



# RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

## RFDC1G40G30

### Coaxial 30W 30dB Directional Coupler 1 - 40GHz



#### Features

- High power handling up to 30 W
- Ultra Wide band operation
- High directivity within operational band
- Low Insertion Loss
- Stable performance over temperature
- High peak to average handling capability

#### Typical Applications

- Aerospace and military applications
- LMDS multi-carrier operation

#### Electrical Specifications, $T_A=25^\circ\text{C}$

| Parameter                       |         | Min.            | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | Units  |
|---------------------------------|---------|-----------------|------|------|------|------|------|------|------|------|--------|
| Frequency Range                 |         | 1               |      | 6    | 6    |      | 18   | 18   |      | 40   | GHz    |
| Nominal Coupling                |         | 29              | 30   | 31.5 | 29   | 30   | 31   | 29   | 30   | 31   | dB     |
| Frequency Sensitivity           |         |                 | ±0.8 | ±1.0 |      | ±0.6 | ±1.0 |      | ±0.6 | ±1.0 | dB     |
| Directivity                     |         | 15              | 18   |      | 12   | 14   |      | 10   | 12   |      | dB     |
| Insertion Loss (Excl. Coupling) |         |                 |      | 1.0  |      |      | 1.2  |      |      | 2.0  | dB     |
| Insertion Loss (True)           |         |                 | 0.6  | 1.0  |      | 0.9  | 1.2  |      | 1.6  | 2.0  | dB     |
| VSWR Primary                    |         |                 | 1.25 | 1.3  |      | 1.3  | 1.5  |      | 1.4  | 1.6  | : 1    |
| VSWR Secondary                  |         |                 | 1.25 | 1.3  |      | 1.3  | 1.5  |      | 1.4  | 1.6  | : 1    |
| Power Rating                    | Average | 30              |      |      |      |      |      |      |      |      | W      |
|                                 | Peak    | 500             |      |      |      |      |      |      |      |      | W      |
| Impedance                       |         | 50              |      |      |      |      |      |      |      |      | Ohms   |
| Weight                          |         | 1.76            |      |      |      |      |      |      |      |      | Ounces |
| Input / Output Connectors       |         | 2.92mm - Female |      |      |      |      |      |      |      |      |        |
| Material                        |         | Aluminum        |      |      |      |      |      |      |      |      |        |
| Finish                          |         | Blue Paint      |      |      |      |      |      |      |      |      |        |

#### Environmental Specifications and Test Standards

| Parameter                        | Standard      | Description                                                                                                                                                                                                     |
|----------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational Temperature          | MIL-STD-39016 | -45°C~+85°C                                                                                                                                                                                                     |
| Storage Temperature              |               | -55°C~+125°C                                                                                                                                                                                                    |
| Thermal Shock                    |               | 1 Hour@ -45°C → 1 Hour @ +85°C (5 Cycles)                                                                                                                                                                       |
| Random Vibration                 |               | Acceleration Spectral Density 6 (m/s) Total 92.6 RMS                                                                                                                                                            |
| Electrical & Temperature Burn In |               | Temperature +85°C for 72 Hours                                                                                                                                                                                  |
| Shock                            |               | 1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s<br>2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s<br>3. Total 18 times (6 directions, 3 repetitions per direction). |
| Altitude                         |               | Standard: 30,000 Ft (Epoxy Sealed Controlled Environment)<br>Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)                                                                                             |
| Hermetically Sealed (Optional)   | MIL-STD-883   | MIL-STD-883 (For Hermetically Sealed Units)                                                                                                                                                                     |

