



AT-BBLF-0060-1815C

50kHz-60GHz Broadband Amplifier

50kHz-60GHz Optical Modulator Driver

2021-5-30



Product Overview

AT-BBLF-0060-1815C is broadband amplifier from 50kHz-60GHz, with $P_{out}=+15dBm$, $NF=6dB$. It can be used both as Power amplifier or low noise amplifier. The DC power requirement is $+8V/220mA$. The module is with 1.85mm Female Input port and Male output port.

The broadband amplifier has high gain, high linearity, low input/output return loss and flat gain response. It can be used as drive for optical modulator application.

More information, please visit www.atmicrowave.com

Advantages

- ✓ Frequency: 50kHz-60GHz
- ✓ $P_{sat}=+15dBm$
- ✓ Small signal gain: 18dB
- ✓ Single Power Supply

Application

- ✓ Optical Modulator Driver
- ✓ 5G Communication
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)

Mechanical Information

Item	Description
Input Port	1.85mm Female
Output Port	1.85mm Male
Case Material	Copper
Finish	Gold Plated
Package Sealing	Epoxy Sealed
Weight (Without Heatsink)	80g
Size:	100x30x9.5mm





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Key Features

Parameter	Min	Typical	Max
Lower Frequency (3dB Point)		50kHz	
Upper Frequency (3dB Point)		60GHz	
Small Signal Gain		18dB	
P1dB		50kHz-50GHz: +15dBm, 3.56Vpp 50GHz-60GHz: +12dBm, 2.52Vpp	
Psat		50kHz-50GHz: +17dBm, 4.48Vpp 50GHz-60GHz: +13dBm, 2.83Vpp	
Drain Supply		+8V	+12V
Current		220 mA	
NF		6dB	
Input Return Loss		-10dB	
Output Return Loss		-5dB	
Spec Temp		25C	

Absolute Maximum Ratings Table

Parameter	Value
Drain Supply	+13V
RF Input Power	+4 dBm
Input Voltage	1Vpp
Operating Temperature	-20 to +70C
Storage Temperature	-65 to +125C

Caution:

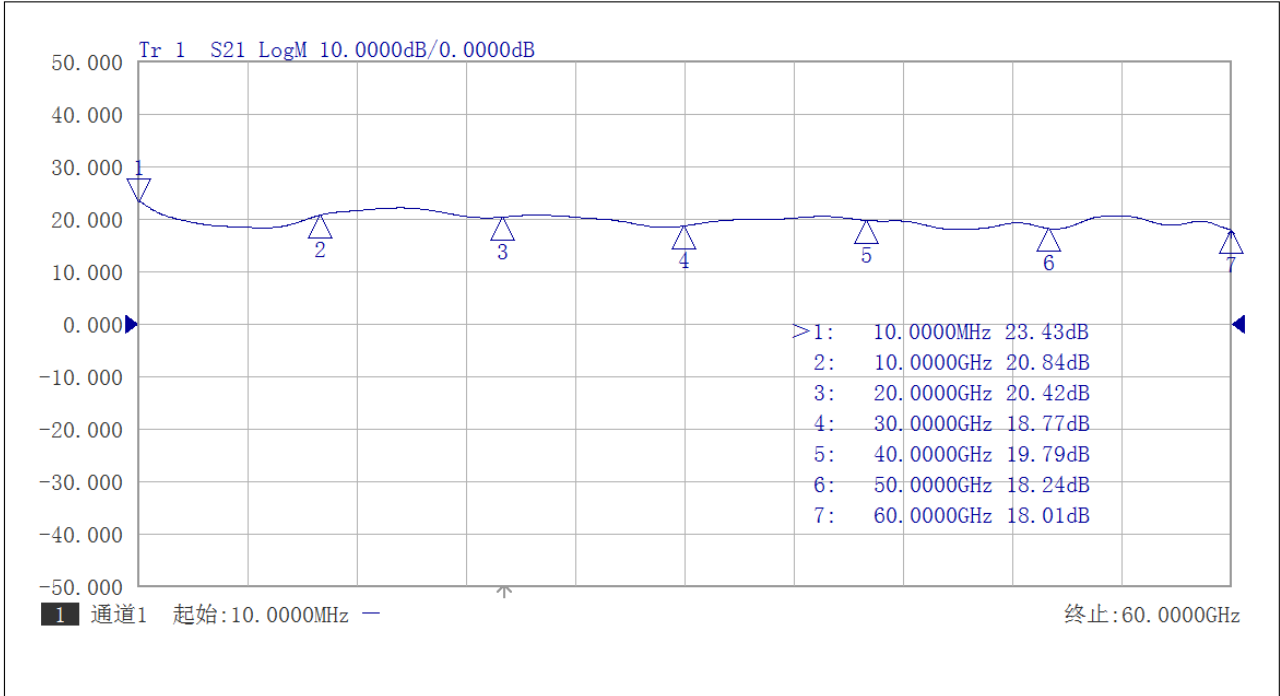
Please pay attention to the case temperature. If case temperature exceed higher than +100C, heat sink and fan are required, or the amplifier may be damaged.

