LNA MKU-342A from KUHNE electronic

Rev 1.0
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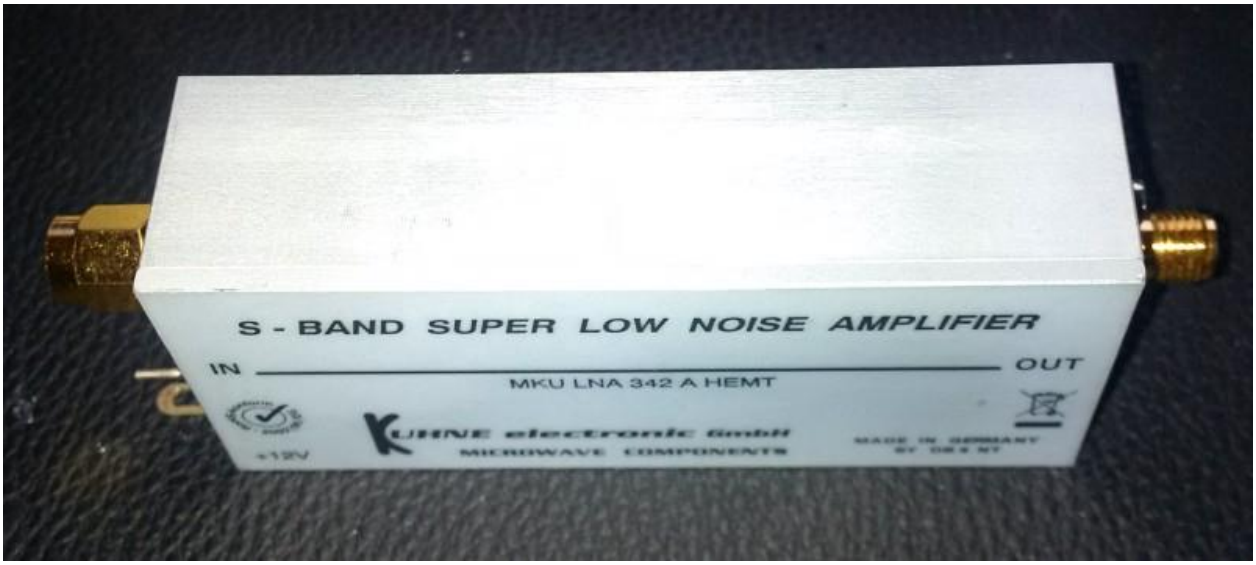
Hello,

as I intend to eventually get QRV in EME also on the 9cm band, I recently took the chance and acquired second hand a low noise amplifier for the 9cm ham radio band. It is an LNA from KUHNE electronic GmbH, the part number is MKU-342A.

The amplifier is house in a nice milled aluminium encasing with a SMA-plug for the RF-input and a SMA-jack for the RF-output. The DC power is supplied via a feed through capacitor.

Here are some pictures of the amplifier:

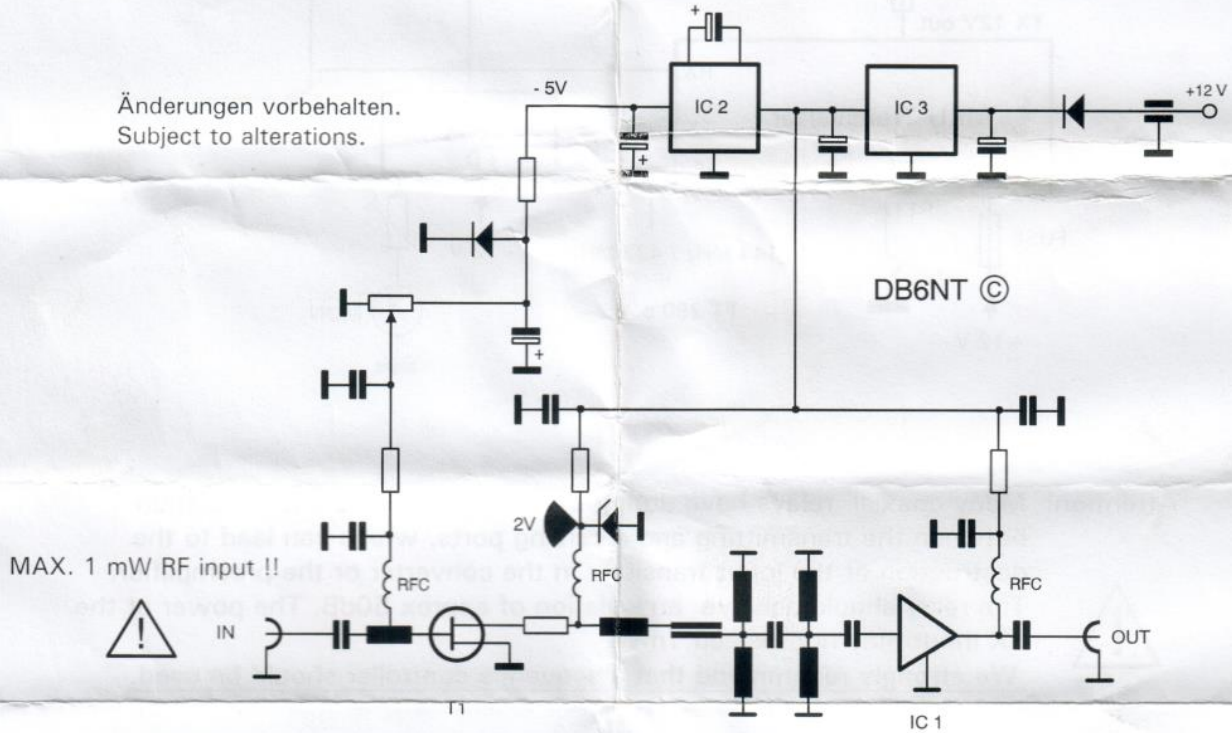


Together with the amplifier I received the following datasheet:

S - BAND SUPER-LOW-NOISE AMPLIFIER MKU LNA 342 A/B HEMT

Product information

Änderungen vorbehalten.
Subject to alterations.



Test certificate

Adjustment and measurement frequency: 3400 MHz

Noise Figure NF: 0,7 dB at 18°C. Gain: 28,8 dB

Operating voltage: +9...15V DC. Current approx.: 95mA

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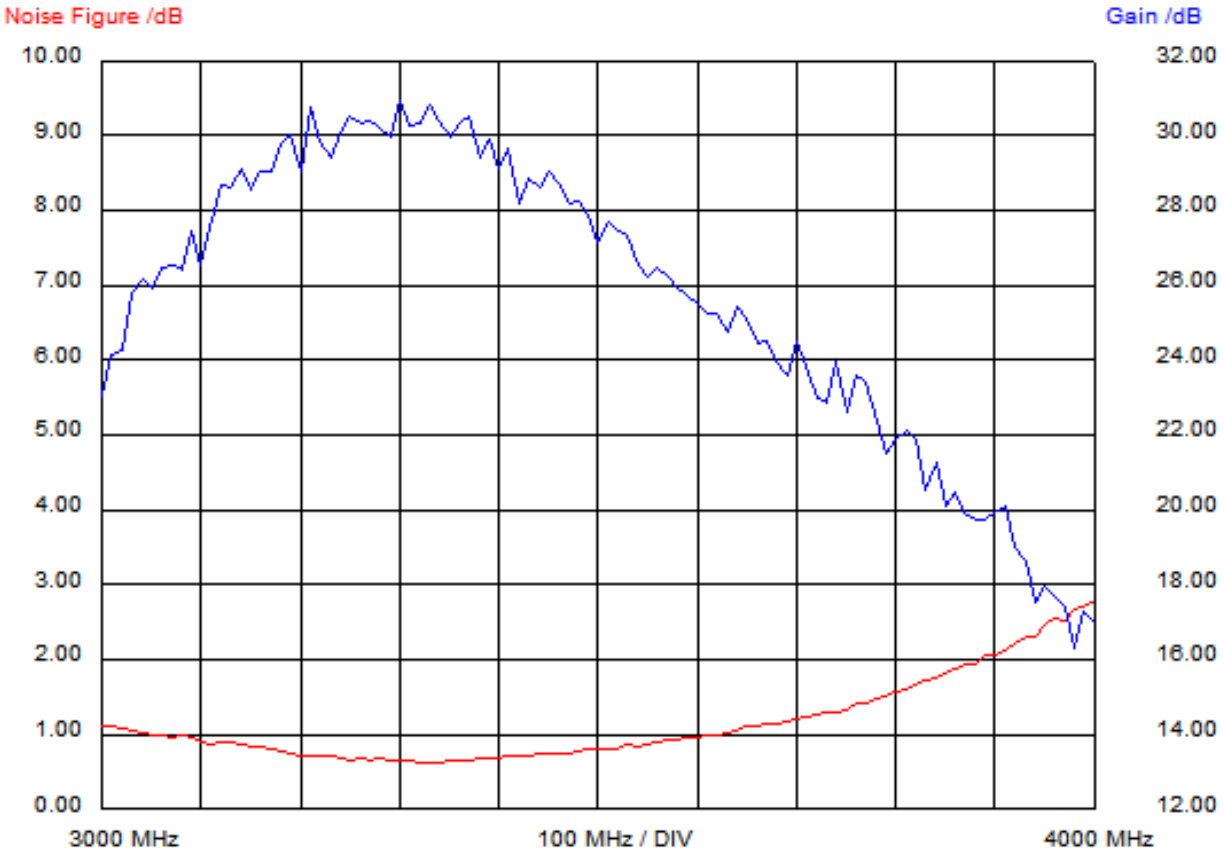
As I was curious to know, how broadband this amplifier is, I measured gain and noise figure in the frequency range 3000 MHz to 4000 MHz. All measurements were done with a supply voltage of 12.0V and a measured supply current of 95mA.



