

Wide-band Bi-Directional 3 dB Power Combiner/Splitter operating at 500 to 3000 MHz range

Diplexer Technical Data Sheet

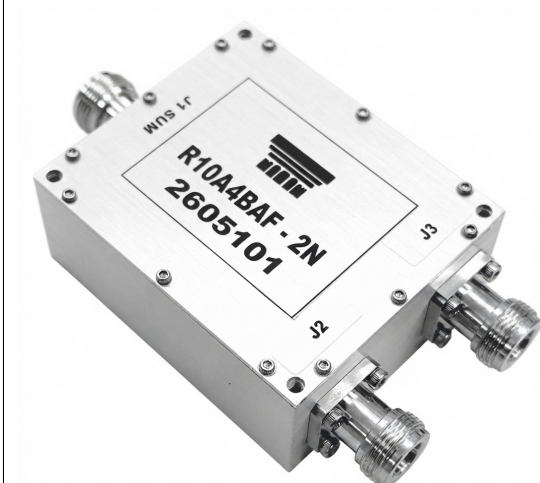
R10A4BAF-2N

Features

- Operating Frequency Range : 500 to 3000 MHz
- Power : 1 kW CW
- Low insertion loss (≈ 0.3 dB typ.) across 500–2000 MHz
- RoHS compliant

Applications

- Satellite Communications
- Radar Systems
- Communication Services
- Modulators



Overview

The **R10A4BAF-2N** is a Bi-directional 3 dB Power Combiner/Splitter operating in 500 to 3000 MHz range, splitting power with low insertion loss and high isolation. It offers typical insertion loss of 0.3–0.7 dB between 900–2000 MHz and 0.5–1.7 dB between 2000–3000 MHz. It is rated for up to 1000 W and -30°C to $+75^{\circ}\text{C}$ operation, and is built for satellite and radar applications.

Configuration

Frequency Band	500 to 3000 MHz
No. Of Ports	3 Ports
Power Split Type	3 dB Split across J2 and J3; Phase: 0°
RF Connector	N-Type Connectors
Impedance	50 Ohms Fully Matched
Geometry	2.50 x 3.00 x 1.21 (in inches)

Technical Specifications

Notes: Values at +25 °C and J2 = 50 Ω Termination

Parameter	Min	Typ	Max	Units
Frequency of Operation	500	–	3000	MHz
Insertion Loss				
500–2000 MHz	0	0.22	0.68	dB
2000–3000 MHz	0	0.46	1.73	dB
Return Loss (J1)				
500–2000 MHz	14.59	25.13	37.72	dB
2000–3000 MHz	10.31	15.54	25.95	dB
Return Loss (J3)				
500–2000 MHz	14.73	16.54	18.50	dB
2000–3000 MHz	7.27	15.37	26.96	dB
VSWR (J1)				
500–2000 MHz	1.03	1.16	1.46	dB
2000–3000 MHz	1.11	1.46	1.88	dB
VSWR (J2)				
500–2000 MHz	1.27	1.35	1.45	dB
2000–3000 MHz	1.10	1.60	2.53	dB
Isolation (J2 and J3)	14.16	16.66	21.56	dB
Power Handling	–	–	1000	W

Absolute Maximum Ratings

Power	1000 W
Operating Case Temperature	-30 °C to +75 °C
Storage Temperature	-55 °C to +100 °C

Performance Data

Notes: Measured values are plotted below

The plots shown below were measured at different port combinations, as mentioned respectively below.

