

50kHz-47GHz Optical Modulator Driver

2022-7-1



Product Overview

AT-BBLF-0047-2720C is broadband amplifier from 50kHz-47GHz, with $P_{out}=+22dBm$, $NF=6dB$. It can be used both as Power amplifier or low noise amplifier. The DC power requirement is +9V/350mA. The module is with 2.4mm Female in default. 1.85mm connector is available according to request.

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-47GHz
- ✓ $P_{sat}=+22dBm$
- ✓ $V_{out}=7.9V_{pp}$
- ✓ Small signal gain: 27dB
- ✓ Single Power Supply

Application

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

Mechanical Information

Item	Description
Input Port	2.4mm Female
Output Port	2.4mm Male
Case Material	Copper
Finish	Gold Plated
Package Sealing	Epoxy Sealed
Weight (Without Heatsink)	80g
Size:	59x30x9.5mm





AT-BBLF-0047-2720C

50kHz-47GHz Broadband Amplifier

Key Features

Parameter	Min	Typical	Max
Lower Frequency (3dB Point)		50kHz	
Upper Frequency (3dB Point)		47GHz	
Small Signal Gain	25dB	27dB	
P1dB		10MHz-30GHz: +20dBm, Vout=6.32Vpp 30GHz-47GHz: +18dBm, Vout=5Vpp	
Psat		10MHz-30GHz: +22dBm, Vout=7.96Vpp 30GHz-47GHz: +20dBm, Vout=6.32Vpp	
Output Voltage		7.9Vpp	
Drain Supply		+9V	+12V
Current NO RF		350 mA	
IDD at Psat		420 mA	
NF(1-35GHz)		6dB	
Phase Delay		330ps	
AGC Function		NO	
Input Return Loss		-10dB	
Output Return Loss		-5dB	
Spec Temp		25C	

Absolute Maximum Ratings Table

Parameter	Value
Drain Supply	+15V
RF Input Power	+4 dBm
Input Voltage	1Vpp
Operating Temperature	-20 to +70C
Storage Temperature	-65 to +125C

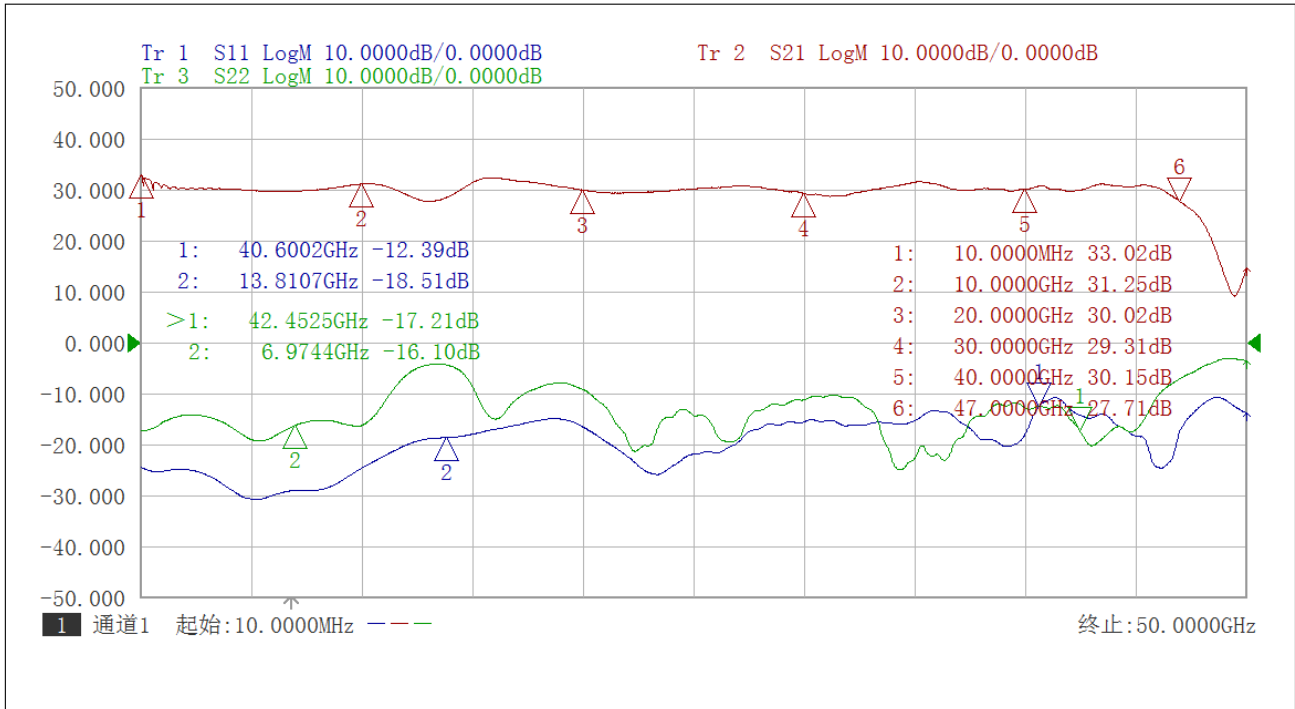
Notes:

