



User's Manual

ASA-3-460M

1. DESCRIPTION

The ASA-3 module is a switched preamplifier and variable power amplifier. It is similar to the ASA-2 module and operates for all intents and purposes, in an identical manner except for yielding higher (and variable) RF output power. The ASA-3-460M contains a SAW filter and LNA in the receive signal path and serves as a switched preamplifier/power amplifier, boosting both transmitted and received signals. The version of the amplifier works with Hetronic RF modules from 450MHz to 470MHz. The addition of the SAW filters makes band selection more precise and serves also to reject signals at other frequencies.

Note: Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

FCC ID Number: LWP-ASA3460M

IC ID Number: 2119B-ASA3460M

2. TECHNICAL SPECIFICATIONS

All specifications assume a 50Ω input and load.

Parameter	Min	Norm	Max	Unit	Notes
Supply Voltage	3.0	4.0	5.5	V	DC
Supply Current TX Mode	90	100	110	mA	Configured for 100 mW output
Supply Current RX Mode	6	10	20	mA	
Input Impedance		50		Ω	
Output Impedance		50		Ω	
Output Load VSWR			<10:1		
Output Power Level 1*	15.5	17	18.5	dBm	10dBm in, J1 and J2 open
Output Power Level 2*	18.5	20	21.5	dBm	10dBm in, J1 or J2 shorted
Output Power Level 3*				dBm	Contact Hetronic Industrialization
Small signal gain (Receiver LNA)	10		14	dB	
Input Power, transmit mode		10	11	dBm	
Input Power, receive mode			0	dBm	
Frequency Range	450		470	MHz	
Switch line level	0	3.3	5.5	V	Logic level.
Switch line high	2.7		5.5	V	
Switch line low	0		0.4	V	
Switch speed			1	ms	Rx to Tx, ready to transmit, Tx to Rx, ready to receive
Operating Temperature	-20		+70	°C	

* = see section 3.2

Note: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

3. ASSEMBLY DESCRIPTION

3.1. Test / Programming Jumper Configuration

N/A – no firmware/software required for operation.

3.2. Operational Jumper Configuration

3.2.1. Default

For standard ASA-3-460M modules, only J2 should be shorted. This limits the output power to 100mW, when supplied with a 10dBm input. J3 and J4 should not be shorted. In most common configurations, the switch line is driven by either the module or LFB board.

3.2.2. Possible Jumper Configurations

3.2.2.1. Power Output Control

Power output levels listed are typical values, and assume 50Ω input and output connections. Please see section 2 for specifications of each power level.

- J1 – Power Level 2, 20dBm (100mW) output.
- J2 – Power Level 2, 20dBm (100mW) output.
- J1+J2 – Power Level 3, Contact Hetric Industrialization for specification.
- Open – Power Level 1, 17dBm (50mW) output.

3.2.2.2. Switch Pull-up Select

- J3 – Switch logic 10kΩ pull down select.
- J4 – Switch logic 10kΩ pull up select.
- J3+J4 - *Invalid configuration*
- Open – Floating. The SWITCH pin must be driven by an external source for proper operation.

4. Connection Diagram

4.1. Internal Connections

The below wiring connections must extend from the bottom side of the board.

- V+ - Positive power Supply
- Switch – Rx (LNA)/Tx (PA) select
- GND – Negative power supply