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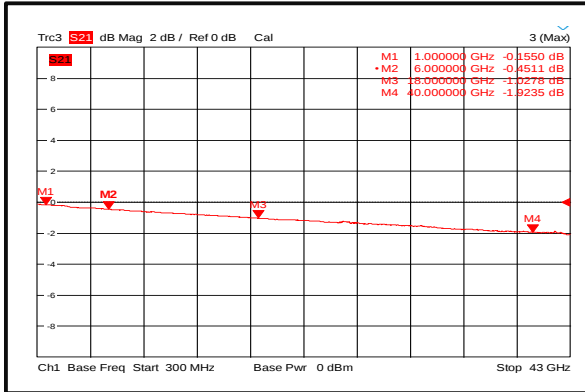
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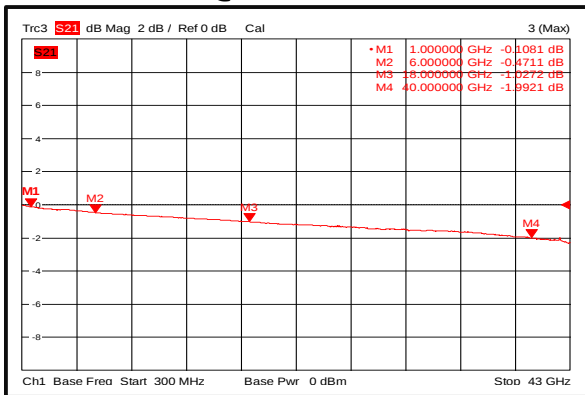
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#### Typical Performance Plots