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.

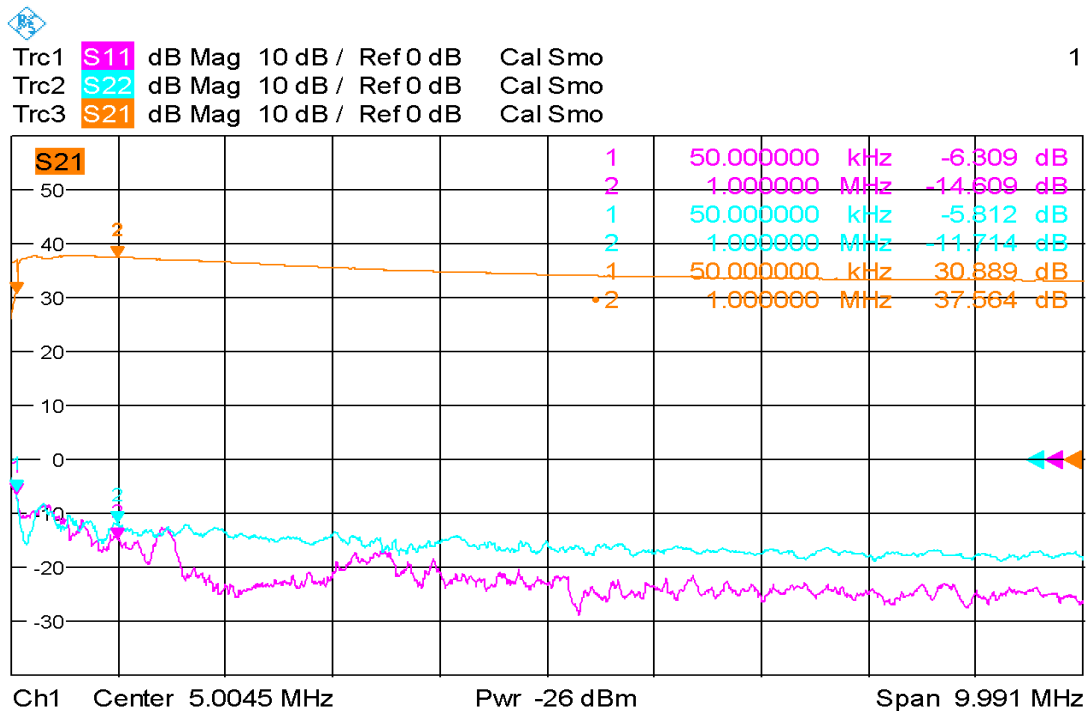


Test Data (25C)

