PIN DIODE

UM6000 SERIES
UM6200 SERIES
UM6600 SERIES

Features

- Capacitance specified as low as 0.4 pF (UM6600)
- Resistance specified as low as 0.4Ω (UM6200)
- Voltage ratings to 1000V
- Power dissipation to 6W

Description

These series of PIN diodes are designed for applications requiring small package size and moderate average power handling capability. The low capacitance of the UM6000 and UM6600 allows them to be used as series switching elements to 1 GHz. The low resistance of the UM6200 is useful in applications where forward bias current must be minimized.

Because of its thick I-region width and long lifetime the UM6000 and UM6600 have been used in distortion sensitive and high peak power applications, including receiver protectors, TACAN, and IFF equipment. Their low capacitance allows them to be useful as attenuator diodes at frequencies greater than 1 GHz. The UM6200 has been used successfully in switches in which low insertion loss at low bias current is required.

The "A" style package for this series is the smallest Microsemi PIN diode package. It has been used successfully in many microwave applications using coaxial, microstrip, and stripline techniques at frequencies beyond X-Band. The "B" and "E" style, leaded packages offer the highest available power dissipation for a package this small. They have been used extensively as series switch elements in microstrip circuits. The "C" style package duplicates the physical outline available in conventional ceramic-metal packages but incorporates the many reliability advantages of the Microsemi construction.

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MAXIMUM RATINGS

Average Power Dissipation and Thermal Resistance Ratings

Package	Condition	UM6000 UM6600		UM6200	
		P_D	θ	P_D	θ
A&C	25 °C Pin Temperature	6W	25 °C/W	4W	37.5 °C/W
B&E (Axial Leads)	½ in. (12.7mm) Total Lead Length to 25°C Contact	2.5W	60 °C/W	2.0W	75 °C/W
B&E (Axial Leads)	Free Air	0.5W	—	0.5W	—

Peak Power Dissipation Rating

All Packages	1 μs Pulse (Single) at 25 °C Ambient	UM6000 - 25 KW UM6200 - 10 KW	UM6600 - 13 KW

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

Microsemi Corp.
Watertown
The diode experts

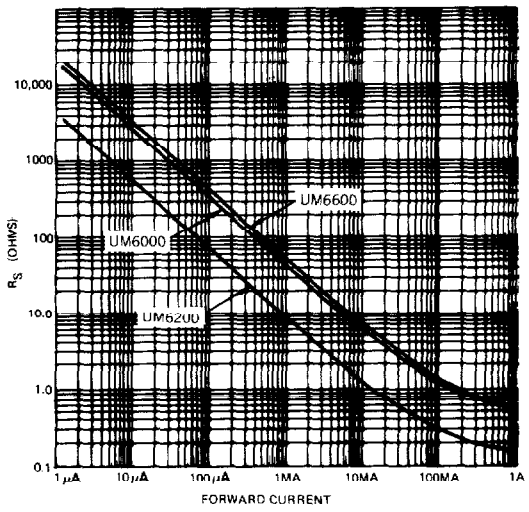
Voltage Ratings (25 °C)

Reverse Voltage (V_R) — Volts (I_R = 10 μA)	Types		
100V	UM6001	UM6201	UM6601
200V	UM6002	UM6202	UM6602
400V	—	UM6204	—
600V	UM6006	—	UM6606
1000V	UM6010	—	UM6610

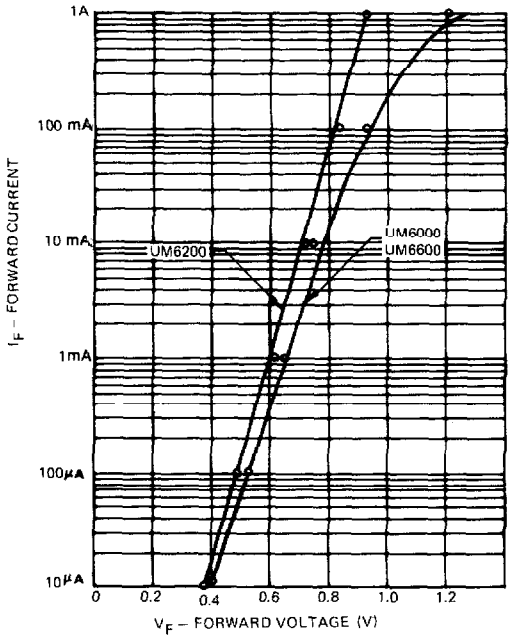
Electrical Specifications (25 °C)

