TECHNICAL PRODUCT DATA SHEET

A114M

Mini Amplifier

DESCRIPTION

The A114M Mini Amplifier is an amplifier which covers the L-Band (GPS, Galileo, and GLONASS frequencies) designed with the thin link margins of satellite navigation systems in mind.

The A114M features 40dB of gain, and a noise figure of less than 2dB. Since it consumes less than 20mA, it can be powered by using the GPS receiver's antenna voltage output.

The A114M can be selected with the filtered option which will protect the GPS receiver from other spurious signals received by the antenna.

FEATURES

- Passes Entire GPS L1/L2 signals
- RoHS/REACH/WEEE

OPTIONS

- Filtered Option Available
- Variable Gain Option Available: 0dB to 39dB
- EMI shielding, waterproofing, hermetically sealed

The A114M Mini Amplifier can be custom configured. Please contact GPS Source for further information on product options and specifications.

1 A114M Electrical Specifications

Table 1-1. Electrical Specifications

Operating Temperature -40°C to 85°C

Parameter	Conditions			Min	Typ	Max	Units
Frequency Range	IN – OUT, IN/OUT 50Ω			1.1		1.7	GHz
In/Out Impedance	IN, OUT				50		Ω
Gain (Standard)	IN – OUT, IN/OUT 50Ω			38	40	42	dB
Gain (Custom) -AXX (1 - 39 dB)				XX - 1	XX	XX + 1	
Variable Gain Option	IN – OUT, IN/OUT 50Ω		Min	-1	0	1	dB
			Max	35	36	37	
Filtered Option [1]	IN – OUT, IN/OUT 50Ω			37	38.5	39	dB
			Reject (-50MHz)	-30			
			Reject (+50MHz)	-42			
Input 1dB Comp.	IN – OUT, IN/OUT 50Ω			-41			dB
Input IP_3	IN – OUT, IN/OUT 50Ω			-33			dB
Input SWR	OUT Port 50Ω					2.5:1	—
Output SWR	IN Port 50Ω					2.5:1	—
Noise Figure [2]	Antenna Any Port, Unused Ports 50Ω					2	dB
Gain Flatness	[L1 – L2] Antenna Any Port, Unused Ports 50Ω					3	dB
Group Delay Flatness	$T_{d,max} – T_{d,min}$, IN – OUT					1	ns
Reverse Isolation	OUT – IN			40			dB
DC IN	DC Input on IN/OUT port			3		16	VDC
Device Current	Current Consumption of Device (Excludes antenna current draw)					20	mA
Ant/Thru Current	Non-Powered Configuration, DC Input on OUT port					250	mA
Max RF Input	Max RF Input Without Damage					10	dBm

1. Rejection figures are relative to passband.
2. Does not apply to variable gain option at any setting other than maximum gain.

