

GaAs MMIC SP4T Reflective Switch Chip, DC-8GHz

Performance characteristics

- Frequency range: DC-8GHz
- Insertion loss : 0.9 dB @ 8 GHz
- Isolation: 40dB
- On- state VSWR : 1.4
- Integrated control logic
- 50Ohm input / output
- 100% on-wafer testing
- Chip size: 1.80 x 1.93 x 0.1mm

Product Introduction

GSW-00084T-N-PD is a GaAs MMIC single-pole four-throw reflective switch chip with 50Ω matching at the input/output ends and a frequency range covering DC-8 GHz . The chip is powered by -5V, + 5V /0V positive level control (compatible with +3.3V), switching speed of 25ns , and 1dB compression input power of + 27dBm .

Use restriction parameter ¹	
Control voltage range	-0.5V ~ + 6V
Supply voltage range	-6V
Maximum input power	+33dBm
Operating temperature	-55 ~ +85°C
storage temperature	-65 ~ +150°C

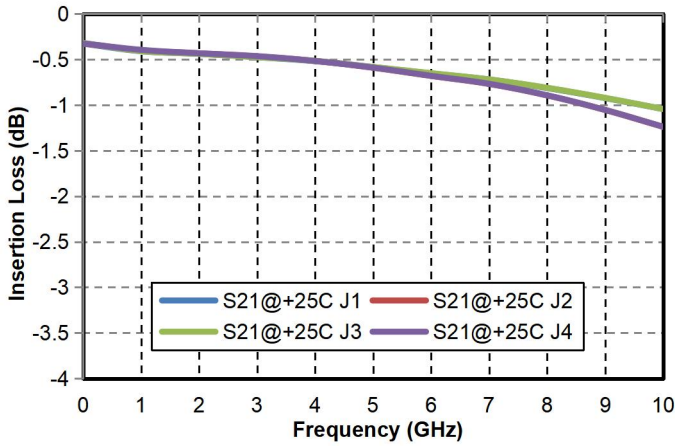
【1】 Exceeding any of these maximum limits may cause permanent damage.

Electrical performance parameters (TA = +25°C , VEE = -5V, VC = 0/+5V)				
index	Minimum	Typical Value	Maximum	unit
Frequency Range	DC-8			GHz
Insertion loss @8GHz	-	0.9	-	dB
Isolation	-	40	-	dB
On-state input return loss	-	17	-	dB
On-state output return loss	-	17	-	dB
P-1dB@1-4GHz	-	27	-	dBm
Switching speed	-	25	-	ns
Control high level	+3.0	+3.3	+5	V
Control low level	0	-	+ 0 . 5	V
Control current @ position		-	1	mA
voltage	-	-5	-	V
Supply Current	-	10	-	mA

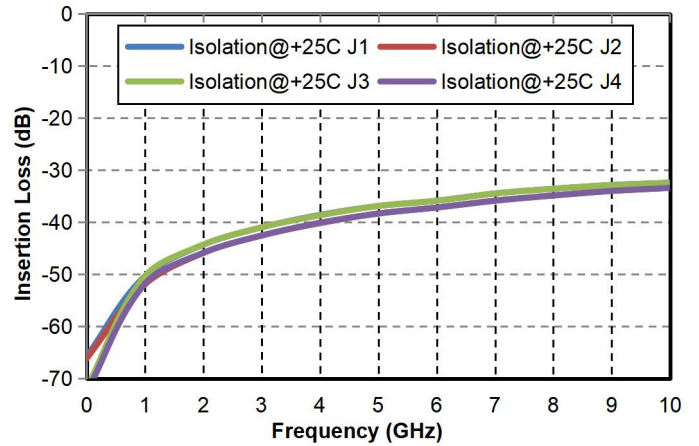
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Main index test curve

