

Ordering Information

SKU	Description	UPC
100847	LNA Module – with enclosure	628693723053

Description

Nooelec SAWbird+ ADS-B is a premium SAW filter & cascaded ultra-Low Noise Amplifier (LNA) module for ADS-B and UAT applications with center frequencies of 1090MHz and 978MHz, respectively. This advanced module provides an ultra-low noise figure of less than 0.8dB for boosting weak signals.



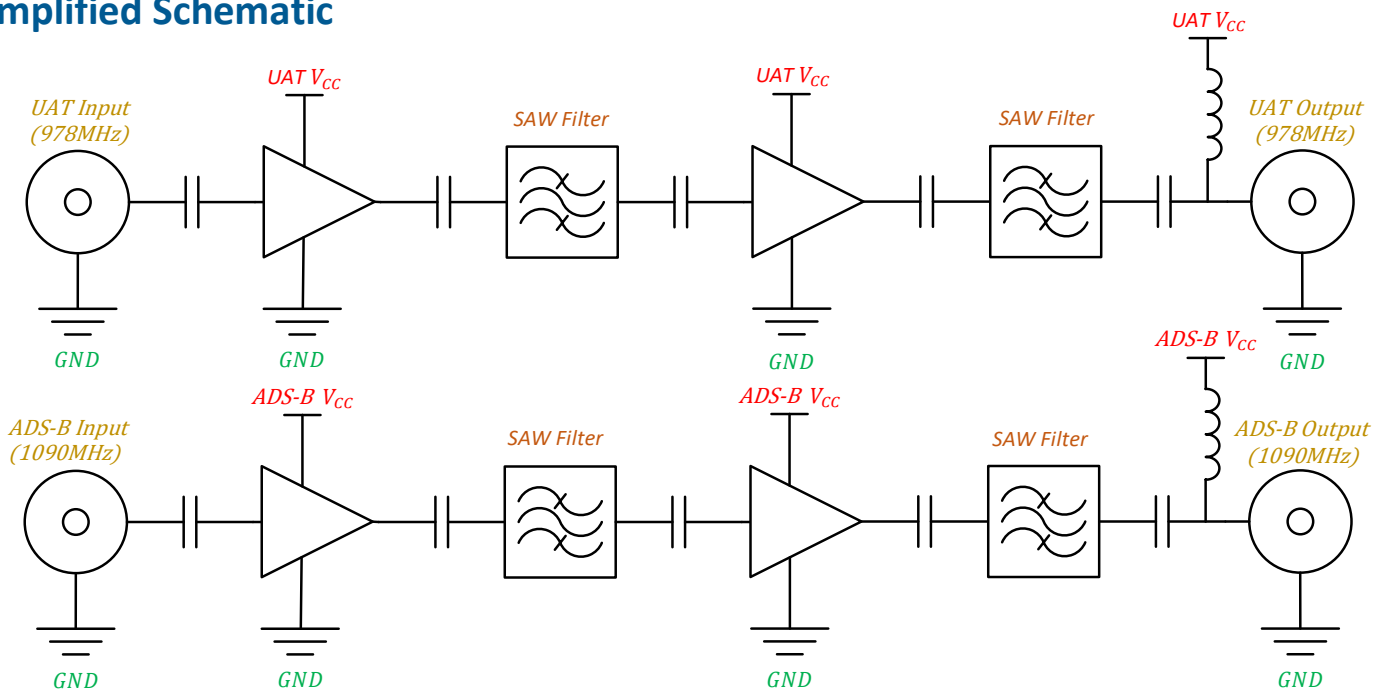
Features

- +34dB gain at each band
- +85dB out-of-band rejection levels
- Three DC powering options (+3.3 – 5V)
- Nominal current draw of 140mA (BiasTee) and 300mA (USB)
- 50Ω matched input/output

Applications

- Automatic Dependent Surveillance–Broadcast (ADS-B) reception
- Universal Access Transceiver (UAT) reception
- Real-time Weather Monitoring

Simplified Schematic



Pin Configuration and Functions



Important Notes: 1) The SAWbird+ ADS-B allows for 3 different power options (USB, Pin Header and BiasTee). Not more than one option should be used at any given time.

2) Powering using USB will power both sides, while powering using BiasTee will provide power to the connected side.