Test Condition: Port 1– J1; Port 2– J3; J2– 50 Ω Termination

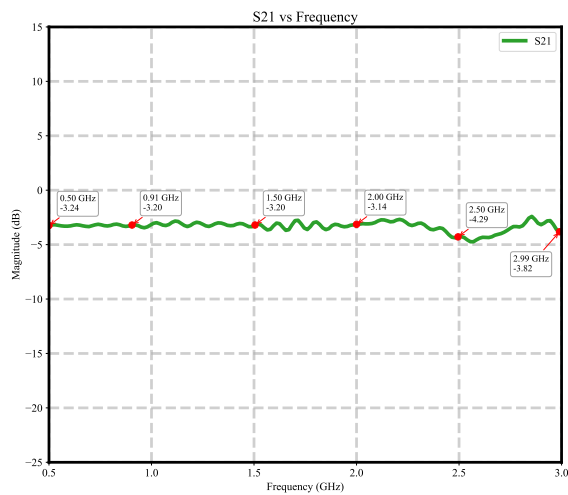


Figure 1: Forward Insertion Loss

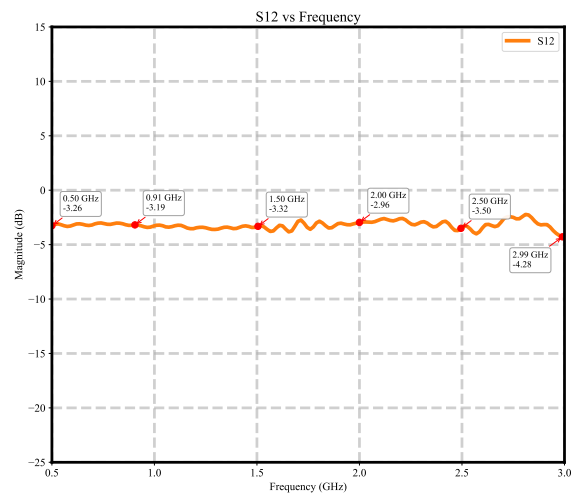


Figure 2: Reverse Insertion Loss

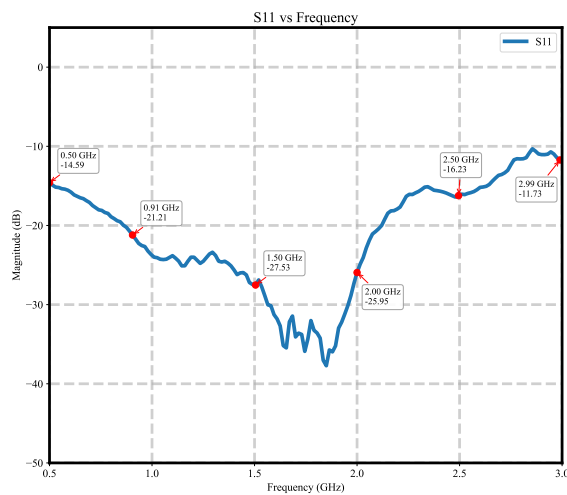


Figure 3: Return Loss – Port 1