Notes:

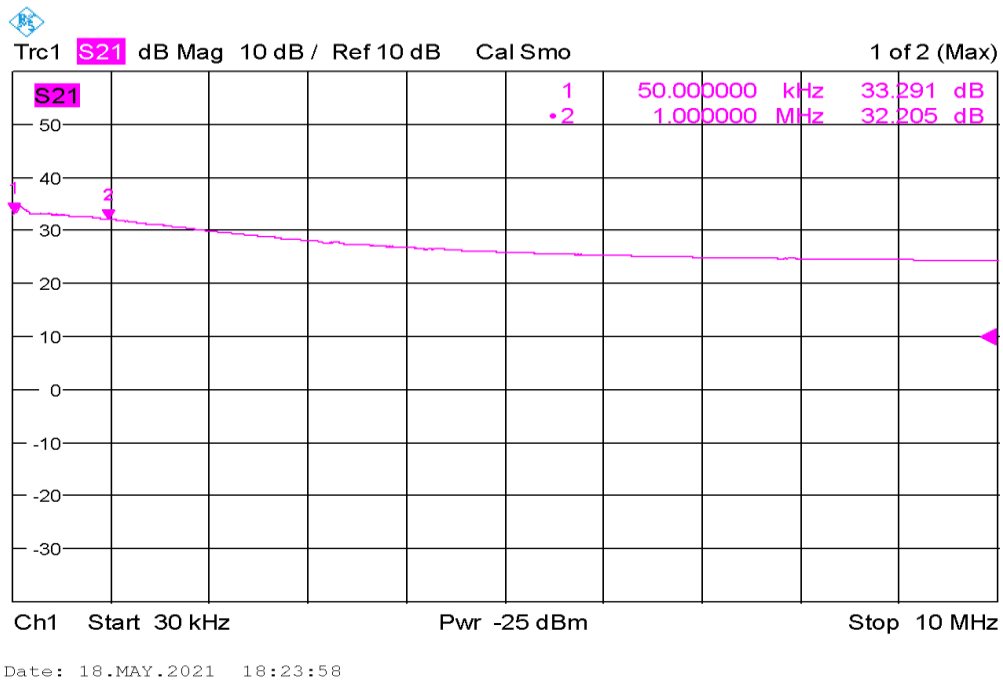
1. Datasheet may be changed according to update of MMIC, Raw materials , process, and so on.
2. This data is only for reference, not for guaranteed specifications.
3. Please contact AT Microwave team to make sure you have the most current data.



