

Features

- Voltage ratings to 1000V (UM7000)
- Wide variety of package styles
- Rated average power dissipation to 10W
- Cost effective in volume applications

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Description

The UM7000 and UM7100 series offer moderately high power handling in combination with reasonably low levels of both series resistance and capacitance. The UM7200 series offers the lowest series resistance, but the highest capacitance of the group. The differences in specified performance, for

each of the series, results from different I-region thicknesses. The three series have broad applicability in many RF and microwave switch and attenuator circuits. Additionally, the UM7100 in leaded versions, is usually the most cost-effective diode choice in high volume usage.

MAXIMUM RATINGS

Average Power Dissipation and Thermal Resistance Ratings

Package	Condition	P _D	θ
A	25°C Pin Temperature	10W	15°C/W
B&E (Axial Leads)	½ in. (12.7mm) Total Lead Length to 25°C Contact	5.5W	27.5°C/W
B&E (Axial Leads)	Free Air	1.5W	—
C (Studded)	25°C Stud Temperature	10W	15°C/W
D (Insulated Stud)	25°C Stud Temperature	7.5W	20°C/W

Peak Power Dissipation Rating

All Packages	1 μs Pulse (Single) at 25°C Ambient	UM7000 - 60 KW UM7100 - 35 KW UM7200 - 20 KW
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Operating and Storage Temperature Range: - 65°C to + 175°C

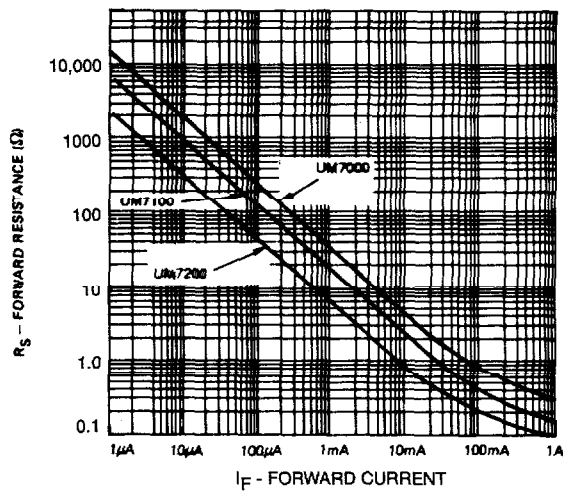
Voltage Ratings (25 °C)

Reverse Voltage (V_R) — Volts ($I_R = 10 \mu A$)	Types		
100V	UM7001	UM7101	UM7201
200V	UM7002	UM7102	UM7202
400V	—	UM7104	UM7204
600V	UM7006	—	—
800V	—	UM7108	—
1000V	UM7010	—	—

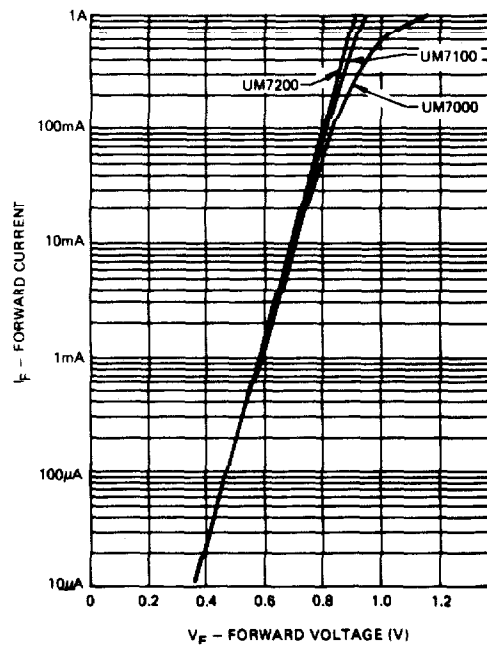
Electrical Specifications (25 °C)

