

## 50kHz-20GHz Low Noise Amplifier



### Product Overview

AT-LNA-0020-2803X is high gain low noise amplifier with 28dB gain in the frequency of 50kHz-20GHz. The DC power requirement is +12V/160mA. The module is with SMA connector, which is compatible with 2.92mm.

The amplifier can also be used as for optical modulator driver due the to excellent low frequency performance down to 50kHz.

More information, please visit [www.atmicrowave.com](http://www.atmicrowave.com)

### Advantages

- ✓ Frequency: 50kHz-20GHz
- ✓ Small signal gain: 28dB
- ✓ NF=3dB
- ✓ Vout=4.48Vpp

### Application

- ✓ 5G Communication
- ✓ Test Equipment
- ✓ Optical Modulator Driver
- ✓ Radar System

### Key Features

Parameter	Min	Typical	Max
Frequency		50kHz-20GHz	
Gain	26	28 dB	
NF (0.1-20GHz)		3	5
Input Power		-20dBm	-10dBm
P1dB		+15dBm	
Psat		+16dBm	
Output Vpp		4.48Vpp	
Drain Supply	+8V	+12V	+13V
Current		160 mA	
Input Return Loss		-10dB	
Output Return Loss		-10dB	
Spec Temp		25C	





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## Mechanical Information

Item	Description
Input Port	SMA Female
Output Port	SMA Female
Case Material	Copper
Finish	Gold Plated
Weight	50g
Size:	See outline

## Absolute Maximum Ratings Table

Parameter	Value
Drain Supply	+16V
RF Input Power	+15 dBm
Input Vpp	3.56Vpp
Operating Temperature(note)	-20 to + 70C
Storage Temperature	-65 to +150C

Note: -40 to +85C is available according to request.

## Notes:

1. Datasheet may be changed according to update of MMIC, Raw materials , process, and so on.
2. This data is only for reference, not for guaranteed specifications.
3. Please contact AT Microwave team to make sure you have the most current data

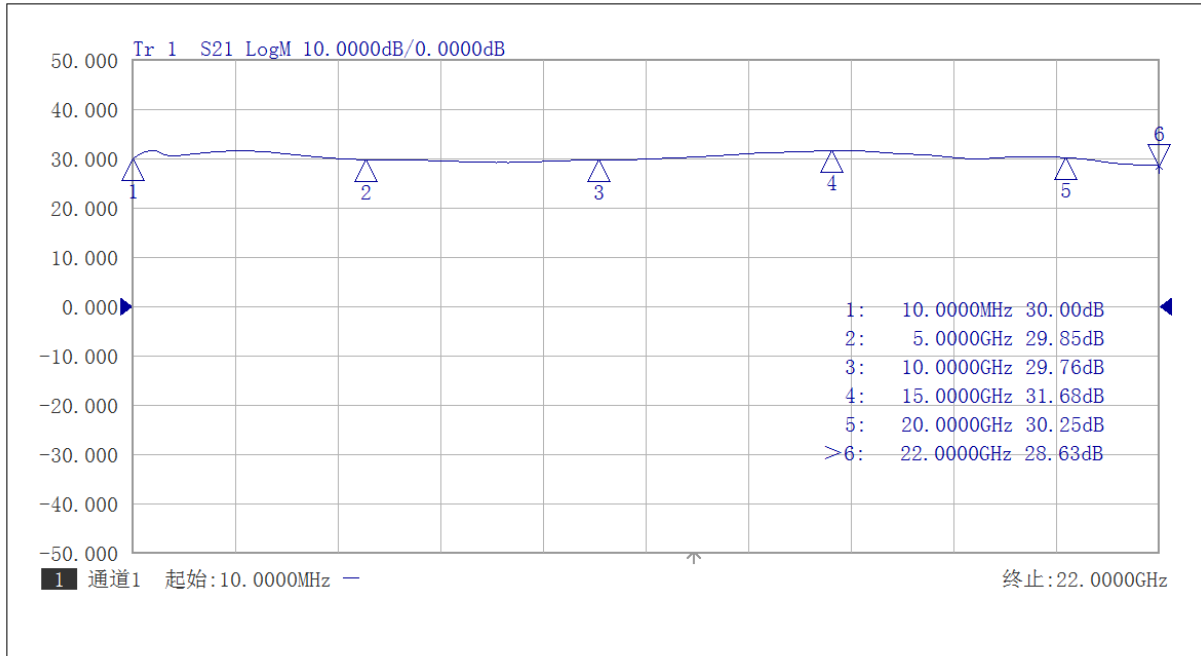
## Part Number Selection Guide

Item	Description
PN	Stand Module with DC Power Supply
<b>PN-LCBT</b>	<b>L</b> ow Cost, <b>C</b> ompact <b>B</b> ench- <b>T</b> op, +220V Supply with AC/DC Adapter

