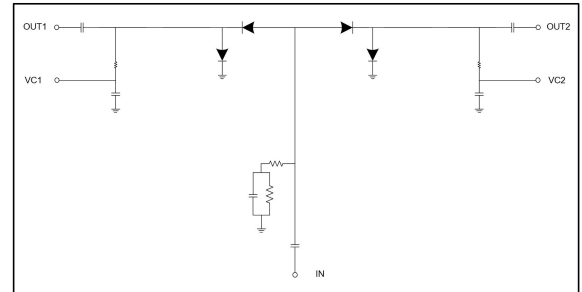


## GaAs PIN reflective single-pole double-throw switch chip, 10-40GHz

### Performance characteristics

- Frequency range: 10-40 GHz
- Insertion loss : 0.9dB typ.
- Isolation: 37 dB typ.
- P-1dB: 23dBm@17GHz
- 50Ohm input / output
- 100% on-wafer testing
- Chip size: 1.92 x 1.2 x 0.1mm
- Silicon nitride passivation, scratch protection

### Functional Block Diagram



### Product Introduction

GSW2B2 is a GaAs PIN reflective single-pole double-throw switch chip with 50Ω matching at the input/output end, a frequency range of 10 to 40GHz , and -5V/+5V control. It has a built-in bias network and DC blocking capacitors, which is easy to use. It has excellent switching characteristics and port standing wave characteristics in the entire operating frequency range, and is very suitable for microwave hybrid integrated circuits, multi-chip modules, and low-power systems. The switch chip uses on-chip through-hole metallization technology to ensure good grounding, does not require additional grounding measures, and is simple and convenient to use. The back of the chip is metallized, which is suitable for eutectic sintering or conductive adhesive bonding processes.

#### Use restriction parameter <sup>1</sup>

Maximum input voltage	2.5V
Maximum input power	+30dBm CW
Operating temperature	-55 ~ +85°C
storage temperature	-65 ~ +150°C

【1】 Exceeding any of these maximum limits may cause permanent damage.

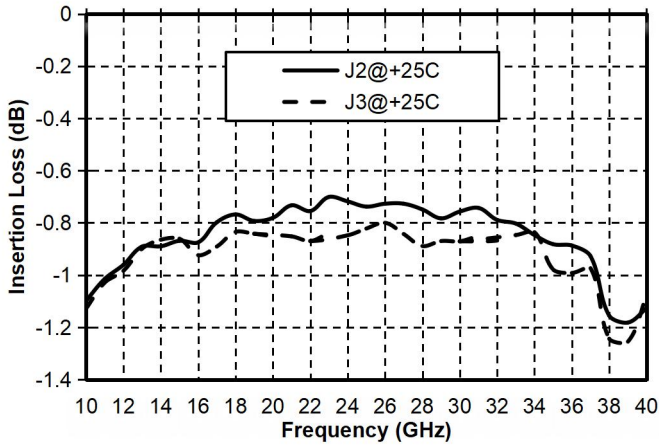
#### Electrical performance parameters ( TA = +25°C)

index	Minimum	Typical Value	Maximum	unit
Frequency Range	10-40			G Hz
Insertion loss	-	0.9	1.1	dB
Isolation	33	37	-	dB
Input return loss	12	18	-	dB
Output return loss	11	23	-	dB
P-1dB@17GHz	-	23	-	dBm
Switching speed	-	20	-	ns

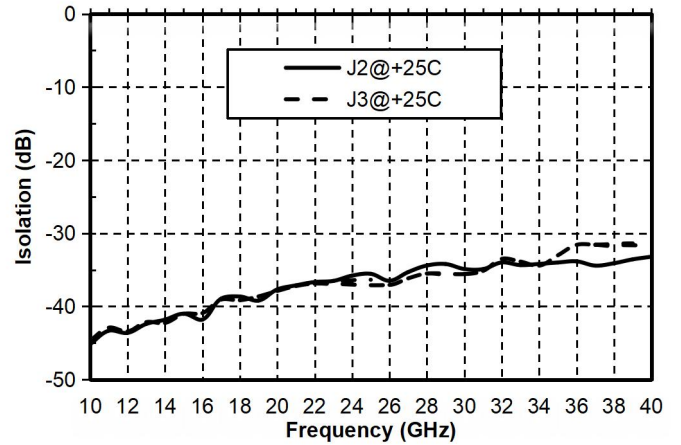
**GaAs PIN reflective single-pole double-throw switch chip, 10-40GHz**

