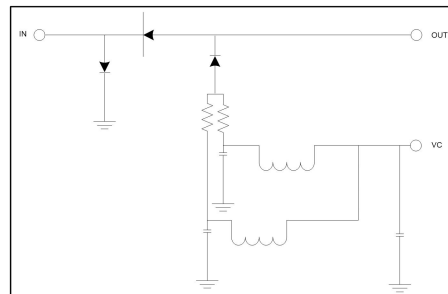


GaAs PIN Absorption single-pole single-throw switch chip,0.1-40GHz

Performance characteristics

- Frequency range: 0.1-40GHz
- Insertion loss: 1.1dB typ.
- Isolation: 36dB typ.
- P-1dB: 23dBm@17GHz
- 50Ohm Input/output
- 100% on-film test
- Chip size: 1.11 x 0.75 x 0.1mm
- Silicon nitride passivation, scratch protection

Functional block diagram



Product Introduction

GSW1A is a GaAs PIN absorption single-pole single-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	+30dBm 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)

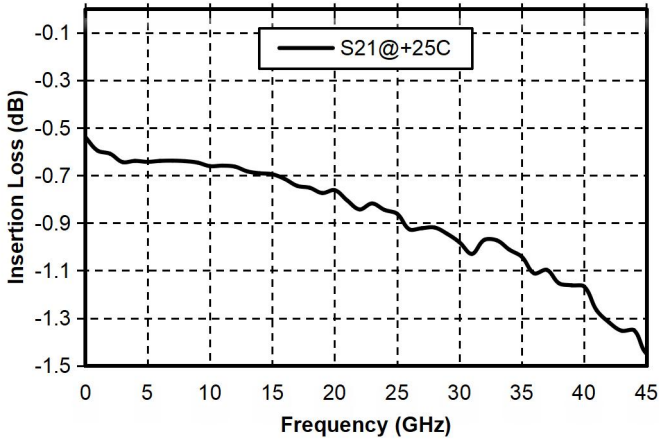
Index	Minimum value	Typical value	Maximum value	Unit
Frequency range	0.1-18			GHz
Insertion loss	-	0.7	0.8	dB
isolation	33	49	-	dB
Input return loss	23	24	-	dB
Output return loss	19	22	-	dB
Frequency range	18-40			GHz
Insertion loss	-	1.0	1.2	dB
isolation	17	24	-	dB
Input return loss	24	30	-	dB
Output return loss	17	18	-	dB
P-1dB@17GHz	-	23	-	dBm

Switching speed	-	20	-	ns
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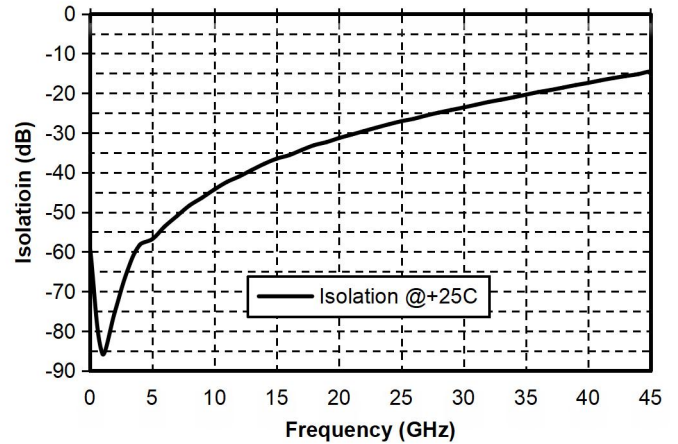
GaAs PIN Absorption single-pole single-throw switch chip,0.1-40GHz

