KEY FEATURES

- Voltage ratings to 1000V (UM7000)
- Average power dissipation to 10 W
- Series resistance as low as 0.25 Ω
- Carrier lifetime greater than 2.5 µs
- Low capacitance
- Low conductance (High Rp)
- Compatible with automated assembly
- RoHS compliant packaging Available1 (Use UMX7202B, etc.)

1 The UM7000 series of products can be supplied with a RoHS compliant finish (UMX7000) or with a 90/10 Sn/Pb finish. Stud Packages C/CR/D/DR are supplied with a RoHS compliant Gold finish. Consult factory for details.

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 thickness. 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.

IMPORTANT:
For the most current data, consult MICROSEMI’s website: www.MICROSEMI.com

ABSOLUTE MAXIMUM RATINGS AT 25°C (UNLESS OTHERWISE SPECIFIED)

<table>
<thead>
<tr>
<th>Package</th>
<th>Conditions</th>
<th>(PD) Power Dissipation (W)</th>
<th>(Θ) Thermal Resistance (°C/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>25°C Pin Temperature</td>
<td>10</td>
<td>15V</td>
</tr>
<tr>
<td>B</td>
<td>½ in. total length to 25°C Contact Free Air</td>
<td>5.5</td>
<td>27.5</td>
</tr>
<tr>
<td>C</td>
<td>25°C Stud Temperature</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>D</td>
<td>25°C Stud Temperature</td>
<td>7.5</td>
<td>20</td>
</tr>
<tr>
<td>SM</td>
<td>25°C End Cap Temperature</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>ALL</td>
<td>1 us pulse (Single)</td>
<td>100KW</td>
<td>60 kW 35 kW 20 kW</td>
</tr>
<tr>
<td>ALL</td>
<td>Storage Temperature (TTOP)</td>
<td>-65°C to + 175°C</td>
<td></td>
</tr>
<tr>
<td>ALL</td>
<td>Operating Temperature (TTOP)</td>
<td>-65°C to + 175°C</td>
<td></td>
</tr>
</tbody>
</table>
VOLTAGE RATINGS
@ 25°C (unless otherwise specified)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Reverse Voltage @ 10uA (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UM7001</td>
<td>100</td>
</tr>
<tr>
<td>UM7002</td>
<td>200</td>
</tr>
<tr>
<td>UM7006</td>
<td>600</td>
</tr>
<tr>
<td>UM7008</td>
<td>800</td>
</tr>
<tr>
<td>UM7010</td>
<td>1000</td>
</tr>
<tr>
<td>UM7101</td>
<td></td>
</tr>
<tr>
<td>UM7102</td>
<td></td>
</tr>
<tr>
<td>UM7104</td>
<td></td>
</tr>
<tr>
<td>UM7108</td>
<td></td>
</tr>
<tr>
<td>UM7104</td>
<td></td>
</tr>
<tr>
<td>UM7201</td>
<td></td>
</tr>
<tr>
<td>UM7202</td>
<td></td>
</tr>
<tr>
<td>UM7204</td>
<td></td>
</tr>
<tr>
<td>UM7108</td>
<td></td>
</tr>
</tbody>
</table>

ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>UM7000</th>
<th>UM7100</th>
<th>UM7200</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse Current (Max)</td>
<td>I_R</td>
<td>At rated voltage</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>uA</td>
</tr>
<tr>
<td>Series Resistance(Max)</td>
<td>R_S</td>
<td>I_F = 100 mA, F = 100 MHz</td>
<td>1.0</td>
<td>0.6</td>
<td>0.25</td>
<td>Ohm</td>
</tr>
<tr>
<td>Capacitance (Max)</td>
<td>C_T</td>
<td>V_R = 100 V, F = 1 MHz</td>
<td>0.9</td>
<td>1.2</td>
<td>2.2</td>
<td>pF</td>
</tr>
<tr>
<td>Parallel Resistance(Min)</td>
<td>R_P</td>
<td>V_R = 100 V, F = 100 MHz</td>
<td>200k</td>
<td>150k</td>
<td>70k</td>
<td>Ohms</td>
</tr>
<tr>
<td>Carrier Lifetime(Min)</td>
<td>T_L</td>
<td>I_F = 10 mA</td>
<td>2.5</td>
<td>2.0</td>
<td>1.5</td>
<td>uS</td>
</tr>
<tr>
<td>I-Region Width (Min)</td>
<td>W</td>
<td>-</td>
<td>150</td>
<td>80</td>
<td>40</td>
<td>um</td>
</tr>
</tbody>
</table>

See following pages for performance graphs and mechanical data.
**POWER RATING**

**POWER RATING STUD MOUNTED DIODES TYPICAL**

- "C" PACKAGE
- "D" PACKAGE

**STUD TEMPERATURE (C)**

**MAX POWER DISSIPATION (W)**

**TYPICAL RP VS VOLTAGE**

**UM7100 TYPICAL**

- 100 MHZ
- 5.5 GHz
- 1.0 GHz
- 3.0 GHz

**CAPACITANCE VS VOLTAGE**

**UM7100 TYPICAL**

- 1 MHz
- 5 MHz
- 10 MHz
- 40 MHz

**POWER RATING AXIAL LEADED DIODES TYPICAL**

**MAX POWER DISSIPATION (W)**

**LEAD TEMPERATURE (C)**

- L = 1/8" (0.125mm)
- L = 3/32" (0.25mm)
- L = 1/16" (0.188mm)
- L = 1/32" (0.058mm)
- L = 3/32" (0.085mm)
**I/V VS Temp**

**Typical I/V Curve Variation vs Temperature**

- Mean I/V Curve vs Temperature

**Typical I/V Curve**

- 25°C
- 75°C
- 100°C
- 125°C
- 150°C

**TYPICAL RP VS VOLTAGE**

**Thermal Impedance**

**Pulse Thermal Impedance vs Width**

**CAPACITANCE VS VOLTAGE**

**Capacitance vs Vt (V)**

- 1 MHz
- 5 MHz
- >100 MHz

---

**Graphs**

- Copyright © 2006
- Rev.: 2009-01-19

---

Microsemi

Microwave Products

75 Technology Drive, Lowell, MA. 01851, 978-442-5600, Fax: 978-937-3748
### PACKAGE STYLE 'A'

**STYLE “A”**

- DIA MAX: 0.90
- MAX TO GLASS: 0.040 TYP

### PACKAGE STYLE ‘B’

**STYLE “B”**

- MIN: 0.031/0.029
- MAX: 0.090 DIA MAX

### PACKAGE STYLE ‘C’

**STYLE “C”**

- DIA: 0.036/0.032
- MAX TO FIRST FULL THREAD: 0.090/0.035

### PACKAGE STYLE ‘CR’

**STYLE “CR”**

- DIA: 0.036/0.032
- MAX TO FIRST FULL THREAD: 0.100/0.035

### PACKAGE STYLE ‘D’

- THK: 0.125 x 0.080
- MAX TO FIRST FULL THREAD: 0.187 HEX

### PACKAGE STYLE ‘DR’

- THK: 0.125 x 0.080
- MAX TO FIRST FULL THREAD: 0.187 HEX

---

**Microsemi**  
**Microwave Products**  
75 Technology Drive, Lowell, MA. 01851, 978-442-5600, Fax: 978-937-3748
NOTES:

1. These dimensions will match the terminals and provide for additional solder fillets at the outboard ends at least as wide as the terminals themselves, assuming accuracy of placement within 0.005".

2. If the mounting method chosen requires use of an adhesive separate from the solder compound, a round (or square) spot of cement as shown should be centrally located.