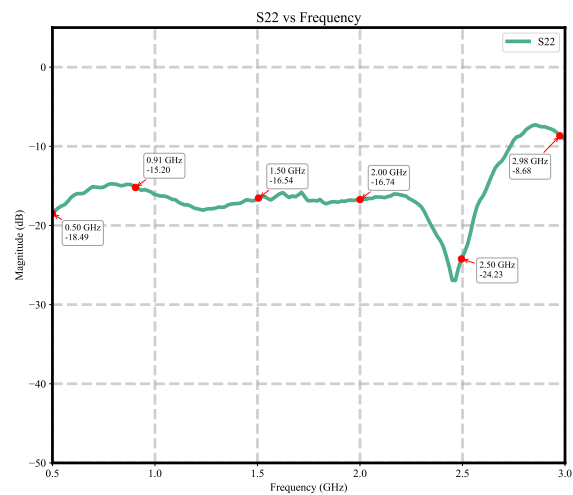


Figure 4: Return Loss – Port 2

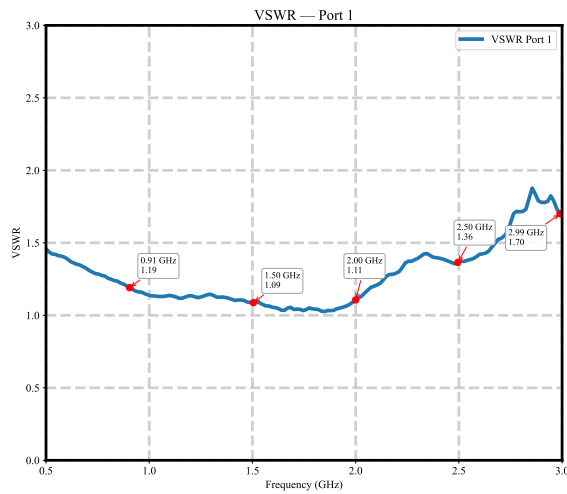


Figure 5: VSWR – Port 1

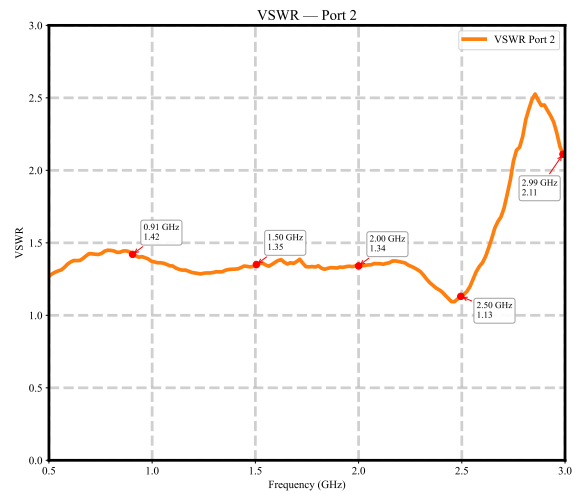


Figure 6: VSWR – Port 2

Test Condition: Port 1– J1; Port 2– J2; J3– 50Ω Termination

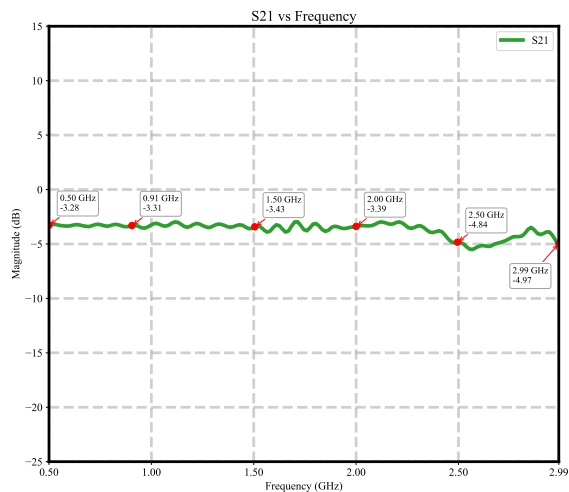