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

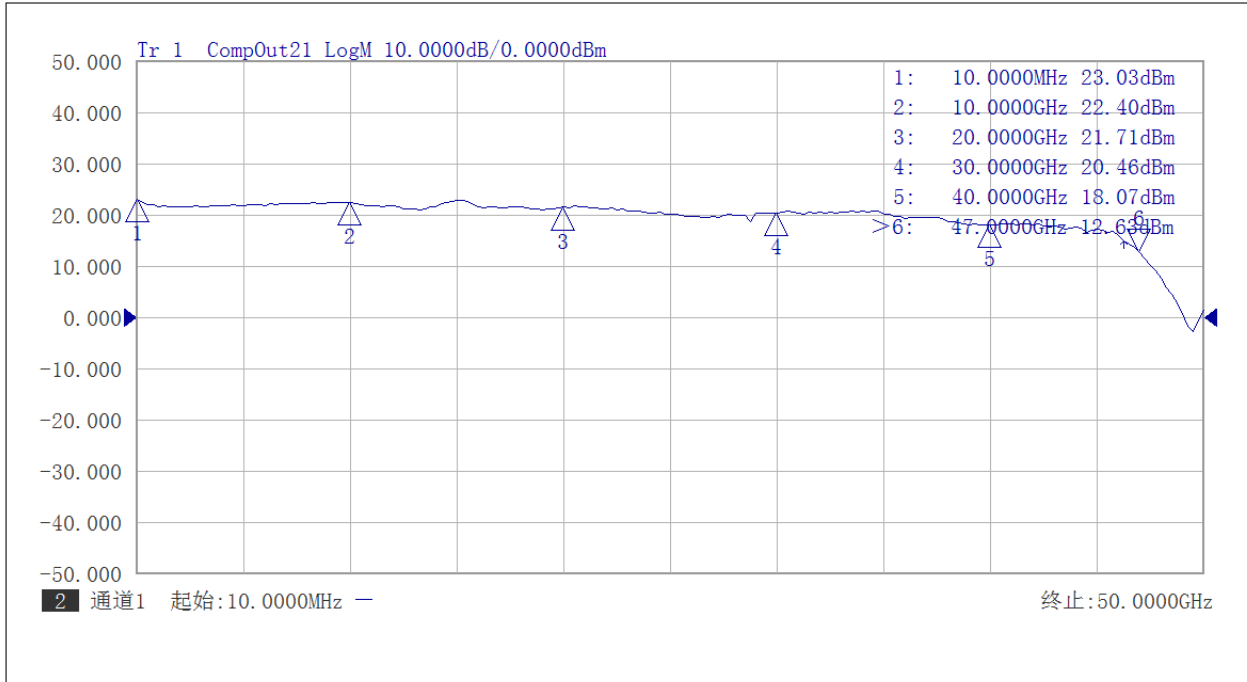


Gain and Return Loss vs Frequency 10MHz-47GHz

