

GaAs PIN Reflective SP8T Switch Chip,0.1-40GHz

Performance characteristics

- Frequency range:0.1-40 GHz
- Insertion loss : 1.2dB typ.
- Isolation: 53 dB typ.
- P-1dB: 30dBm @17GHz
- 50Ohm input / output
- 100% on-wafer testing
- Chip size: 2.32 x 1.52 x 0.1mm
- Silicon nitride passivation, scratch protection

Product Introduction

GSW8 is a GaAs PIN reflective single-pole eight-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)

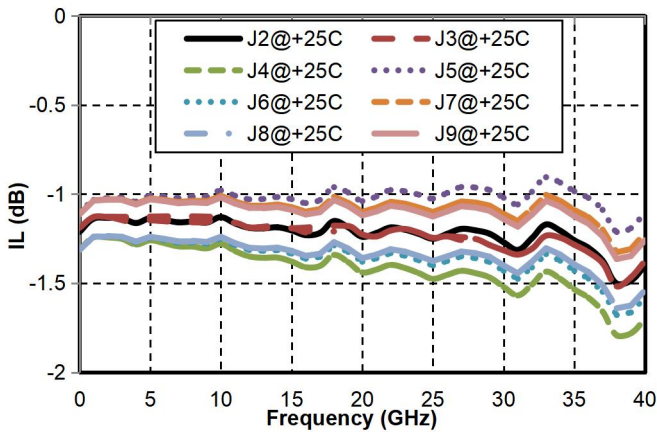
index	Minimum	Typical Value	Maximum	unit
Frequency Range	0.1-18			G Hz
Insertion loss	-	1.2	1.3	dB
Isolation	48	64	-	dB
Input return loss	18	19	-	dB
Output return loss	18	19	-	dB
Frequency Range	18-40			G Hz
Insertion loss	-	1.3	1.5	dB
Isolation	41	43	-	dB
Input return loss	16	27	-	dB
Output return loss	18	twenty two	-	dB

P-1dB @17GHz	-	30	-	dBm
Switching speed	-	20	-	ns

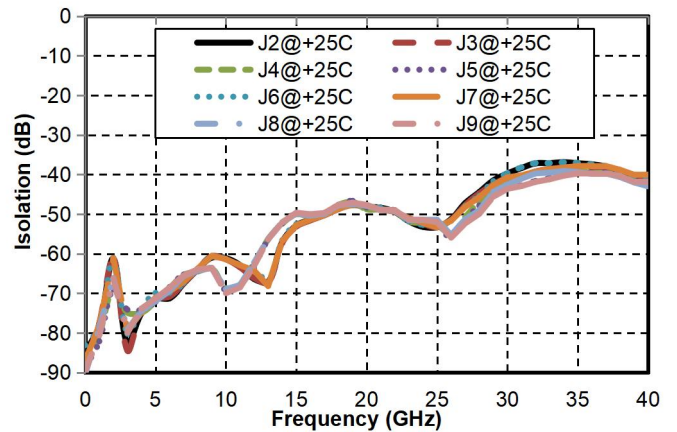
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Main index test curve

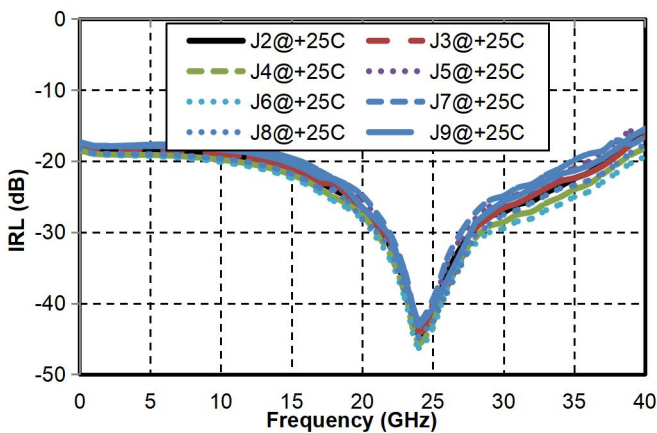
Insertion Loss vs. Operating Frequency



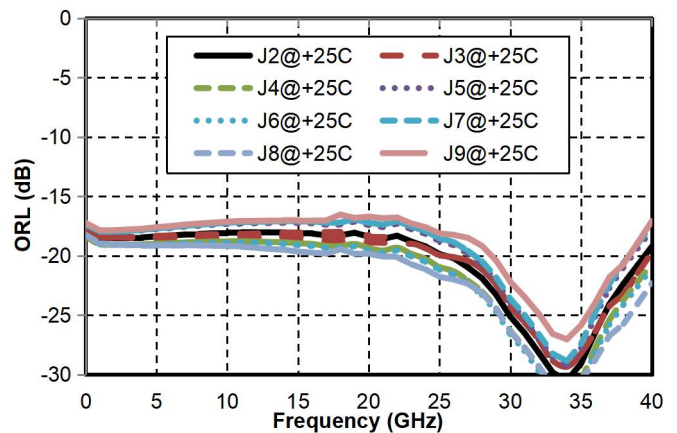
Isolation vs. Operating Frequency



Input Return Loss vs. Frequency



Output Return Loss vs. Frequency



Typical Driver Connections

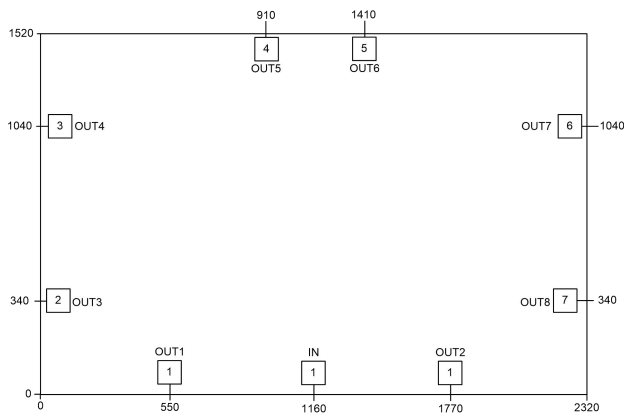
Control port (mA)									Output conduction condition							
J2	J3	J4	J5	J6	J7	J8	J9		J2-J1	J3-J1	J4-J1	J5-J1	J6-J1	J7-J1	J8-J1	J9-J1
-10	20	20	20	20	20	20	20		Continuity	isolation	isolation	isolation	isolation	isolation	isolation	isolation
20	-10	20	20	20	20	20	20		isolation	Continuity	isolation	isolation	isolation	isolation	isolation	isolation
20	20	-10	20	20	20	20	20		isolation	isolation	Continuity	isolation	isolation	isolation	isolation	isolation
20	20	20	-10	20	20	20	20		isolation	isolation	isolation	Continuity	isolation	isolation	isolation	isolation
20	20	20	20	-10	20	20	20		isolation	isolation	isolation	isolation	Continuity	isolation	isolation	isolation

				0								ty			n
20	20	20	20	20	-1 0	20	20	isolation	isolation	isolation	isolation	isolation	Continuity	isolation	isolation
20	20	20	20	20	20	-1 0	20	isolation	isolation	isolation	isolation	isolation	isolation	Continuity	isolation
20	20	20	20	20	20	20	-1 0	isolation	isolation	isolation	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)	RF input signal terminal
2, 3, 4, 5, 6, 7, 8	OUT1(J2), OUT2(J3), OUT3(J4), OUT4(J5), OUT5(J6), OUT6(J7), OUT7(J8)	RF output signal terminal
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC

Recommended circuit diagram

