

GSW - 0050DT-N-PD

GaAs MMIC SPDT Reflective Switch Chip, DC-50GHz

Performance characteristics

- Frequency range: DC-50GHz
- Integrated logic control
- Insertion loss : 2.7dB@50GHz
- Isolation: 42dB
- On-state VSWR : 1.3
- 50Ohm input / output
- Chip size: 1.25 x 1.1 x 0.1mm

Product Introduction

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

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 the above maximum limits may cause permanent damage

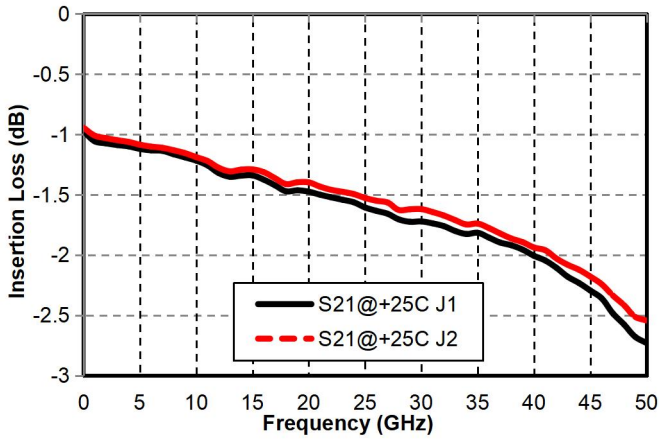
Electrical performance parameters (TA = +25°C , VEE = -5V, VC = 0/+5V)				
index	Minimum	Typical Value	Maximum	unit
Frequency Range	DC-50			GHz
Insertion loss @50GHz	-	2.7	-	dB
Isolation	-	42	-	dB
On-state input and output return loss (ON)	-	18/18	-	dB
P-1dB	-	18@0.5GHz	-	dBm
	-	20@1-50GHz	-	dBm
Switching speed	-	50	-	ns
Control current	-	500	-	uA
Control high level	3	-	5	V
Control low level	0	-	0.8	V
Control current	-	-	1	mA
voltage	-	-5	-	V
Quiescent Current	-	2	-	mA

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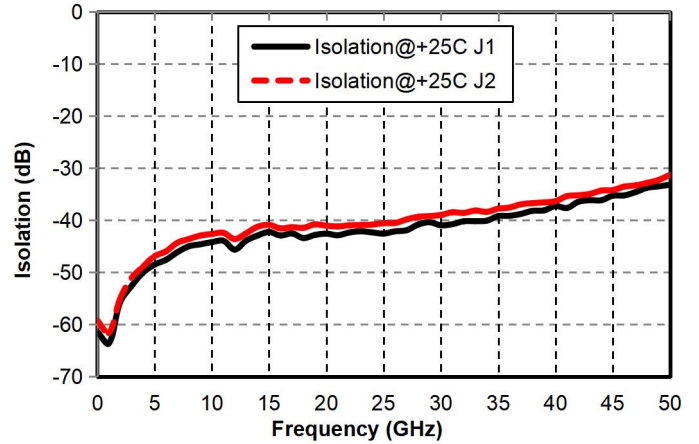
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Main index test curve

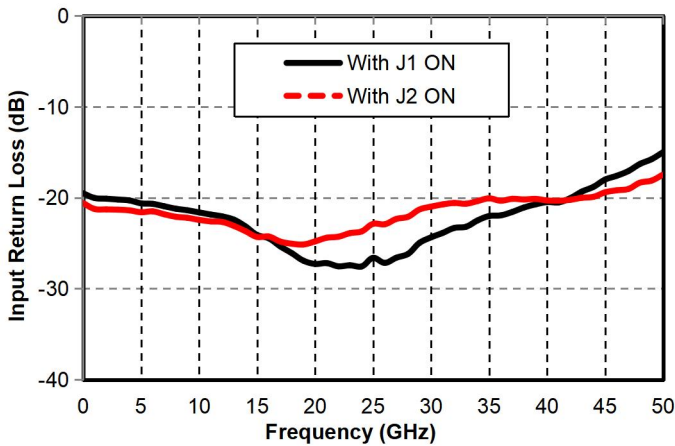
Insertion Loss vs. Operating Frequency



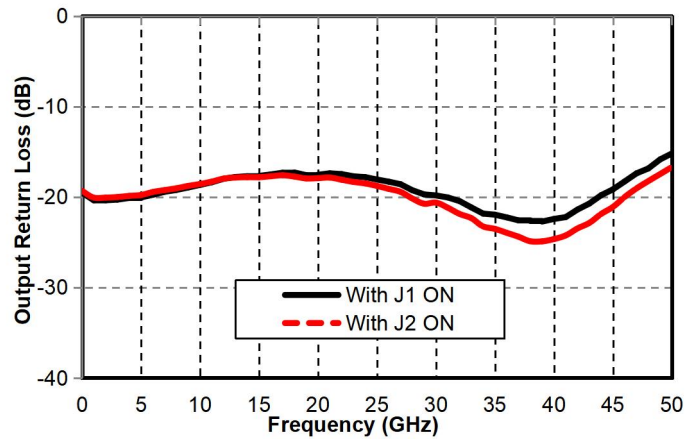
Isolation vs. Operating Frequency



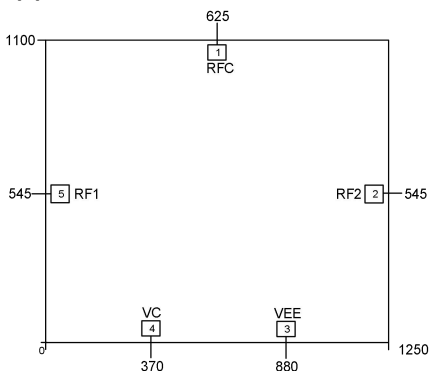
Input Return Loss vs. Operating Frequency (On State)



Output Return Loss vs. Operating Frequency (On State)



Appearance structure :



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

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GaAs MMIC SPDT Absorptive Switch Chip, DC-50GHz

Bonding point definition

Bonding point number	Function Symbol	Functional Description
1	RF COMM	RF signal input terminal , no internal DC blocking capacitor
2, 5	RF OUTPUT	RF signal output terminal , no internal DC blocking capacitor
4	VC	Positive level control port
3	VEE	voltage
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC

Truth Table

VEE	VC	RFC-RF1	RFC-RF2
-5V	High (1)	Shutdown	Conductivity
-5V	Low (0)	Conductivity	Shutdown

High (1), +3~ +5V; Low (0), 0~ + 0.8V

Recommended assembly drawing

