50kHz-100GHz Optical Modulator Driver

Gain 8dB, P1dB 3dBm

DATASHEET

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This broadband amplifier operates from 50 kHz to 100 GHz, delivering an output power of +10 dBm with a noise figure of 5 dB. It can be used as either a power amplifier or a low-noise amplifier. The DC power requirement is +5 V at 60 mA. The module features a 1.0 mm female input port and a 1.0 mm male output port. It offers high gain, high linearity, low input and output return loss, and a flat gain response. The input and output are AC coupled. This version is specially designed for driving optical modulator with enhanced output power.

Features

- Frequency: 50kHz-100GHz
- Psat:+10dBm
- Small Signal Gain: 8dB
- Single Power Supply

Applications

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

Specifications

Parameter		Min	Typical	Max	Unit
Lower Frequency (3dB Point)			50		kHz
Upper Frequency (3dB Point)			100		GHz
Small Signal Gain	0.01-70GHz	6	8		dB
	70-100GHz	5	7		
P1dB	0.1-50GHz		8 (1.59Vpp)		dBm
	50-70GHz		3 (0.89Vpp)		
Psat	0.1-50GHz		10 (2Vpp)		dBm
	50-70GHz		5 (1.12Vpp)		
Drain Supply			+5	+8	V
Current			70		mA
NF	0.1-50GHz		5		dB
	50-75GHz		7		
	75-100GHz		10		
Input VSWR			2:1		
Output VSWR			2:1		
Spec Temp			27		°C
Input Port			1.0mm Female		
Output Port			1.0mm Male		
Drain Supply			+13		V
RF Input Power			+8		dBm
Input Voltage			1.59		Vpp
Operating Temperature		-40		+85	°C
Storage Temperature		-55		+125	°C

RoHS COMPLIANT

Rev 04/04/26

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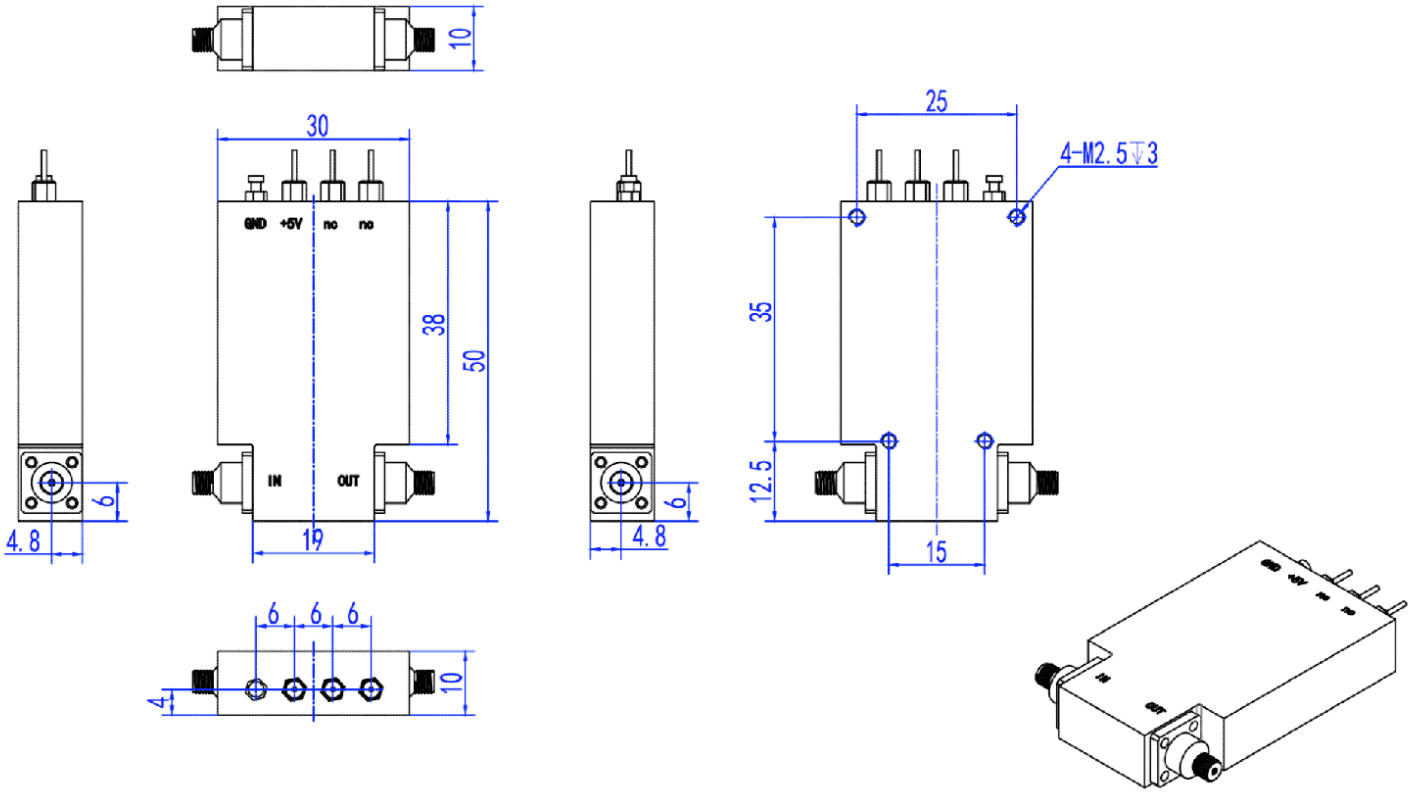
Mechanical Dimensions (mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Pin Description

