

GaAs monolithic integrated bidirectional amplifier

0.7~5GHz

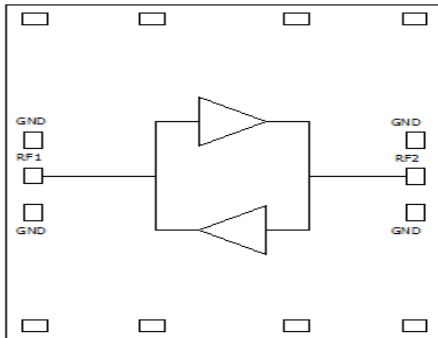
Key indicator

- Frequency range: 0.7~5GHz
- Gain: 21dB
- Input 1dB compression point: 16dBm
- Single power supply operation: +5V@120mA
- Chip size: 2.5mm×2.1mm×0.1mm

Typical application

- Radar and electronic countermeasures
- RF/Microwave Circuit
- Military and aerospace
- test instrument
- Instrumentation

Functional block diagram



Product Introduction

AY1465 is a monolithic integrated circuit operating at 0.7~5GHz Bi-directional amplifier, made of GaAs process, this single chip has dual Amplify function, realize forward/reverse direction through external timing control. The zoom function is switched, in 120mA Under working current, it can provide 21dB gain, 16dBm input P₁dB, low noise in the normal temperature band at 5dB.

The chip uses an on-chip metallization process to ensure good grounding, The back of the chip is metallized, which is suitable for eutectic sintering or conducting Electric glue bonding process.

Electrical properties

(T_A=25°C, V_D=+5V, I_D=120mA, Z₀=50Ω)

Index	Minimum	Typical value	Max	Unit
Frequency	0.7~5			GHz
Gain	—	21	—	dB
Gain flatness	—	1	—	dB
Reverse isolation	—	-37	—	dB
Input/output standing wave ratio	—	1.5	—	: 1
Noise Figure	—	4.5	—	dB
Output P ₁ dB	—	16	—	dBm
Output IP ₃	—	26	—	dBm
Working current	—	120	—	mA

Absolute maximum rating

RF input power	18dBm	Control voltage range	-0.5~-5.5V
Channel temperature	150°C	Storage temperature	-65~+150°C
Operating temperature	-55~+85°C	Electrostatic protection level (HBM)	Class 1A

Control voltage

State	Bias condition
Low	0~0.2V
High	3~+5V

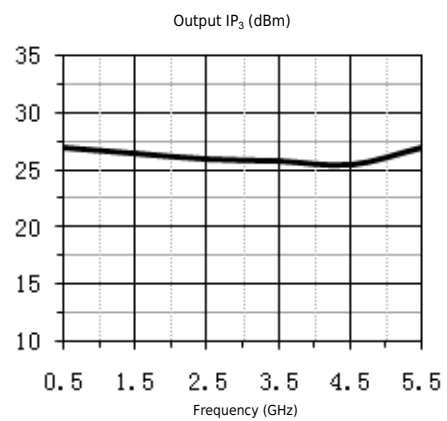
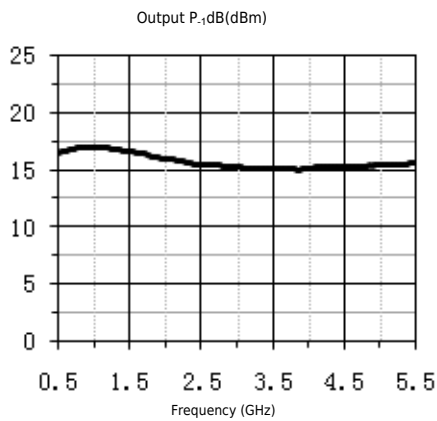
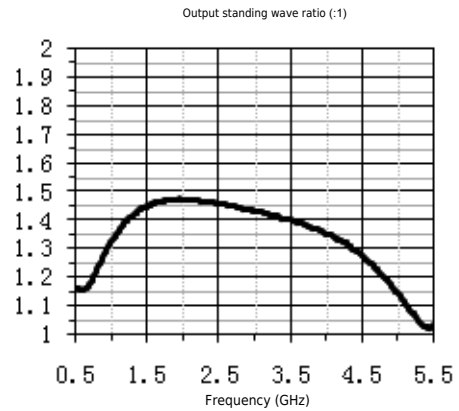
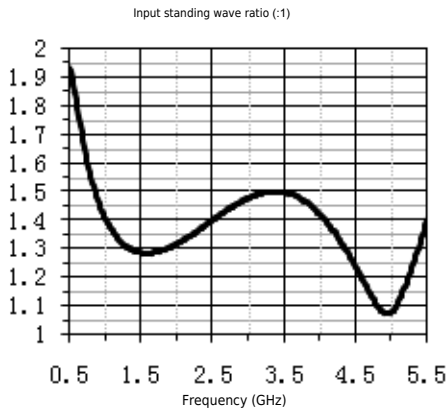
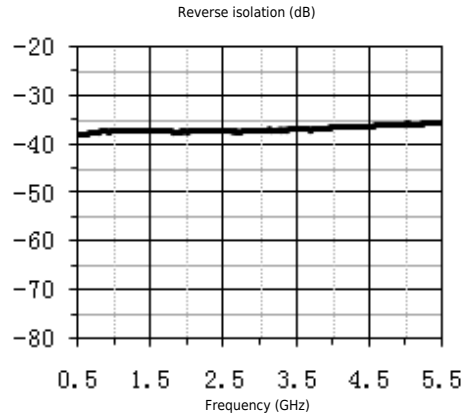
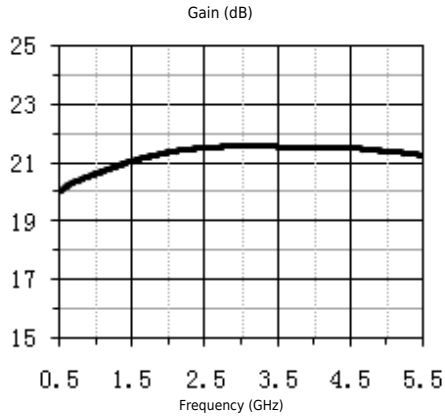
Truth table

