WR112 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 7.05 GHz to 10 GHz, 7 kW, CPR-Flat, 12V

**Features**

- 7.05 to 10 GHz SPDT Wavguide Switch
- Optional DPDT Configuration
- WR112 Waveguide with CPR Flat Flanges
- Failsafe Actuator and Position Indicator
- Insertion Loss: 0.04 dB typ
- Isolation: 88 dB typ
- Switching Time: <125 msec typ
- +12 Vdc Nominal Voltage
- Input Power Rating up to 7 kW CW max
- Unpressurized Peak Power Rating up to 202 kW
- Manual Override Access
- Fully Weatherized Package
- Quick Connect Circular DC Connector with Mate
- -40°C to +85°C Operating Temperature

**Applications**

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Research and Development

**Description**

The PEWGS6068 WR112 waveguide electromechanical switch operates across a wide frequency range from 7.05 to 10 GHz and is configured for single pole double throw (SPDT) operation. A shorting plate on port 3 can be removed for optional double pole double throw (DPDT) operation. This innovative design features a failsafe actuator with TTL logic control, and a patented motor drive with arc suppression. The motor drive housing supports a viewable position indicator window and a cover that can be removed for manual override access. Impressive typical performance includes 0.04 dB insertion loss, 88 dB Isolation and 1.07:1 VSWR. The design operates across a temperature range of -40°C to +85°C, requires +12Vdc nominal bias voltage, and has an input power rating of up to 7 kW CW maximum, and an unpressurized peak power rating up to 202 kW. Operating life of 250K cycles minimum. The waveguide ports have CPR Flat flanges. The rugged package design is fully weatherized for up to 100% humidity exposure and supports a quick connect circular 6 pin MIL-SPEC DC bias connector with mate included.

**Electrical Specifications**

<table>
<thead>
<tr>
<th>Description</th>
<th>Minimum</th>
<th>Typical</th>
<th>Maximum</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>7.05</td>
<td></td>
<td>10</td>
<td>GHz</td>
</tr>
<tr>
<td>Impedance</td>
<td>50</td>
<td></td>
<td></td>
<td>Ohms</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>10.8</td>
<td>12</td>
<td>13.2</td>
<td>Volts</td>
</tr>
<tr>
<td>Actuating Current @ 12 Volts</td>
<td>250</td>
<td>300</td>
<td></td>
<td>mA</td>
</tr>
<tr>
<td>VSWR</td>
<td>1.07:1</td>
<td>1.1:1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>0.04</td>
<td>0.05</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Isolation</td>
<td>80</td>
<td>88</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Switching Time</td>
<td>&lt;125</td>
<td></td>
<td></td>
<td>ms</td>
</tr>
<tr>
<td>Input Power (CW)</td>
<td>7</td>
<td></td>
<td></td>
<td>kWatts</td>
</tr>
<tr>
<td>Input Power (Peak/Unpressurized)</td>
<td>202</td>
<td></td>
<td></td>
<td>kWatts</td>
</tr>
</tbody>
</table>

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### Mechanical Specifications

<table>
<thead>
<tr>
<th>Size</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>2.25 in [57.15 mm]</td>
</tr>
<tr>
<td>Width/Diameter</td>
<td>2.43 in [61.72 mm]</td>
</tr>
<tr>
<td>Height</td>
<td>4.85 in [123.19 mm]</td>
</tr>
<tr>
<td>Weight</td>
<td>1.44 lbs [653.17 g]</td>
</tr>
<tr>
<td>Operating Life</td>
<td>250,000 Cycles</td>
</tr>
<tr>
<td>Operating Pressure</td>
<td>30 psig</td>
</tr>
</tbody>
</table>

### Configuration

- Waveguide Size: WR-112
- Flange Type: CPR Flat
- Body Material and Plating: Aluminum, Black
- Body Plating Specification: MIL-DTL-5541

### Environmental Specifications

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Range</td>
<td>-40 to +85 deg C</td>
</tr>
<tr>
<td>Storage Range</td>
<td>-55 to +100 deg C</td>
</tr>
<tr>
<td>Humidity</td>
<td>0 to 100% Fully Weatherized IAW IP67</td>
</tr>
</tbody>
</table>

### Compliance Certifications

(see product page for current document)

### Plotted and Other Data

Notes:

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Pasternack does not make

Typical Performance Data

Typical (Position 1) Insertion Loss

Typical (Position 2) Insertion Loss

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SUMMARY TEST DATA

Typical (Position 1) Isolation

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