Figure 7: Forward Insertion Loss

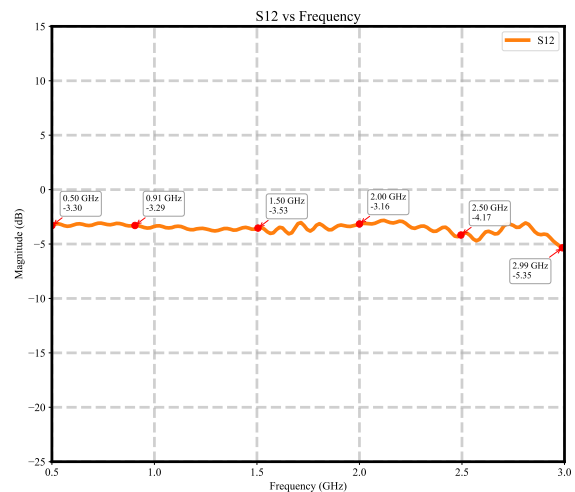


Figure 8: Reverse Insertion Loss

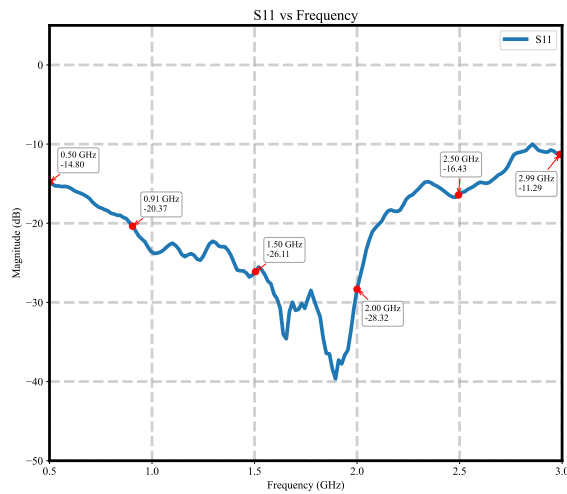


Figure 9: Return Loss – Port 1

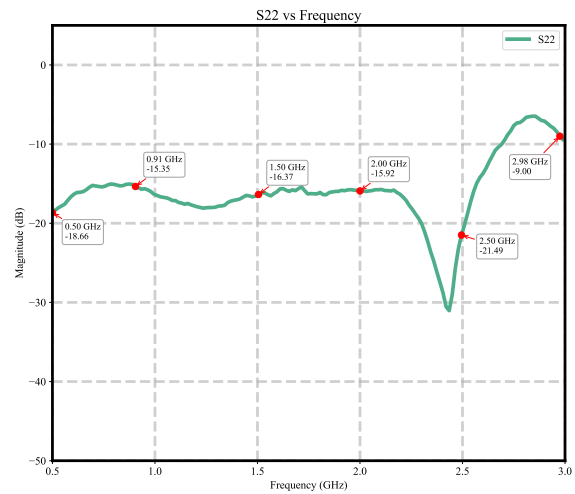


Figure 10: Return Loss – Port 2