Test	Symbol	UM6600	UM6000	UM6200	Conditions
Total Capacitance (Max)	C_T	0.4 pF	0.5 pF	1.1 pF	100V, 1MHz
Series Resistance (Max)	R_S	2.5Ω	1.7Ω	0.4Ω	100mA, 100MHz
Parallel Resistance (Min)	R_P	300 KΩ	300 KΩ	350 KΩ	100V, 100MHz
Carrier Lifetime (Min)	τ	1.0 μs	1.0 μs	0.6 μs	I_F = 10 mA
Reverse Current (Max)	I_R	10 μA	10 μA	10 μA	V_R = Rating
I-Region Width (Min)	W	150 μm	150 μm	40 μm	—

TYPICAL SERIES RESISTANCE VS FORWARD CURRENT (F = 100MHz)



DC CHARACTERISTICS FORWARD VOLTAGE VS CURRENT



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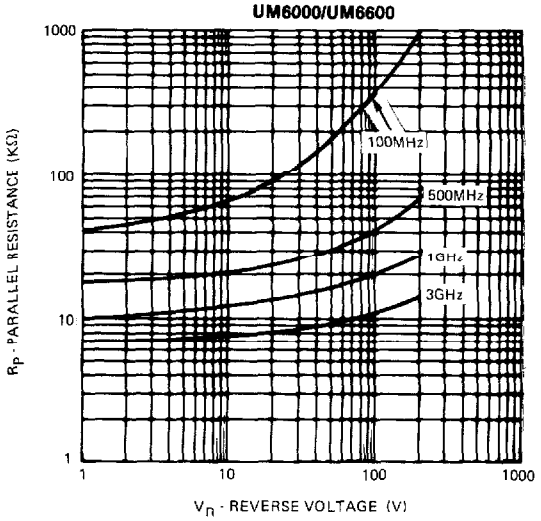
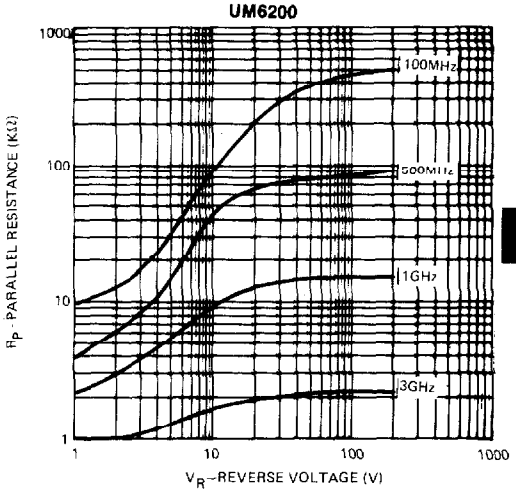
TYPICAL R_p VS VOLTAGE & FREQUENCY

UM6000/UM6600



UM6200



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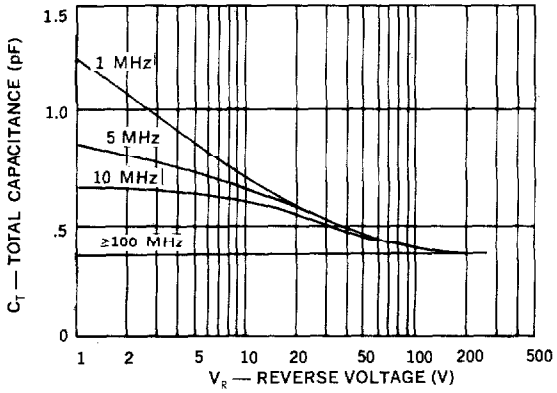
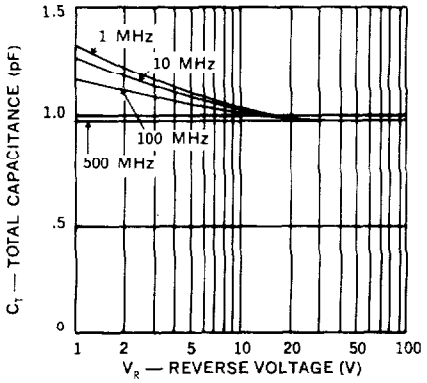
TYPICAL CAPACITANCE VS VOLTAGE AND FREQUENCY

