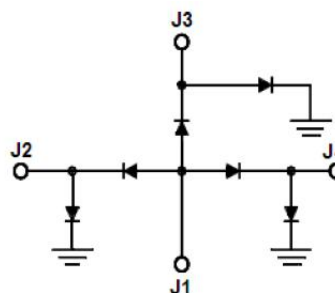


GaAs PIN reflective single-pole triple-throw switch chip, 0.1-40GHz

Performance characteristics

- Frequency range: 0.1-40 GHz
- Insertion loss : 0.7dB typ.
- Isolation: 47 dB typ.
- P-1dB: 26dBm @17GHz
- 50Ohm input / output
- 100% on-wafer testing
- Chip size: 1.72 x 1.22 x 0.1mm
- Silicon nitride passivation, scratch protection

Functional Block Diagram



Product Introduction

GSW3 is a GaAs PIN reflective single-pole triple-throw switch chip with 50Ω matching at the input/output ends, a frequency range of 0.1 to 40GHz, and -5V/+5V control. 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 ¹

Maximum input voltage	2.5V
Maximum input power	+31dBm CW
Operating temperature	-55 ~ +85°C
storage temperature	-65 ~ +150°C

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

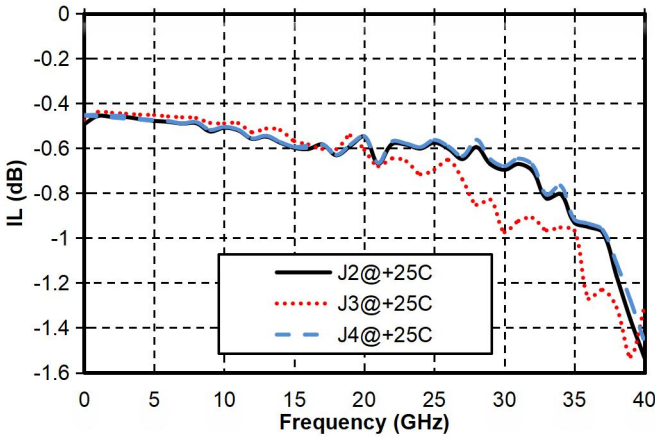
Electrical performance parameters (TA = +25°C)

index	Minimum	Typical Value	Maximum	unit
Frequency Range	0.1-18			GHz
Insertion loss	-	0.5	0.6	dB
Isolation	52	56	-	dB
Input return loss	19	22	-	dB
Output return loss	23	24	-	dB
Frequency Range	18-40			GHz
Insertion loss	-	0.8	1.5	dB
Isolation	37	40	-	dB
Input return loss	11	16	-	dB
Output return loss	11	20	-	dB
P-1dB @17GHz	-	26	-	dBm
Switching speed	-	20	-	ns

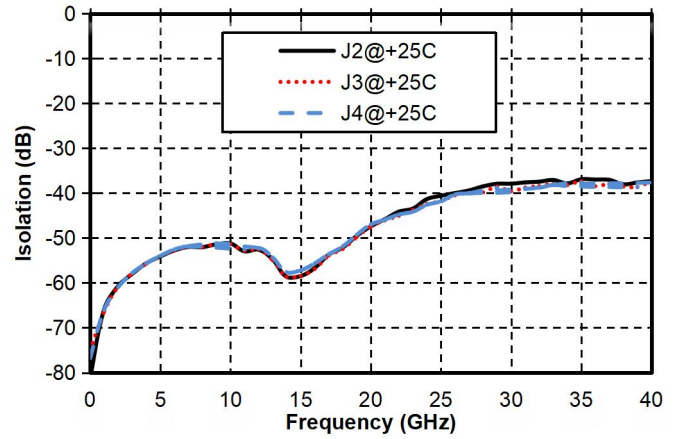
GaAs PIN reflective single-pole triple-throw switch chip, 0.1-40GHz