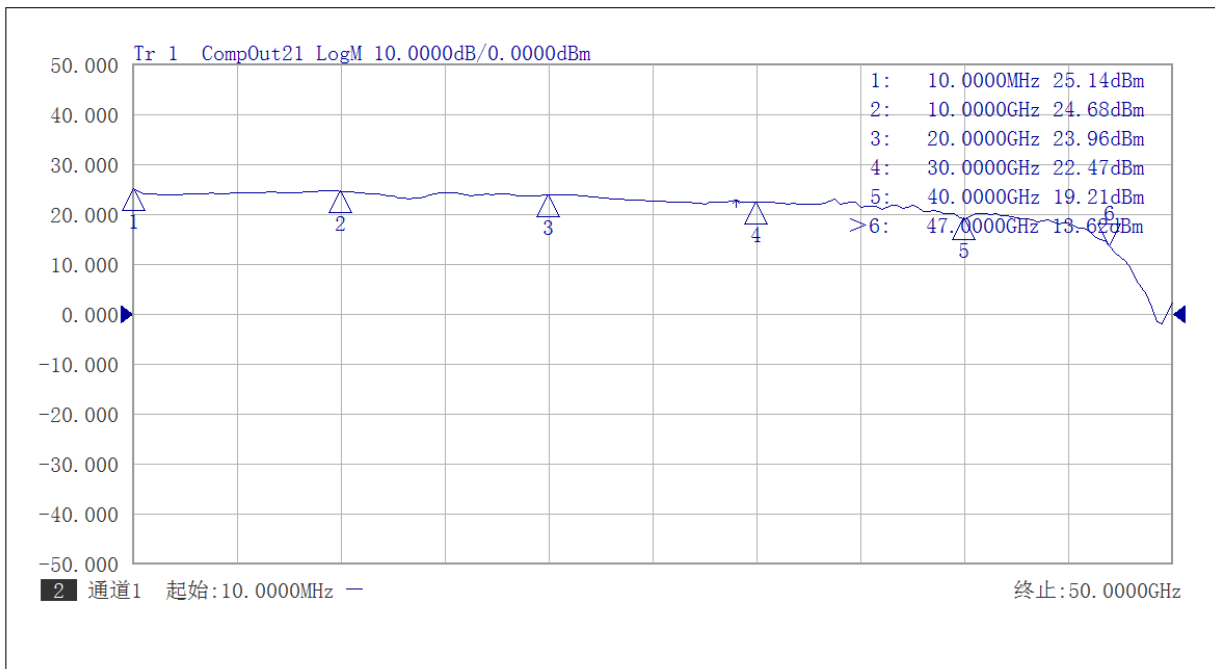


Gain and Return Loss vs Frequency 50kHz-10MHz Test





P1 vs Frequency 10MHz-47GHz



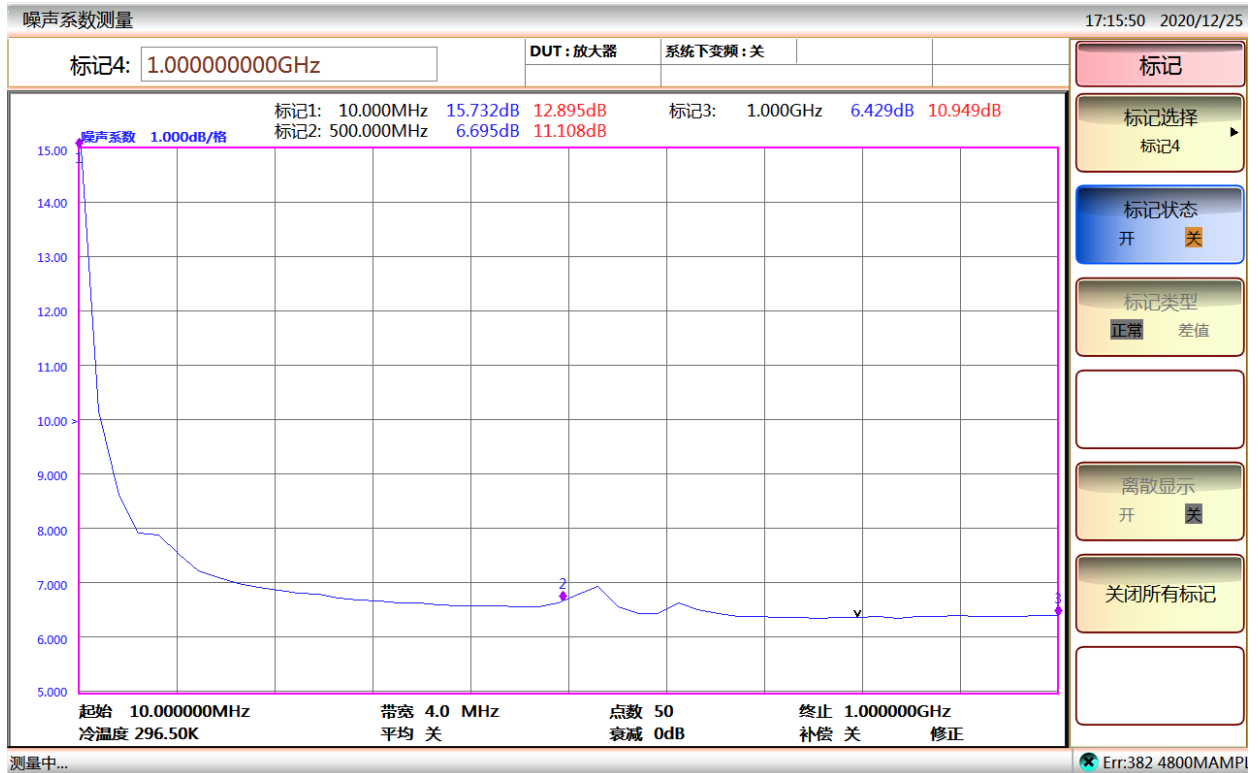