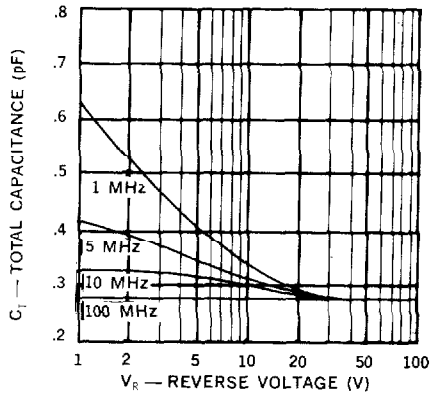
UM6000 SERIES



UM6200 SERIES



UM6600 SERIES



ORDERING INSTRUCTIONS

Part numbers of Microsemi PIN Diodes consist of the letters UM followed by four digits and one or two letters. The first two digits indicate the diode series, the next two digits specify the minimum breakdown voltage in hundreds of volts. The remaining letters denote the package style. Reverse polarity (anode large end cap) is available for the C style and denoted by adding second letter R.

For Example: UM | 60 | 06 | CR

- UM: Series 6000
- 60: 600 Volts
- 06: Style C
- CR: Reverse Polarity

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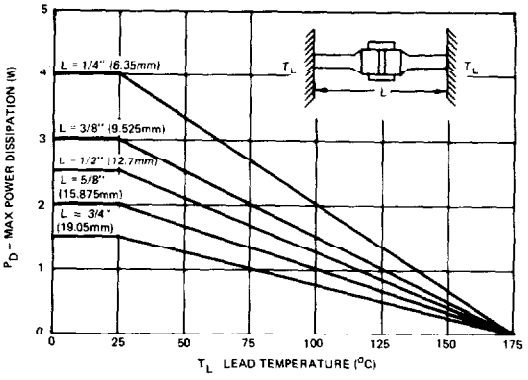
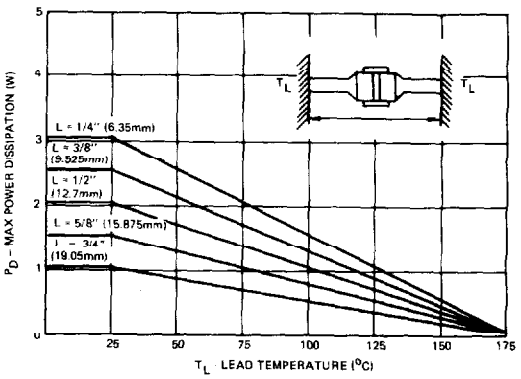
POWER RATING — AXIAL LEADED DIODE

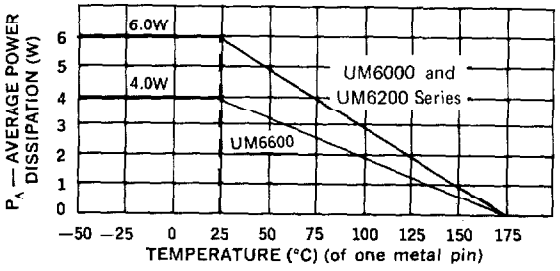
UM6000/UM6200



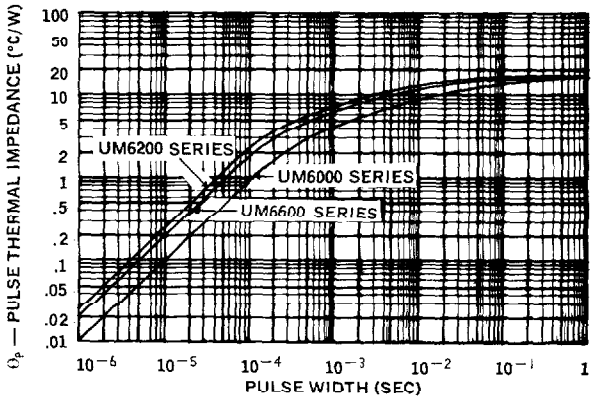
UM6600



POWER RATING



PULSE THERMAL IMPEDANCE VS PULSE WIDTH



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