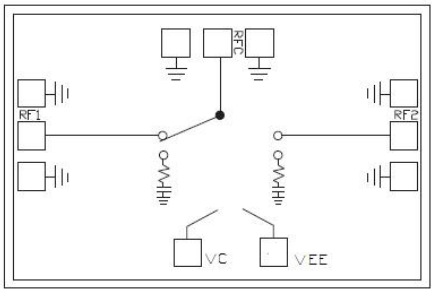
GSW-0040BDT-PD

GaAs MMIC SPDT Switch Chip, DC-40GHz

Performance characteristics

- Frequency range: DC - 40 GHz
- Insertion loss : 2.0 dB @ 40 GHz
- Isolation: 52dB
- On - state VSWR : 1.2
- Integrated logic control
- 50Ohm input / output
- 100% on-wafer testing
- Chip size: 1.72 x 1.71 x 0.1mm

Block Diagram



Product Introduction

GSW-0040BDT-PD is a GaAs MMIC single-pole double-throw switch chip with 50Ω matching at the input/output ends and a frequency range covering DC to 40 GHz . The chip is powered by -5V, 0V / +5V positive level control , switching speed of 30 ns, and P -1dB input power of +2 1 dBm .

Use restriction parameter [1]	
Control voltage range	-0.5V ～ + 6V
Supply voltage range	- 6V
Maximum input power	+25dBm
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)				
index	Minimum	Typical Value	Maximum	unit
Frequency Range				G Hz
Insertion loss @40GHz	-	2.0	-	dB
Isolation	-	52	-	dB
On-state input return loss	-	twenty three	-	dB
On-state output return loss	-	twenty three	-	dB
P-1dB	-	twenty one	-	dBm
IIP3		37		dBm
Switching speed	-	30	-	ns
Control voltage	-	0/+5	-	V
Control current	-	600	-	uA
voltage	-	-5	-	V
Quiescent Current	-	3	-	mA

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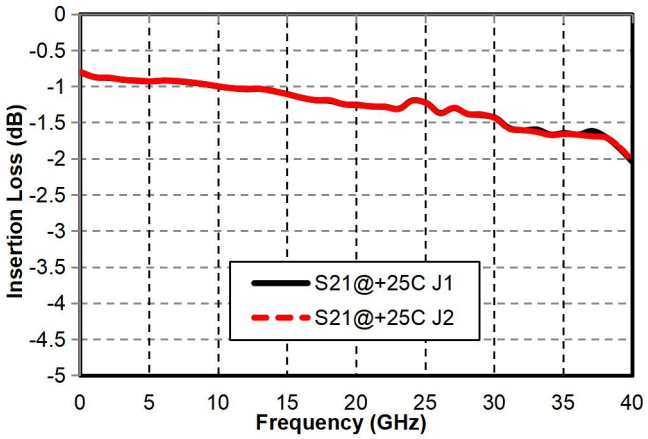
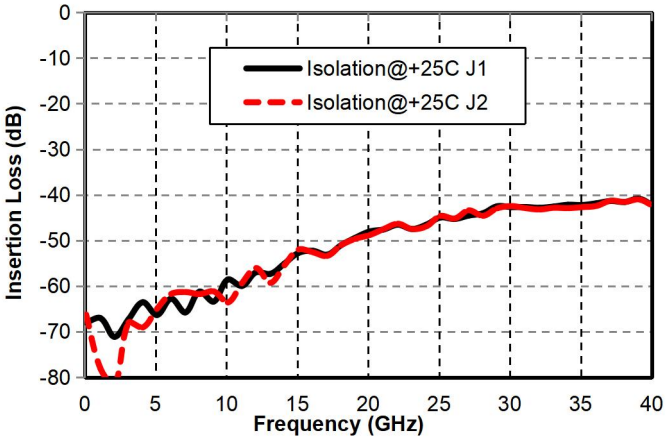
Main index test curve

