

Broadband 5-6000MHz Chinese amplifier module

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Hello,

Some time ago a friend sent me a Chinese broadband amplifier and asked me to measure its gain and noise figure. These types of amplifiers can be found frequently on Ebay for less than 7 Euros including shipping to Germany. The following specifications are given by the seller:

Frequency range	f=5...6000MHz
Gain	Gp=20dB
Compression Point	P1dB=+21dBm
Supply voltage	Vs=+5V
Supply current	Is=85mA

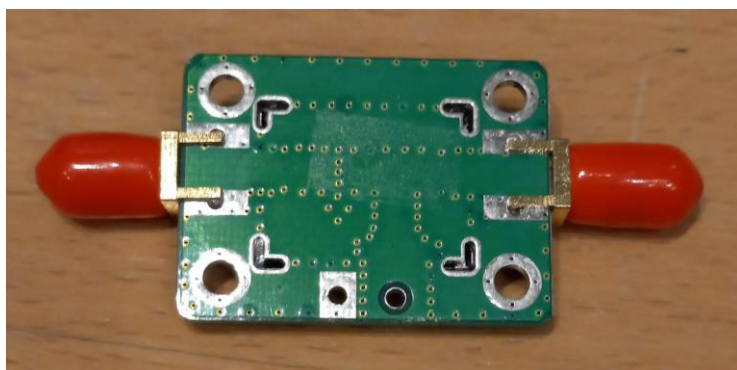
Here are some pictures of the device.



The amplifier came properly packed in an ESD-protection bag.

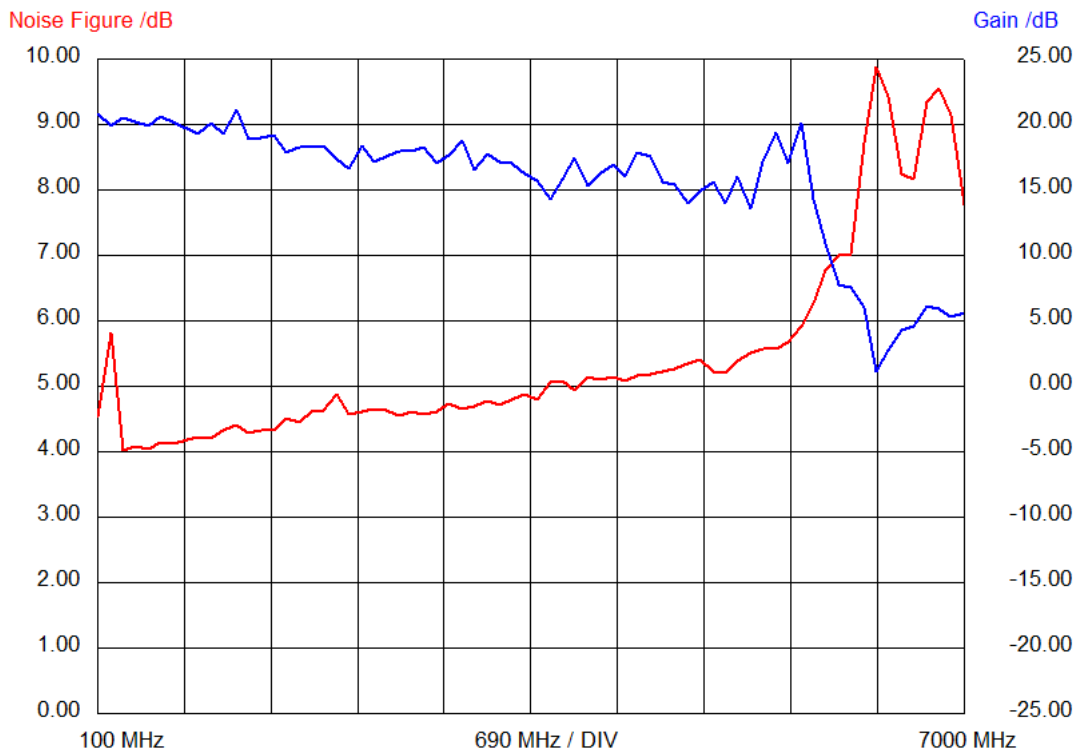


The circuitry is shielded under a tin-plated box soldered to the PCB. Input and output jacks are SMA-type.



The dimensions of the amplifier module are 52mm x 25mm x 5mm.

I measured the gain and noise figure in the frequency range 100MHz to 7000MHz.



As can be seen the amplifier has a maximum gain of about 20 dB at 100MHz decreasing to about 14dB at 5300MHz and then peaking to about 20dB at about 5700MHz. Above 5700MHz the gain quickly rolls of to less than 8dB at 6000MHz.

The noise figure at 300MHz is about 4.0dB and increases to about 5.5dB at 5300MHz. I suspect the higher noise figures measured below 300MHz are due to measurement errors possibly by external signals. Above 5300MHz the noise figure increases to about 7dB at 6000MHz and then further increases up to 10dB at 6300MHz.

Based on the measurement results I guess that this amplifier may use a Qorvo SBB5089Z MMIC device but I am not sure as I did not desolder the lid from the module.

I always appreciate feedback. Please send it to the Email address below.

Best regards

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