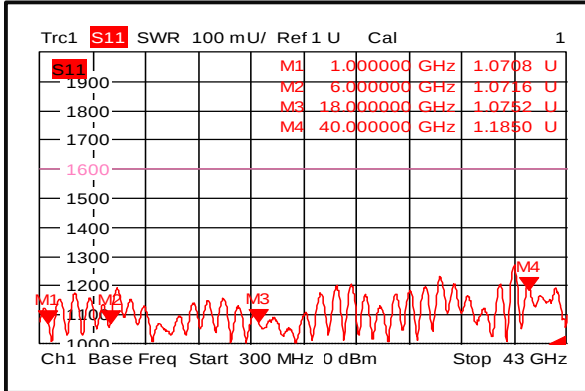
##### Insertion Loss @+25°C



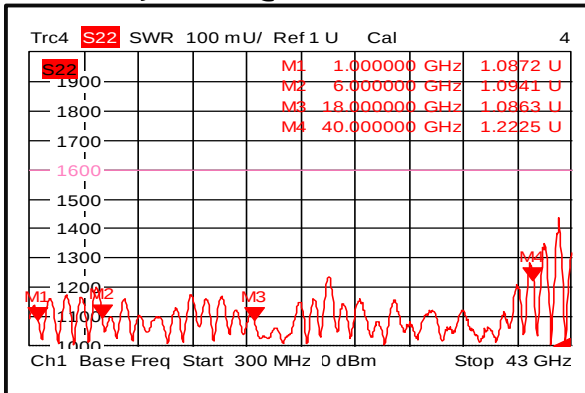
##### Insertion Loss @+85°C



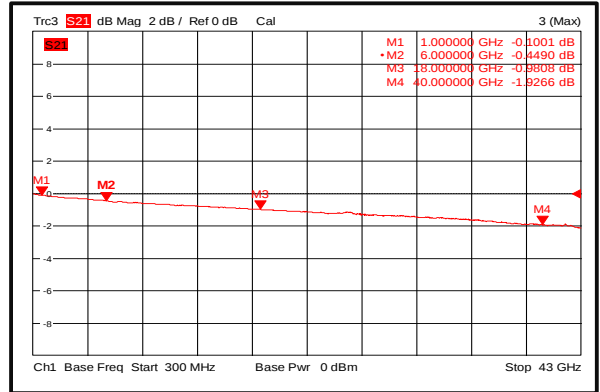
##### Primary VSWR @-45°C



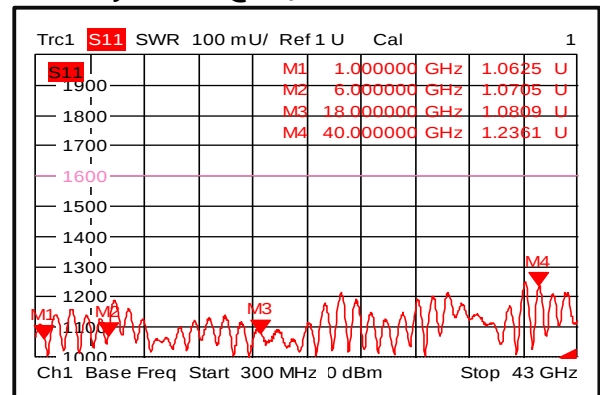
##### Secondary VSWR @+25°C



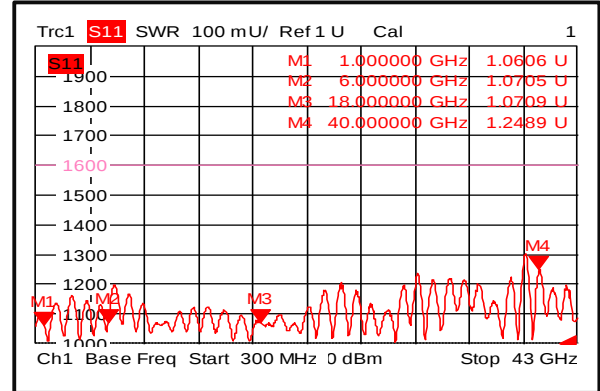
##### Insertion Loss @-45°C



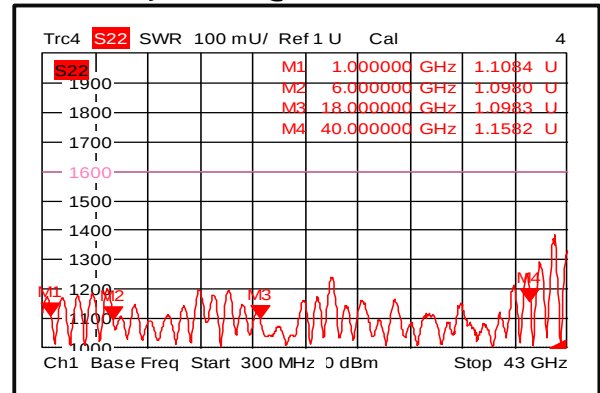
##### Primary VSWR @+25°C



##### Primary VSWR @+85°C



##### Secondary VSWR @-45°C



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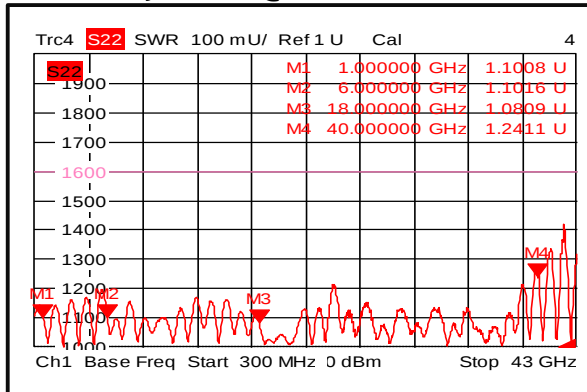


