Wideband Amplifier MITEQ AMF-2F-005010-15-10P-L

Matthias, DD1US, January 12th 2020

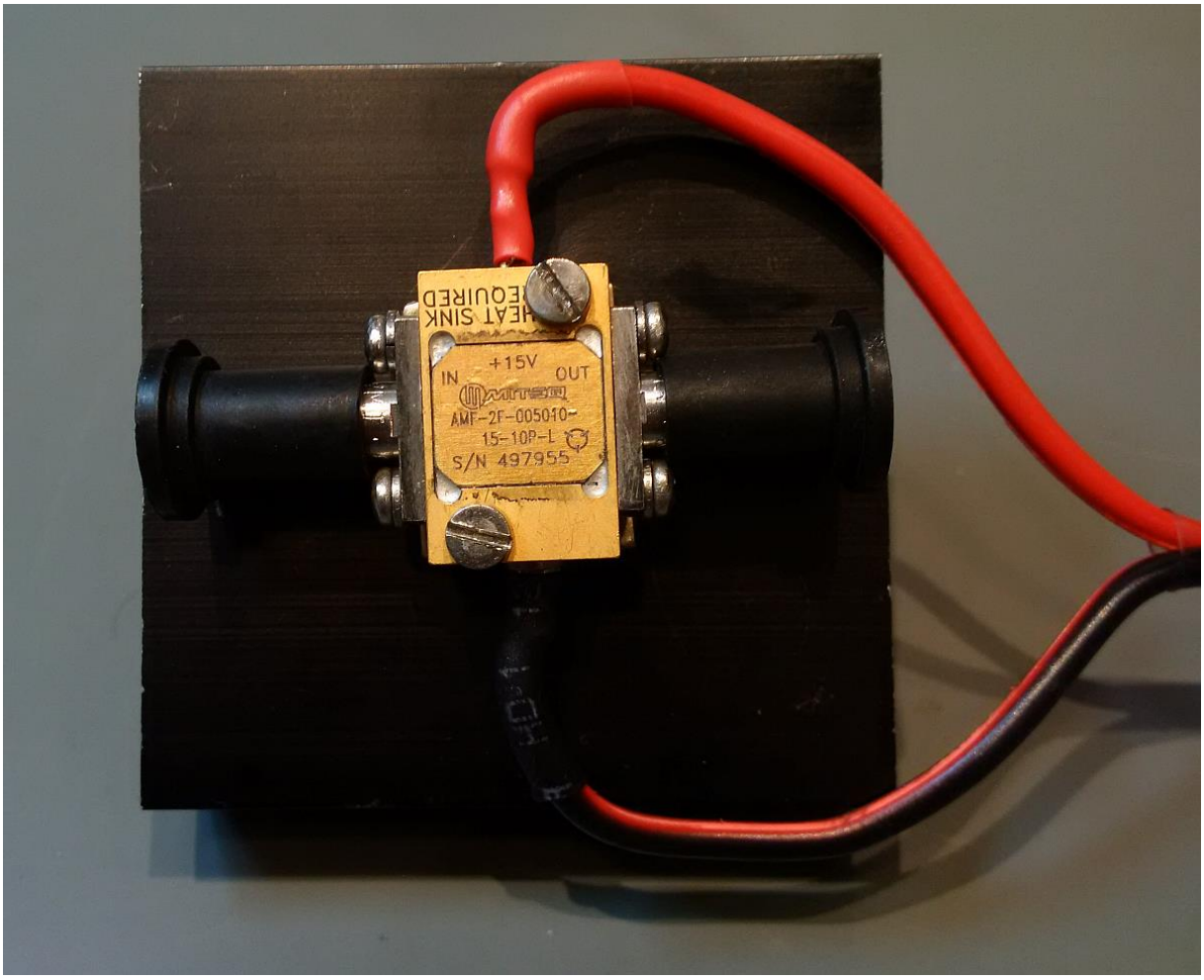
Recently I got hold of an unused broadband amplifier from MITEQ. The part number printed on the device is AMF-2F-005010-15-10P-L.

