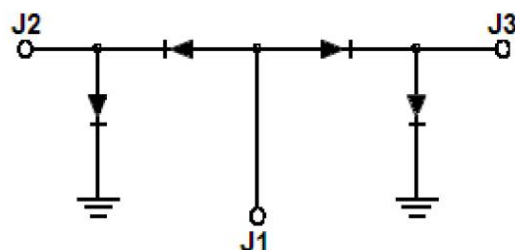


GaAs PIN Reflective single-pole double-throw switch chip, 0.1-40GHz

Performance characteristics

- Frequency range: 0.1-40GHz
- Insertion loss: 0.7dB typ.
- Isolation: 44dB typ.
- P-1dB: 26dBm@17GHz
- 50Ohm Input/output
- 100% on-film test
- Chip size: 1.4 x 0.81 x 0.1mm
- Silicon nitride passivation, scratch protection

Functional block diagram



Product introduction

GSW2 is a GaAs PIN reflective single-pole double-throw switch chip with 50Ω matching input/output, frequency range covering 0.1 ~ 40GHz, and -5V/+5V control. With excellent switching characteristics and port standing wave over the entire operating frequency range, it is ideal for microwave hybrid integrated circuits and multi-chip modules as well as low-power systems. The switch chip adopts on-chip through hole metallization process to ensure good grounding, does not require additional grounding measures, and is simple and convenient to use. The back of the chip is metallized and suitable for eutectic sintering or conductive adhesive bonding processes.

Usage limit parameter¹

Maximum input voltage	25V
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

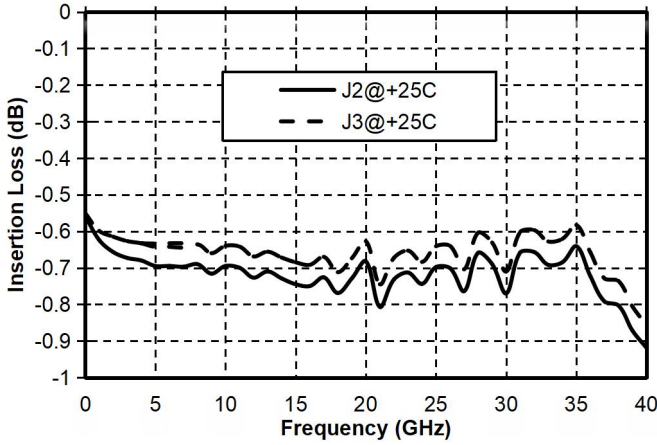
Electrical property parameter(T_A = +25°C)

Index	Minimum value	Typical value	Maximum value	Unit
Frequency range	0.1-18			GHz
Insertion loss	-	0.7	0.8	dB
isolation	49	52	-	dB
Input return loss	20	21	-	dB
Output return loss	22	22	-	dB
Frequency range	18-40			GHz
Insertion loss	-	0.7	0.9	dB
isolation	34	38	-	dB
Input return loss	20	22	-	dB
Output return loss	19	23	-	dB
P-1dB@17GHz	-	26	-	dBm
Switching speed	-	20	-	ns

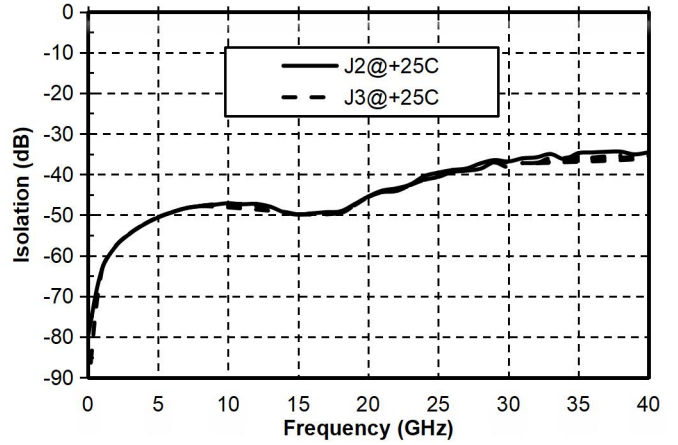
GaAs PIN Reflective single-pole double-throw switch chip, 0.1-40GHz

