

## Ordering Information

SKU	Description	UPC
100811	LNA Module	0616469146557

## Description

Nooelec SAWbird+ H1m Barebones is a premium SAW Filter & Cascaded Ultra-Low Noise Amplifier (LNA) Module for Hydrogen Line (21cm) applications with a center frequency of 1420MHz.



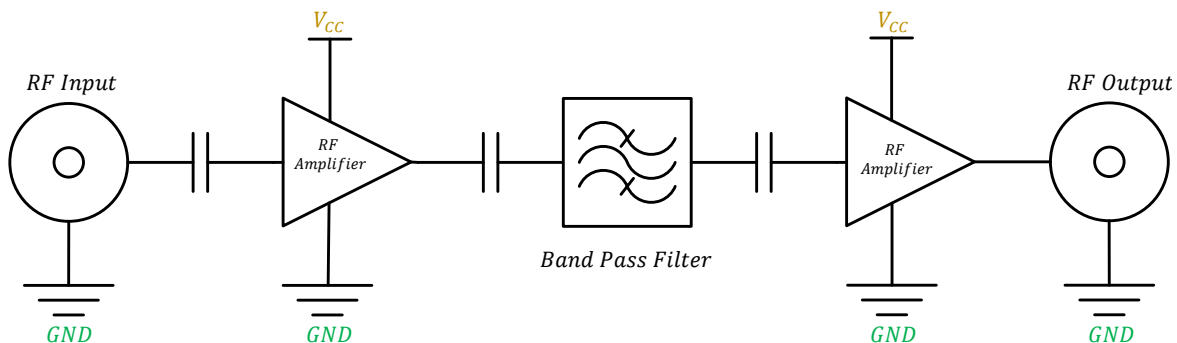
## Features

- +40dB of RF gain at 1420MHz
- 65MHz 3dB bandwidth
- 0.8dB noise figure at 1420MHz
- 50Ω gain block
- +3.3V-5V single supply
- 122mA Current Draw

## Applications

- Radio astronomy
- Hydrogen line detection
- 21cm band reception
- Noise-sensitive applications

## Simplified Schematic



## Pin Configuration and Functions



\* The SAWbird+ H1m allows for 3 different power options (USB, Pin Header and Bias-Tee). At any given time not more than one option should be used.