Main index test curve

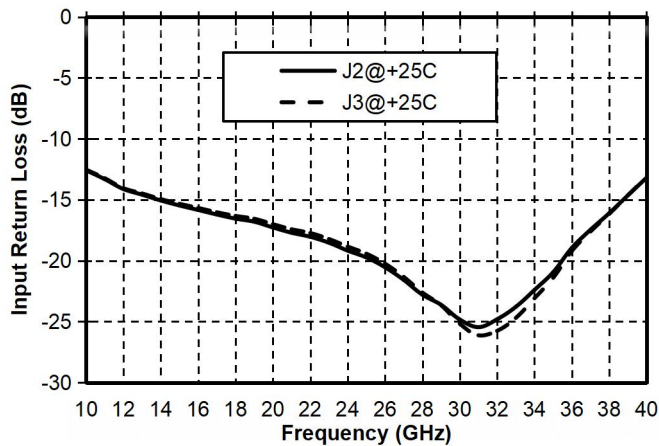
Insertion Loss vs. Operating Frequency



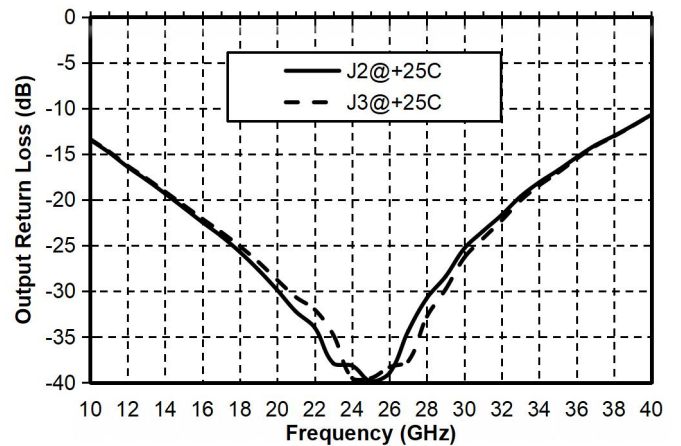
Isolation vs. Operating Frequency



Input Return Loss vs. Frequency



Output Return Loss vs. Frequency



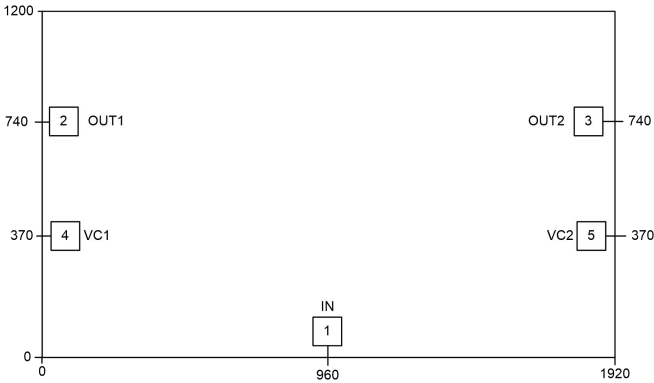
**Typical Driver Connections**

CONTROL LEVEL (DC CURRENT)		RF OUTPUT STATE	
J2	J3	J2-J1	J3 - J1
-10mA	+1 2mA	Low Loss	Isolation
+ 12mA	-10mA	Isolation	Low Loss

Note: V ≈ +1.32 V , I ≈ +12 mA; V ≈ -1.90 V, I ≈ -10 mA ( including RIN ≈ 50 ohm resistor voltage divider at J1 )

## GaAs PIN reflective single-pole double-throw switch chip, 10-40GHz

### Appearance structure

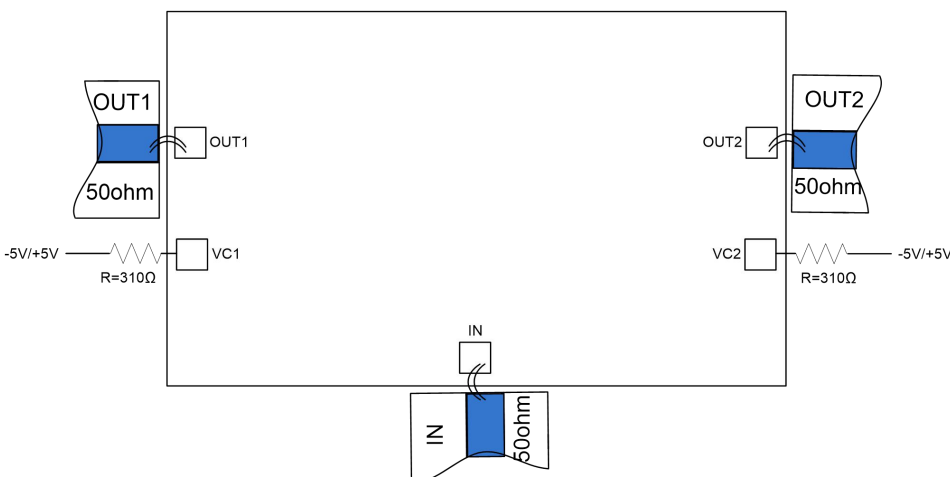


All units in the figure are micrometers

### Bonding point definition

Bonding point number	Function Symbol	Functional Description
1	IN(J1)	RF input signal terminal
2,3	OUT2(J2), OUT3(J3)	RF output signal terminal
4, 5	VC1, VC2	Control Port
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC

### Recommended circuit diagram



+5V series  $R \approx 310$  ohm resistor,  $V \approx +1.28V$ ,  $I \approx +12mA$ ; -5V series  $R \approx 310$  ohm resistor,  $V \approx -1.80V$ ,  $I \approx -10mA$ . Users can change the resistance value according to their own situation. If you have any questions, please contact the manufacturer.