Standard Circuit

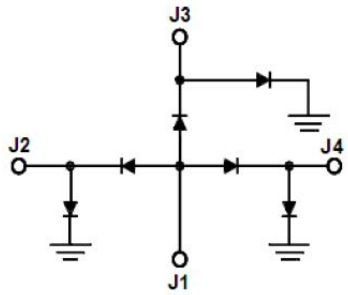
GSW3D

GaAs PIN Reflective Single-pole Triple-throw Switch Chip, 0.05 - 50GHz

Performance characteristics

- Frequency range: 0.05-50 GHz
- Insertion loss : 1.0 dB typ.
- Isolation: 44 dB typ.
- P-1dB: See the table below
- 50Ohm input / output
- 100% on-wafer testing
- Chip size: 1.37 x 1.37 x 0.1mm
- Silicon nitride passivation, scratch protection

Functional Block Diagram



Product Introduction

GSW3D is a GaAs PIN reflective single-pole triple-throw switch chip with 50Ω matching at the input/output ends, a frequency range of 0.05~50GHz , and -5V/+5V control.

Use restriction parameter [1]	
Maximum input voltage	2 5V
Maximum input power	+35dBm 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		0.05-50		GHz
Insertion loss	-	1.0	-	dB
Isolation	-	44	-	dB
Input return loss	-	17	-	dB
Output return loss	-	20	-	dB
P-1dB	-	25.5@1GHz	-	dBm
		30.5@2GHz		
		31.5@4GHz		
		32.5@8GHz		
		33.5@12GHz		
		33.0@16GHz		
		30.5@20GHz		
		29.0@34GHz		
Switching speed	-	20	-	ns

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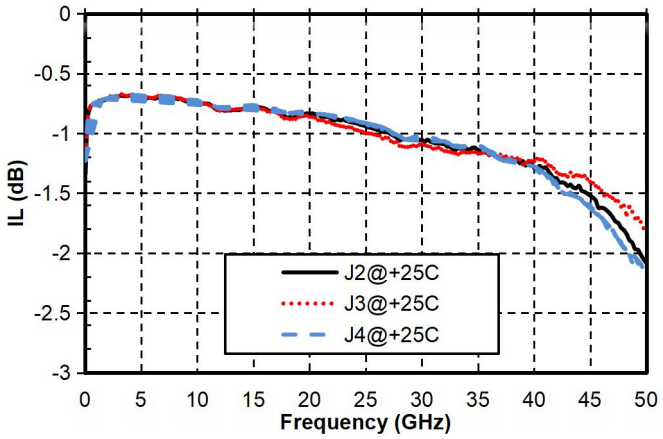
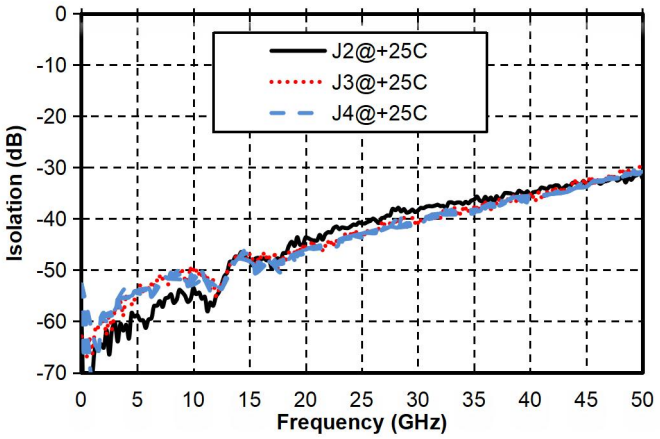
Main index test curve