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2 Performance Data

2.1 Unfiltered

Figure 2-1. Unfiltered Frequency Response

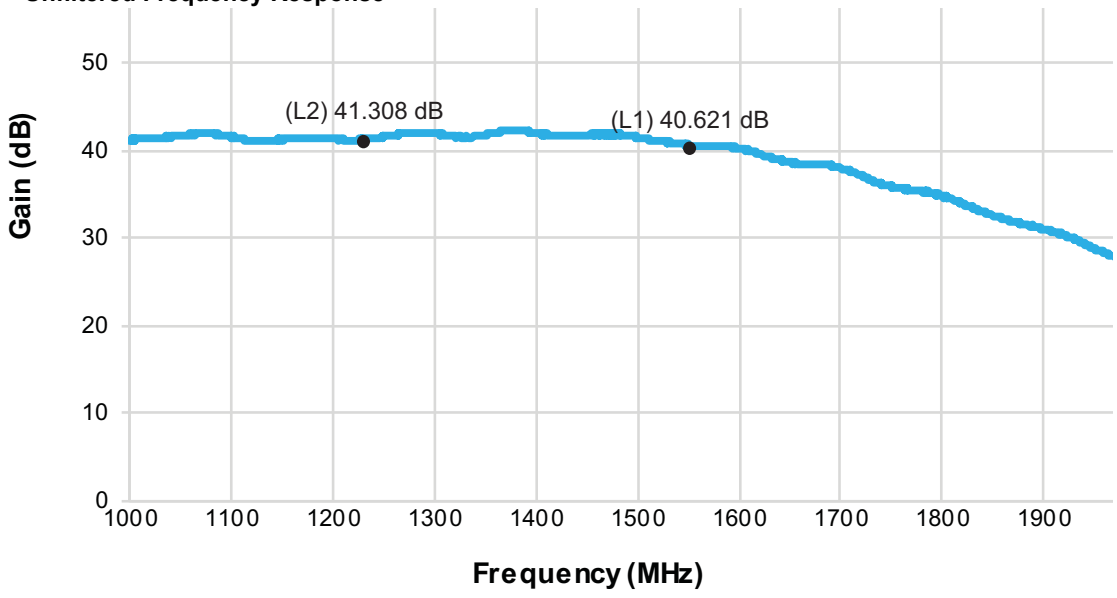
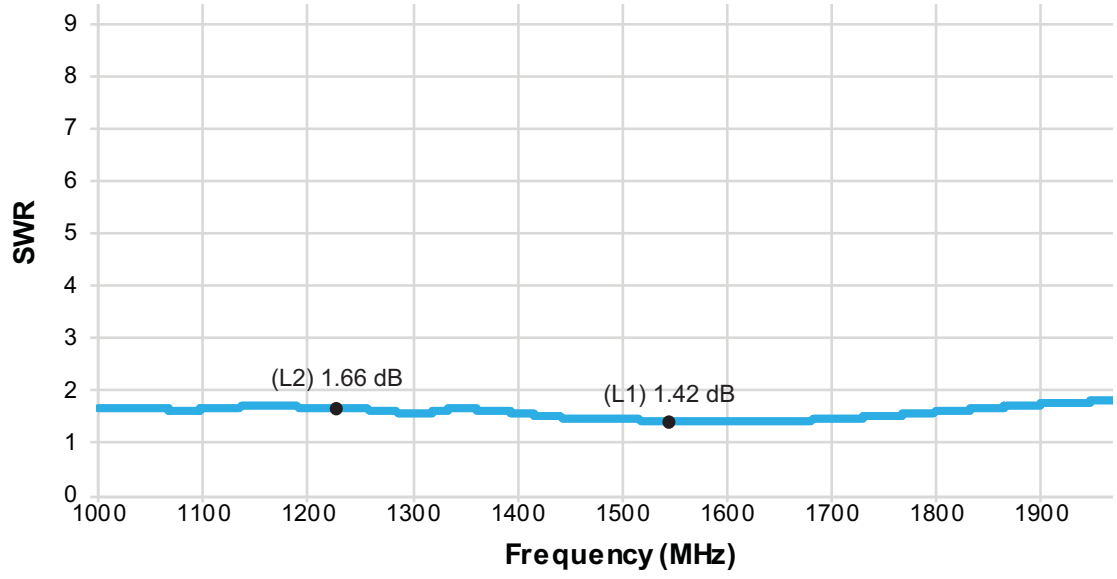