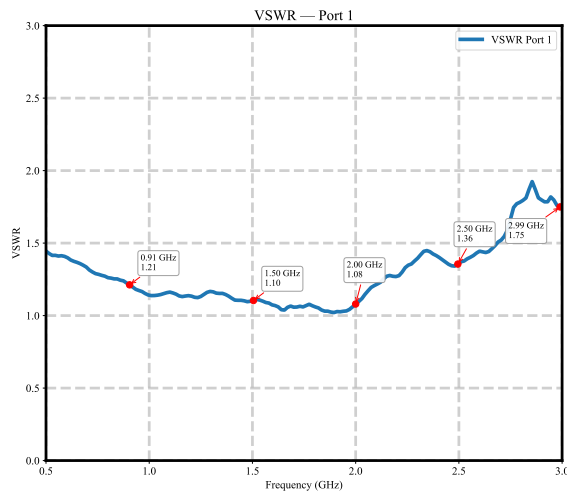


Figure 11: VSWR – Port 1

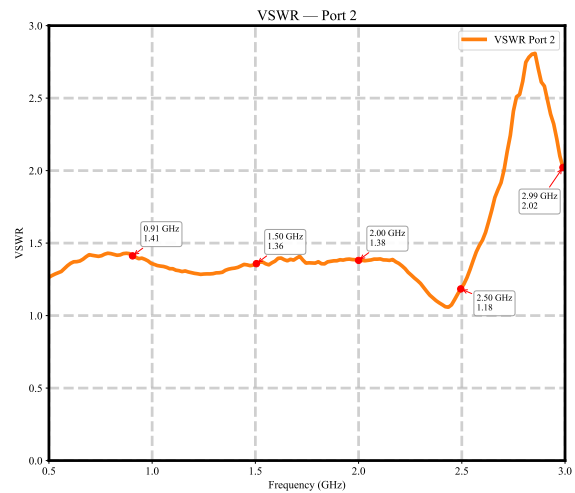


Figure 12: VSWR – Port 2

TECHNICAL DATA SHEET

R10A4BAF-2N

R10A4BAF-2N CAD Drawing

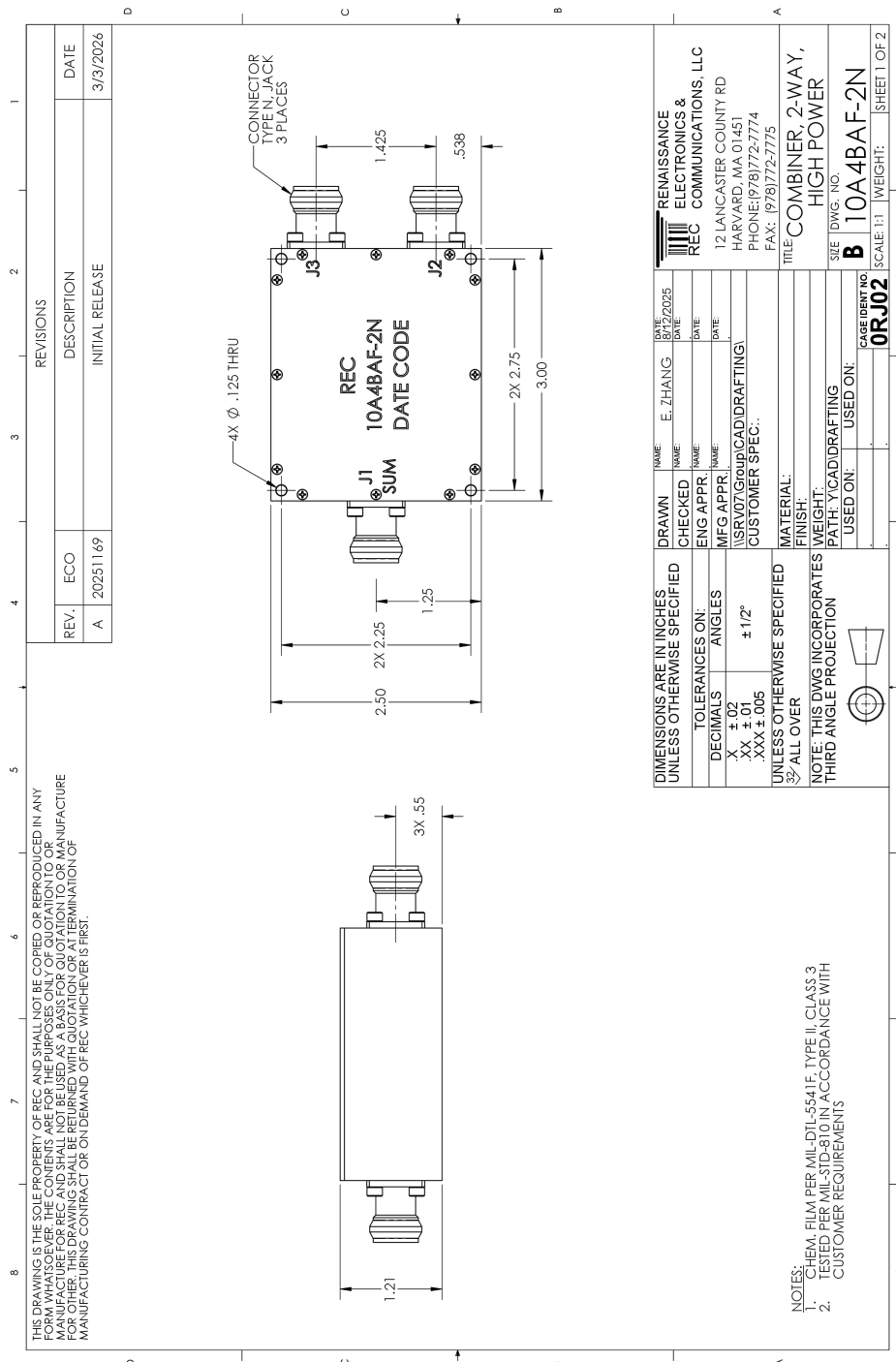


Figure 13: R10A4BAF-2N mechanical drawing (All units are in inches)