Main index test curve

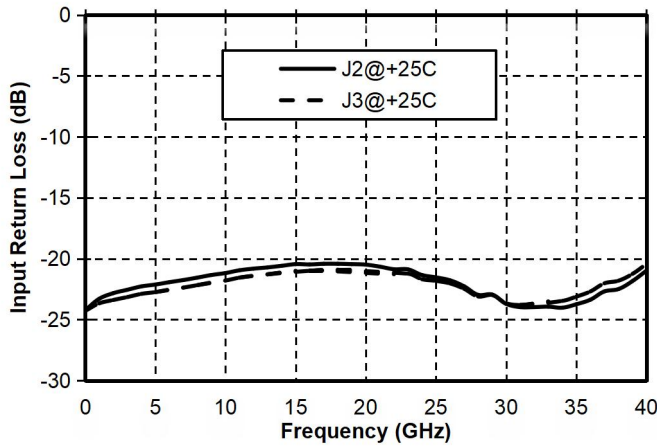
Insertion loss vs. operating frequency



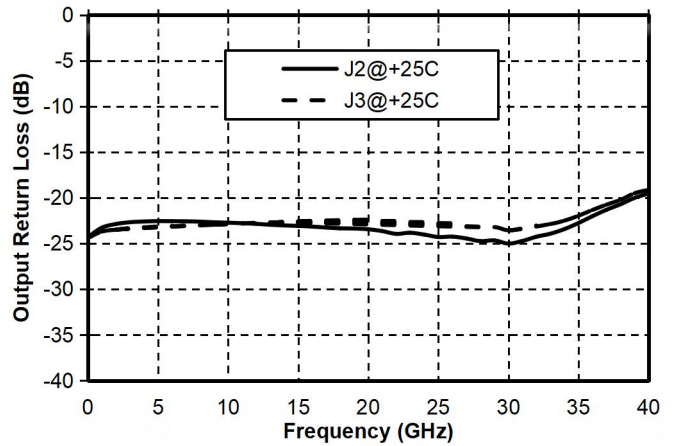
Isolation vs. operating frequency



Input return loss vs. frequency



Output return loss vs. frequency



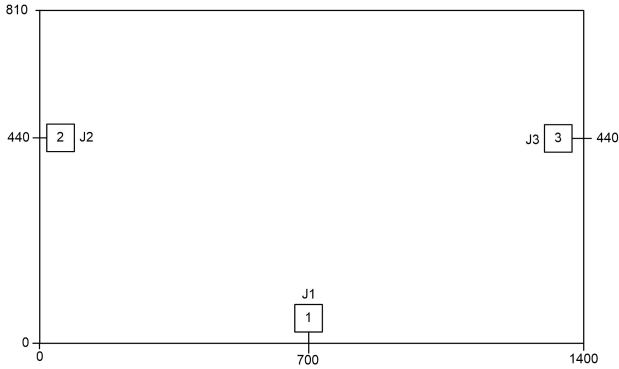
Typical Driver Connections

CONTROL LEVEL (DC CURRENT)		RF OUTPUT STATE	
J2	J3	J2-J1	J3-J1
-10mA	+12mA	Low Loss	Isolation
+12mA	-10mA	Isolation	Low Loss

说明: $V \approx +1.28V$, $I \approx +12mA$; $V \approx -1.80V$, $I \approx -10mA$ (含 J1 端 $R_{IN} = 50$ 欧姆电阻分压)

GaAs PIN Reflective single-pole double-throw switch chip, 0.1-40GHz

External structure

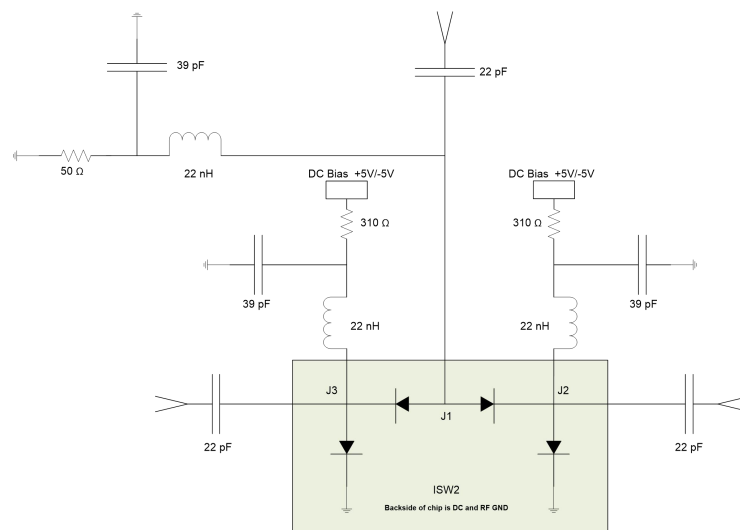


Unit: micron

Close pressure point definition

Bonding point serial number	Functional symbol	Function description
1	IN(J1)	The RF input signal terminal needs to be equipped with a straight capacitor
2、3	OUT2(J2)、 OUT3(J3)	The RF output signal terminal needs to be equipped with a straight capacitor
Chip bottom	GND	The bottom of the chip must be properly grounded to the RF and DC

Recommended circuit diagram



+5V series $R \approx 310$ ohm resistance, $V \approx +1.28V$, $I \approx +12mA$; -5V series $R \approx 310$ ohm resistance, $V \approx -1.80V$, $I \approx -10mA$. Users can change the resistance value according to their own situation, if there is any problem, please contact the manufacturer.