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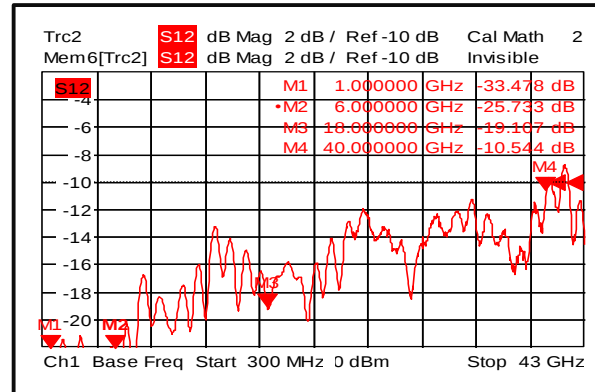
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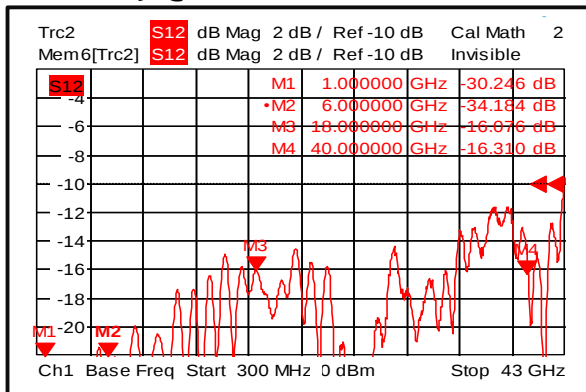
### Secondary VSWR @+85°C