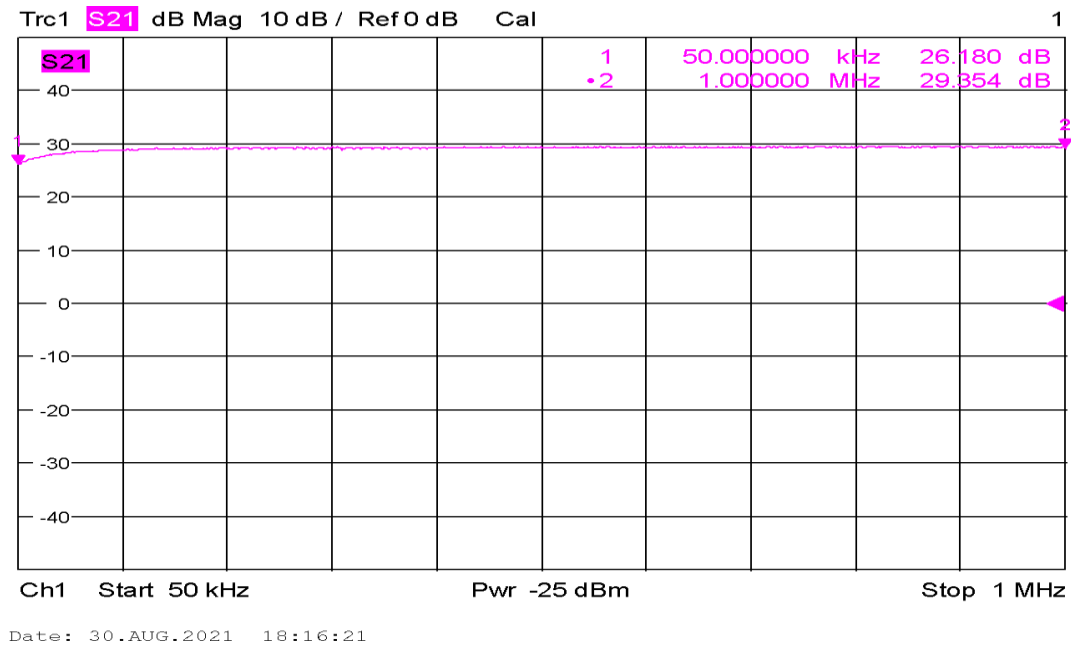


### Test Data (25C)

Please note that test curves will vary slightly from unit to unit.