Test Data

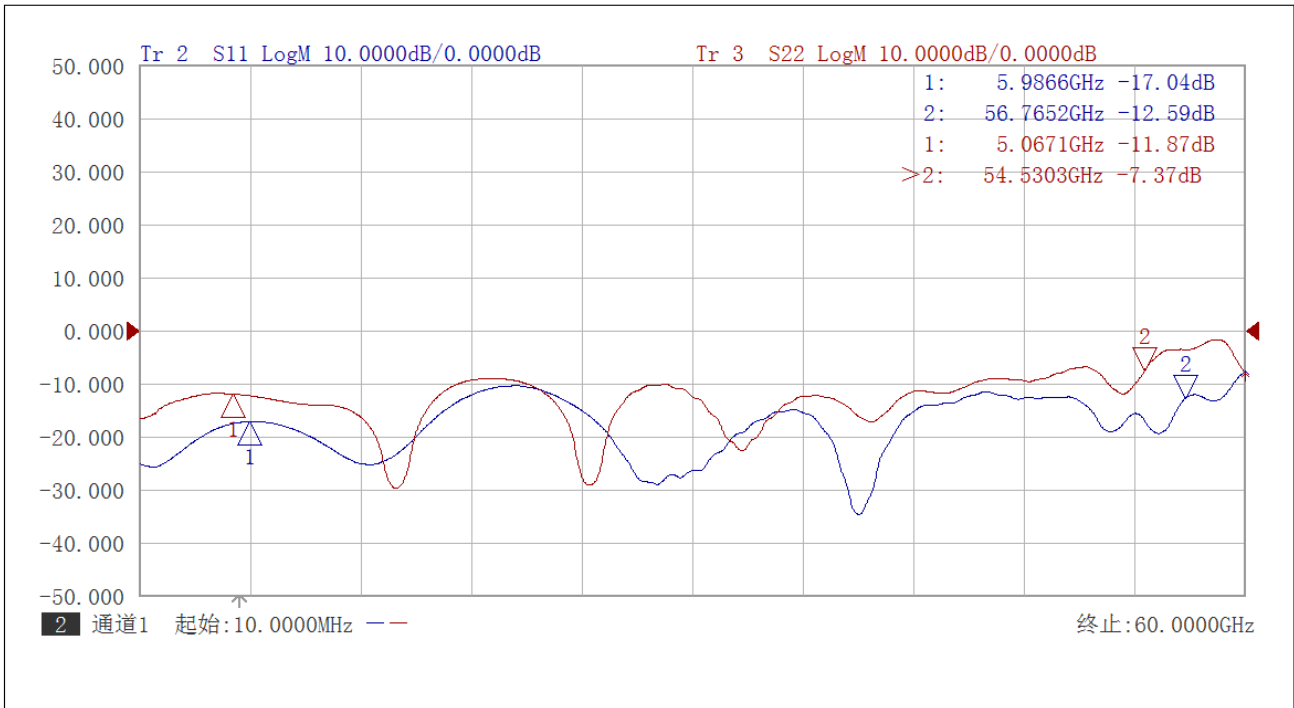


Gain vs Frequency 10MHz-60GHz

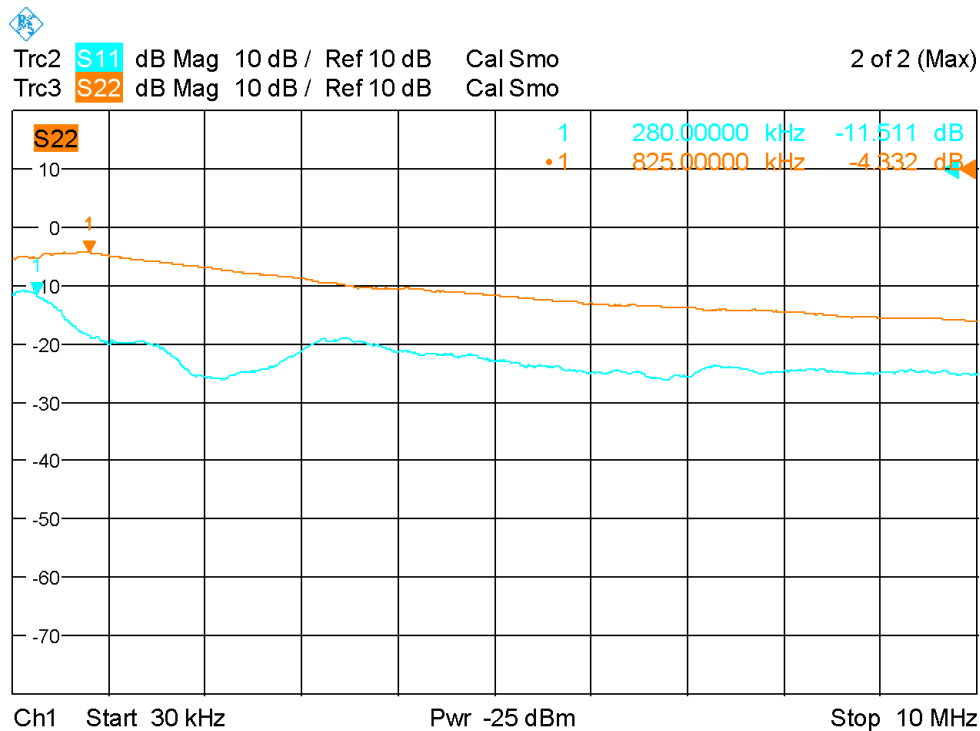