## Recommended Operating Conditions

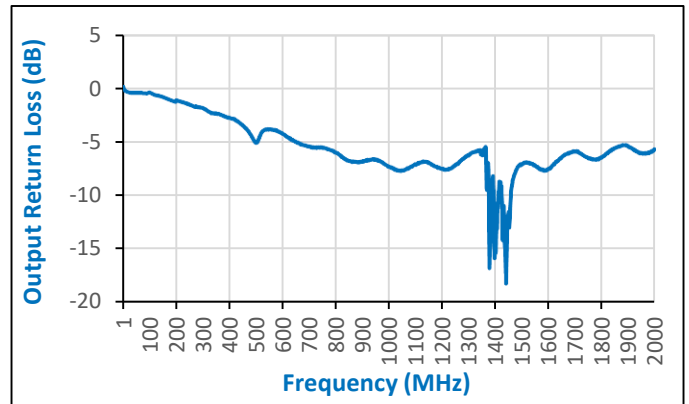
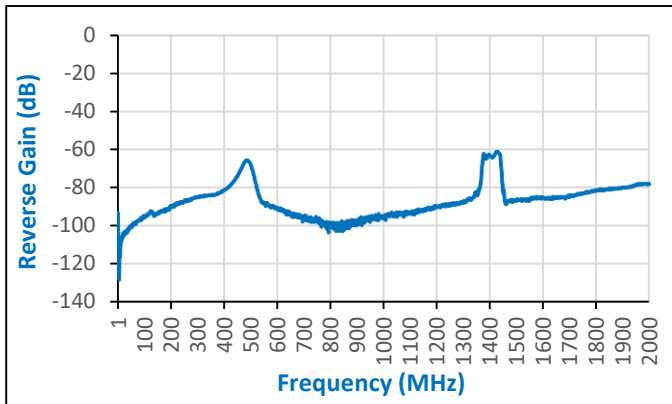
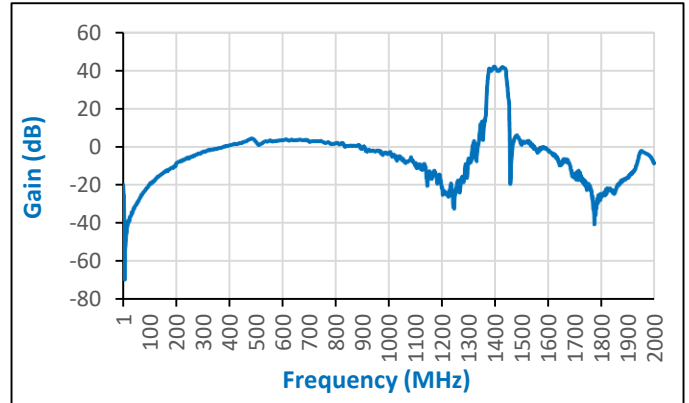
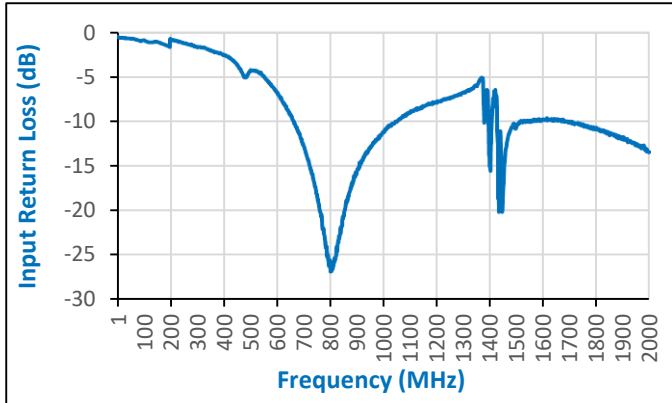
Parameter	Symbol	Min	Typical	Max	Unit
Input Voltage	$V_{in}$	3.3	5	5.5	Volts
Input Power	$P_{in}$	-	-	0	dBm
Ctrl Voltage	$V_{ctrl}$	GND	-	$V_{cc}$	Volts

## Electrical Specifications

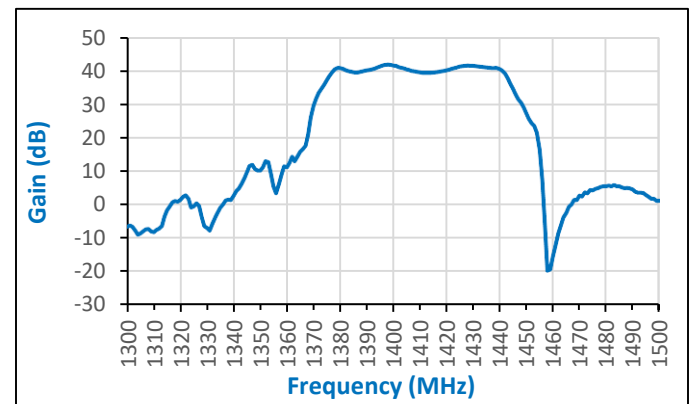
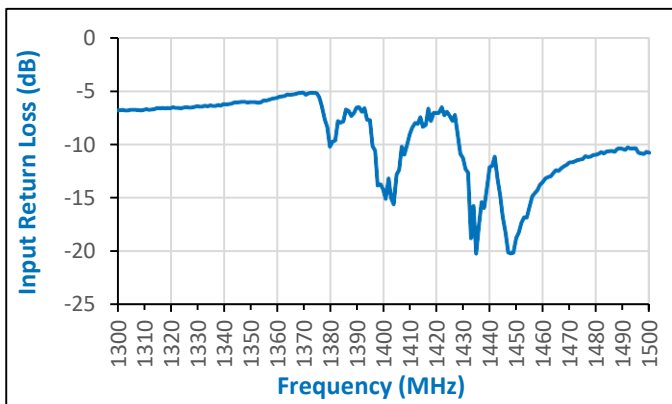
Test Conditions unless otherwise specified:  $V_{in} = +5$  Vdc, 50 Ohm system.