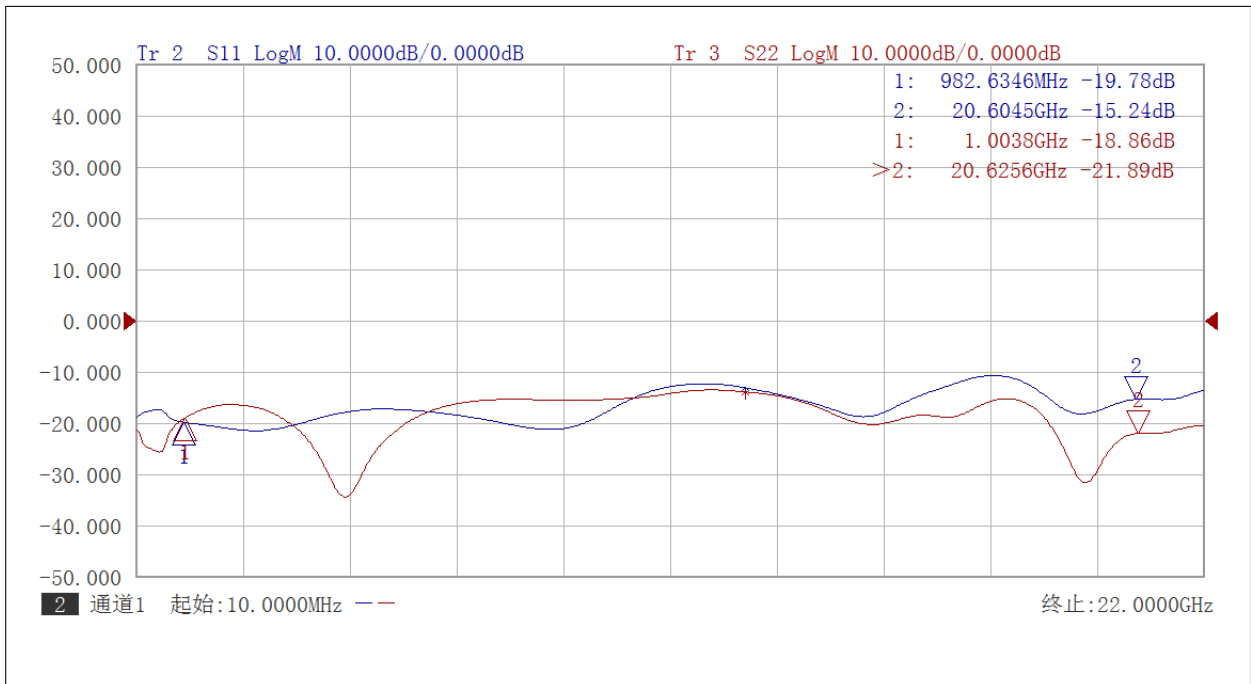


Gain vs Frequency 10MHz-20GHz

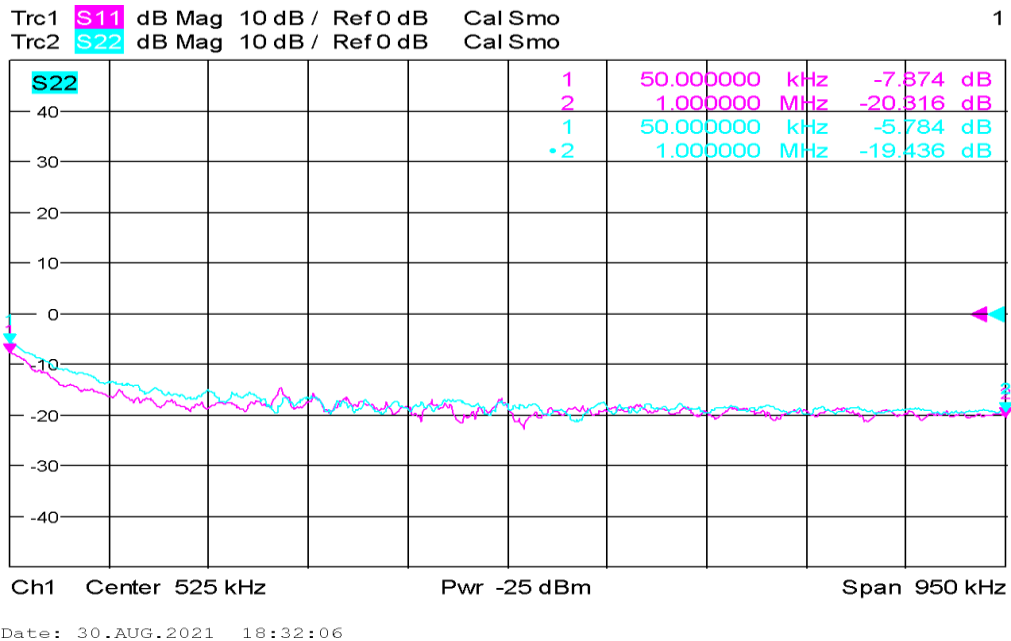


Gain vs Frequency 50kHz-1MH





Return Loss vs Frequency 10MHz-20GHz

