PRODUCT DATA SHEET

RCT0050 Wide-Band Amplifier (0.5 – 18.0 GHz)

by R. A. Wood Associates

Introduction

R. A. Wood Associates has designed and built a new wide-band amplifier, using surface mount technology. The amplifier can be utilized across the frequency band: 0.5 - 18.0 GHz. This is an ideal amplifier for Electronic Warfare (EW) applications in high dynamic range locations. The amplifier has good wide-band flatness, high dynamic range, and very good noise figure for its high 1dB compression point.

Specification

The table below shows typical and worst case data for the RCT0050 Wide-Band Amplifier. The input and output return loss (S11 and S22) values are representative of the maximum values over the various frequency bands. For worst case values, the decibel value is followed by the bracketed [VSWR ratio]. The P1dB value is representative of the minimum value over the various frequency ranges, and is associated with the output. The peak to peak (P-P) value is the difference, in decibels, between the positive and negative peak of the measured gain value. "NF" refers to the noise figure maximum for each respective band.

		Frequency Range (GHz)						
Specification		0.5 - 2.0	2.0 - 4.0	4.0 - 8.0	8.0 - 12.0	12.0 - 18.0	0.5 - 18.0	2.0 - 18.0
$Gain_{Avg.}$ (dB)	Min.	18.8	18.6	18.4	18.6	18.6	18.4	18.4
	Typ.	19.1	18.8	18.6	18.8	19.4	19.0	19.0
	Max.	19.7	19.0	18.8	19.1	20.0	20.0	20.0
P-P Flatness (dB)	Min.	--	--	--	--	--	--	--
	Typ.	0.9	0.4	0.5	0.5	1.4	1.6	1.6
	Max.	1.2	0.8	0.9	0.9	2.0	2.4	2.4
$P1dB_{Min.}$ (dBm)	Min.	23.6	23.8	23.3	22.5	18.1	18.1	18.1
	Typ.	25.0	25.1	24.7	23.0	18.8	18.8	18.8
	Max.	--	--	--	--	--	--	--
$S11_{Max}$ (dB)	Min.	--	--	--	--	--	--	--
	Typ.	-17.5	-17.8	-16.5	-15.4	-11.1	-11.1	-11.1
	Max.	-10.2 [1.9:1]	-10.2 [1.9:1]	-10.2 [1.9:1]	-9.5 [2.0:1]	-9.5 [2.0:1]	-9.5 [2.0:1]	-9.5 [2.0:1]
$S22_{Max}$ (dB)	Min.	--	--	--	--	--	--	--
	Typ.	-20.3	-20.8	-14.2	-12.6	-12.6	-12.6	-12.6
	Max.	-11.7 [1.7:1]	-11.7 [1.7:1]	-11.7 [1.7:1]	-9.5 [2.0:1]	-9.5 [2.0:1]	-9.5 [2.0:1]	-9.5 [2.0:1]
$NF_{Max.}$ (dB)	Min.	--	--	--	--	--	--	--
	Typ.	5.2	4.5	2.6	3.0	5.5	5.5	5.5
	Max.	5.6	4.9	3.0	3.5	6.0	6.0	6.0

