DESCRIPTION

The R22RFT & R22DET are elements that extend the frequency range of scalar network analyzers to WR-15 (33-50 GHz). These turnkey scalar systems contain filtered multipliers with -50 dBc spurious and harmonics. Included are a dual directional coupler and detectors for reference, reflection and transmission measurements.

HIGHLIGHTS

• Full waveguide band coverage
• Scalar reflection and transmission measurements

APPLICATIONS

• Versatility to satisfy multiple applications
• Economic alternative to vector network analyzers

ELECTRICAL AND PERFORMANCE SPECIFICATIONS (+25°C)

After a one hour warm-up period, the R22RFT module will satisfy the following specifications.

<table>
<thead>
<tr>
<th>Electrical Characteristics</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>33 to 50 GHz</td>
</tr>
<tr>
<td>RF Input Frequency</td>
<td>xx.x to 77.y GHz</td>
</tr>
<tr>
<td>RF Multiplication. Factor</td>
<td>4</td>
</tr>
<tr>
<td>FL1 Frequency Range</td>
<td>33 to 50 GHz</td>
</tr>
<tr>
<td>FL2 Frequency Range</td>
<td>aa to bb GHz</td>
</tr>
<tr>
<td>FL3 Frequency Range</td>
<td>cc to dd GHz</td>
</tr>
<tr>
<td>FL4 Frequency Range</td>
<td>xx to xx GHz</td>
</tr>
<tr>
<td>RF Input Power</td>
<td>+7 dBm min / +10 dBm max.</td>
</tr>
<tr>
<td>RF Input Power Damage Level</td>
<td>+20 dBm</td>
</tr>
<tr>
<td>RF Input Return Loss</td>
<td>14 dB typ.</td>
</tr>
<tr>
<td>Test Port Output Power</td>
<td>+ 2 dBm typ. with F1 thru section installed / -2 dBm min.</td>
</tr>
<tr>
<td>Test Port Match</td>
<td>15 dB typ.</td>
</tr>
</tbody>
</table>
| Spurs and Harmonics         | -20 dBc typ. with FL1 thru section installed  
                            | -50 dBc max. with Filters FL2, FL3 or FL4 installed |
| Reflectometer Coupler Directivity | 35 dB typ. |
| Temperature                 | + 20 to +30° C |

<table>
<thead>
<tr>
<th>Module Characteristics</th>
<th>Description</th>
</tr>
</thead>
</table>
| Interface              | MIL-F-39222/67B-00x (UG 387/U)  
                        | SMA(f) |
| RF (Test Port) Output Flange | BNC(f)  
| RF Input               | 7-pin Bayonet Circular Receptacle |
| Detector Output        | +12 VDC @ 1.5 A typ. |
| DC Input               | < 5 lbs (2.27 kg) |
| Size (L x W x H)       | 9.0” x 4.8” x 1.5” |

1Specifications are typical and subject to change without notice
2Excluding Detector, DC and RF input connector
After a one hour warm-up period, the R22DET module will satisfy the following specifications.

<table>
<thead>
<tr>
<th><strong>Electrical Characteristics</strong>&lt;sup&gt;1&lt;/sup&gt;</th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>33 to 50 GHz</td>
</tr>
<tr>
<td>Detector Return Loss</td>
<td>15 dB typ.</td>
</tr>
<tr>
<td>Detector Flatness</td>
<td>± 3dB typ.</td>
</tr>
<tr>
<td>Detector Output</td>
<td>250mV/mW typ.</td>
</tr>
<tr>
<td>CW Input Power</td>
<td>+20 dBm max.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Module Characteristics</strong>&lt;sup&gt;2&lt;/sup&gt;</th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface</td>
<td>MIL-F-3922/67B-00x (UG 387/U)</td>
</tr>
<tr>
<td>RF Input Flange</td>
<td>BNC(f)</td>
</tr>
<tr>
<td>Detector Output</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>+ 20 to +30° C</td>
</tr>
<tr>
<td>Weight</td>
<td>&lt; 10 oz (284 g)</td>
</tr>
<tr>
<td>Size (L x W x H)&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3.8” x 1.1” x 0.8”</td>
</tr>
</tbody>
</table>

1 Specifications are typical and subject to change without notice

2 Excluding BNC (f) connector

**ORDER INFORMATION**

**Order Information**

| R22RFT | WR-22 Reflectometer Module w/ Detector & 4 Filters |

**Standard Accessories**

<table>
<thead>
<tr>
<th>R22DET</th>
<th>Transmission Detector, WR-22, 33 to 50 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>R22RFT-FL1</td>
<td>WR-22 BPF, 33 to 50 GHz</td>
</tr>
<tr>
<td>R22RFT-FL2</td>
<td>WR-22 BPF, aa to bb GHz</td>
</tr>
<tr>
<td>R22RFT-FL3</td>
<td>WR-22 BPF, cc to dd GHz</td>
</tr>
<tr>
<td>R22RFT-FL4</td>
<td>WR-22 BPF, xx to xx GHz</td>
</tr>
<tr>
<td>WGS01</td>
<td>Waveguide Short</td>
</tr>
<tr>
<td>V00DCBC1</td>
<td>1 m DC power cable, Banana Plug to 7-Pin Circular Jack Connector</td>
</tr>
</tbody>
</table>

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R22RFT Datasheet: Rev. A
Release Date: 06-2011