The amplifier shows a broad optimum. The minimum noise figure of 0.65dB is achieved around 3300 Mhz with an associated gain of 31dB. Below please find a table with the measured data:

Frequency	Gain	NF	Temp	Frequency	Gain	NF	Temp
3000 MHz	23.07 dB	1.12 dB	85.3 K	3230 MHz	29.43 dB	0.70 dB	50.7 K
3010 MHz	24.14 dB	1.10 dB	83.9 K	3240 MHz	30.08 dB	0.69 dB	49.9 K
3020 MHz	24.26 dB	1.09 dB	82.7 K	3250 MHz	30.55 dB	0.66 dB	47.6 K
3030 MHz	25.82 dB	1.05 dB	79.6 K	3260 MHz	30.32 dB	0.67 dB	48.7 K
3040 MHz	26.16 dB	1.02 dB	76.8 K	3270 MHz	30.39 dB	0.66 dB	47.7 K
3050 MHz	25.95 dB	1.00 dB	75 K	3280 MHz	30.23 dB	0.66 dB	47.9 K
3060 MHz	26.45 dB	1.00 dB	74.8 K	3290 MHz	29.99 dB	0.65 dB	46.5 K
3070 MHz	26.56 dB	0.96 dB	71.9 K	3300 MHz	30.94 dB	0.64 dB	46.4 K
3080 MHz	26.42 dB	0.99 dB	73.9 K	3310 MHz	30.27 dB	0.65 dB	46.8 K
3090 MHz	27.47 dB	0.94 dB	70.4 K	3320 MHz	30.34 dB	0.63 dB	45.3 K
3100 MHz	26.56 dB	0.88 dB	65.5 K	3330 MHz	30.81 dB	0.63 dB	45.3 K
3110 MHz	27.78 dB	0.87 dB	64.5 K	3340 MHz	30.41 dB	0.63 dB	45.1 K
3120 MHz	28.66 dB	0.89 dB	65.8 K	3350 MHz	29.96 dB	0.66 dB	47.7 K
3130 MHz	28.62 dB	0.89 dB	66.2 K	3360 MHz	30.35 dB	0.64 dB	45.7 K
3140 MHz	29.10 dB	0.85 dB	63.1 K	3370 MHz	30.48 dB	0.64 dB	46.4 K
3150 MHz	28.58 dB	0.84 dB	61.7 K	3380 MHz	29.38 dB	0.67 dB	48.7 K
3160 MHz	29.06 dB	0.82 dB	60.2 K	3390 MHz	29.92 dB	0.69 dB	49.8 K
3170 MHz	29.06 dB	0.80 dB	59 K	3400 MHz	29.09 dB	0.67 dB	48.7 K
3180 MHz	29.78 dB	0.78 dB	57.4 K	3410 MHz	29.64 dB	0.71 dB	51.1 K
3190 MHz	30.01 dB	0.75 dB	54.4 K	3420 MHz	28.18 dB	0.70 dB	50.9 K
3200 MHz	29.06 dB	0.72 dB	52.2 K	3430 MHz	28.84 dB	0.71 dB	51.9 K
3210 MHz	30.78 dB	0.72 dB	52.6 K	3440 MHz	28.61 dB	0.74 dB	54 K
3220 MHz	29.83 dB	0.71 dB	51.7 K	3450 MHz	29.01 dB	0.73 dB	53.5 K