PIN	Description
IN	RF Input, DC Block inside
OUT	RF Output, DC Block inside
VD	+5V
NC	Reserved. No connection.
NC	Reserved. No connection.
GND	GND

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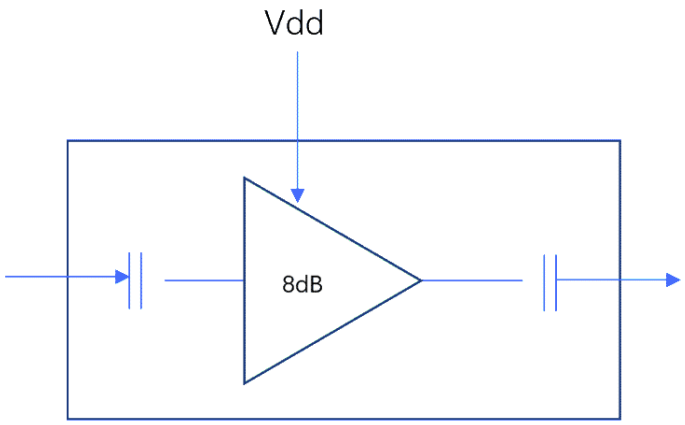
Diagram Block



Ordering Information (Part Number)

	50	100	30	1	☐
Prefix	**Low Frequency**	**High Frequency**	**P1dB**	**RF Connector**	**Module**
BRFA-	50kHz = 50	100GHz = 100	3dBm = 30	1.omm = 1	Non = 1 Box [1] = 2

[1]. This is a box that integrates a power supply with 110-240V AC power.

