

## GaAs PIN Reflective SP5T Switch Chip,0.1-40GHz

### Performance characteristics

- Frequency range:0.1-40GHz
- Insertion loss : 1.2dB typ.
- Isolation: 52 dB typ.
- P-1dB: 30dBm @17GHz
- 50Ohm input / output
- 100% on-wafer testing
- Chip size: 2.32 x 1.4 x 0.1mm
- Silicon nitride passivation, scratch protection

### Product Introduction

GSW5 is a GaAs PIN reflective single-pole five-throw switch chip with 50Ω matching at the input/output ends, a frequency range of 0.1 to 40GHz , and -5/+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 <sup>1</sup>	
Maximum input voltage	2.5V
Maximum input power	+31dBm CW
Operating temperature	-55 ~ +85°C
storage temperature	-65 ~ +150°C

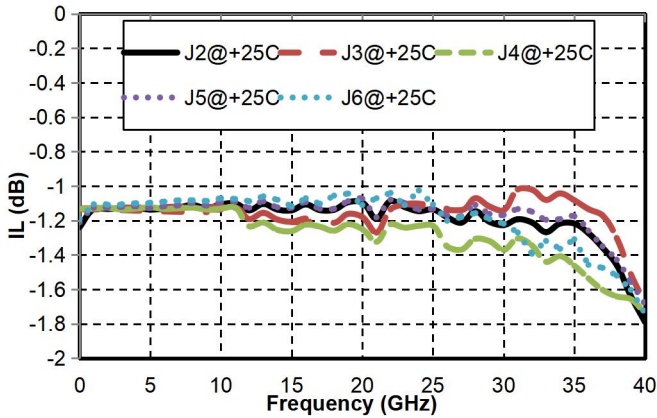
【1】 Exceeding any of these maximum limits may cause permanent damage.

Electrical performance parameters ( TA = +25°C)				
index	Minimum	Typical Value	Maximum	unit
Frequency Range	0.1-18			G Hz
Insertion loss	-	1.2	1.3	dB
Isolation	49	66	-	dB
Input return loss	17	19	-	dB
Output return loss	16	19	-	dB
Frequency Range	18-40			G Hz
Insertion loss	-	1.3	1.8	dB
Isolation	35	41	-	dB
Input return loss	17	18	-	dB
Output return loss	16	18	-	dB
P-1dB @17GHz	-	30	-	DBm
Switching speed	-	20	-	ns

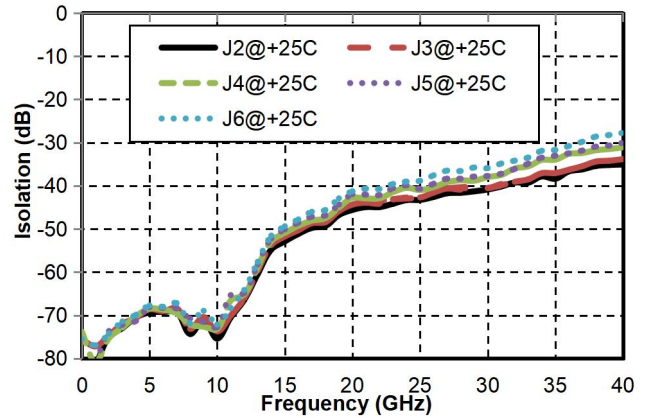
**GaAs PIN reflective single-pole five-throw switch chip, 0.1-40GHz**

Main index test curve

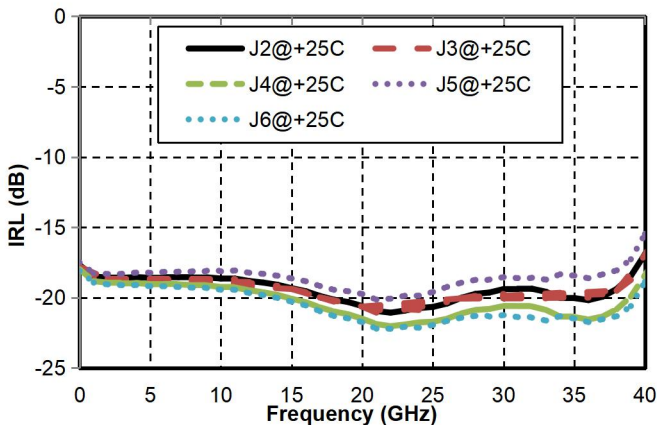
Insertion Loss vs. Operating Frequency



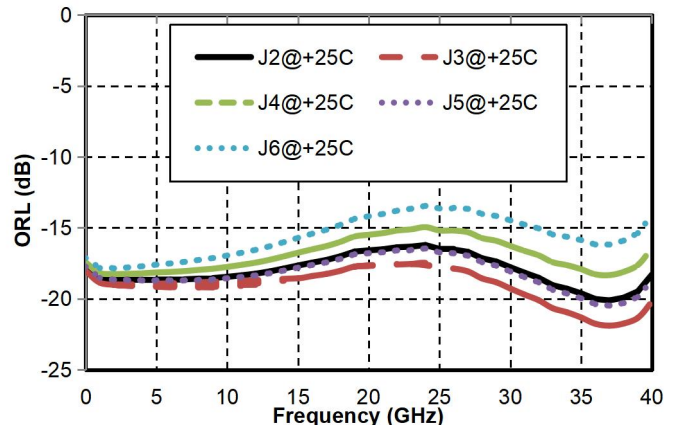
Isolation vs. Operating Frequency



Input Return Loss vs. Frequency



Output Return Loss vs. Frequency



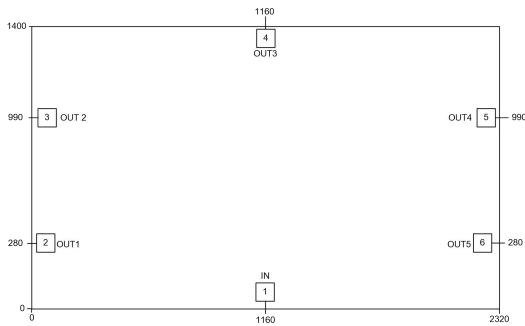
**Typical Driver Connections**

Control Port					Output conduction condition				
J2	J3	J4	J5	J6	J2-J1	J3-J1	J4-J1	J5-J1	J6-J1
-10mA	10mA	10mA	10mA	10mA	Continuity	isolation	isolation	isolation	isolation
10mA	-10mA	10mA	10mA	10mA	isolation	Continuity	isolation	isolation	isolation
10mA	10mA	-10mA	10mA	10mA	isolation	isolation	Continuity	isolation	isolation
10mA	10mA	10mA	-10mA	10mA	isolation	isolation	isolation	Continuity	isolation
10mA	10mA	10mA	10mA	-10mA	isolation	isolation	isolation	isolation	Continuity

+5V /-5V need to be connected in series with resistors of different resistance values , +5V is connected in series with R= 25 ohm resistor ; -5V is connected in series with R= 300 ohm resistor .

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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(J1)	A DC blocking capacitor is required at the RF input signal end
2, 3, 4, 5, 6	OUT1(J2), OUT2(J3), OUT3(J4), OUT4(J5), OUT5(J6)	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