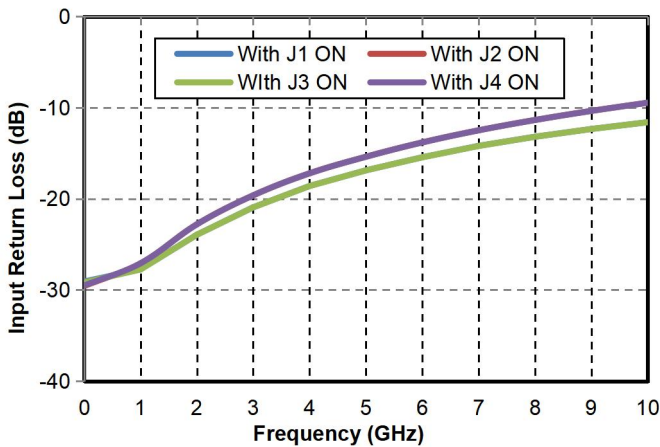
Insertion Loss vs. Operating Frequency



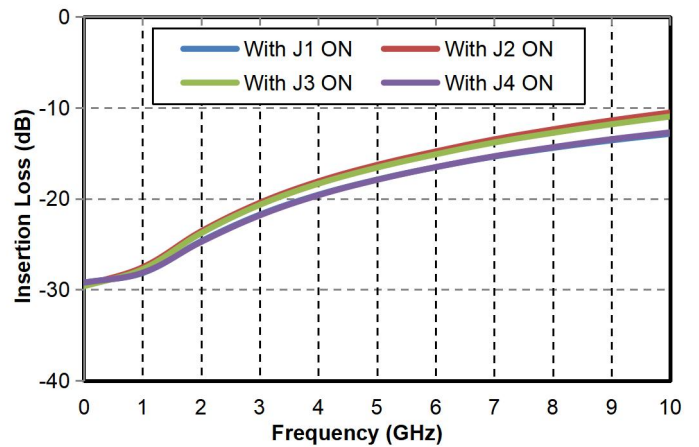
Isolation vs. Operating Frequency



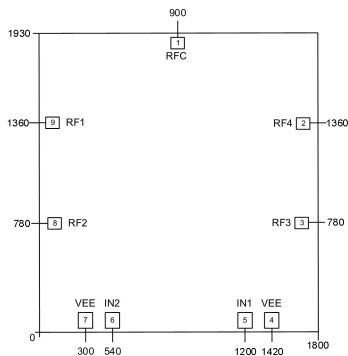
Input Return Loss vs. Operating Frequency



Output Return Loss vs. Operating Frequency



Appearance structure ² (Dimensional tolerance: $\pm 50 \mu\text{m}$)



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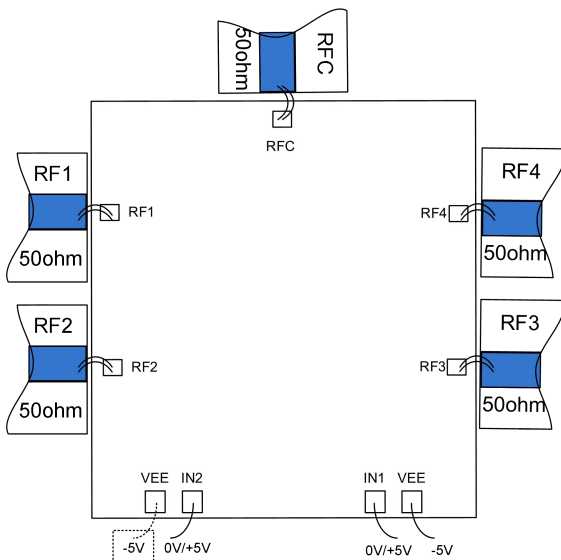
Bonding point definition

Bonding point number	Function Symbol	Functional Description
1	RF COMM	RF signal end , no internal DC blocking capacitor
2, 3, 8, 9	RF1~RF4	RF signal end , no internal DC blocking capacitor
5, 6	IN1, IN2	Positive level control port
4, 7	VEE	Power supply voltage (connect VEE at either end)
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC

Truth Table

V E	IN 2	IN1	R F C-RF1	R F C-RF2	RFC - RF3	R F C-RF4
-5V	0V	0V	Conductivity	Shutdown	Shutdown	Shutdown
	0V	5V	Shutdown	Conductivity	Shutdown	Shutdown
	5V	0V	Shutdown	Shutdown	Conductivity	Shutdown
	5V	5V	Shutdown	Shutdown	Shutdown	Conductivity

Recommended assembly drawing



* Just connect to VEE on either side. VEE port can be connected in parallel with bypass capacitor > 100nF .