Gain vs Frequency 50kHz-10MHz





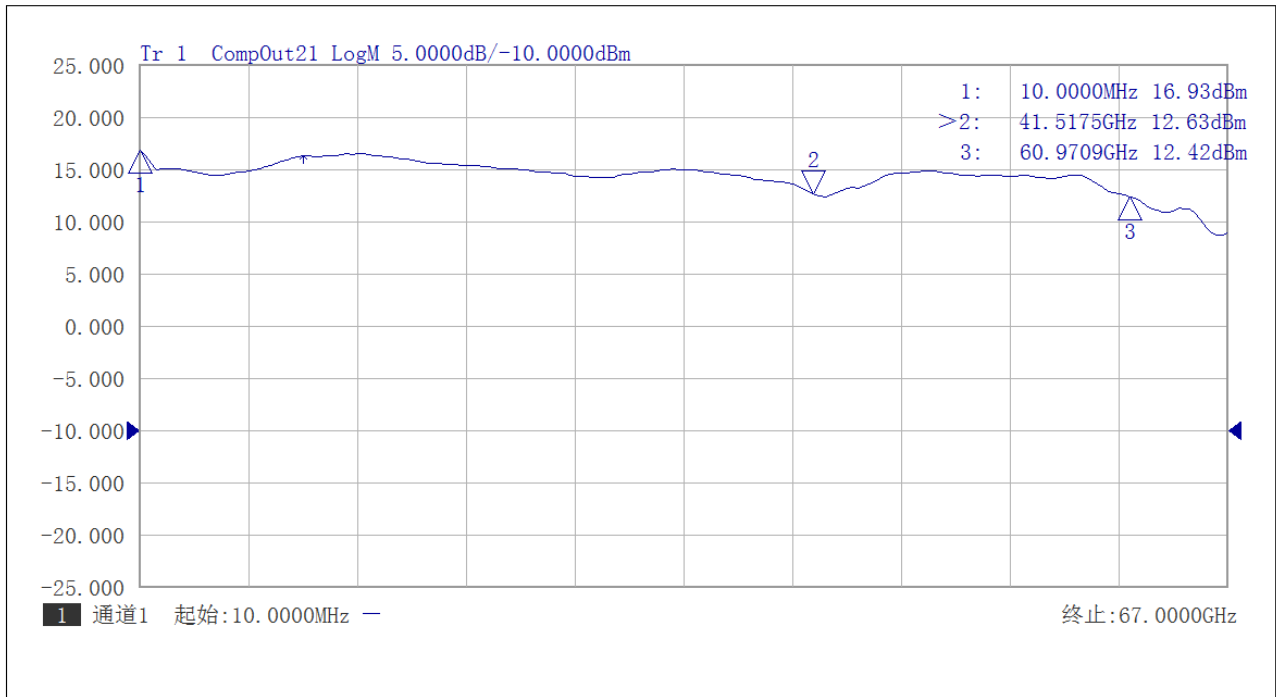
S11/S22 Return Loss vs Frequency 10MHz-60GHz