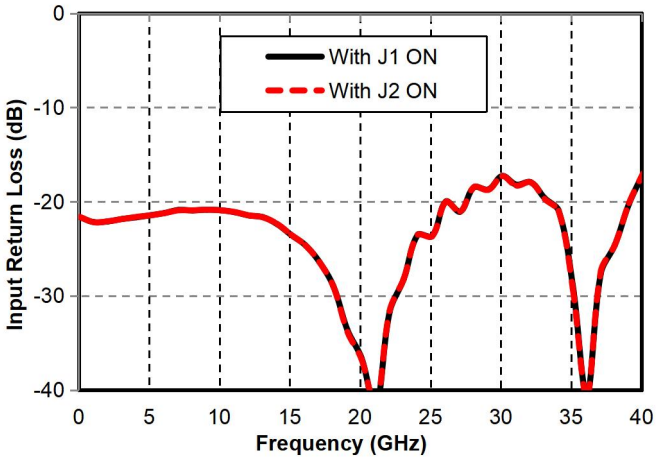
Insertion Loss vs. Operating Frequency



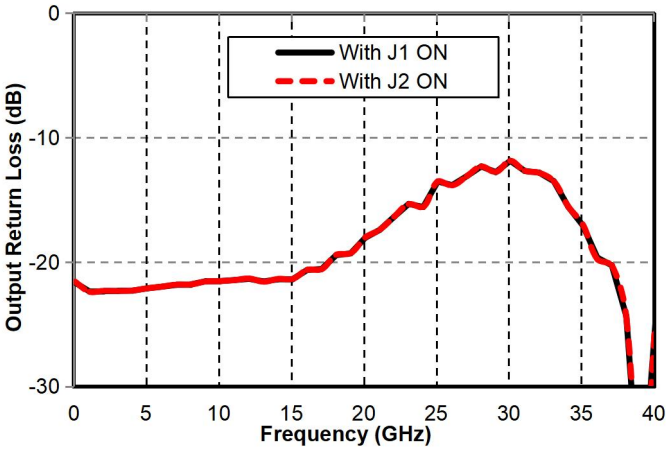
Isolation vs. Operating Frequency



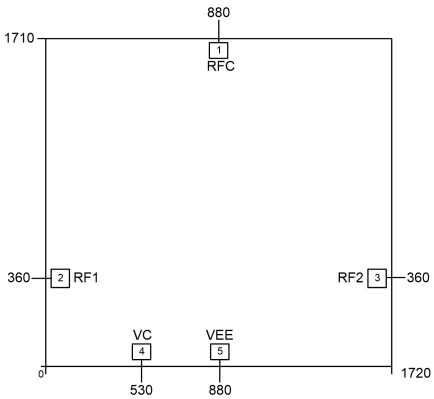
Input Return Loss vs. Operating Frequency (On State)



Output Return Loss vs. Operating Frequency (On State)



Appearance structure [2]



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

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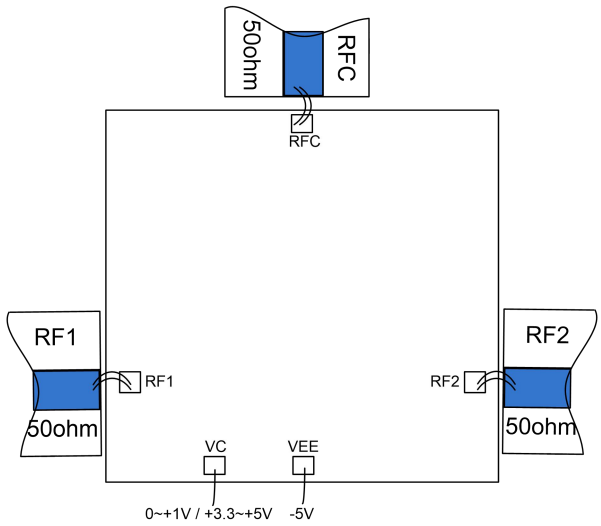
Bonding point definition		
Bonding point number	Function Symbol	Functional Description
1	RF COMM	RF signal input terminal , no internal DC blocking capacitor
2.3	RF OUTPUT	RF signal output terminal , no internal DC blocking capacitor
4	VC	Control Port
5	VEE	voltage
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC

Truth table :

VEE	VC	Conductivity
-5V	+5V	RFC-RF1
-5V	0V	RFC-RF2

Recommended assembly drawing



VEE port can be connected in parallel with a bypass capacitor > 100nF

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