Main index test curve

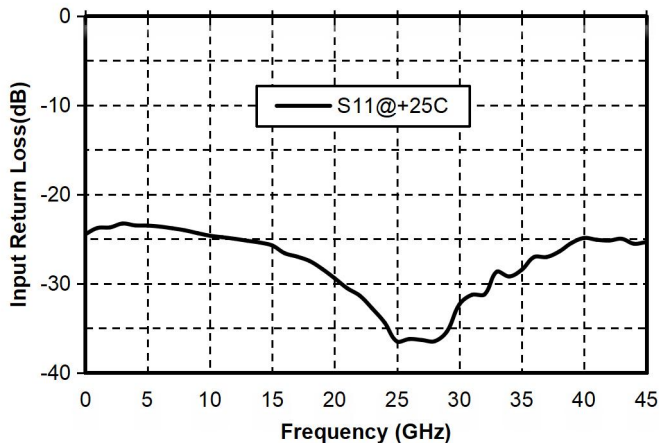
Insertion loss vs. operating frequency



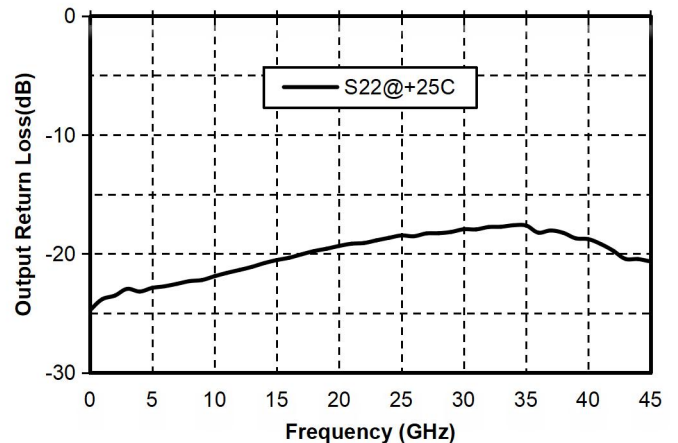
Isolation vs. operating frequency



Input return loss vs. frequency



Output return loss vs. frequency

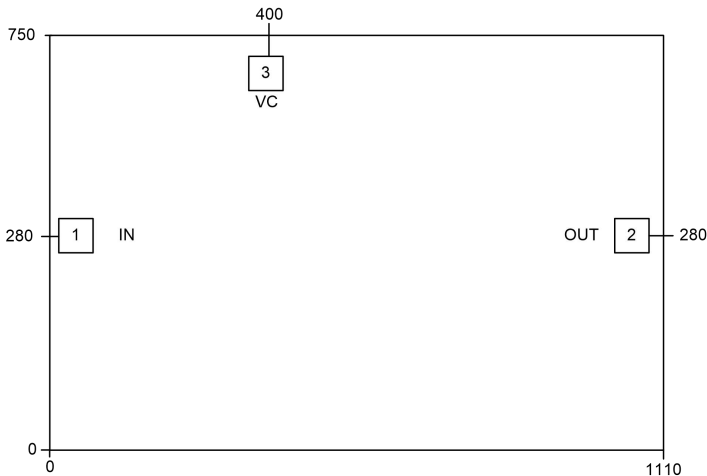


Typical Driver Connections

CONTROL LEVEL (DC CURRENT)	RF OUTPUT STATE
J1-J2 Low Loss : Good VSWR at J1 & J2	J1-J2 Isolation : Good VSWR at J2
D.C. Bias B1 = -1.36V / -10mA	D.C. Bias B1 = +1.37V/+10mA
VC = -5V	VC = +1.76V

GaAs PIN Reflective Single-pole Single-throw Switch Chip,0.1-40GHz

External structure



Unit: micron

Close pressure point definition

Bonding point serial number	Functional symbol	Function description
1	J1 (IN)	At the RF signal end, a straight capacitor must be installed
2	J2 (OUT)	At the RF signal end, a straight capacitor must be installed
3	VC	DC Bias
Chip bottom	GND	The bottom of the chip must be properly grounded to the RF and DC

Recommended circuit diagram

