

## GaAs MMIC SPST Reflective Switch Chip, DC-50GHz

### Performance characteristics

- Frequency range: DC- 50GHz
- Insertion loss : 2.3 dB @50GHz
- Isolation: 40dB
- On-state VSWR: 1. 2
- Integrated logic control
- Full positive electricity
- 50Ohm input / output
- Chip size: 1.25 x 1.10 x 0.1mm

### Product Introduction

GSW-0050ST-P-PD is a GaAs MMIC single-pole single-throw reflective switch chip with 50Ω matching at the input/output ends and a frequency range of DC~50GHz . The chip is powered by +5V, 0V / +5V (compatible with +3.3V) positive level control , switching speed of 20ns , P -1dB input power of + 25dBm .

### Use restriction parameter <sup>1</sup>

Control voltage range	-0.5V ~ + 6V
Supply voltage range	+6V
Maximum input power	+30dBm
Operating temperature	-55 ~ +85°C
storage temperature	-65 ~ +150°C

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

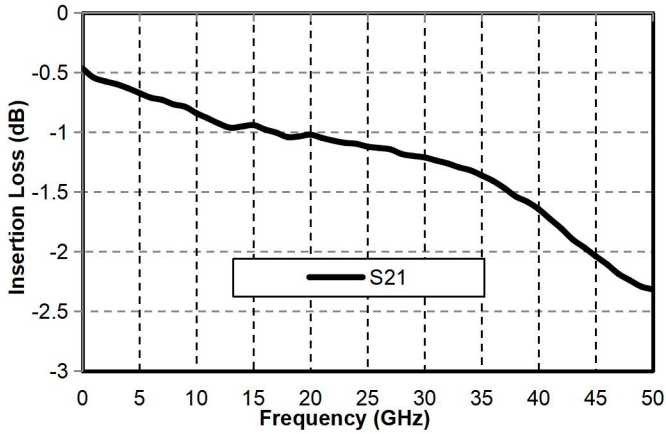
### Electrical performance parameters ( TA = +25°C , VDD = +5V, IN = 0/+5V )

index	Minimum	Typical Value	Maximum	unit
Frequency Range	DC-			GHz
Insertion loss @50GHz	-	2.3	-	dB
Isolation	-	40	-	dB
On-state input return loss	-	20	-	dB
On-state output return loss	-	20	-	dB
P-1dB	-	25	-	dBm
Switching speed	-	20	-	ns
Control high level	2.7	3.3	5	V
Control low level	0	-	0.8	V
Control current		600		uA
voltage	-	+5	-	V
Quiescent Current	-	1.5	-	mA

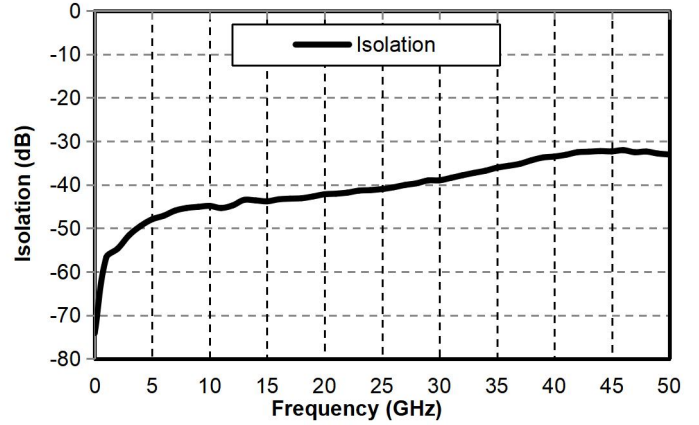
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### Main index test curve

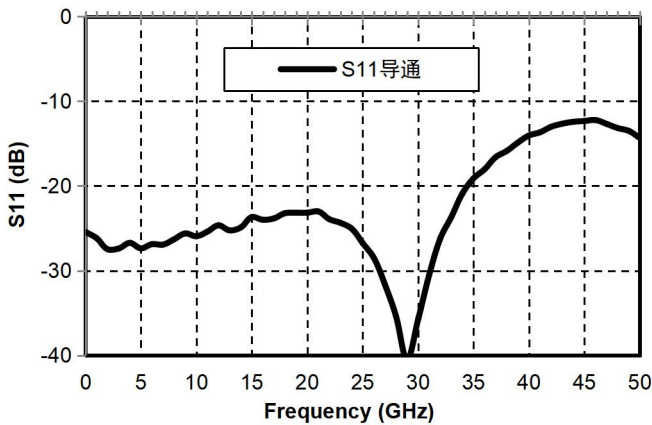
Insertion Loss vs. Operating Frequency



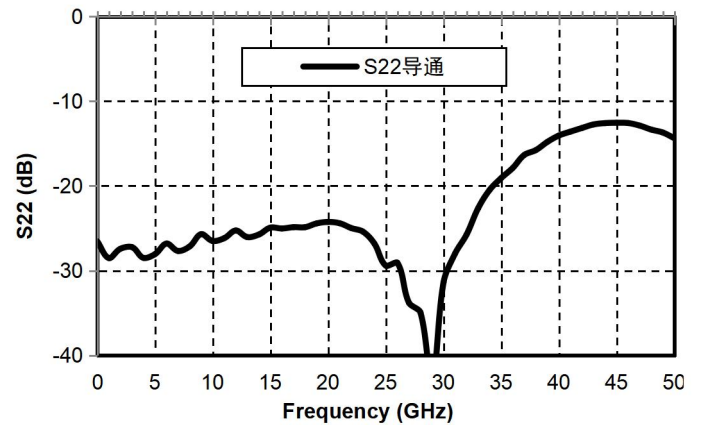
Isolation vs. Operating Frequency



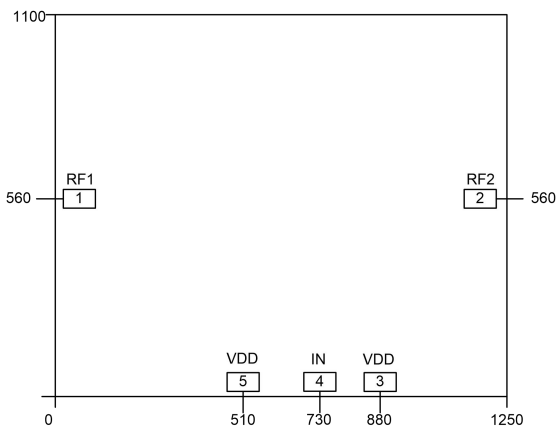
Input Return Loss vs. Operating Frequency  
( On State )



Output Return Loss vs. Operating Frequency  
( On State )



### Appearance structure <sup>2</sup>



【2】 The units in the figure are all micrometers ( dimensional tolerance:  $\pm 5.0\mu\text{m}$  )

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### Bonding point definition

Bonding point number	Function Symbol	Functional Description
1	RF 1	RF signal input / output terminal , requires external broadband DC blocking capacitor
2	RF2	RF signal input / output terminal , requires external broadband DC blocking capacitor
4	IN	Positive level control port
3, 5	VDD	Power supply voltage (select one)
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC

### Truth table :

VDD	IN	path
+ 5V	Low (0)	Continuity
+ 5V	High (1)	Shutdown

High (1), +2.7~ +5V; Low (0), 0~ + 0.8V

### Recommended assembly drawing