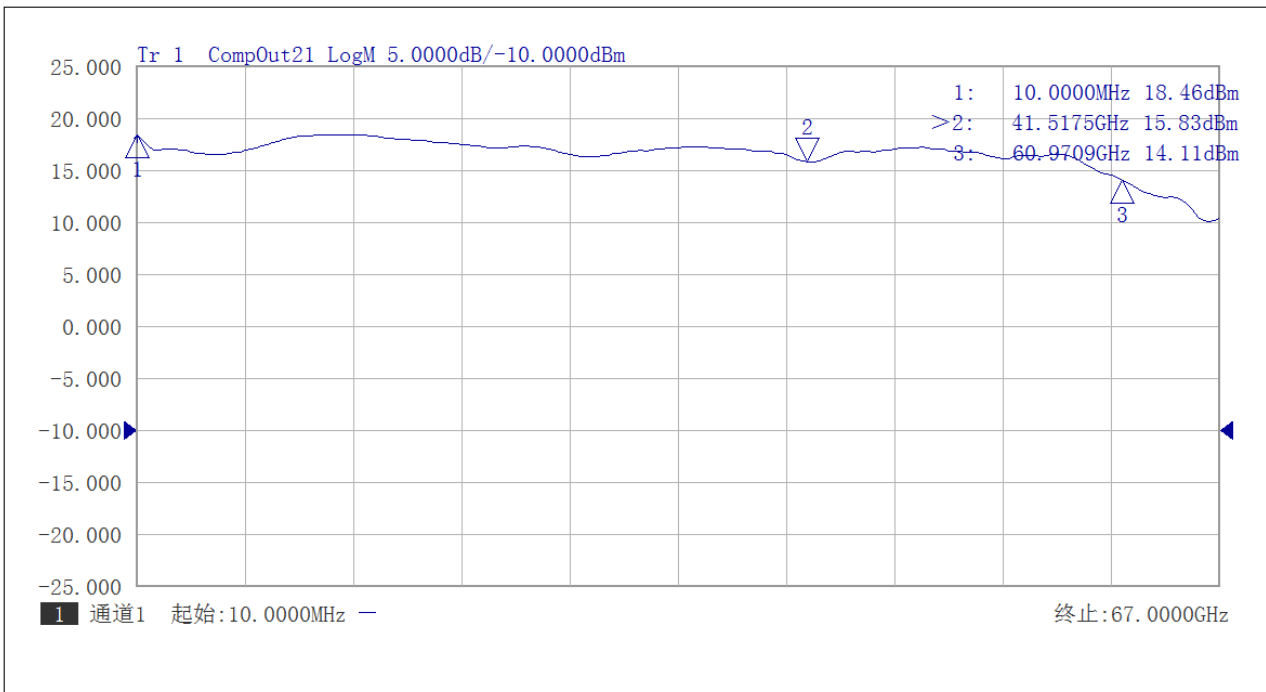
Date: 18.MAY.2021 18:24:28

S11/S22 Return Loss vs Frequency 50kHz-10MHz



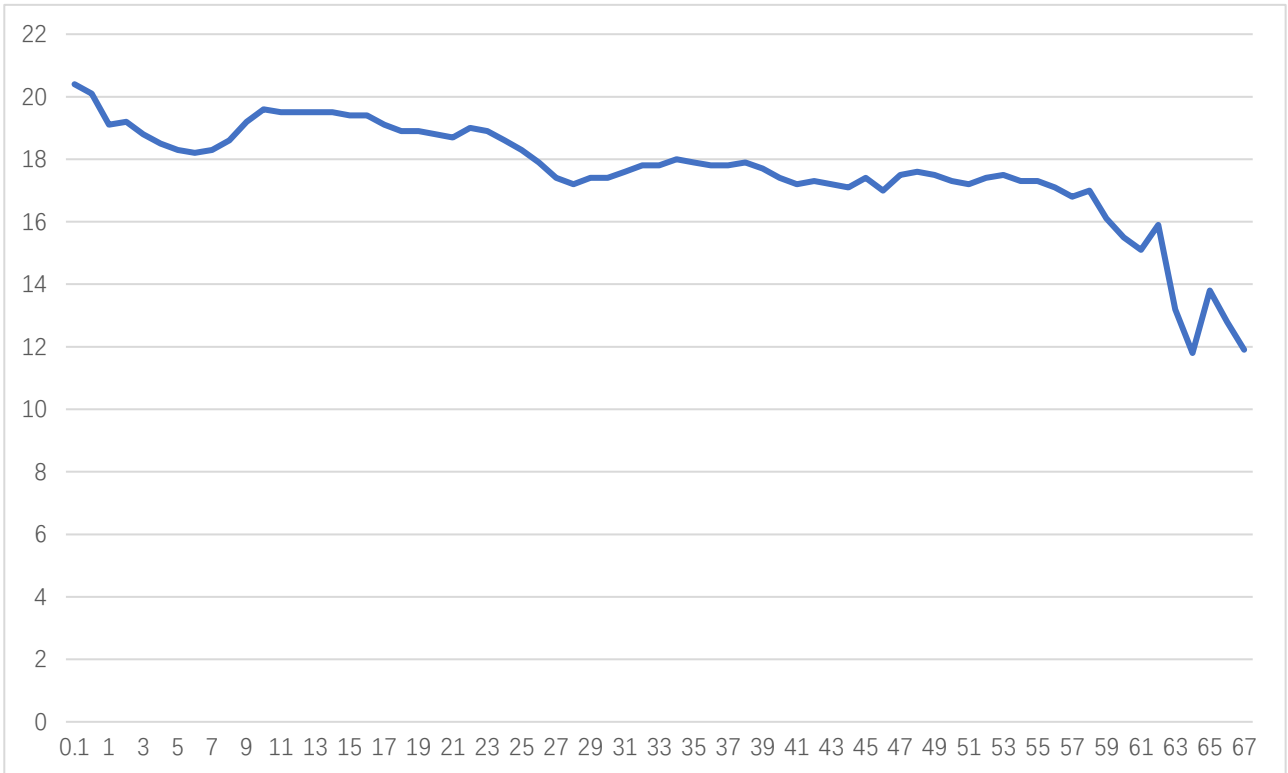


P1dB vs Frequency 10MHz-60GHz

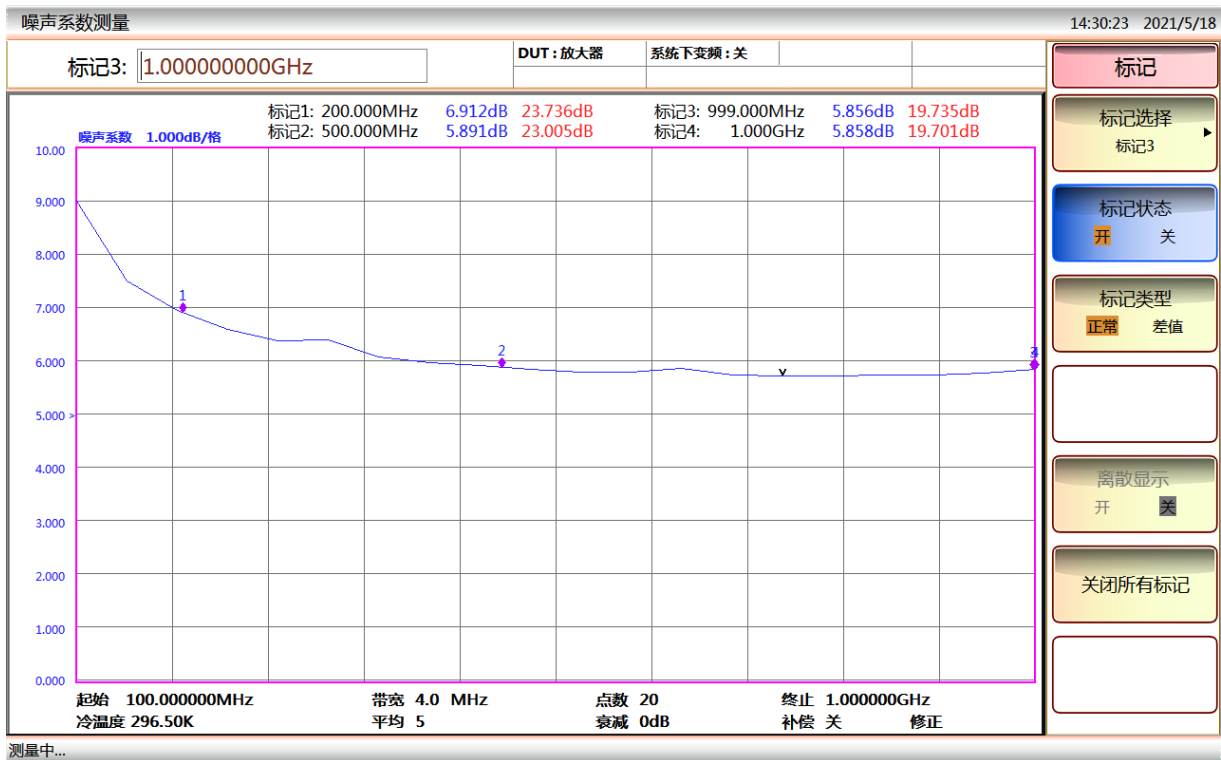


