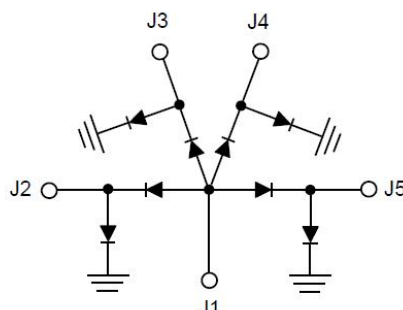


GaAs PIN Reflective SP4T Switch Chip, 0.05-30GHz

Performance characteristics

- Frequency range: 0.05-30GHz
- Insertion loss : 0.9dB typ.
- Isolation: 50 dB typ.
- P-1dB: See the table below
- 50Ohm input / output
- 100% on-wafer testing
- Chip size: 1.72 x 1.52 x 0.1mm
- Silicon nitride passivation, scratch protection

Functional Block Diagram



Product Introduction

GSW4B is a GaAs PIN reflective single-pole four-throw switch chip with 50Ω matching at the input/output ends , a frequency range of 0.05 to 30 GHz , and -5V/+5V control.

Use restriction parameter ¹

Maximum input voltage	2.5V
Maximum input power	+33dBm CW
Operating temperature	-55 ~ +85°C
storage temperature	-65 ~ +150°C

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

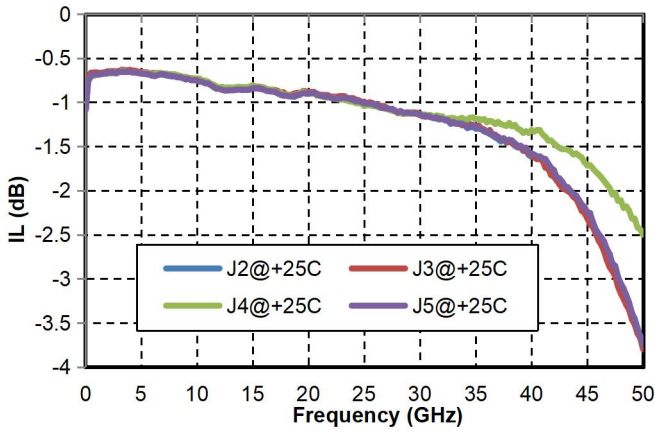
Electrical performance parameters (TA = +25°C)

index	Minimum	Typical Value	Maximum	unit
Frequency Range	0.05-30			GHz
Insertion loss	-	0.9	-	dB
Isolation	-	50	-	dB
Input return loss	-	17	-	dB
Output return loss	-	20	-	dB
P-1dB	-	23.0@1GHz	-	dBm
		27.5@2GHz		
		28.5@4GHz		
		29.0@8GHz		
		30.0@12GHz		
		28.5@16GHz		
		28.5@20GHz		
Switching speed	-	20	-	ns

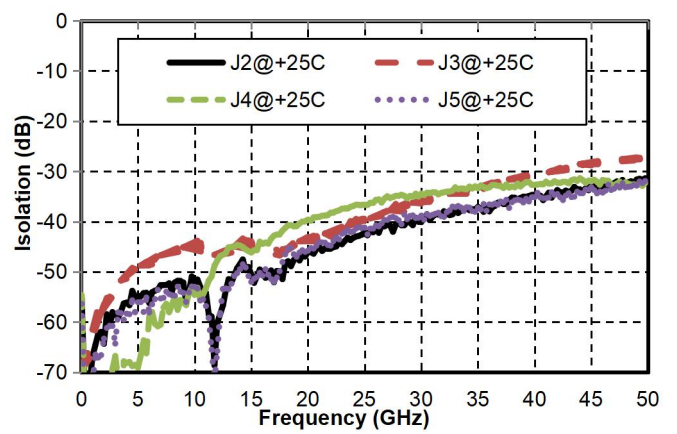
GaAs PIN Reflective SP4T Switch Chip, 0.05-30GHz