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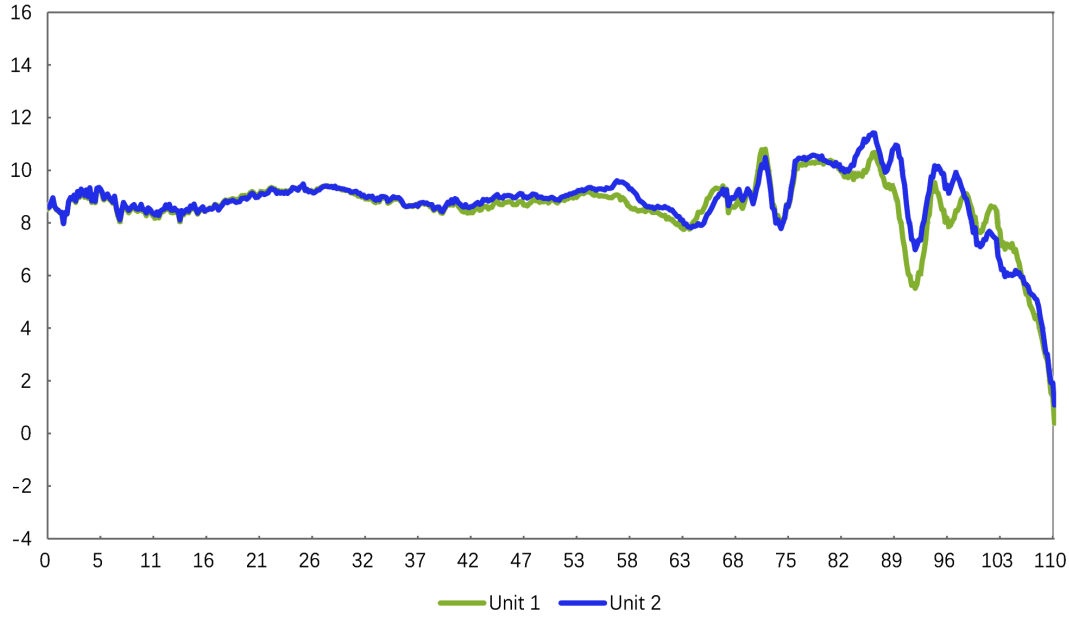
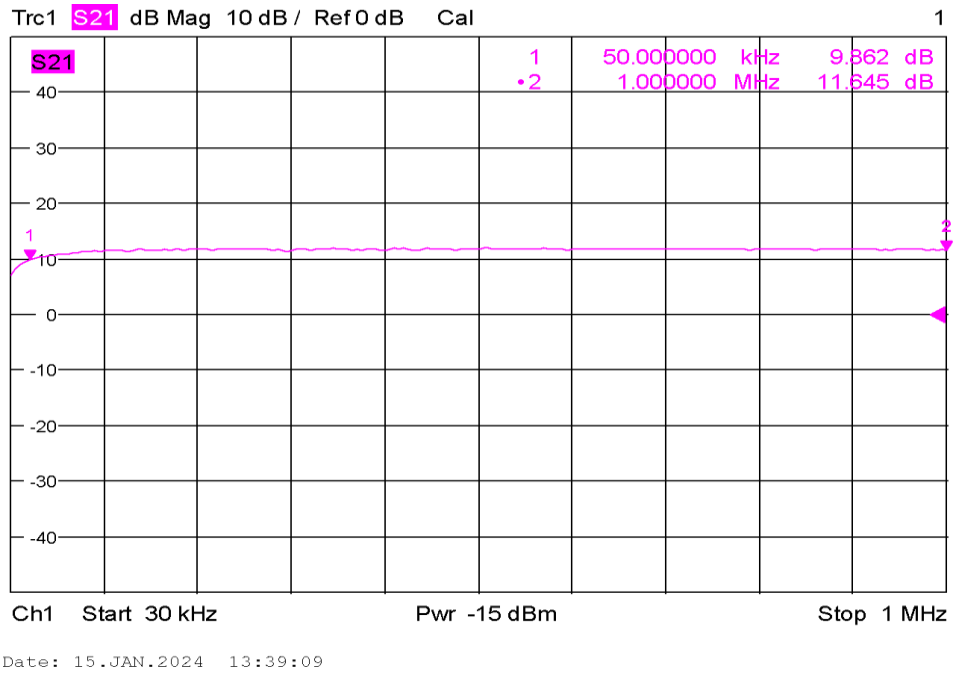
Typical Responses