P3dB vs Frequency 10MHz-60GHz



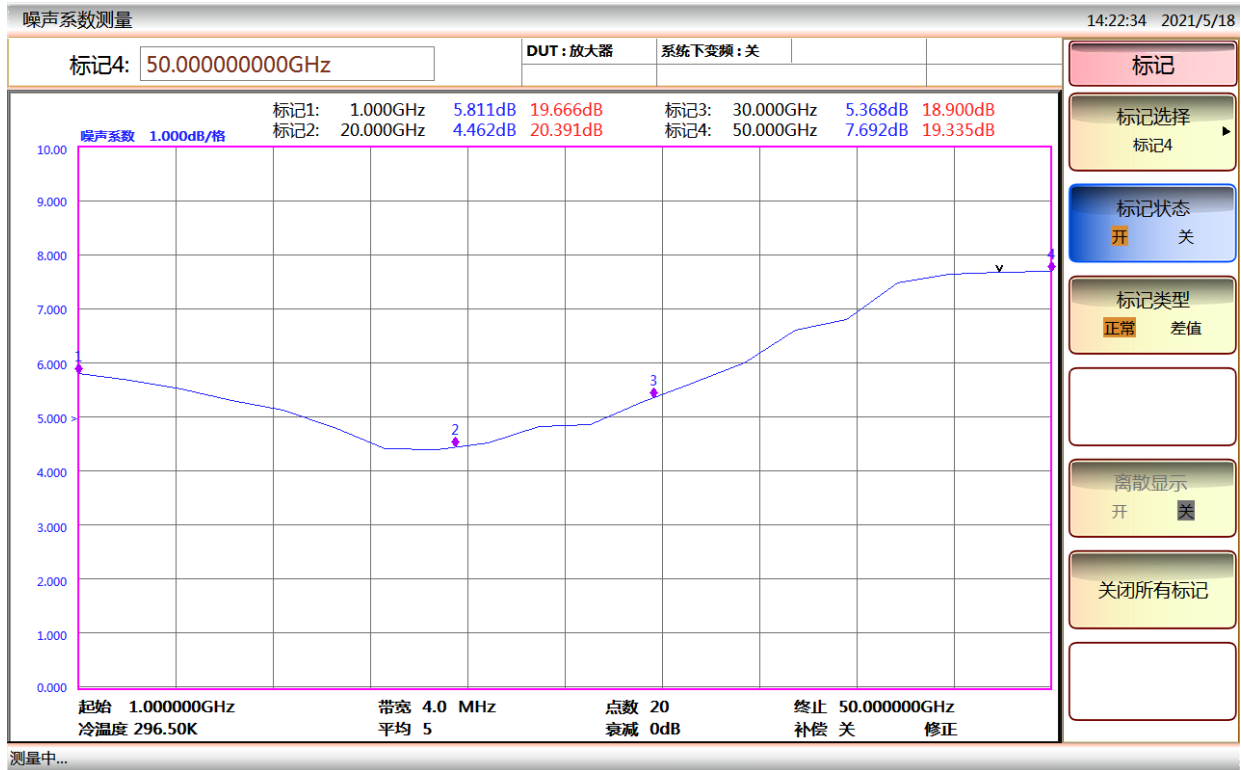


Psat vs Frequency 10MHz-60GHz

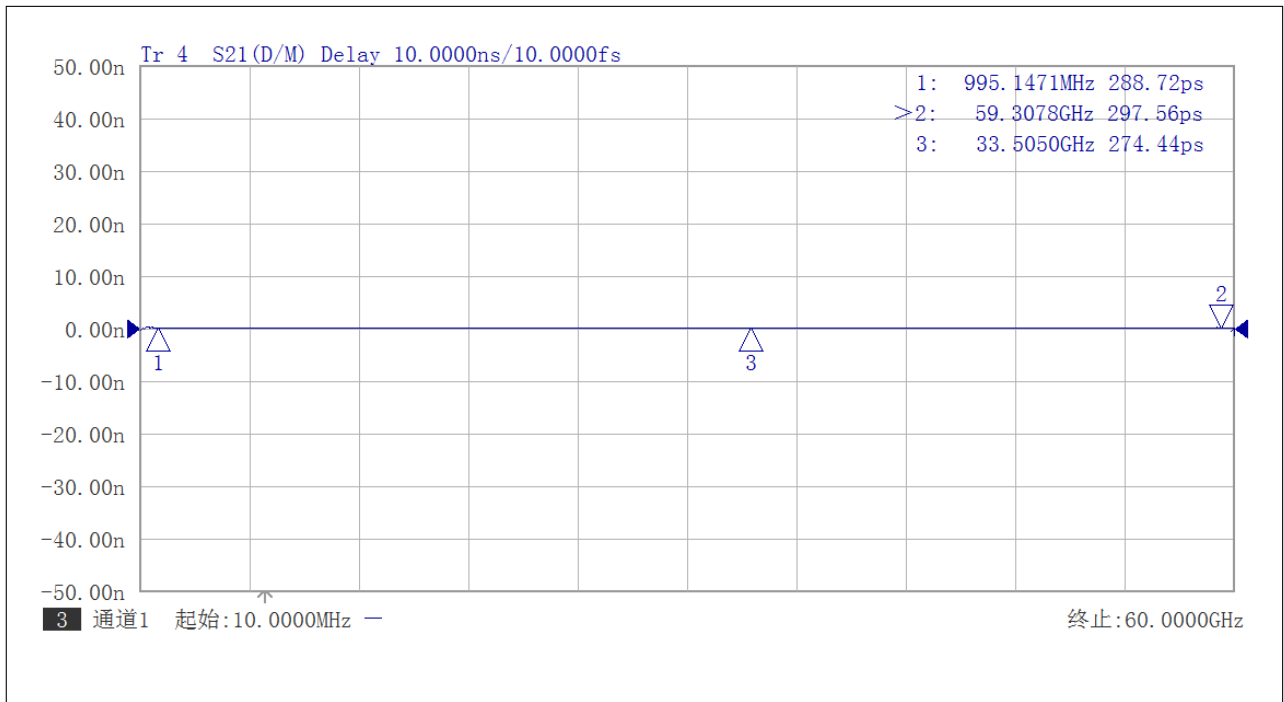


NF Test from 100MHz-1GHz





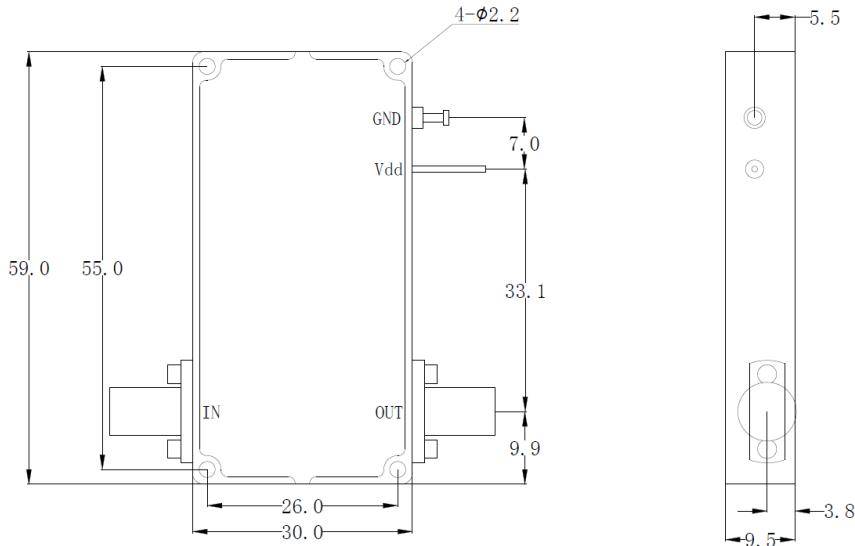
NF Test from 1-50GHz



Group delay vs Frequency