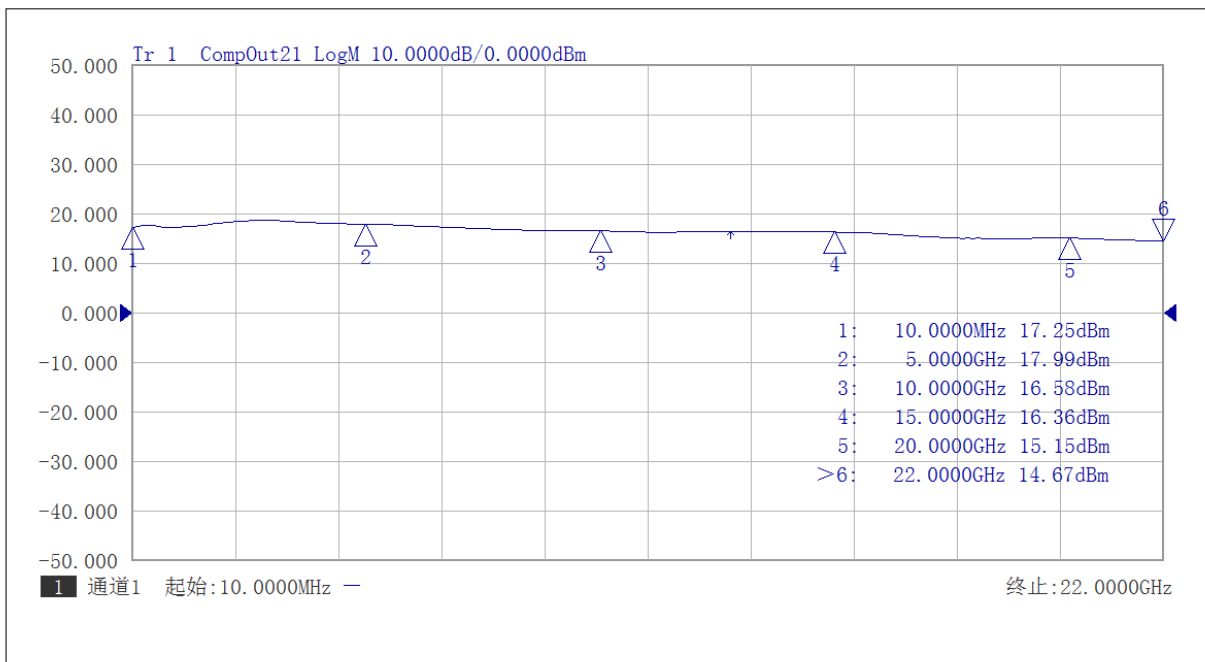


Return Loss vs Frequency 50kHz-1MHz



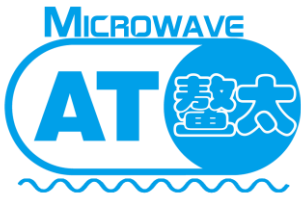


P1dB vs Frequency



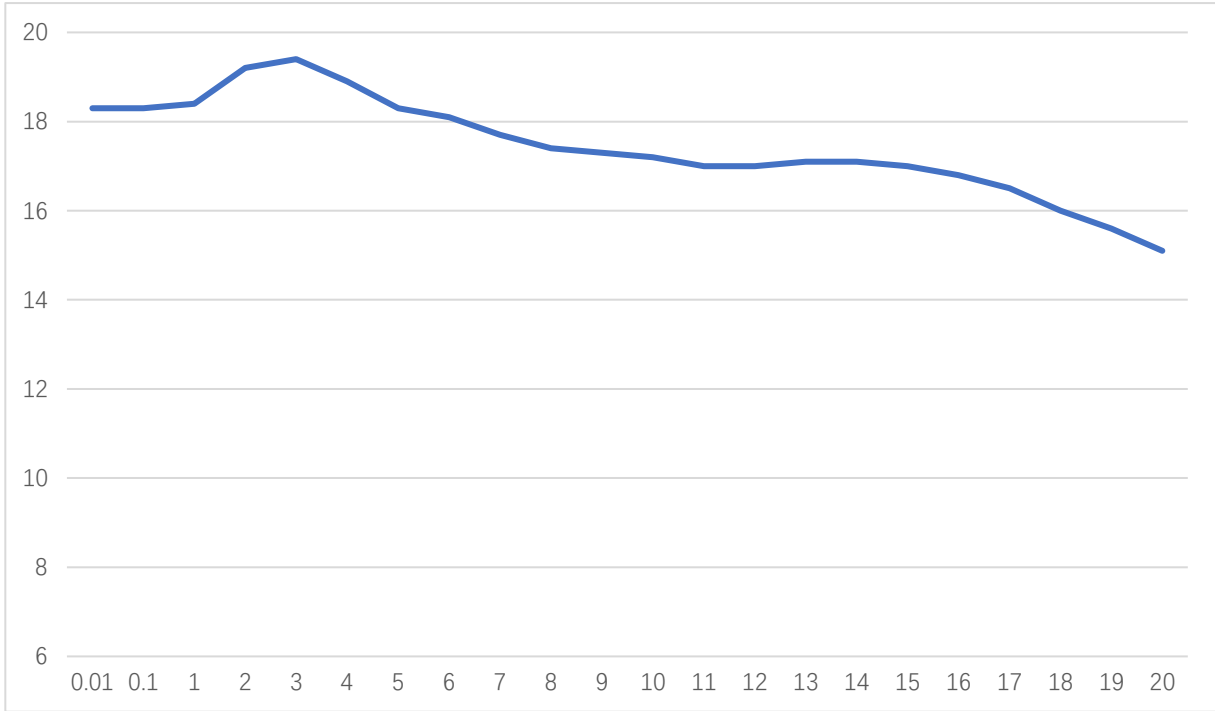
