

GaAs MMIC SP3T absorptive switch IC, DC-8GHz

Performance characteristics

- Frequency range: 0.1-8GHz
- Insertion loss : ≤ 1 dB
- Isolation: 53dB
- On-state VSWR : 1.2 :1
- Off-state VSWR : 1.2:1
- Integrated logic control (all positive)
- 50Ohm input / output
- 100% on-wafer testing
- Chip size: 1.7 x 1.3 x 0.1mm

Product Introduction

GSW-00083T-P-PD is a GaAs MMIC single-pole three-throw absorptive switch chip with 50 Ω matching at the input/output ends and a frequency range covering DC~8 GHz . The chip is powered by +5V, 0V / +5V (compatible with +3.3V) positive level control , switching speed of 30ns , and 1dB compression input power of +23dBm at room temperature .

Use restriction parameter ¹	
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.

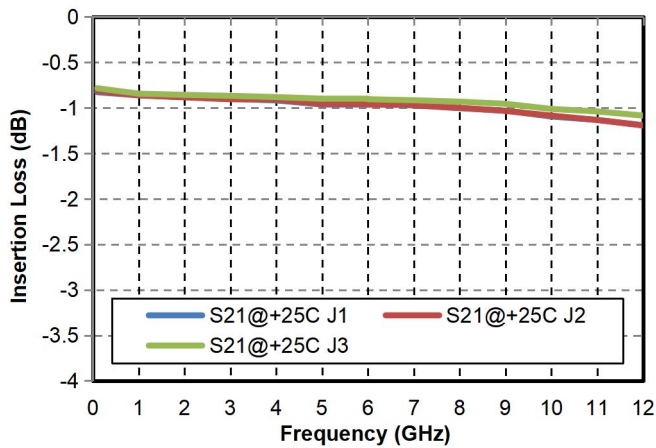
Electrical performance parameters (TA = +25°C , VD = +5V, A, B = 0/+5V)				
index	Minimum	Typical Value	Maximum	unit
Frequency Range	DC-8			GHz
Insertion loss	-	-	1	dB
Isolation	-	53	-	dB
On-state input return loss	-	23	-	dB
On-state output return loss	-	20	-	dB
Off-state input return loss		20		dB
Off-state output return loss		20		dB
P-1dB	-	23	-	dBm
Switching speed	-	30	-	ns
Controlling high voltage	3	3.3 V	5	V
Controlling low voltage	0	-	0.8	V
Control current		1		mA

voltage	-	+5	-	V
Quiescent Current	-	9	-	mA

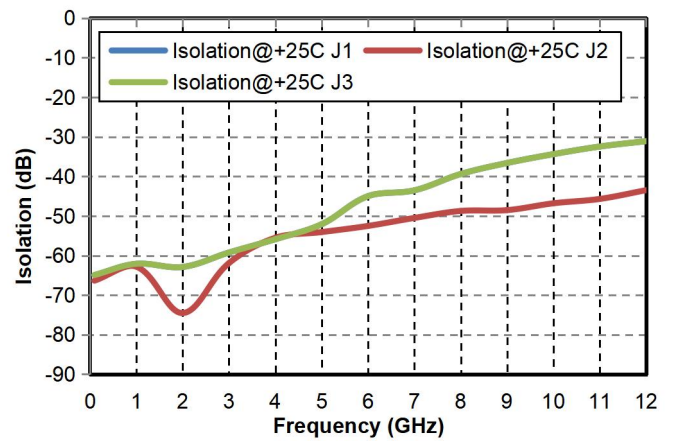
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Main index test curve