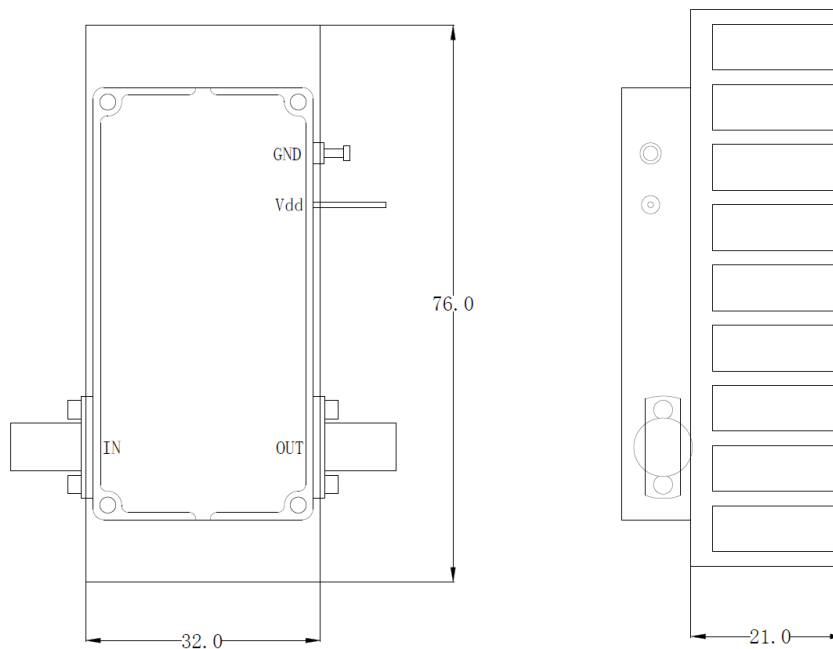


Dimension: (unit in mm)



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

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



Including a small heatsink without Fan if output Power higher than +20dBm.
Customers can remove it or use their own heatsink according to actual situation.

Heatsink required during Operation





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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