P3dB vs Frequency



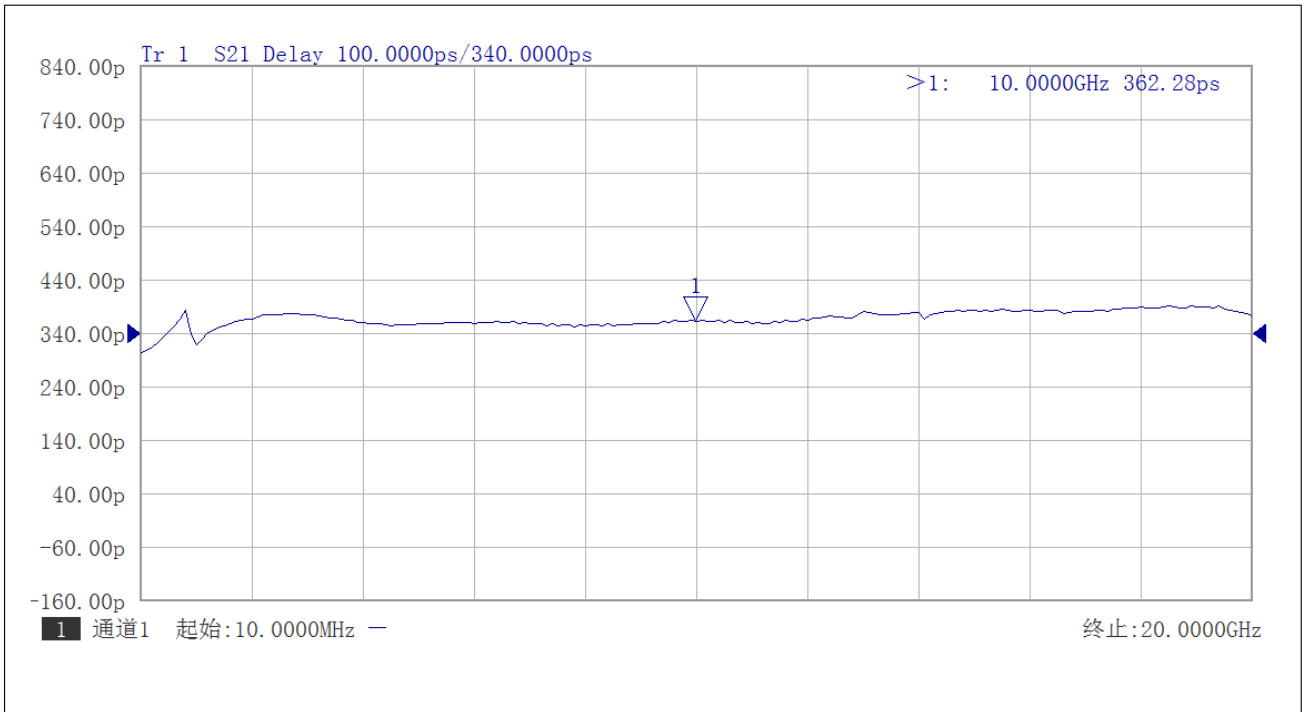


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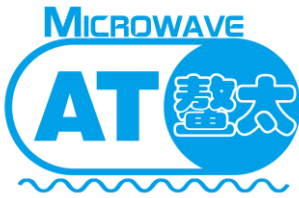