Figure 2-2. Unfiltered SWR



2.2 Filtered Option

Figure 2-3. Filtered Frequency Response

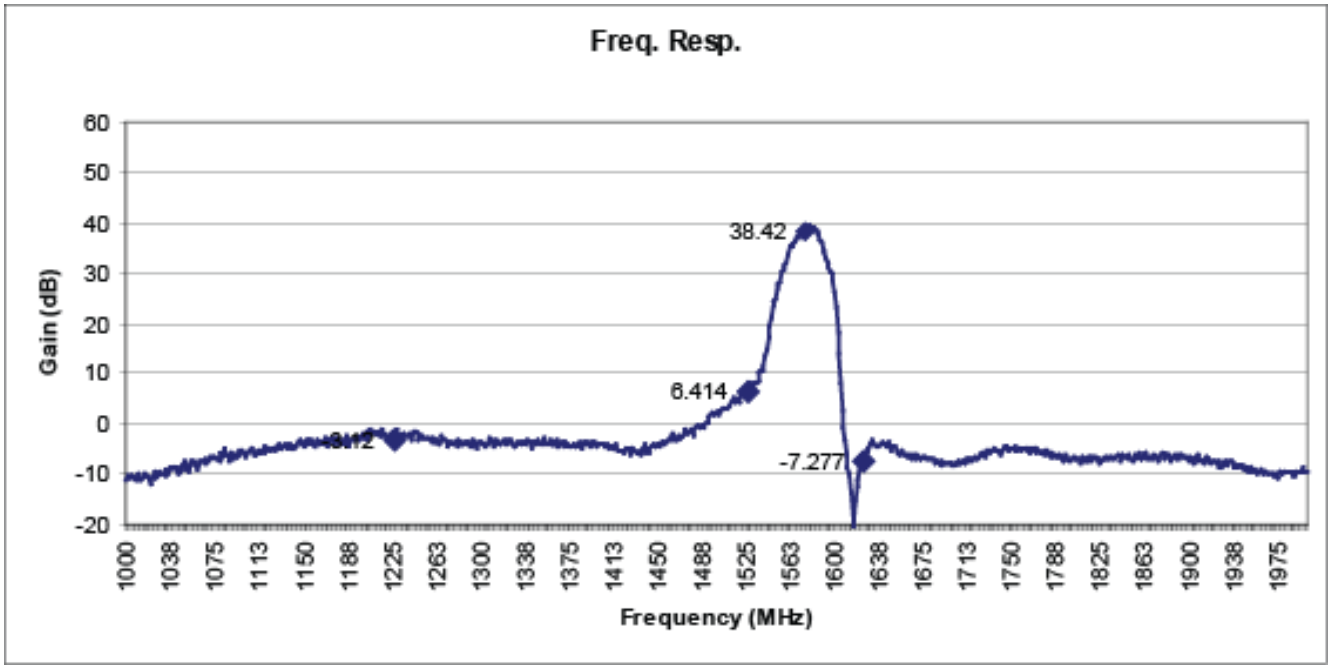
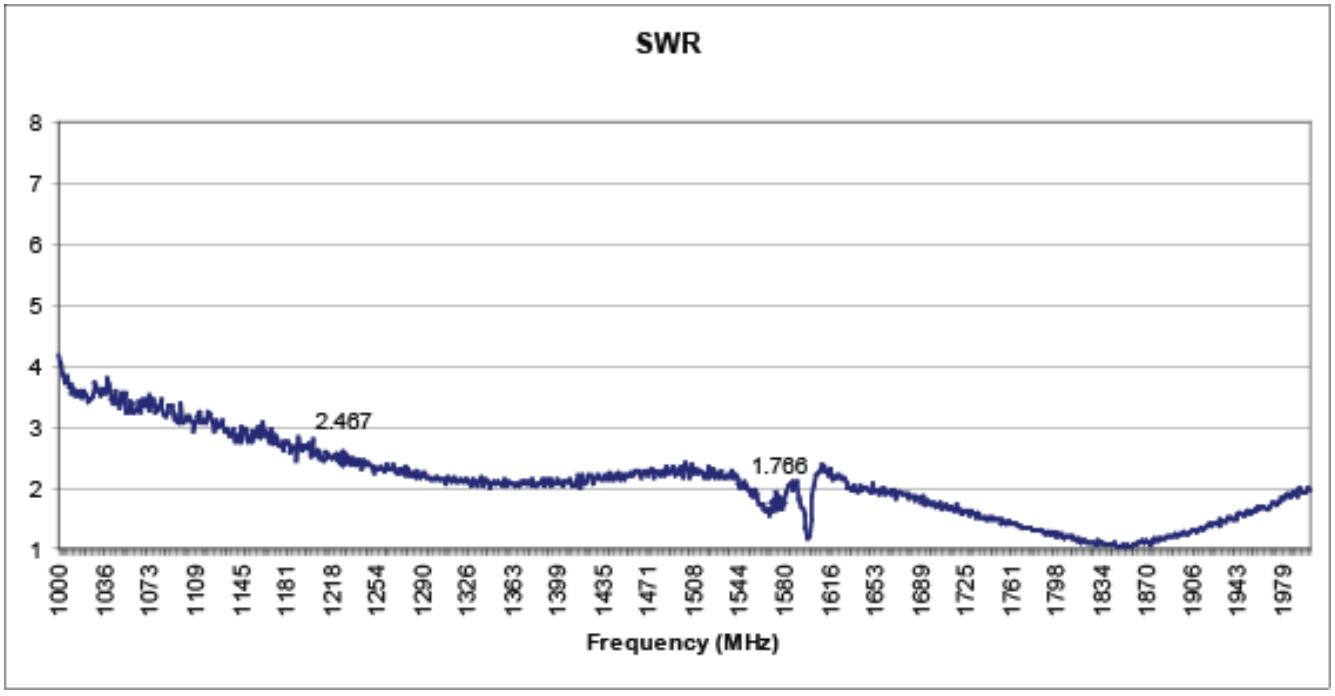