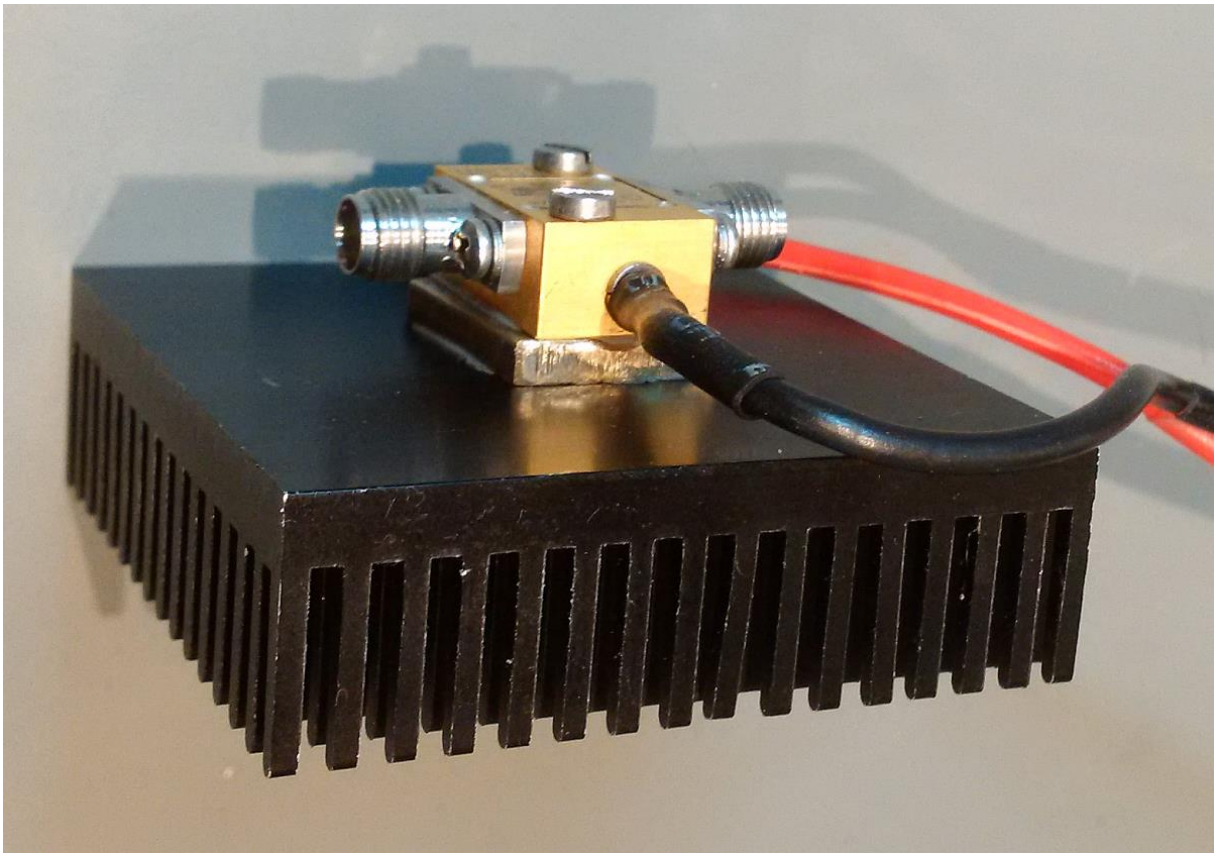
I did not find specifications for this type but only for a similar device: AMF-2F-00500200-15-10P

Frequency range: 0.5-2 GHz
Gain: 30 dB
Gain flatness: 2 dB
Noise figure: 1.5 dB
Output power (min.) 10 dBm
VSWR in/out (max.) 2:1
DC power I=150 mA (max.)

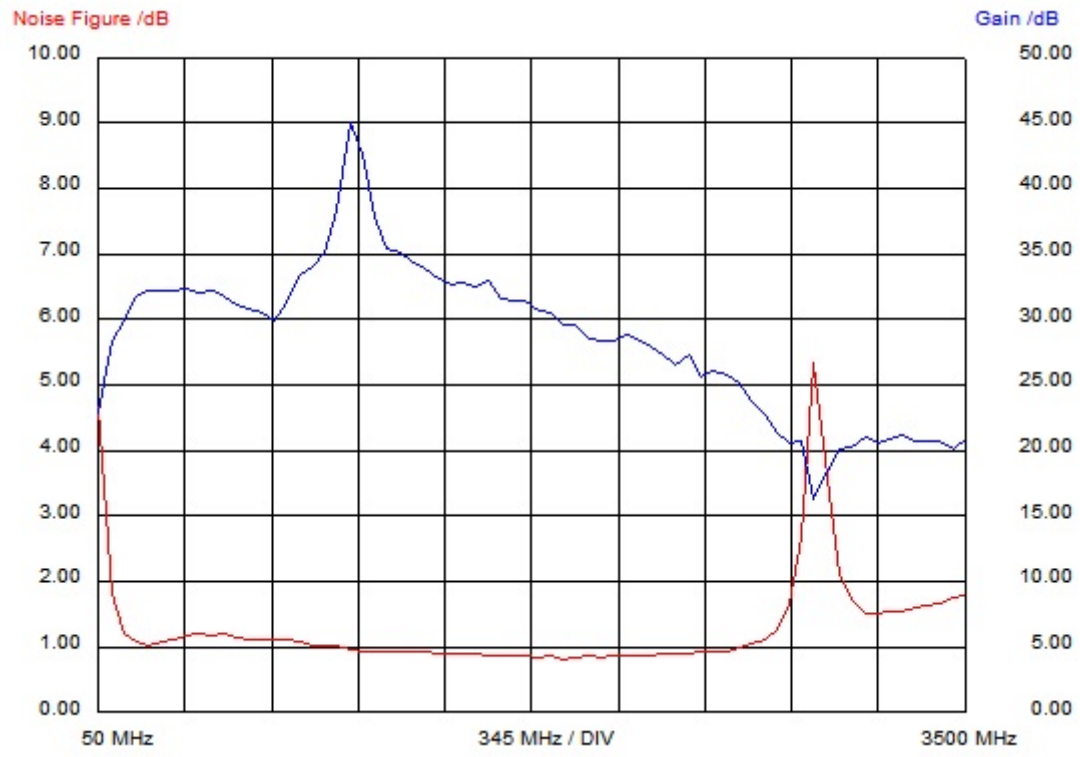
When powering on the unit I got I measured the following DC parameters:
Vs=12V Is=68mA
Vs=15V Is=78mA
Thus, the current consumption is only about half of the AMF-2F-00500200-15-10P.