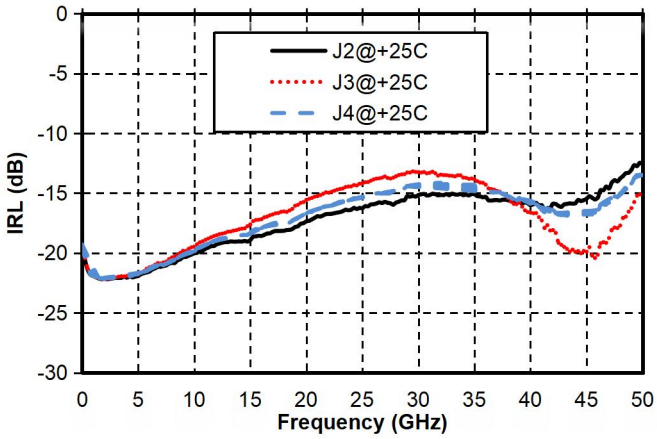
Insertion Loss vs. Operating Frequency



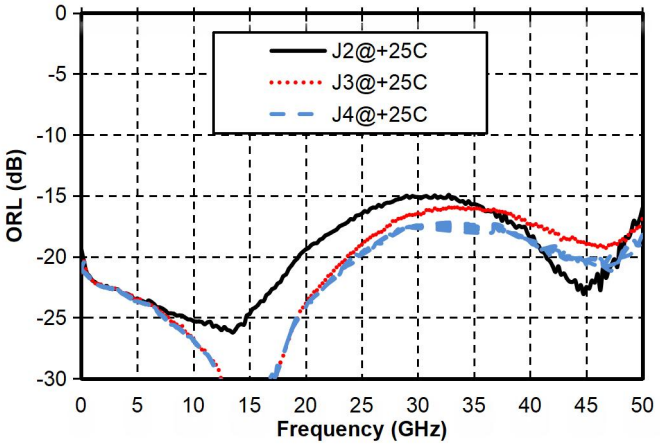
Isolation vs. Operating Frequency



Input Return Loss vs. Frequency



Output Return Loss vs. Frequency



Typical Driver Connections

CONTROL LEVEL (DC CURRENT)			RF OUTPUT STATE		
OUT1(J2)	OUT2(J3)	OUT3(J4)	OUT1(J2)-IN(J1)	OUT2(J3)-IN(J1)	OUT3(J4)-IN(J1)
-10mA	+2 0 mA	+20mA	Low Loss	Isolation	Isolation
+20mA	-10mA	+20mA	Isolation	Low Loss	Isolation
+20mA	+20mA	-10mA	Isolation	Isolation	Low Loss
Note: V ≈ + 3 .8 V, I ≈ +2 0 mA; V ≈ - 4 . 4 V, I ≈ -10 mA (including J1 end RIN = 50 ohm resistor voltage divider)					

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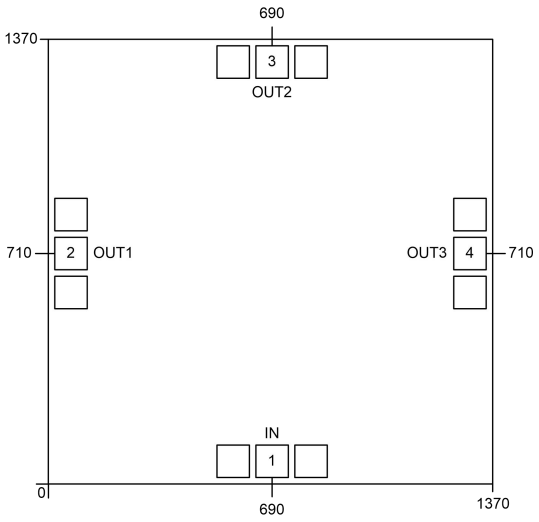
Appearance structure



All units in the figure are micrometers

Bonding point definition

Bonding point number	Function Symbol	Functional Description
1	IN	A DC blocking capacitor is required at the RF input signal end
2, 3, 4	OUT1, 2, 3	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

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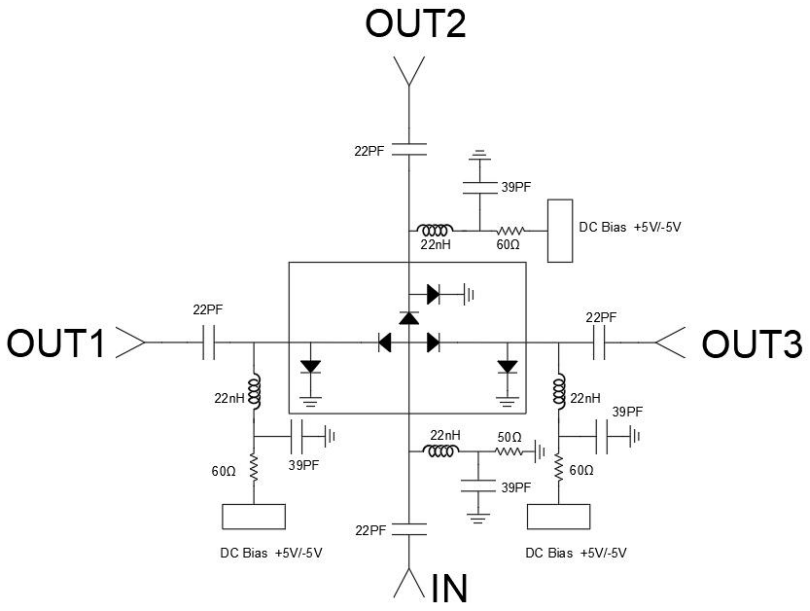

+5V series R≈ 60 ohm resistor, V≈+ 3.8V , I≈+ 20mA ; -5V series R≈ 60 ohm resistor, V≈- 4.4V , I≈-10mA. Users can change the resistance value according to their own situation. If there is any problem , please contact the manufacturer.