Main index test curve

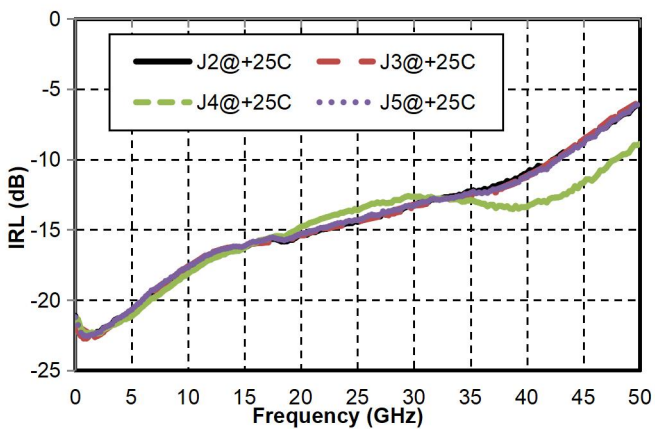
Insertion Loss vs. Operating Frequency



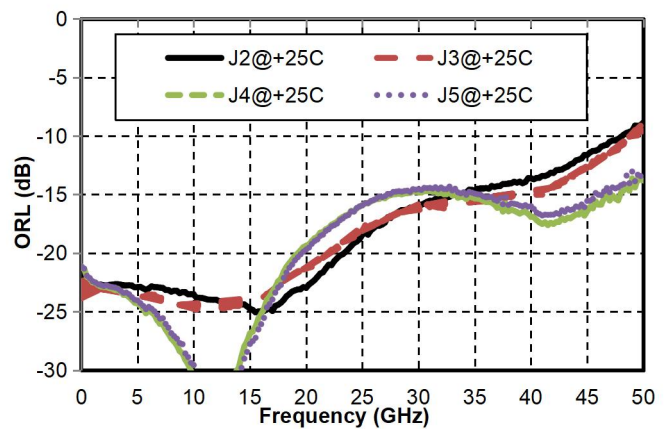
Isolation vs. Operating Frequency



Input Return Loss vs. Frequency



Output Return Loss vs. Frequency



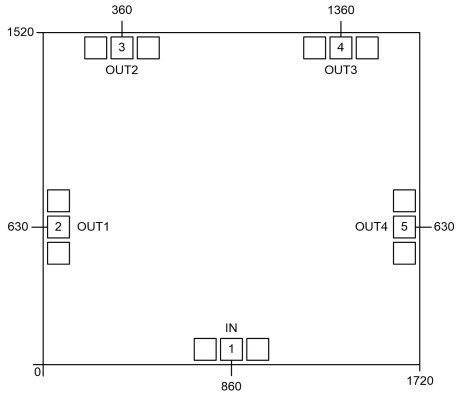
Typical Driver Connections

CONTROL LEVEL (DC CURRENT)				RF OUTPUT STATE			
J2	J3	J4	J5	J2-J1	J3-J1	J4-J1	J5-J1
-10mA	+1 5 mA	+1 5 mA	+1 5 mA	Low Loss	Isolation	Isolation	Isolation
+15mA	-10mA	+14mA	+15mA	Isolation	Low Loss	Isolation	Isolation
+15mA	+15mA	-10mA	+15mA	Isolation	Isolation	Low Loss	Isolation
+15mA	+15mA	+15mA	-10mA	Isolation	Isolation	Isolation	Low Loss

Note: $V_{\approx+} = 2.6\text{ V}$, $I_{\approx+} = 15\text{ mA}$; $V_{\approx-} = 3.1\text{ V}$, $I_{\approx-} = -10\text{ mA}$ (including J1 end RIN = 50 ohm resistor voltage divider)

GaAs PIN Reflective SP4T Switch Chip, 0.05-30GHz

Appearance structure

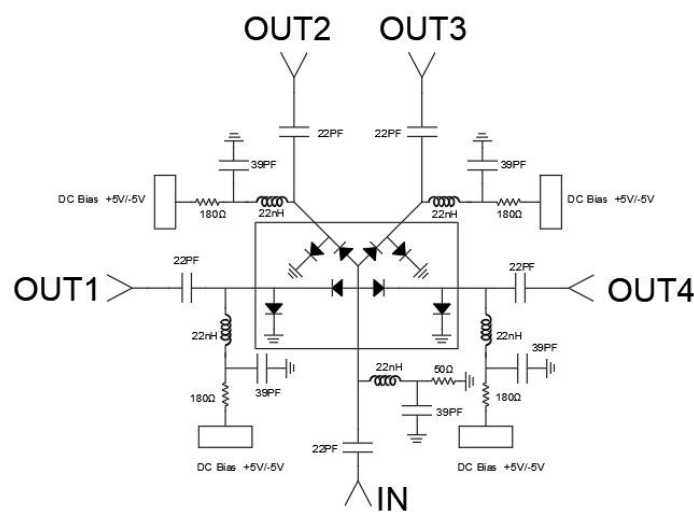


All units in the figure are micrometers

Bonding point definition

Bonding point number	Function Symbol	Functional Description
1	IN(J1)	A DC blocking capacitor is required at the RF input signal end
2 , 3, 4, 5	OUT1(J2), OUT2(J3), OUT3(J4), OUT4(J5)	The RF output signal terminal needs to be equipped with a DC blocking capacitor
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC

Recommended circuit diagram



+5V series R \approx 180 ohm resistor, V \approx + 2.6 V , I \approx +15 mA ; -5V series R \approx 180 ohm resistor, V \approx -3.1 V , I \approx -10mA . Users can change the resistance value according to their own situation. If you have any questions , please contact the manufacturer.