Figure 2-4. Filtered SWR



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2.3 Variable Gain Option

Figure 2-5. Variable Gain Frequency Response

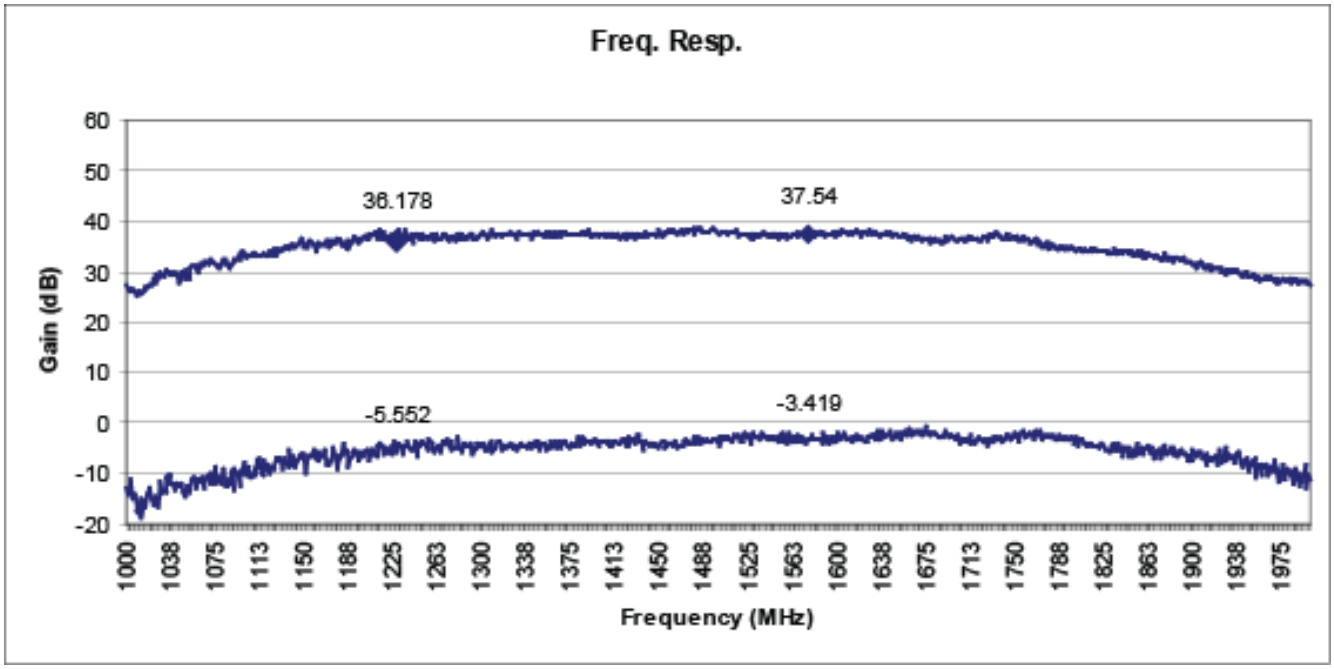
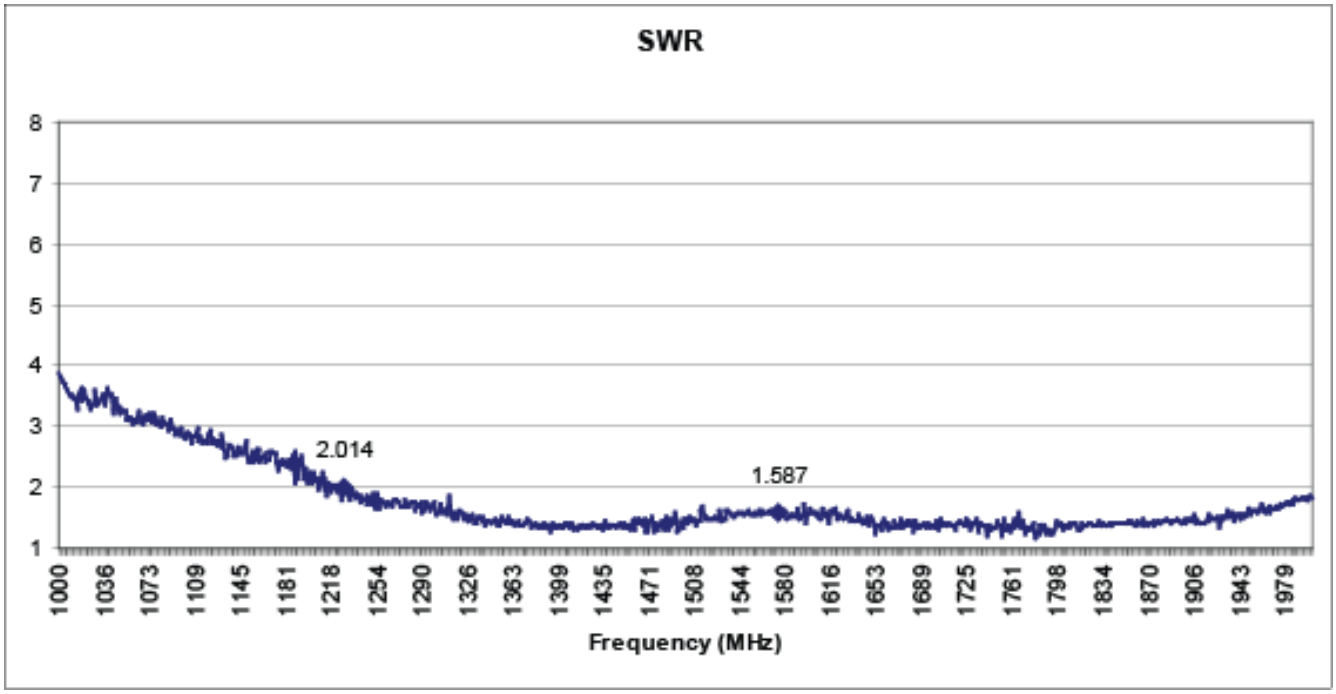


Figure 2-6. Variable Gain SWR



3 Product Options

Table 3-1. A114M Available Options

RF Connector		
Connector	**Connector Type**	**Limitations**
	N (Female/Male Mini Only)	N/A
	SMA (Female/Male Mini Only)	N/A
	TNC (Female/Male)	N/A
Housing		
Housing	**Housing Type**	**Limitations**
	Mini	None
Ports		
Configuration	Pass DC	IN Port Passes DC
	DC Blocked (Standard)	In Port Blocks DC
Amplification		
Gain	Standard	40dB
	Custom	1-39dB