Test	Symbol	UM7000	UM7100	UM7200	Conditions
Total Capacitance (Max)	C_T	0.9 pF	1.2 pF	2.2 pF	100V, 1MHz
Series Resistance (Max)	R_S	1.0 Ω	0.6 Ω	0.25 Ω	100mA, 100MHz
Parallel Resistance (Min)	R_P	200 K Ω	150 K Ω	70 K Ω	100V, 100MHz
Carrier Lifetime (Min)	τ	2.5 μs	2.0 μs	1.5 μs	$I_F = 10 \text{ mA}$
Reverse Current (Max)	I_R	10 μA	10 μA	10 μA	$V_R = \text{Rating}$
I-Region Width (Min)	W	150 μm	80 μm	40 μm	—

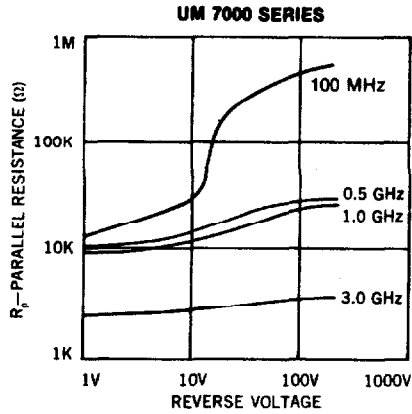
**TYPICAL FORWARD RESISTANCE
VS FORWARD CURRENT
($f = 100 \text{ MHz}$)**



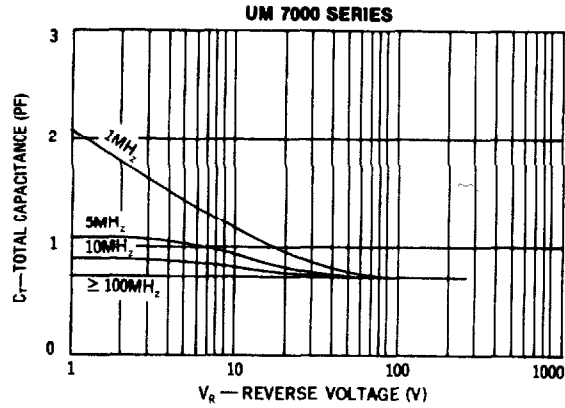
**TYPICAL DC CHARACTERISTIC
FORWARD VOLTAGE
VS FORWARD CURRENT
UM7000/UM7100/UM7200**



TYPICAL R_p CHARACTERISTIC

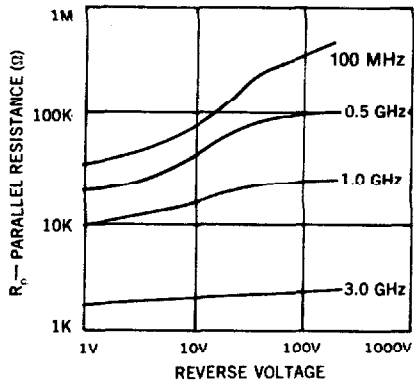


TYPICAL C_T CHARACTERISTIC

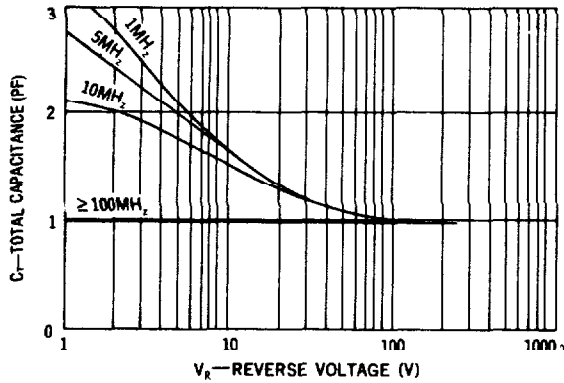


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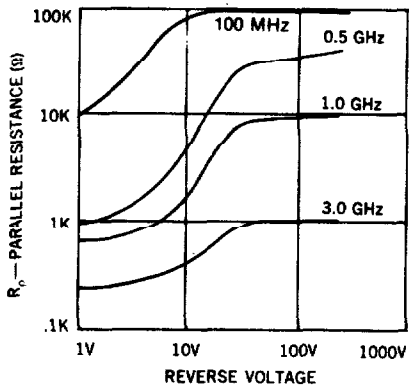
UM7100 SERIES