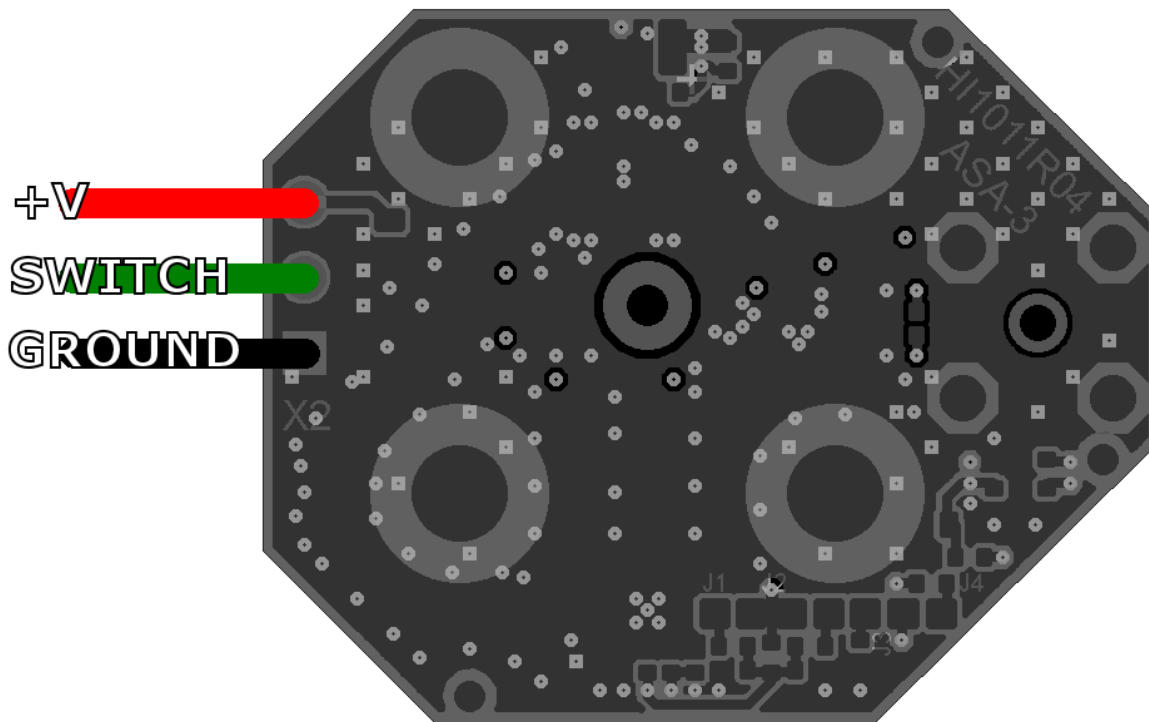


Figure 1, Wire Attachment, bottom view. Wiring must extend from the bottom side.

4.2. External Connector

These external, RF connections are shown below in Figure 2.

- Antenna Connector – TNC, standard polarity. This component is designed for screw-mounting to a bulkhead TNC connector, using appropriate spacers. The top-side of the PCB faces this connector.
- RF module connector – SMB, standard polarity. This component is soldered to the ASA-3-460M PCB with the connector extending from the bottom side.

TNC connector
Attached with bolts

SMB connector
attached with solder

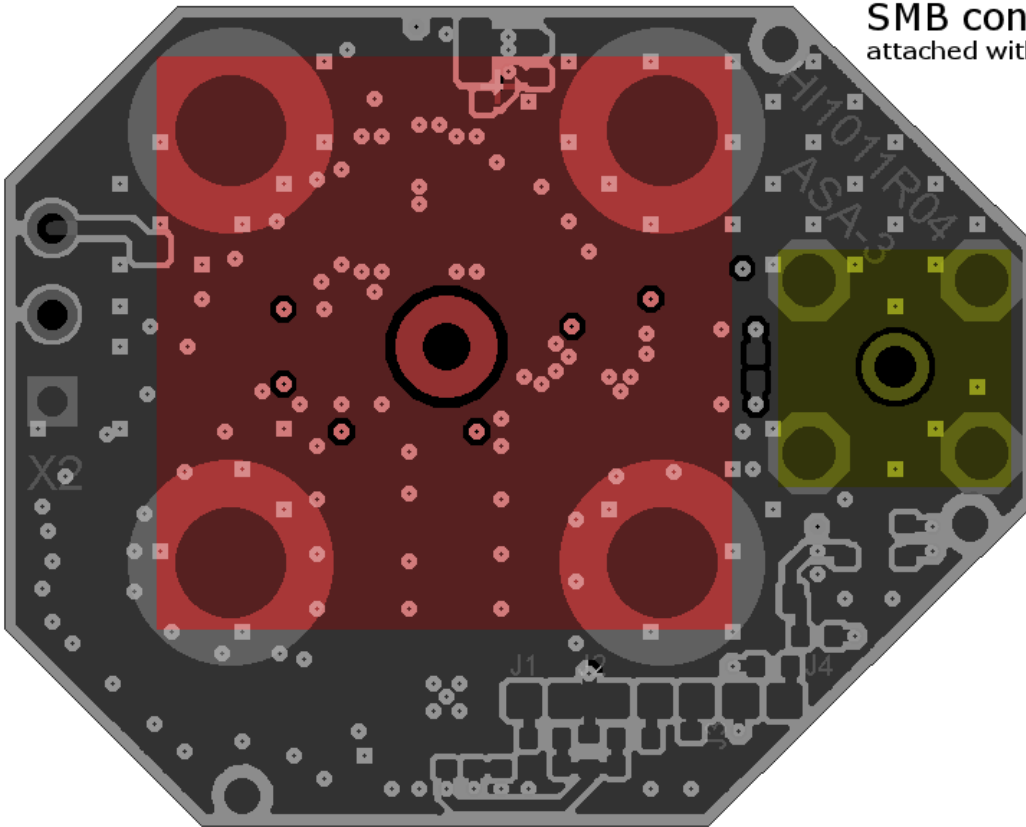


Figure 2, External RF connector placement, bottom side of PCB shown