

GaAs single pole double throw switch

1~4GHz

key indicator

- Frequency range: 1~4GHz
- Insertion loss: 0.7dB
- Isolation: 47dB
- Working voltage: +5V
- Control level: 0/+5V
- Chip size: 1.73mm×1.21mm×0.1mm

typical application

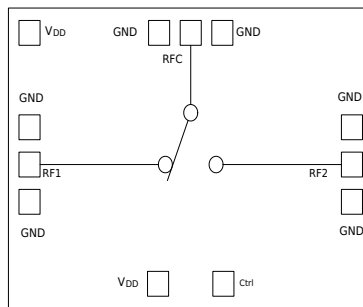
- Wireless communication equipment
- Radar and electronic countermeasures
- Military and aerospace
- Instruments and meters
- Microwave radio
- Test and measure

Product Introduction

AY1795G is a reflective single-pole double-throw switch chip with a frequency of 1~4.0GHz, which is made by pHEMT process.

The back of the chip is metallized, which is suitable for eutectic sintering or conductive adhesive bonding process.

Functional block diagram



Electrical performance (T_A=25°C, Control Voltage=0/+5V, V=+5V, Z₀=50 Ω)

index	Test frequency	Minimum	Typical value	Max	unit
Return loss (RF1, RF2, RFC)	1 ~ 4	-	-16	-	dB
Insertion loss	1 ~ 4	-	0.7	-	dB
Isolation	1 ~ 4	-	47	-	dB
Switching time	1 ~ 4		60		ns

Absolute maximum ratings

Maximum input power	+20dBm	Operating temperature	-55 °C ~ + 85 °C
Operating Voltage	+5.5V	Storage temperature	-65 °C ~ + 150 °C
Control voltage range	0~5V		

Control voltage

state	Bias condition
Low	0~0.5V
high	3.3~5V

Bias voltage & current

V _{DD}	I _{DD}
+5V	1.5mA

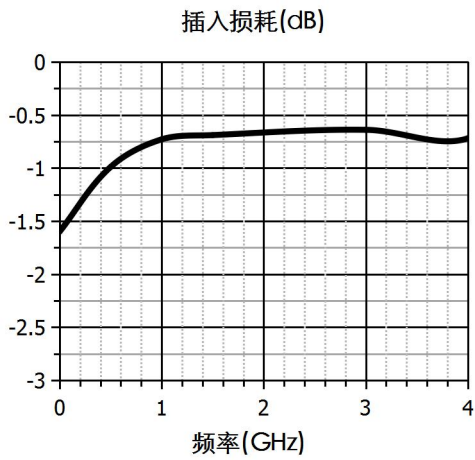
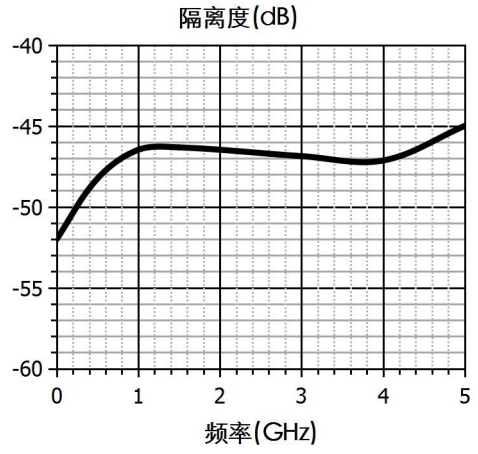
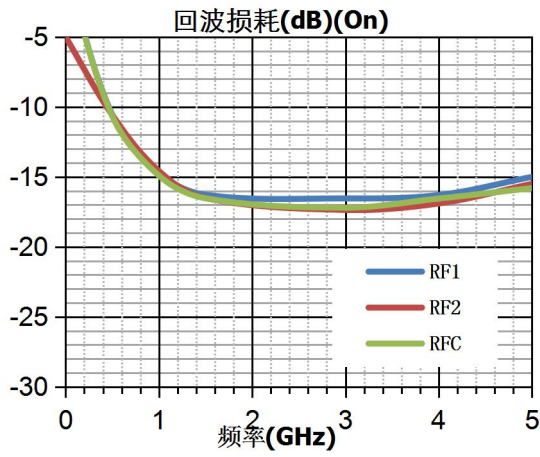
Truth table

Control input	On-off state	
	RFC-RF1	RFC-RF2
Low	ON	OFF
high	OFF	ON

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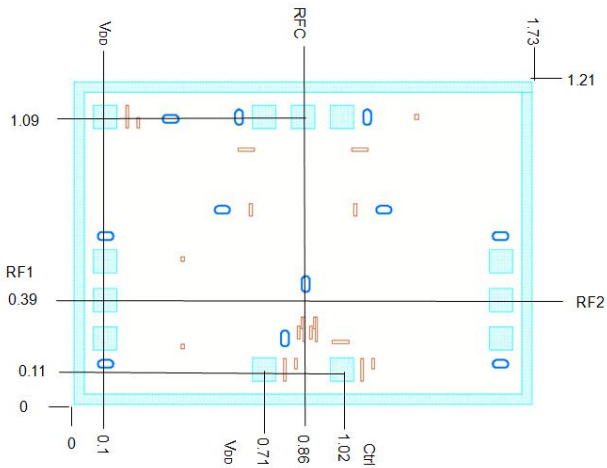
Typical test curve



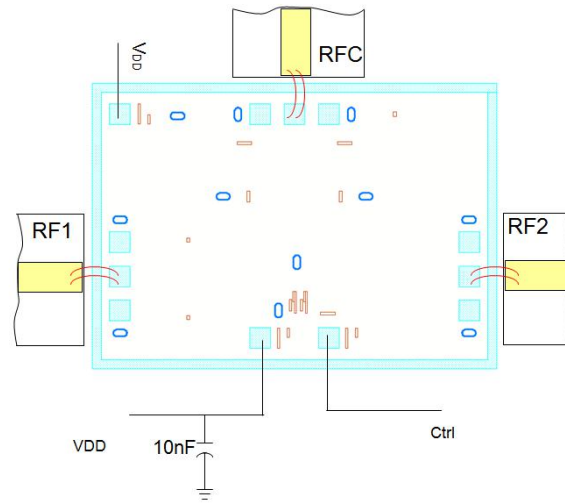
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Shape and port size (mm)



Recommended assembly drawing



V_{DD} Connected internally, just connect any one.

Precautions

1. The chip is stored in a dry, nitrogen environment and used in an ultra-clean environment;
2. GaAs material is brittle and cannot touch the surface of the chip, so you must be careful when using it;
3. Chips are sintered with conductive glue or alloy (the alloy temperature cannot exceed 300°C, and the time cannot exceed 30 seconds) to make it fully grounded;
4. The gap between the microwave port of the chip and the substrate should not exceed 0.05mm. Use $\Phi 25\mu\text{m}$ double gold wire for bonding. The recommended length of gold wire is 250~400 μm ;
5. The chip is sensitive to static electricity, so pay attention to anti-static during storage and use.
6. The RF port needs an additional DC blocking capacitor