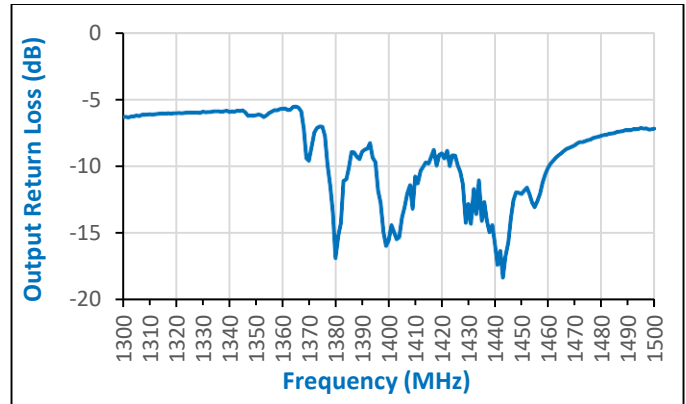
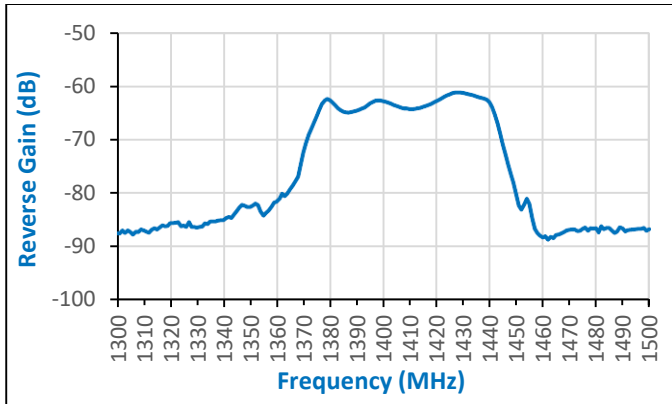
Parameter	Symbol	Min	Typical	Max	Unit
Frequency Range	$f_L - f_H$	1376	-	1441	MHz
3dB Bandwidth	$BW$	-	65	-	MHz
10dB Bandwidth	$BW$	-	75	-	MHz
Center Frequency	$f_o$	-	1408	-	MHz
Gain	S21	-	-	42	dB
Input Return Loss	S11	-	-	-10	dB
Output Return Loss	S22	-	-	-10	dB
Output P1dB	OP1dB	-	18	-	dBm
Noise Figure	NF	0.70	0.8	0.9	dB
Noise Temperature	$T_n$	51	59	67	K
Supply Current	$I_{supply}$	108	122	150	mA

## Electrical Characteristics Plots (1 MHz to 2000 MHz)



## Electrical Characteristics Plots (1300 MHz to 1500 MHz)





## Physical Specifications

Parameter	Value	Unit
Length	80 (3.15)	Millimeter (Inch)
Width	30 (1.18)	Millimeter (Inch)
Height	20 (0.79)	Millimeter (Inch)
Weight	52 (0.11)	Gram (Pound)

## Accessories



<b>Male SMA to Male SMA Pigtail Cable</b>	<b>Female to Female Jumper Wire Harness</b>	<b>NESDR SMARtee - Premium RTL-SDR w/ Bias Tee</b>
<b>SKU: 100570</b>	<b>SKU: 100500</b>	<b>SKU: 100777</b>