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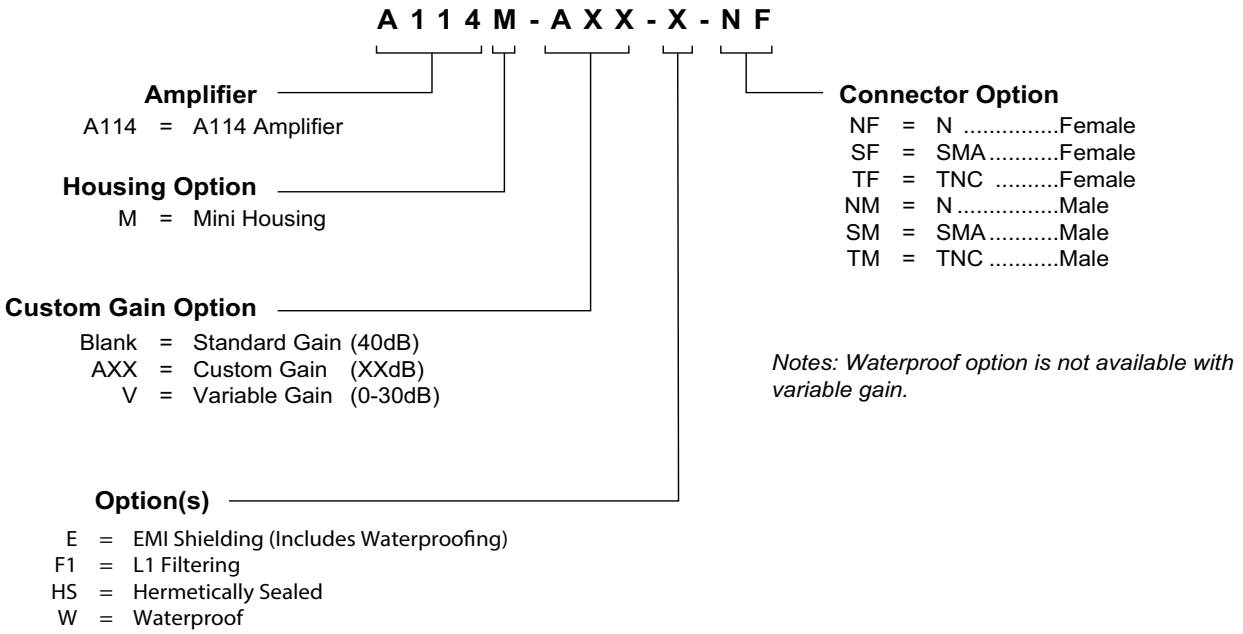
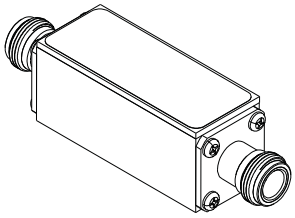
4 Product Code Decoder



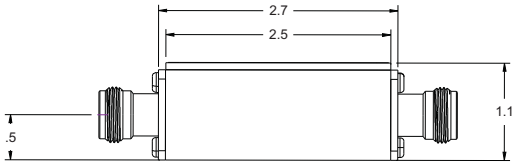
Notes: Waterproof option is not available with variable gain.

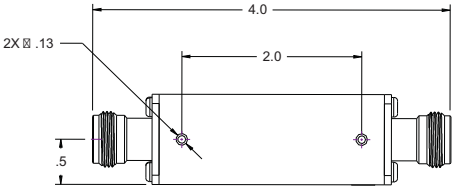
5 Mechanical Drawing

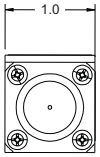
A114M Mini Amplifier — FAM-ABM-AAX-AGZ

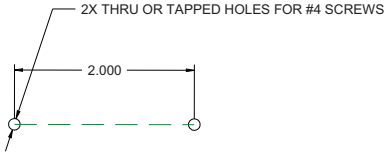


ISOMETRIC VIEW
FOR REFERENCE ONLY









RECOMMENDED MOUNTING PATTERN

11/18/2016 Revision 001

GPS Source Part No.	Finish	Size	Mass	Tolerances	
FAM-ABM-AAX-AGZ	**N/A**	**C**		Linear **.X = ±0.100** **.XX = ±0.010**	Angular **±1°** **RADII** See Linear
Description **A114M Standard Mini Amplifier**	Material **N/A**	3rd Angle Projection			

All materials and finishes shall comply with European Union RoHS and are lead free. Dimensions are in inches unless otherwise specified.

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