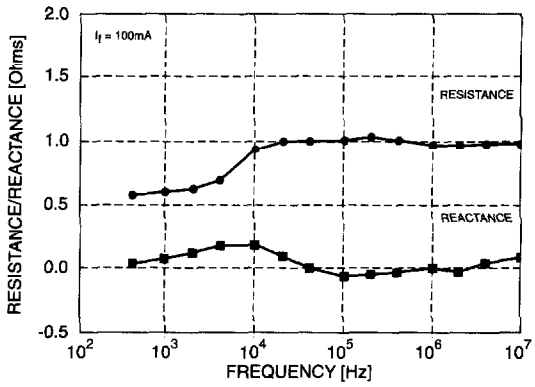
MEAN I-V CURVE



RESISTANCE/REACTANCE vs FREQUENCY



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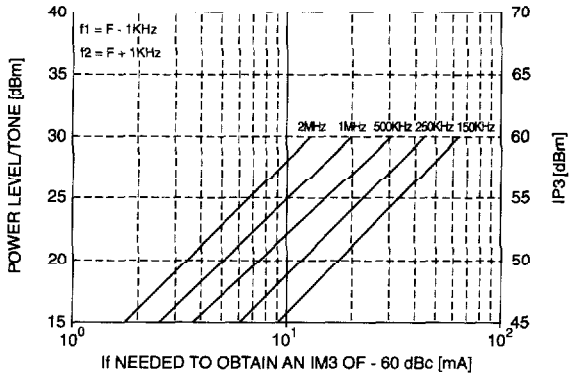
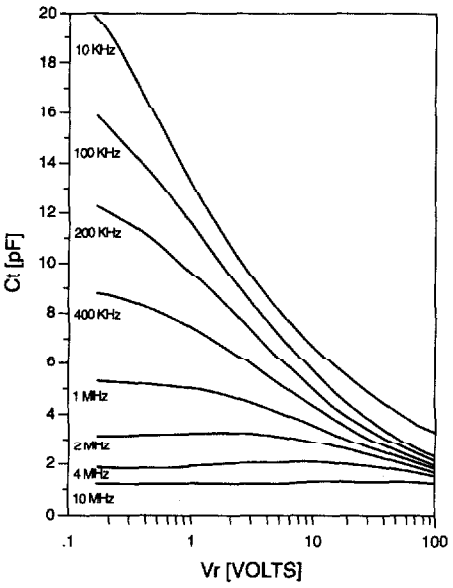
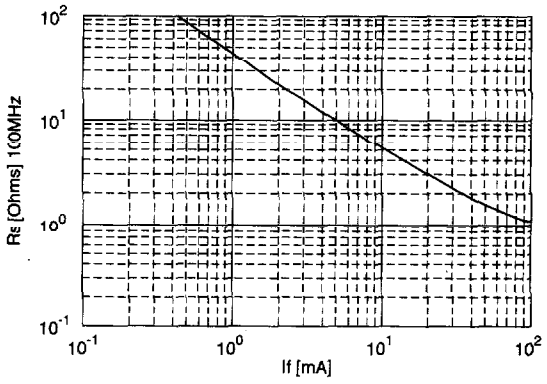
POWER LEVEL vs FORWARD BIAS CURRENT



CAPACITANCE vs REVERSE VOLTAGE



SERIES RESISTANCE vs FORWARD BIAS CURRENT



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