Frequency	Gain	NF	Temp
3460 MHz	28.73 dB	0.73 dB	53.4 K
3470 MHz	28.16 dB	0.73 dB	53 K
3480 MHz	28.23 dB	0.79 dB	57.8 K
3490 MHz	27.89 dB	0.79 dB	58.1 K
3500 MHz	27.14 dB	0.82 dB	60 K
3510 MHz	27.68 dB	0.79 dB	58.2 K
3520 MHz	27.43 dB	0.81 dB	59.6 K
3530 MHz	27.35 dB	0.85 dB	62.8 K
3540 MHz	26.54 dB	0.83 dB	61.3 K
3550 MHz	26.21 dB	0.87 dB	64.3 K
3560 MHz	26.45 dB	0.90 dB	66.6 K
3570 MHz	26.25 dB	0.93 dB	68.9 K
3580 MHz	25.94 dB	0.92 dB	68.4 K
3590 MHz	25.72 dB	0.96 dB	72 K
3600 MHz	25.51 dB	0.95 dB	70.7 K
3610 MHz	25.26 dB	0.99 dB	73.9 K
3620 MHz	25.22 dB	0.99 dB	74.1 K
3630 MHz	24.73 dB	1.02 dB	76.8 K
3640 MHz	25.44 dB	1.04 dB	78.9 K
3650 MHz	25.10 dB	1.09 dB	83 K
3660 MHz	24.46 dB	1.11 dB	84.3 K
3670 MHz	24.49 dB	1.14 dB	87.3 K
3680 MHz	23.94 dB	1.15 dB	88 K
3690 MHz	23.60 dB	1.17 dB	89.9 K
3700 MHz	24.49 dB	1.21 dB	92.8 K
3710 MHz	23.86 dB	1.25 dB	96.4 K
3720 MHz	23.00 dB	1.26 dB	97.6 K
3730 MHz	22.85 dB	1.30 dB	100.8 K

Frequency	Gain	NF	Temp
3740 MHz	23.94 dB	1.29 dB	100.7 K
3750 MHz	22.59 dB	1.32 dB	102.6 K
3760 MHz	23.56 dB	1.41 dB	111.4 K
3770 MHz	23.40 dB	1.43 dB	113.3 K
3780 MHz	22.39 dB	1.47 dB	116.8 K
3790 MHz	21.52 dB	1.52 dB	121.7 K
3800 MHz	21.86 dB	1.56 dB	125.4 K
3810 MHz	22.15 dB	1.59 dB	127.9 K
3820 MHz	21.85 dB	1.65 dB	133.8 K
3830 MHz	20.52 dB	1.72 dB	140.9 K
3840 MHz	21.27 dB	1.74 dB	142.8 K
3850 MHz	20.08 dB	1.80 dB	148.7 K
3860 MHz	20.44 dB	1.87 dB	156.2 K
3870 MHz	19.88 dB	1.95 dB	164 K
3880 MHz	19.71 dB	1.95 dB	164.1 K
3890 MHz	19.71 dB	2.06 dB	176 K
3900 MHz	19.93 dB	2.06 dB	175.9 K
3910 MHz	20.11 dB	2.10 dB	180.7 K
3920 MHz	19.01 dB	2.21 dB	192.2 K
3930 MHz	18.63 dB	2.29 dB	201.7 K
3940 MHz	17.52 dB	2.31 dB	204.1 K
3950 MHz	17.94 dB	2.46 dB	220.7 K
3960 MHz	17.72 dB	2.54 dB	230 K
3970 MHz	17.43 dB	2.52 dB	227.9 K
3980 MHz	16.28 dB	2.68 dB	247.9 K
3990 MHz	17.26 dB	2.72 dB	251.9 K
4000 MHz	16.95 dB	2.78 dB	260.6 K

In Germany the 9cm band is from 3400 to 3475 MHz with the EME activity around 3400.100 MHz. Here the specified noise figure of 0.7dB is exactly achieved with a gain of 29.1dB slightly higher than specified.

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

Best regards

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