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

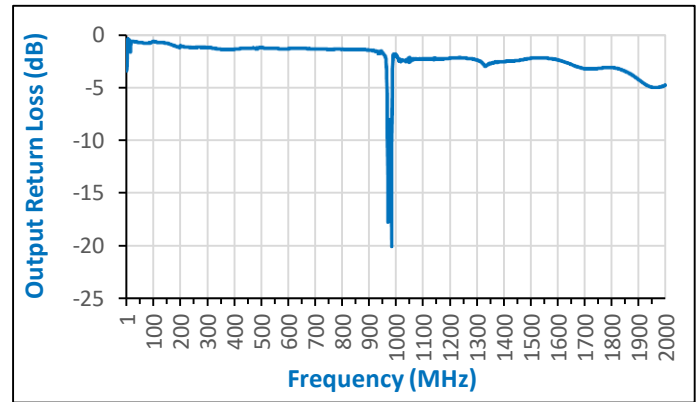
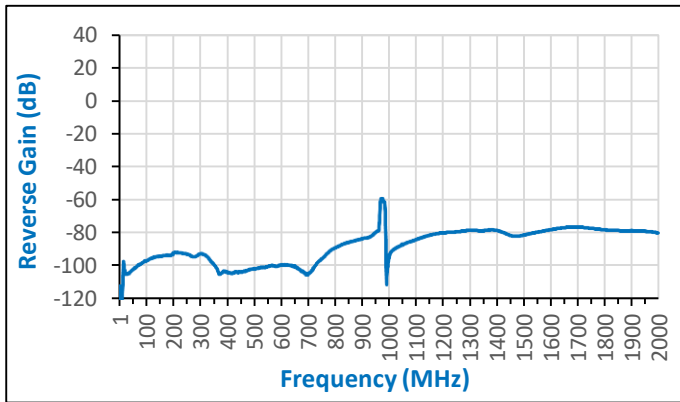
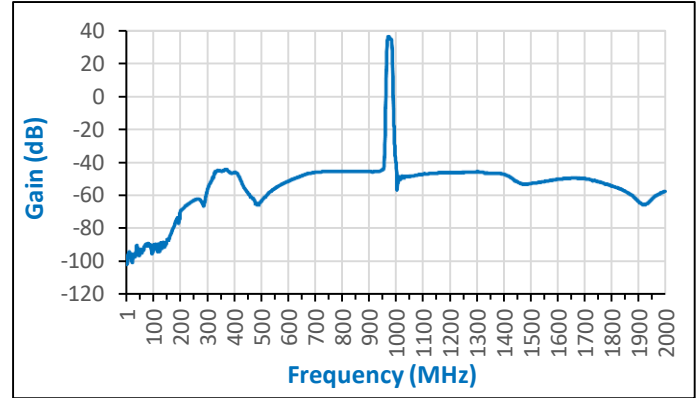
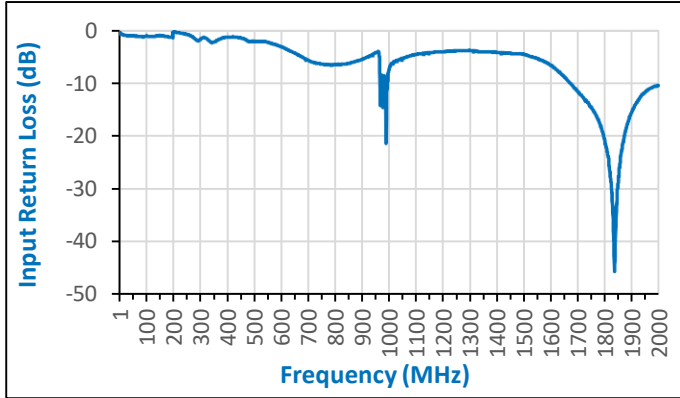
Electrical Specifications