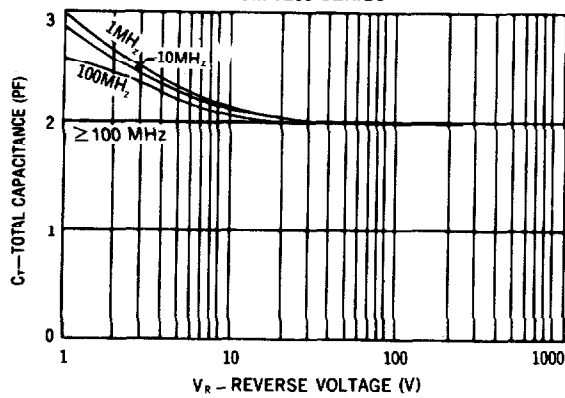
UM 7100 SERIES



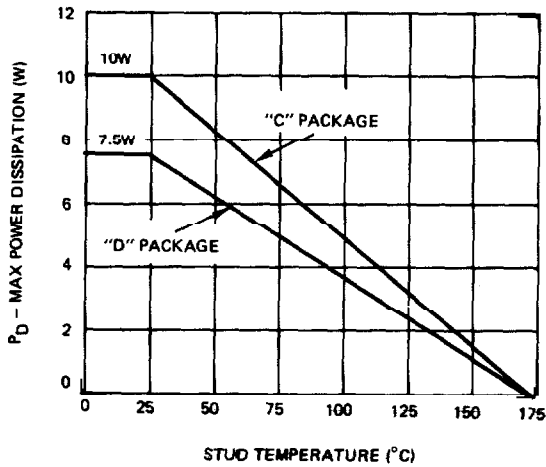
UM 7200 SERIES



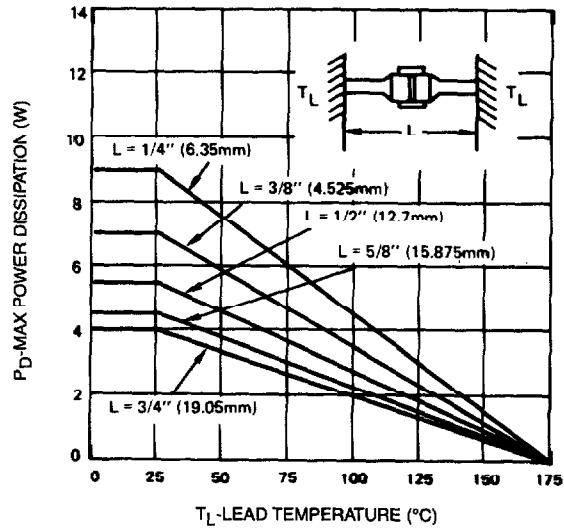
UM 7200 SERIES



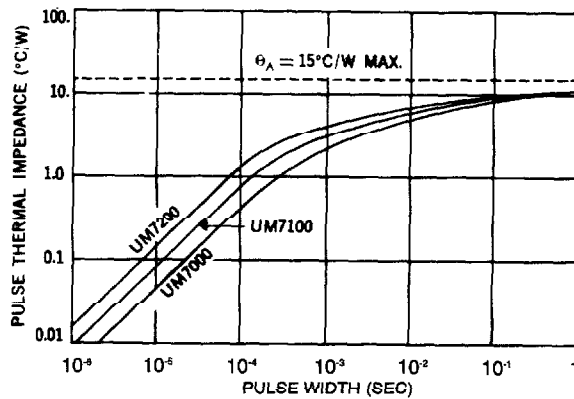
POWER RATING STUD MOUNTED DIODES



POWER RATING — AXIAL LEADED DIODES



PULSE THERMAL IMPEDANCE VS PULSE WIDTH



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 on stud end) is available in C or D Styles and denoted by adding second letter R.

For Example: UM7000C
 Series 7000 100 volts Style C