State		Magnified state
V _C	Low	RF1-RF2 ON
	High	RF2-RF1 ON

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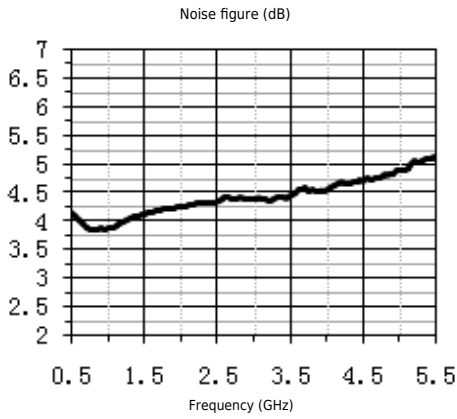
0.7~5GHz

Typical test curve

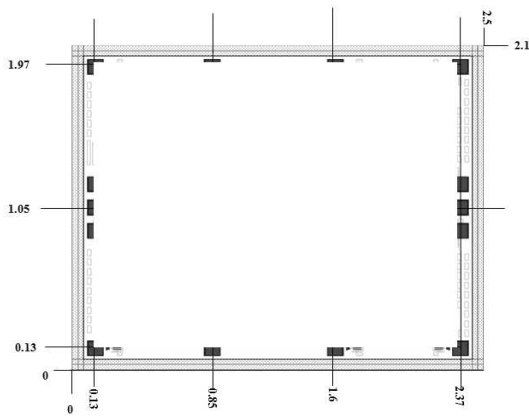


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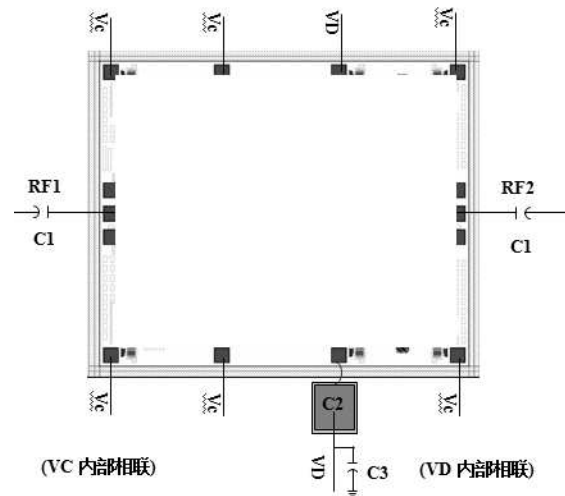
0.7~5GHz



Shape and port size (mm)



Recommended assembly drawing



Component list

serial number	Numerical value	Model	Manufacturer	Encapsulation
C1	100pF	GRM1555C1H101JZ01D	Murata	0402
C2	100pF	Chip capacitance	Redtron	—
C3	10nF	GRM155R71H103KA88D	Murata	0402

Precautions

Gallium arsenide MMIC devices are susceptible to damage from electrostatic discharge. Precautions should be taken during transportation, assembly and testing.