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

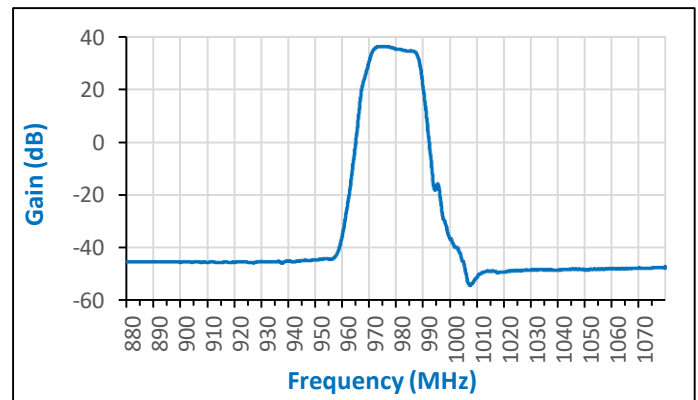
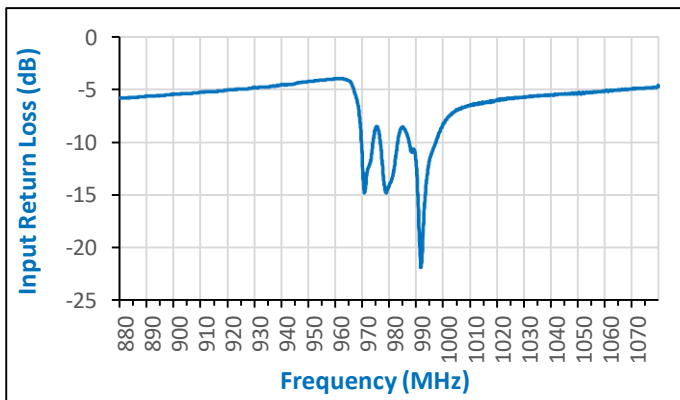
Parameter	Symbol	Min	Typical	Max	Unit
3dB Bandwidth (ADS-B)	BW_{ADS-B}	-	8	-	MHz
3dB Bandwidth (UAT)	BW_{UAT}	-	15	-	MHz
Center Frequency (ADS-B)	$f_{o(ADS-B)}$	-	1090	-	MHz
Center Frequency (UAT)	$f_{o(UAT)}$	-	978	-	MHz
Gain (ADS-B)	$S_{21} @ f_{o(ADS-B)}$	-	34	-	dB
Gain (UAT)	$S_{21} @ f_{o(UAT)}$	-	35	-	dB
Input Return Loss (ADS-B)	$S_{11} @ f_{o(ADS-B)}$	-14	-	-10	dB
Input Return Loss (UAT)	$S_{11} @ f_{o(UAT)}$	-11	-	-10	dB
Output Return Loss (ADS-B)	$S_{22} @ f_{o(ADS-B)}$	-13	-	-10	dB
Output Return Loss (UAT)	$S_{22} @ f_{o(UAT)}$	-11	-	-10	dB
Output P1dB (ADS-B & UAT) @ 25deg	OP1dB	-	19	-	dBm
Noise Figure total (ADS-B & UAT)	NF	-	0.8	-	dB
Noise Temp total (ADS-B & UAT)	T_n	-	59	-	K
Supply Current (BiasTee)	$I_{BiasTee}$	120	140	160	mA
Supply Current (USB)	I_{USB}	280	300	320	mA

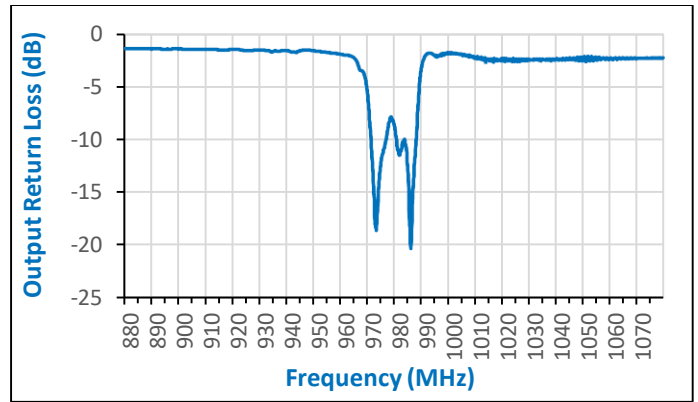
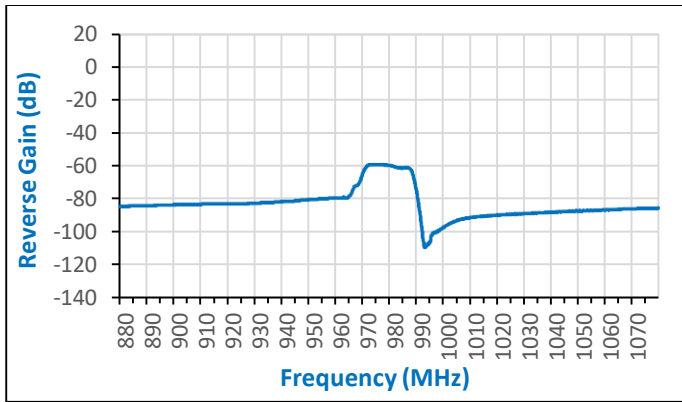
Electrical Characteristics Plots