Main index test curve

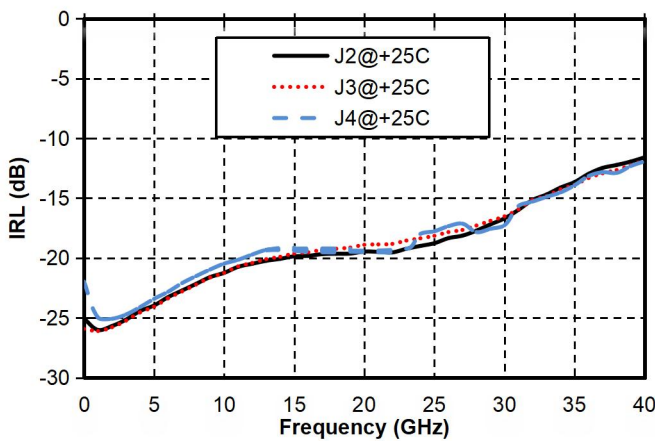
Insertion Loss vs. Operating Frequency



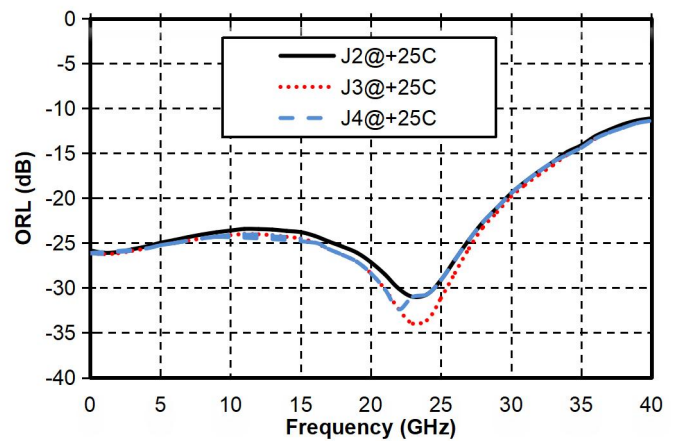
Isolation vs. Operating Frequency



Input Return Loss vs. Frequency



Output Return Loss vs. Frequency



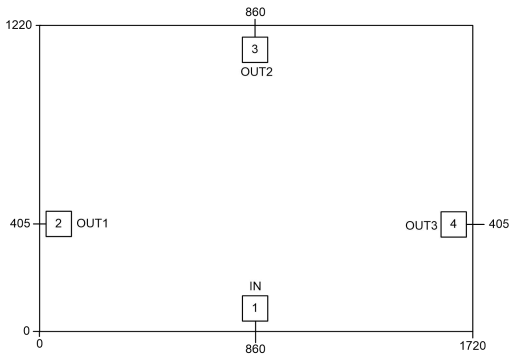
Typical drive connections

Control level (DC current)			RF output status		
Output 1 (J2)	Output 2 (J3)	Output 3 (J4)	Output 1 (J2) - Input (J1)	Output 2 (J3) - Input (J1)	Output 3 (J4) - Input (J1)
-10 mA	+1 2 mA	+1 2 mA	Low loss	isolation	isolation
+1 2 mA	-10 mA	+1 2 mA	isolation	Low loss	isolation
+1 2 mA	+1 2 mA	-10mA	Isolation	Isolation	Low Loss

Note: V ≈ +1.28V, I ≈ +12mA; V ≈ -1.80V, I ≈ -10mA (including RIN=50Ω resistor voltage divider at J1)

GaAs PIN reflective single-pole triple-throw switch chip, 0.1-40GHz

Appearance structure

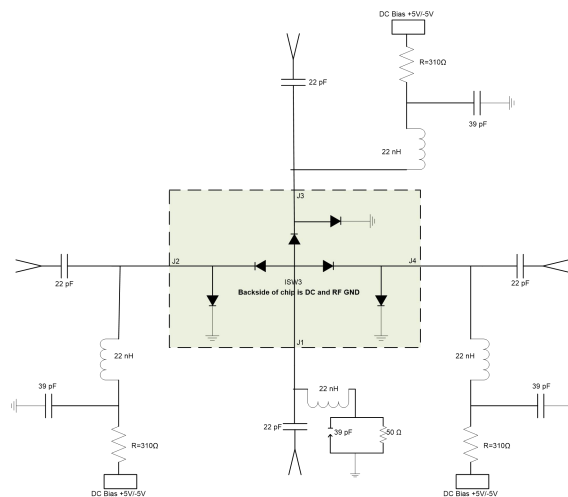


All units in the figure are micrometers

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



+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.