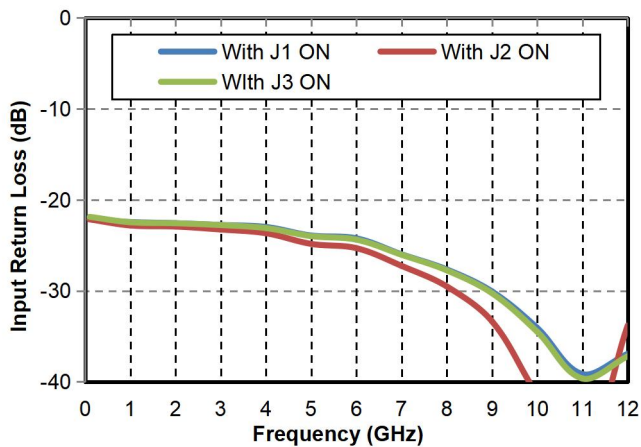
Insertion Loss vs. Operating Frequency



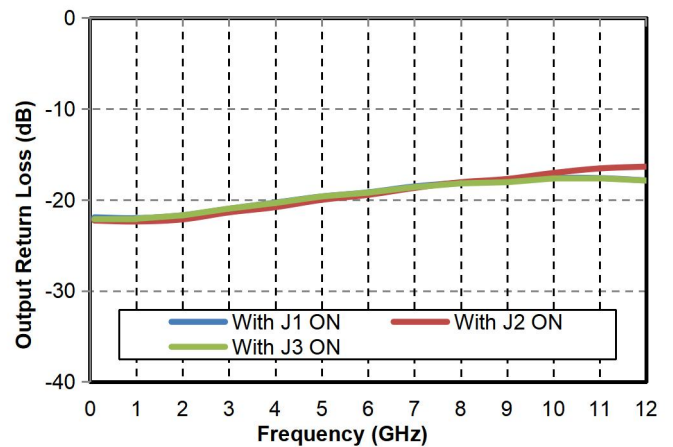
Isolation vs. Operating Frequency



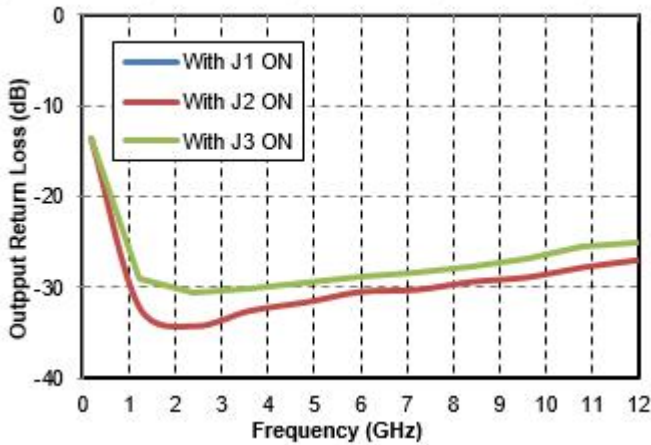
Input Return Loss vs. Operating Frequency
(On/Off)



Output Return Loss vs. Operating Frequency
(On State)

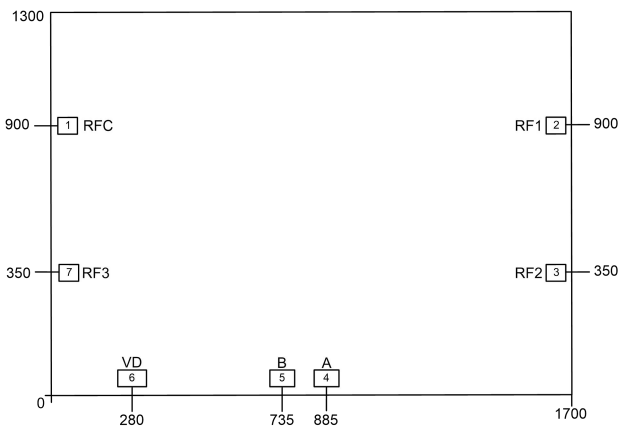


Output Return Loss vs. Operating Frequency
(Off State)



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Appearance structure ²



[2] The units in the figure are all micrometers (dimensional tolerance: ± 5 0um.)

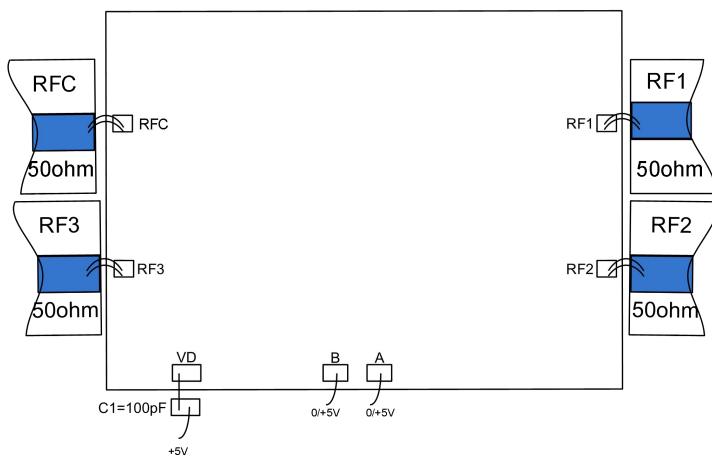
Bonding point definition		
Bonding point number	Function Symbol	Functional Description
1	RF COMM	RF signal end , no DC blocking capacitor inside , external DC blocking capacitor is required
2, 3, 7	RF1/RF2/RF3	RF signal end , no DC blocking capacitor inside , external DC blocking capacitor is required
4, 5	A. B	Positive level control port
6	VD	voltage
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC

Truth table :

voltage	Control Input		On/off status		
	A	B	RF1	RF2	RF3
VD	0V	0V	ON	OFF	OFF
+5V	+ 5 V (+3.3 V	0V	OFF	ON	OFF
+5V	0V	+ 5 V (+3.3 V	OFF	OFF	ON

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Recommended assembly drawing



V D port can be connected in parallel with a bypass capacitor > 100nF .