Gain vs Frequency



Low End Frequency Gain

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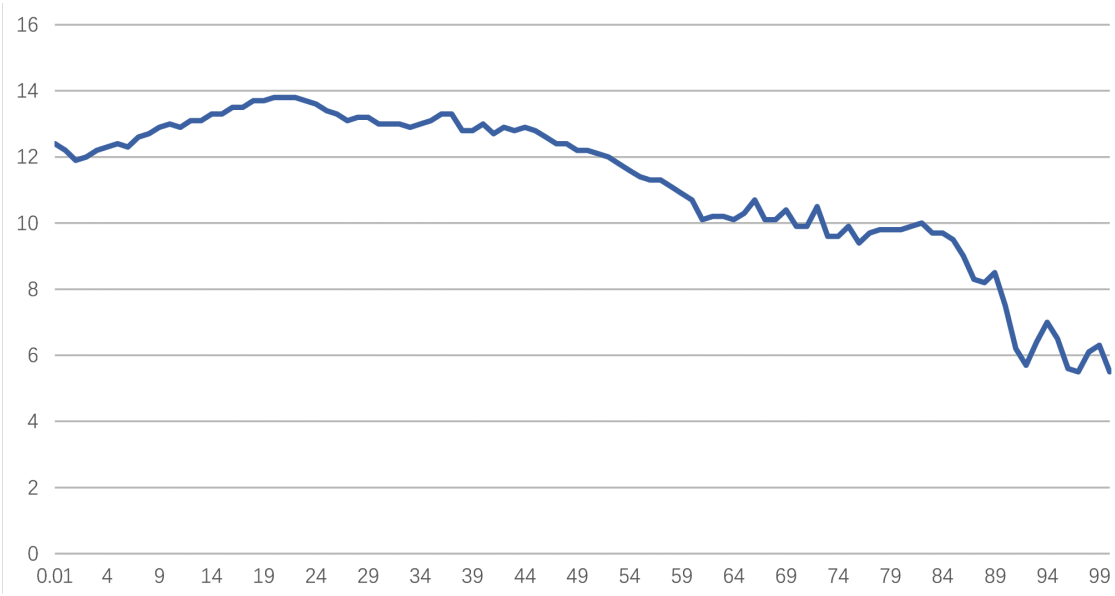
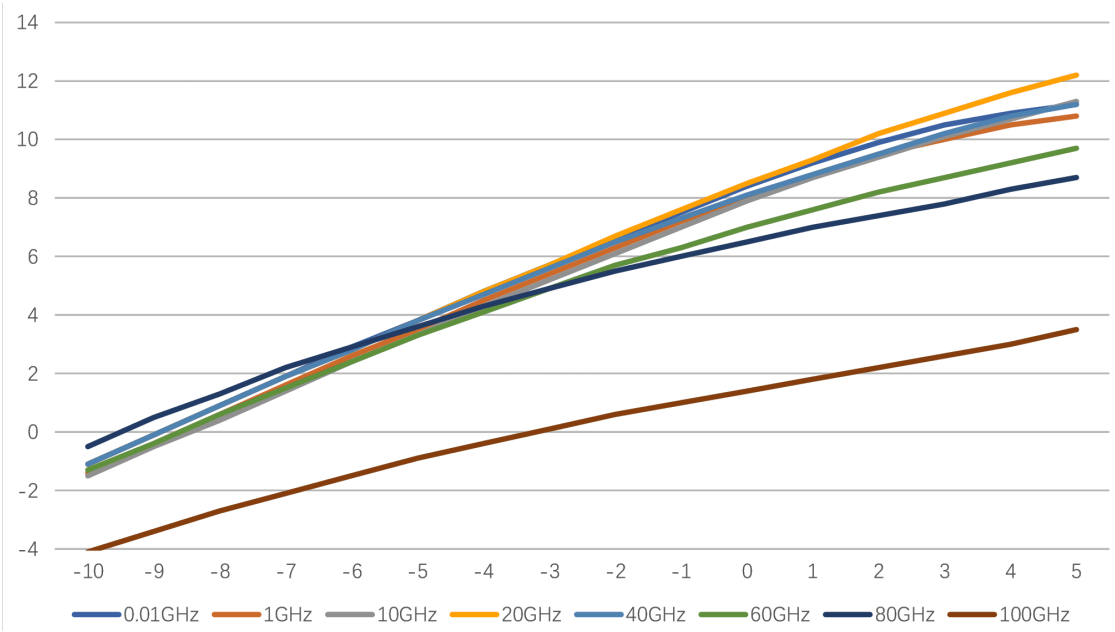
Typical Responses