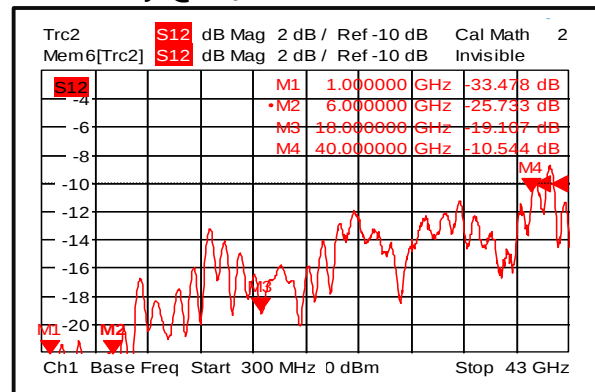
### Directivity @+25°C



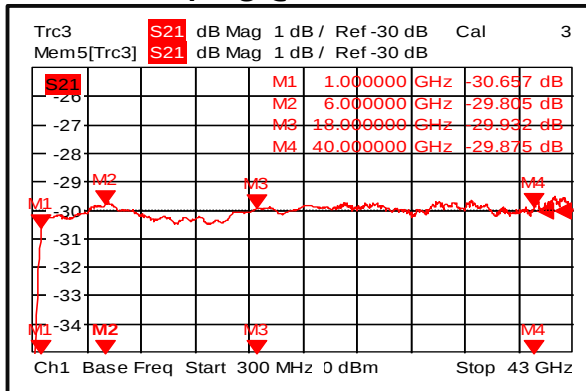
### Directivity @-45°C



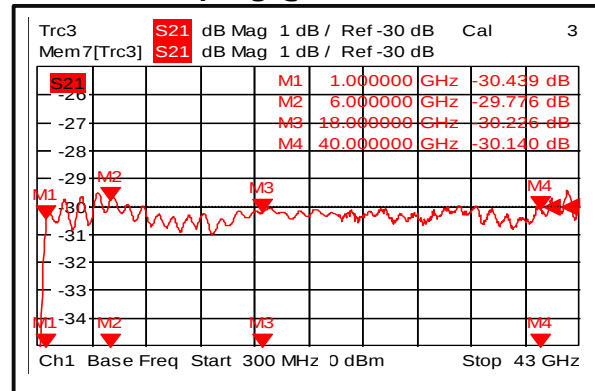
### Directivity @+85°C



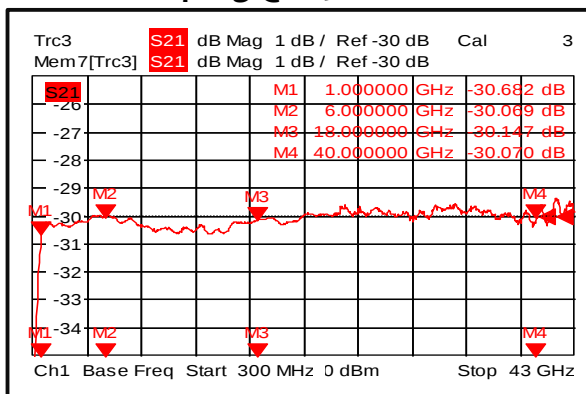
### Nominal Coupling @+25°C



### Nominal Coupling @-45°C



### Nominal Coupling @+85°C



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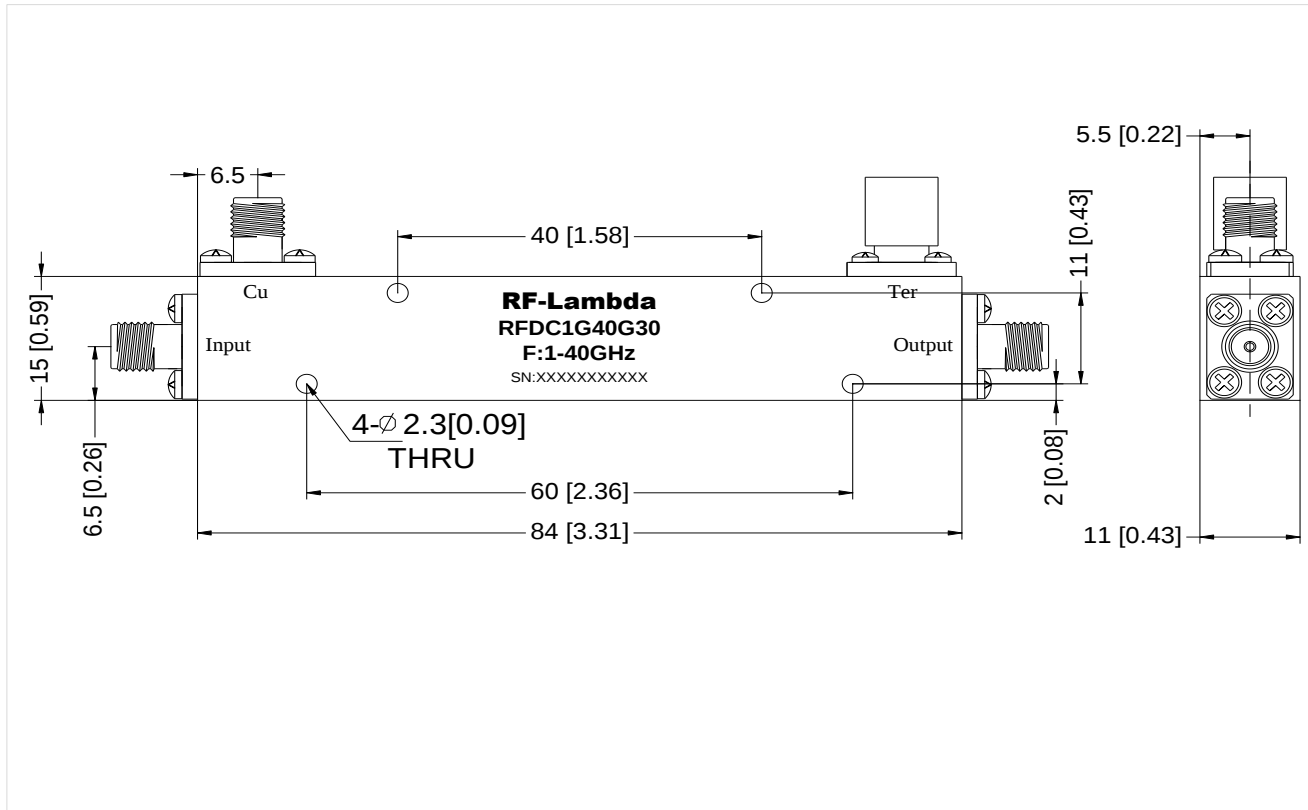
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### Outline Drawing:

All Dimensions in mm [inches]

Tolerance  $\pm 0.2$  [0.008]



### Important Notice

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