1) UAT (1 MHz to 2000 MHz)

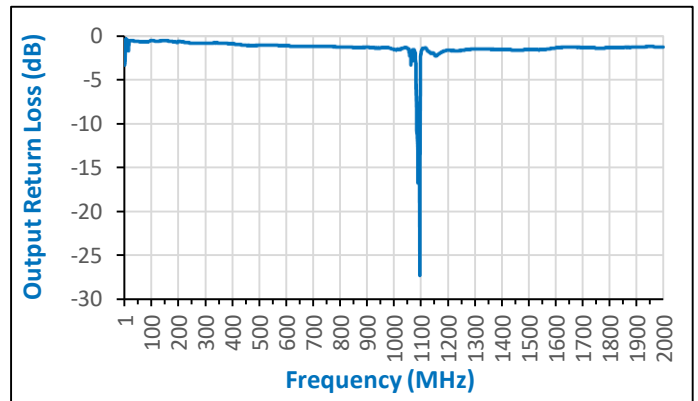
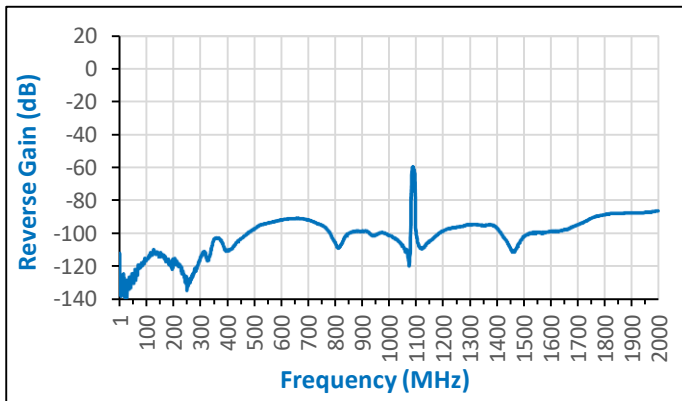
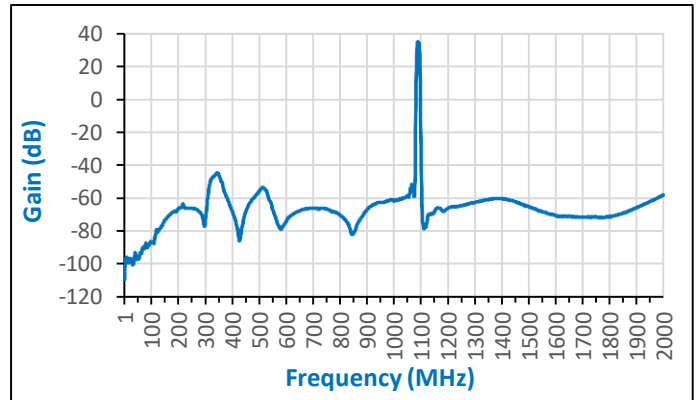
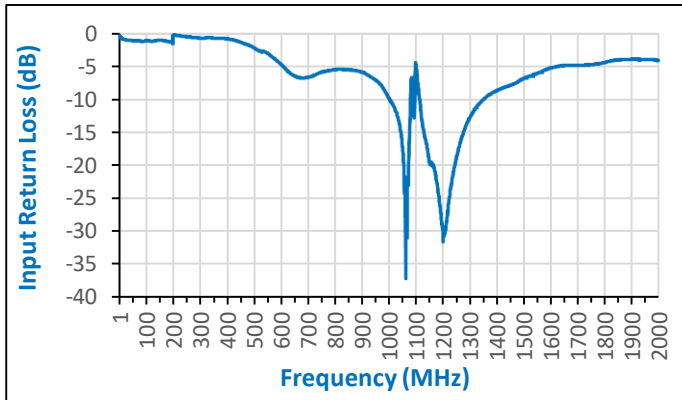


2) UAT (878 MHz to 1078 MHz)