Psat vs Frequency at Pin=-5dBm from 10MHz-20GHz



Phase delay vs Frequency





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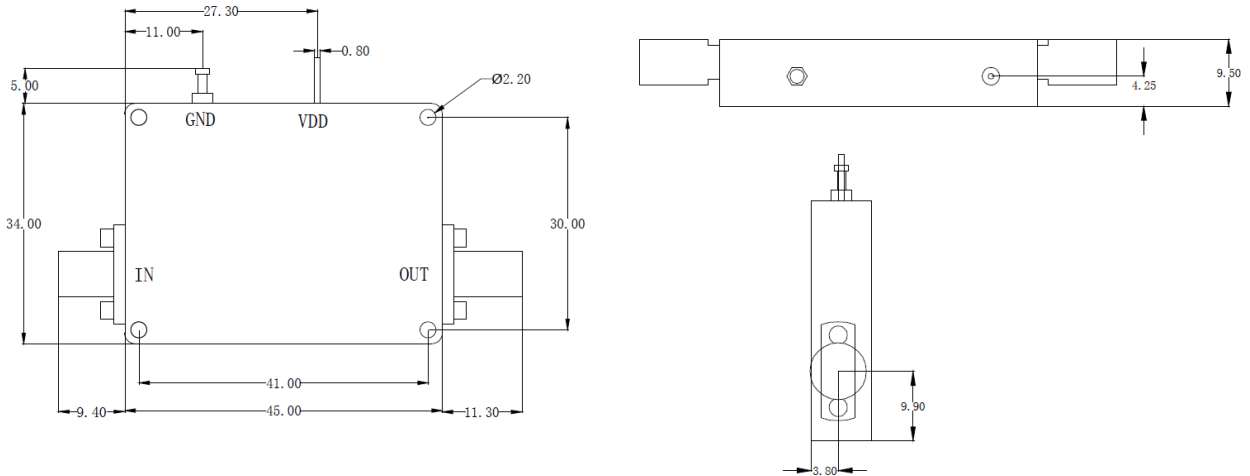
NF test vs Frequency 10MHz-1GHz



NF test vs Frequency 1-20GHz



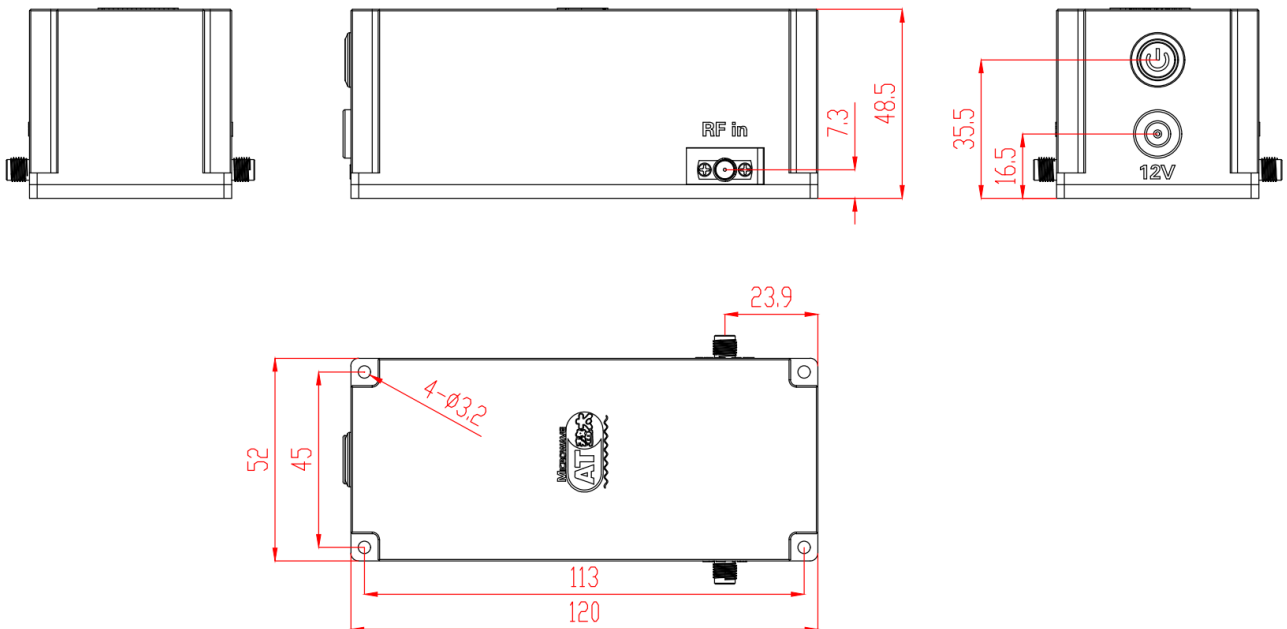
**Dimension:** (unit in mm)