Psat vs Frequency 10MHz-100GHz



Pout vs Pin

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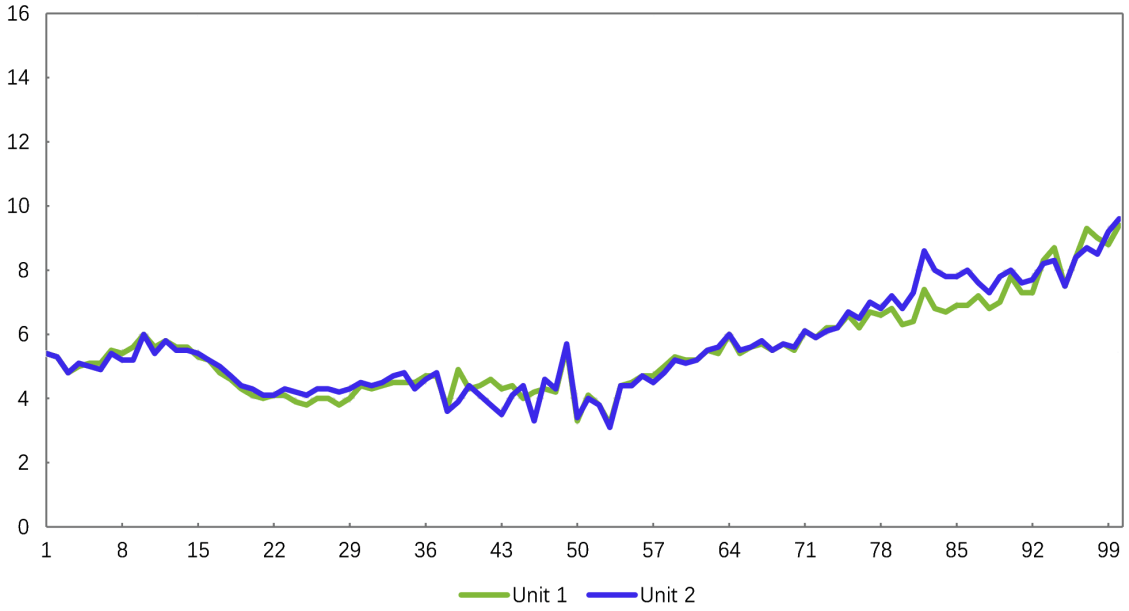
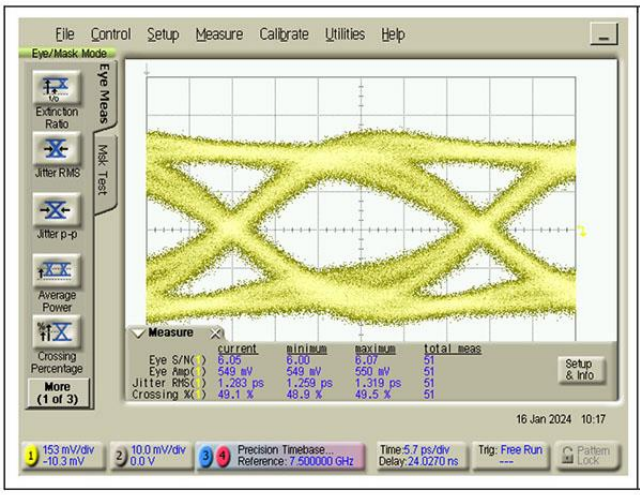
Typical Responses



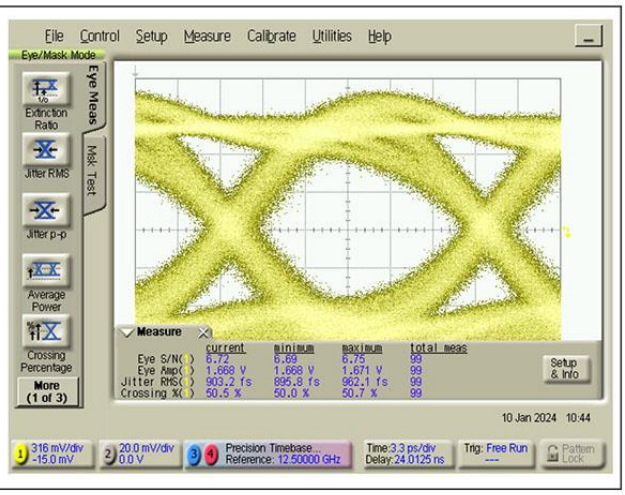
NF vs Frequency

Eye Diagram Test

Input 550mV@50Gbps



Output 1.67V@50Gbps



Please note that eye diagram will be better if input eye diagram is improved.

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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	178.27	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	27.12	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	27.09	12.59	5	1.12	0.40	3.16E-03
40	63.27	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	0.27	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	0.27	6.31E-04
33	28.27	9.99	2.00	-3	0.45	0.16	5.01E-04
32	27.27	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	0.27	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
27	11.27	3.98	0.32	-11	0.27	6.30E-02	7.94E-05
24	10.02	3.54	0.27	-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
27	5.02	1.78	6.31E-02	-27	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

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