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ENGINEERING SOLUTIONS FOR TODAY'S INDUSTRIES

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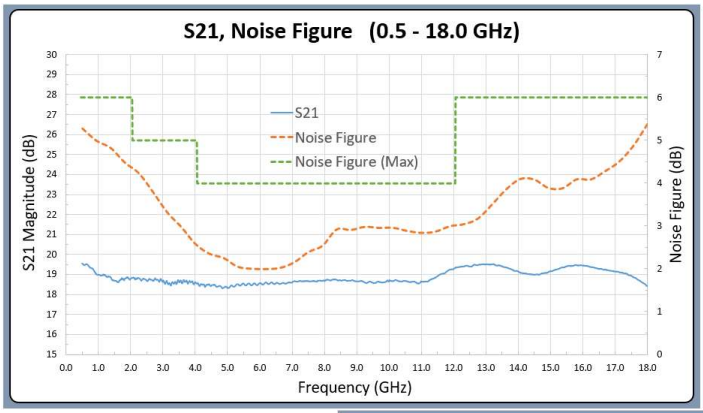
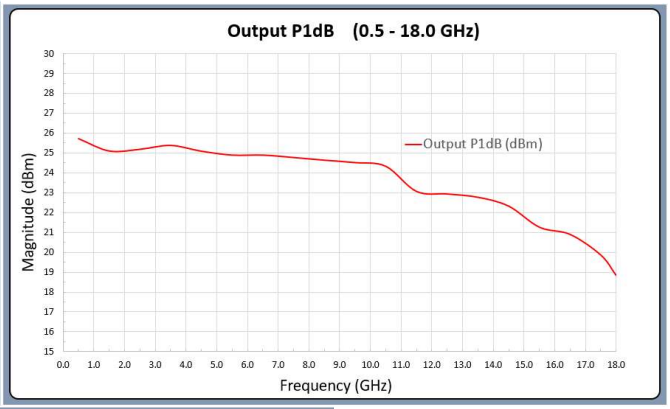
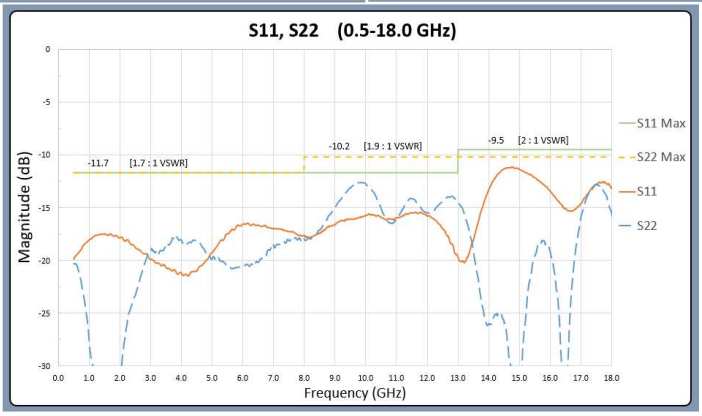
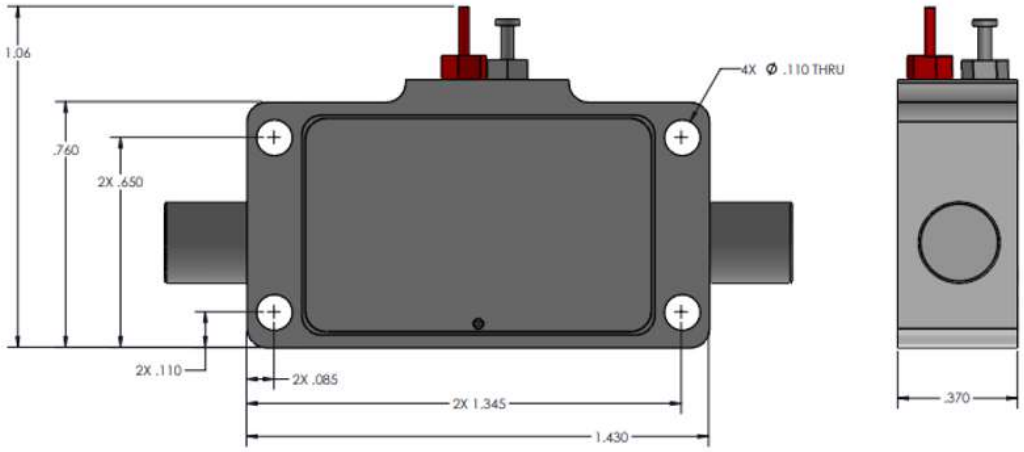
Specifications (continued)

The wide-band performance of the RCT0050 WB Amplifier can be seen in the plots below. The plots display typical measured data for various parameters such as gain (S21), output 1dB compression point (P1dB), input return loss (S11) and output return loss (S22). The unit is designed to be supplied with +12V, which is the voltage all of the following data was captured with. Typical current draw for these amplifiers is approximately 217mA. These amplifiers can be built quickly with surface mount assembly.









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