	<26.5GHz	<40GHz	<50GHz	<67GHz
Connector	SMA	2.92mm	2.4mm	1.85mm
Length of a	9.4mm	9.5mm	10.8mm	11.3mm

Note: Female Default. Contact with us for other types.

Standard module outline, Heat sink required if case temp exceeds 50C



PN-LCBT Outline







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## Vpp vs dBm at 50 Ohms System

dBm	Vpp	Vrms	Power ( W )	dBm	Vpp	Vrms	Power ( W )
50	200.00	70.71	100.00	14	3.17	1.12	2.51E-02
49	178.25	63.02	79.43	13	2.83	1.00	2.00E-02
48	158.87	56.17	63.10	12	2.52	0.89	1.58E-02
47	141.59	50.06	50.12	11	2.24	0.79	1.26E-02
46	126.19	44.62	39.81	10	2.00	0.71	1.00E-02
45	112.47	39.76	31.62	9	1.78	0.63	7.94E-03
44	100.24	35.44	25.12	8	1.59	0.56	6.31E-03
43	89.34	31.59	19.95	7	1.42	0.50	5.01E-03
42	79.62	28.15	15.85	6	1.26	0.45	3.98E-03
41	70.96	25.09	12.59	5	1.12	0.40	3.16E-03
40	63.25	22.36	10.00	4	1.00	0.35	2.51E-03
39	56.37	19.93	7.94	3	0.89	0.32	2.00E-03
38	50.24	17.76	6.31	2	0.80	0.28	1.58E-03
37	44.77	15.83	5.01	1	0.71	0.25	1.26E-03
36	39.91	14.11	3.98	0	0.63	0.22	1.00E-03
35	35.57	12.57	3.16	-1	0.56	0.20	7.94E-04
34	31.70	11.21	2.51	-2	0.50	0.18	6.31E-04
33	28.25	9.99	2.00	-3	0.45	0.16	5.01E-04
32	25.18	8.90	1.58	-4	0.40	0.14	3.98E-04
31	22.44	7.93	1.26	-5	0.36	0.13	3.16E-04
30	20.00	7.07	1.00	-6	0.32	0.11	2.51E-04
29	17.83	6.30	0.79	-7	0.28	9.99E-02	2.00E-04
28	15.89	5.62	0.63	-8	0.25	8.90E-02	1.58E-04
27	14.16	5.01	0.50	-9	0.22	7.93E-02	1.26E-04
26	12.62	4.46	0.40	-10	0.20	7.07E-02	1.00E-04
25	11.25	3.98	0.32	-11	0.18	6.30E-02	7.94E-05
24	10.02	3.54	0.25	-12	0.16	5.62E-02	6.31E-05
23	8.93	3.16	0.20	-13	0.14	5.01E-02	5.01E-05
22	7.96	2.82	0.16	-14	0.13	4.46E-02	3.98E-05
21	7.10	2.51	0.13	-15	0.11	3.98E-02	3.16E-05
20	6.32	2.24	0.10	-16	0.10	3.54E-02	2.51E-05
19	5.64	1.99	7.94E-02	-17	8.93E-02	3.16E-02	2.00E-05
18	5.02	1.78	6.31E-02	-18	7.96E-02	2.82E-02	1.58E-05
17	4.48	1.58	5.01E-02	-19	7.10E-02	2.51E-02	1.26E-05
16	3.99	1.41	3.98E-02	-20	6.32E-02	2.24E-02	1.00E-05
15	3.56	1.26	3.16E-02	-21	5.64E-02	1.99E-02	7.94E-06