I mounted the device I got on a small heatsink. The size of the heatsink turned out to be fully sufficient. Probably half the size would have been ok too. Here are some pictures of my unit:





First, I measured gain and noise figure in the frequency range 50MHz to 3500 MHz:



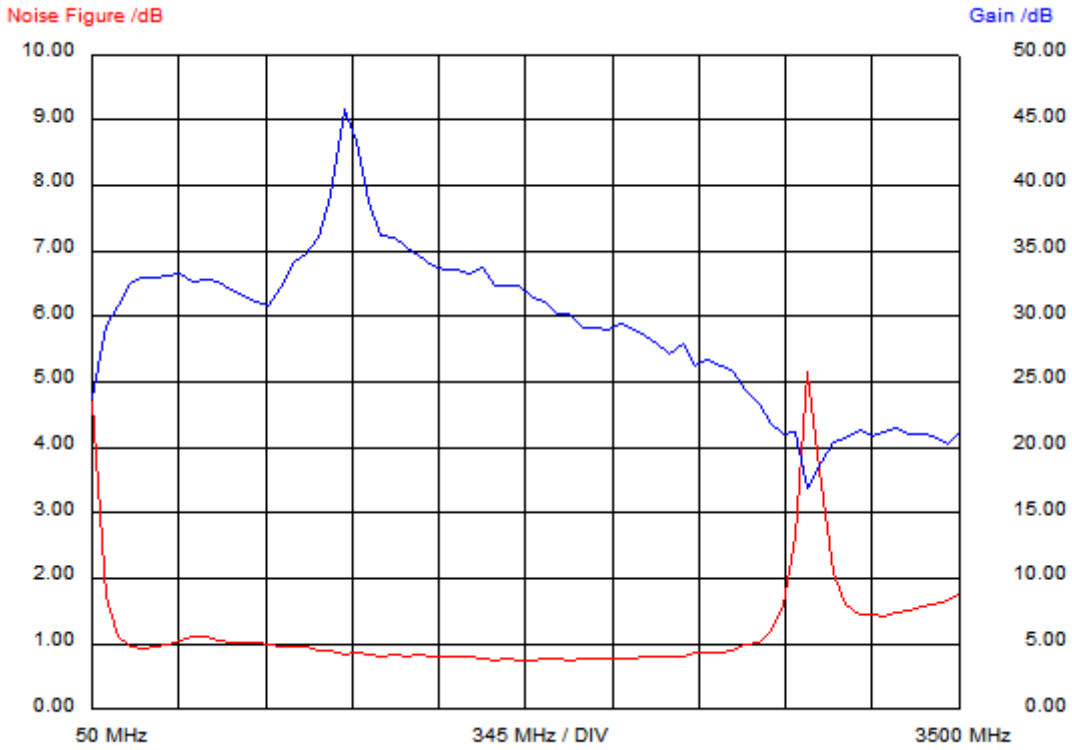
The frequency response of the gain of this amplifier is not really flat. It is around 32dB ±2.5dB in the frequency range 150 MHz to 2000 MHz with a strong increase up to 45dB in the range between 950 MHz and 1250MHz. In the frequency range around 2.9 GHz the gain drops down to about 16dB and noise figure rises to more than 5dB.

However, the noise figure is between 0.8dB and 1.2dB in the frequency range from 150MHz up to 2700 MHz. This amplifier is actually still useful in S-band e.g. in the ham radio bands from 2.3-2.4 GHz and even 3.4-3.475 GHz.

In my opinion this amplifier is rather useful as a multiband LNA than a broadband LNA. Here is a table of gain and noise figure in the respective ham radio bands:

Band	Frequency /MHz	Gain /dB	Noise Figure /dB
2m	144-146	29.9	1.2
70cm	430-440	32.0	1.2
23cm	1240-1300	34.5	0.9
13cm	2300-2400	27.2	0.9
9cm	3400-3475	20.4	1.7

I also I checked the frequency response at a supply voltage of 15V.



The graph for gain and noise figure are almost the same with gain being about 1dB higher at frequencies below 2 GHz and the noise figure being about 0.1dB better. Here are the respective values:

Band	Frequency /MHz	Gain /dB	Noise Figure /dB
2m	144-146	30.8	1.1
70cm	430-440	32.7	1.1
23cm	1240-1300	35.8	0.8
13cm	2300-2400	27.8	0.8
9cm	3400-3475	20.8	1.7

I am always grateful to get feedback and will be happy to answer questions.

Please direct them to the Email address which you will find below.

Best regards

Matthias DD1US

Email: DD1US@AMSAT.ORG Homepage: http://www.dd1us.de