P3 vs Frequency 10MHz-47GHz



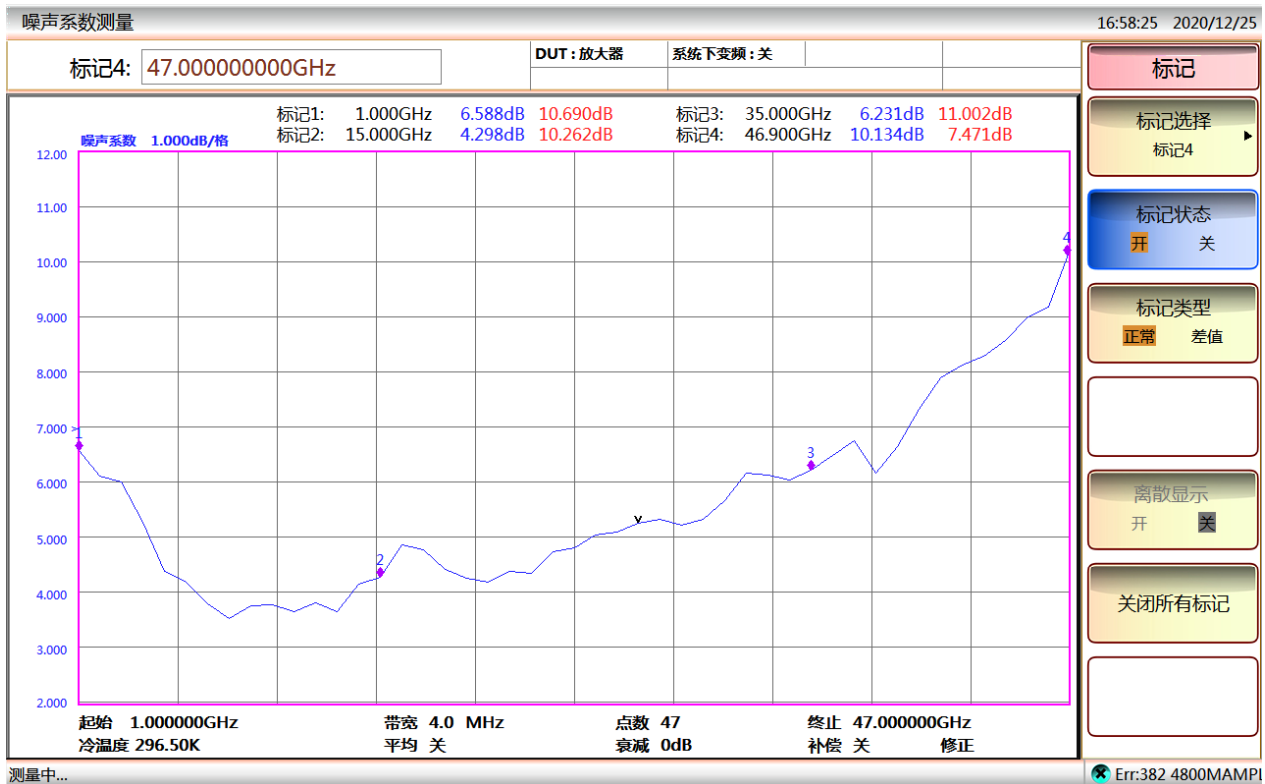


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50kHz-47GHz Broadband Amplifier