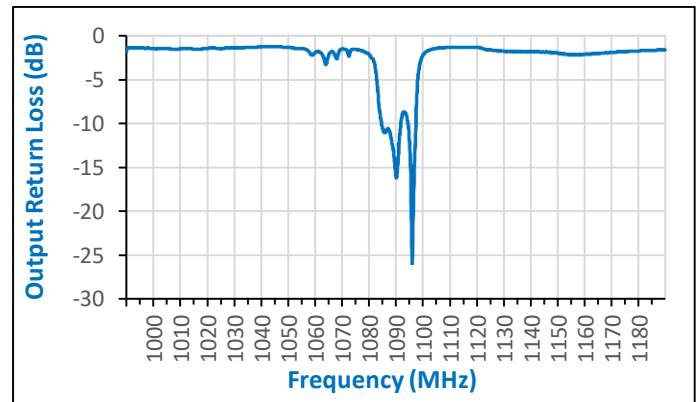
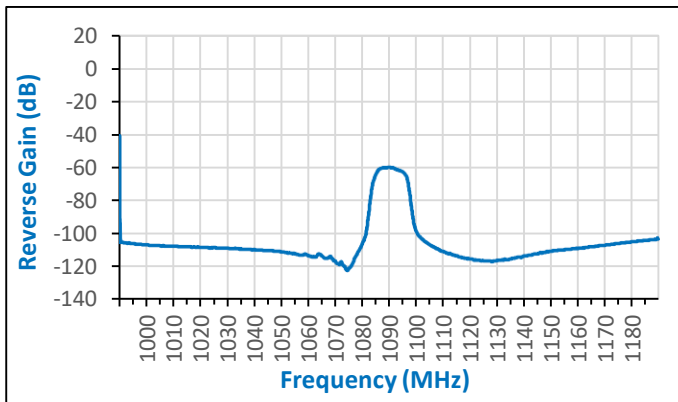
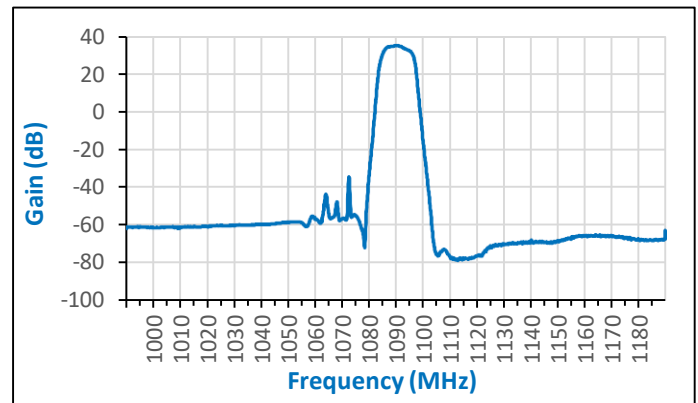
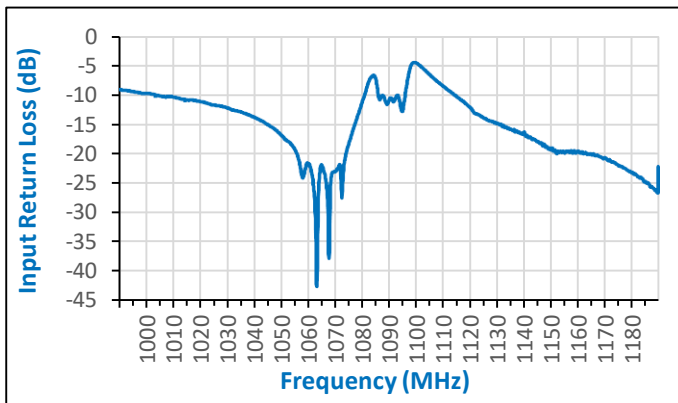




3) ADS-B (1 MHz to 2000 MHz)



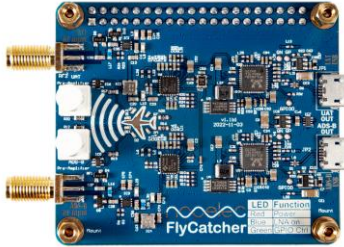
4) ADS-B (990 MHz to 1190 MHz)



Physical Specifications

Parameter	Value	Unit
Length	83 (3.27)	Millimeter (Inch)
Width	60 (2.36)	Millimeter (Inch)
Height	32 (1.26)	Millimeter (Inch)
Weight	84 (0.19)	Gram (Pound)

Accessories



FlyCatcher	NESDR SMARtee v2 SDR - Premium RTL-SDR w/ BiasTee	ADS-B Discovery Antenna Bundle - 5dBi (High Gain)
SKU: 100848	SKU: 100777	SKU: 100714