

L1 Low Noise Amplifier

Technical Product Data

Features

- **High Rejection Preselection Filter**
- **Excellent Gain**
G = 40dB
- **Low Noise Figure**
F < 2.0dB



Description

Designed for use with a passive L1 antenna, or for applications in a dense RF signal environment requiring high gain, the L1 LNA features high preselection filtering, low noise and 40dB of gain. In order to ensure adequate protection against intermodulation products from out of band signals, the preselection filtering precedes the initial amplification stages.

The product may be powered externally with an AC input voltage option, a DC input option, or it may be powered by the GPS receiver's antenna voltage output. Regardless of the input power configuration, the L1 LNA can provide a DC voltage output to power an active GPS antenna. In the case of operation with a passive antenna, the input may be DC blocked.

The L1 LNA amplifier comes with many available options to meet your specific needs. Please call, fax, email (sales@gpssource.com), or visit our website (www.gpssource.com) for further information on product options, specifications, or to receive an easy to use order sheet.

Electrical Specifications, Operating Temperature -40 to 85^oC

| Parameter | | Conditions | Min | Typ | Max | Units |
|---------------------------|---------|--|------------------|-----|--------|-------|
| Freq. Range: 1575.4MHz | | IN – OUT, IN/OUT-50Ω | 1.550 | | 1.635 | GHz |
| In/Out Imped. | | IN, OUT | | 50 | | Ω |
| Gain | | IN – OUT, IN/OUT-50Ω | 38 | 40 | 41 | dB |
| Rejection 1575MHz | | IN – OUT, IN/OUT-50Ω; +/- 75MHz +/- 150MHz | -12 -38 | | | dB |
| Passband Ripple | | IN – OUT, IN/OUT-50Ω | | | 2 | dB |
| Input SWR | | OUT Port - 50Ω | | | 2.0:1 | - |
| Output SWR | | IN Port - 50Ω | | | 2.0:1 | - |
| Noise Figure | | IN – OUT, IN/OUT-50Ω | | | 2.2 | dB |
| Reverse Isolation | | OUT -IN | 40 | | | dB |
| AC IN | 110 | Wall Mount Transformer ⁽²⁾ | | 110 | | VAC |
| | 220/240 | Wall Mount Transformer (Various Intl. plug types available) ⁽²⁾ | | 230 | | VAC |
| DC IN | Pass DC | Non-Powered Configuration, DC Input on OUT port | 3 | | 16 | VDC |
| | Powered | Powered, Mil. Conn. or Quick Connect Option | 3 ⁽¹⁾ | | 28 | VDC |
| Device Current | | Current Consumption of device, excludes Ant. Cur. | | | 38 | mA |
| Ant/Thru Current | Pass DC | Non-Powered Configuration, DC Input on OUT port | | | 250 | mA |
| | Powered | Powered, Mil. Conn. or Quick Connect Option | | | Note 2 | mA |
| Max RF Input | | Max RF input without damage | | | 10 | dBm |

Notes:

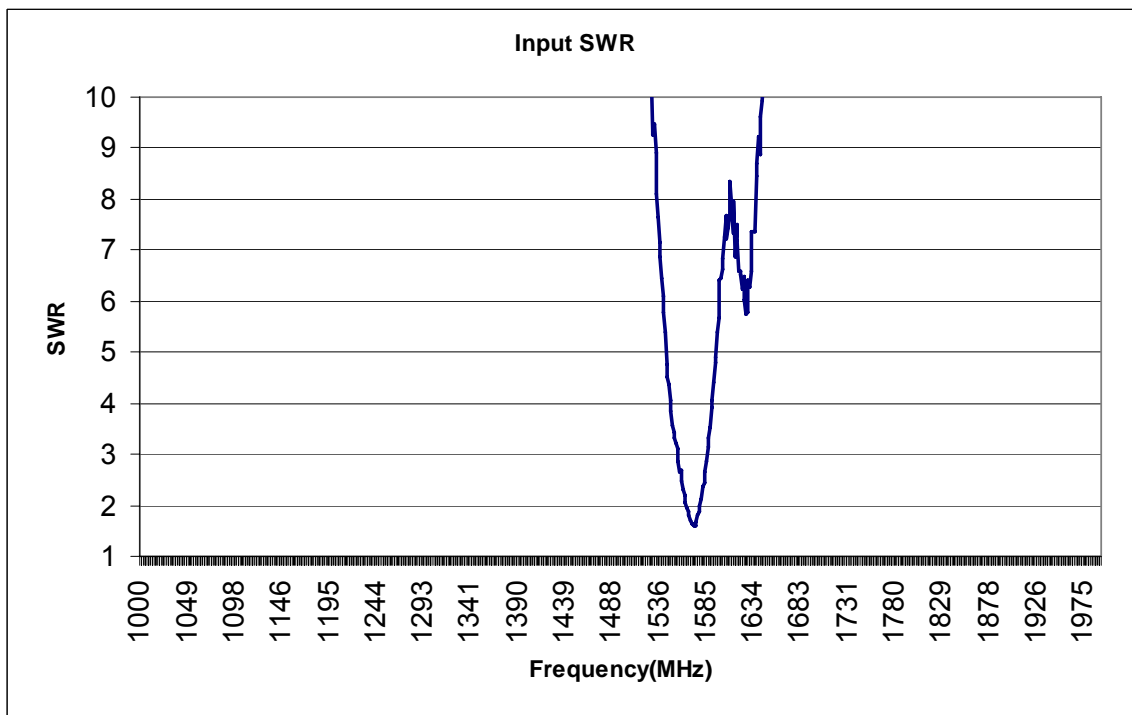
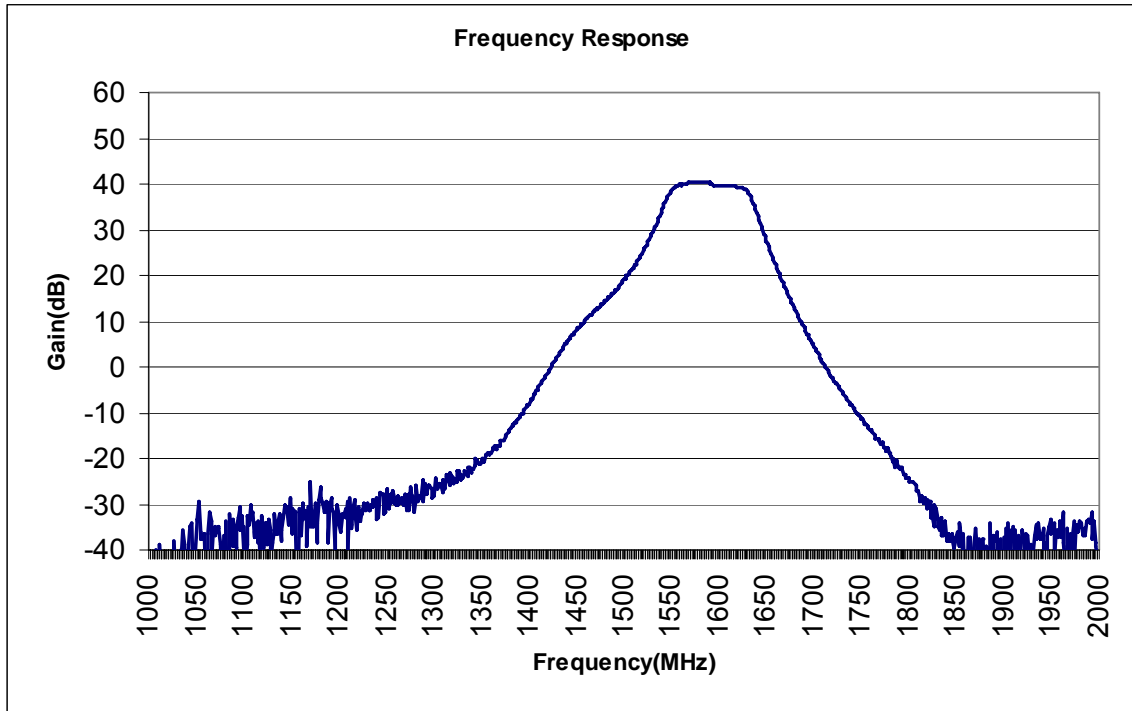
1. DC IN for powered option must be 2V greater than desired DC Voltage Out
2. Maximum combined DC current draw out all ports of the device is a function of the DC input voltage and desired DC output voltage , according to the following:

$$I_{out} \leq 1.4 / (V_{DC IN} - V_{DC OUT}) - 0.007 \text{ Amps}$$

For powered option with a wall mount transformer (Voltage Input = 110/220/240 VAC), V_{DC IN} is 9V.

Performance Data:

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Available Options:

| | | |
|---|-------------------------------------|--|
| Power Supply Options: | | |
| Source Voltage Options | Voltage Input | Type |
| | 110 VAC | Wall Mount Transformer |
| | 220 VAC | Wall Mount Transformer |
| | 240 VAC (U.K.) | Wall Mount Transformer |
| | DC 5-28 VDC | Military Style Connector or w/Quick Connects |
| Output Voltage Options⁽¹⁾ | DC Voltage Out⁽²⁾ | |
| | 3.3 | |
| | 5 | |
| | 7.5 | |
| | 9 | |
| | 12 | |
| | Variable (3-12V) | |
| Custom | | |
| RF Connector Options: | | |
| Connector Options | Connector Type | Limitations |
| | N (Male & Female) | |
| | SMA (Male & Female) | |
| | TNC (Male & Female) | |
| | SMB (Female) | |
| | SMC (Female) | |
| | MCX (Female) | |
| | BNC (Male & Female) | Performance Not Guaranteed |
| Housing Options: | | |
| Housings | Housing Type | Limitations |
| | Standard XL Housing Only | None |
| Port Options: | | |
| Pass DC ⁽¹⁾ | IN Port Passes DC | |
| DC Blocked ⁽¹⁾ | IN Port Blocks DC | |

Notes:

1. With Powered Option, any or all RF ports (input or output) can be DC Blocked or can pass the powered DC voltage
2. Maximum combined DC current draw out all ports of the device is a function of the DC input voltage and desired DC output voltage , according to the following:

$$I_{out} \leq 1.4 / (V_{DC IN} - V_{DC OUT}) - 0.007 \quad \text{Amps (or 250mA max)}$$

For powered option with a wall mount transformer (Voltage Input = 110/220/240 VAC), $V_{DC IN}$ is 9V.



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Part Number:

L1LNA - P110 / 5 - SF

Product:

Standard 1x2 Splitter
(Pass DC J1-Ant, J2 Blk.)

Source Voltage:

P110 – Transformer,
P220 – Transformer,
P240 – Transformer,
PDC – DC w/Quick Connects
PM – Military Connector (User supplies DC)

Output Voltage:

3.3, 5, 7.5, 9, 12, XX, V – Denotes Output Voltage
(XX – custom output voltage, V – variable)

Connector Options:

NM – N, Male
NF – N, Female
SM – SMA, Male
SF – SMA, Female
TM – TNC, Male
TF – TNC, Female
BM – BNC, Male
BF – BNC, Female
SB – SMB Jack, Female
SC – SMC Jack, Female
MX – MCX Jack, Female

For help in creating the part number to meet your exact needs, contact us at Sales@gpssource.com or visit our website at www.gpssource.com.