10MHz-1GHz NF



1-47GHz NF

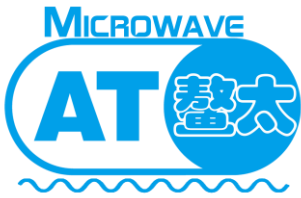
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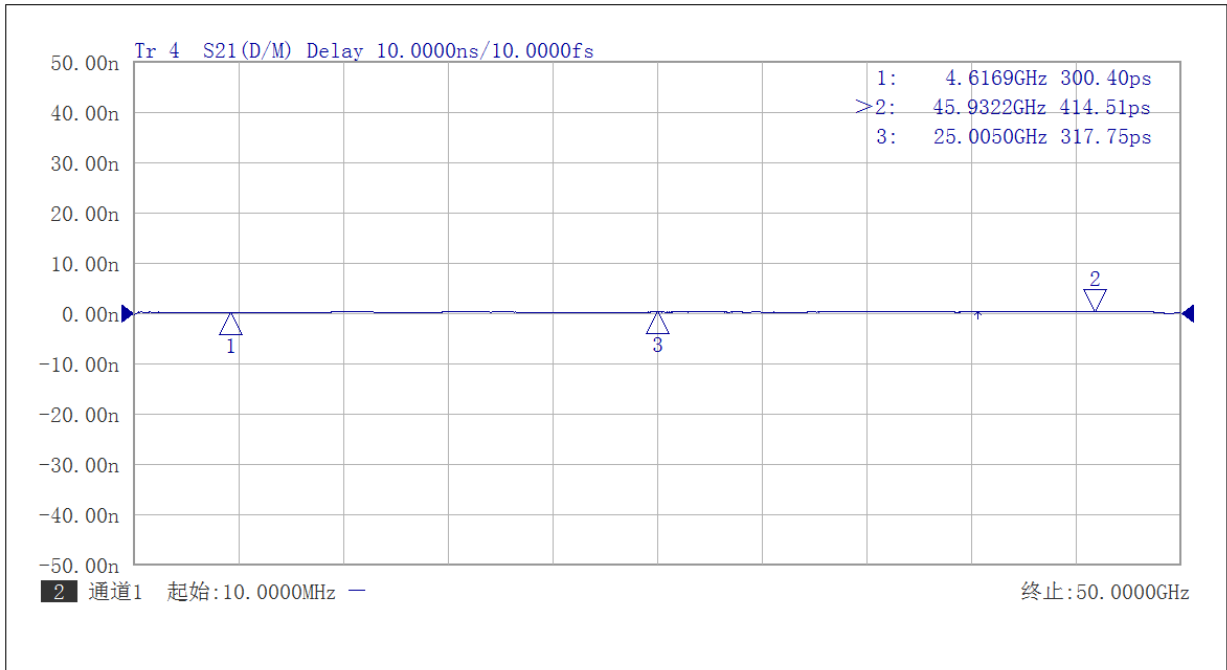
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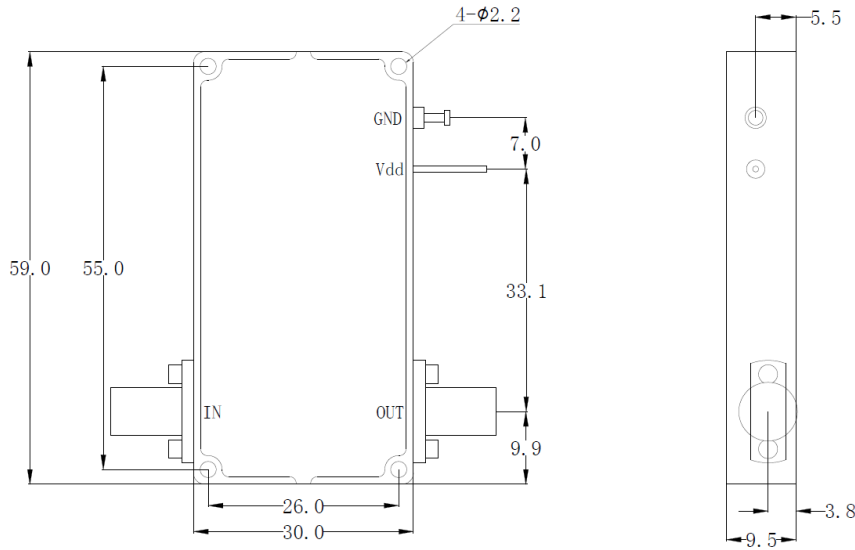
50kHz-47GHz Broadband Amplifier



Group delay vs Frequency

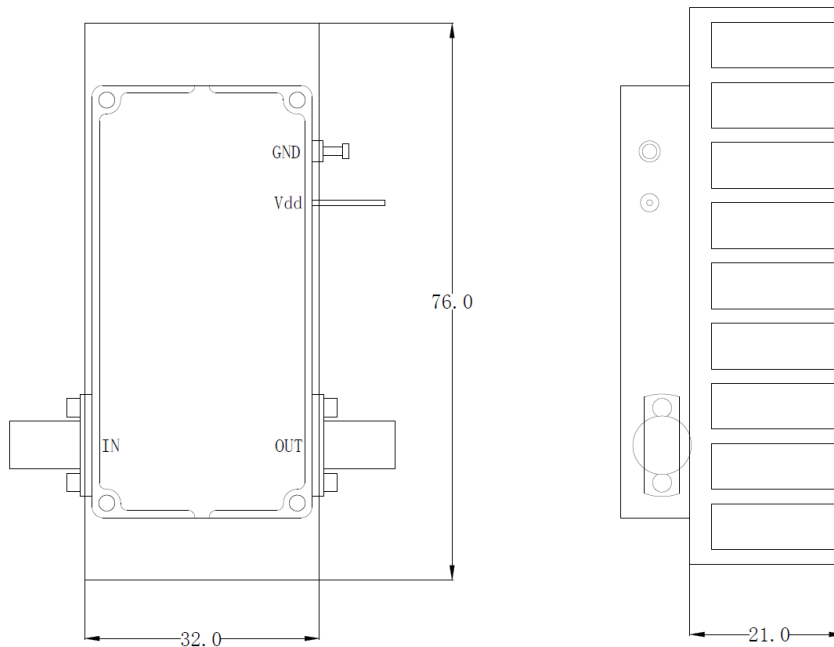


Dimension: (unit in mm)



	<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.



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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50kHz-47GHz Broadband Amplifier

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

