

GaAs MMIC Absorptive SP8T Switch Chip, DC- 6 GHz

Performance characteristics

- Frequency range: DC - 6 GHz
- Full positive power supply, control, integrated TTL
- Insertion loss : 2.5 dB @ 6GHz
- Isolation: 44 dB
- Wave ratio : 1.3
- QFN5X5mm

Product Introduction

GSW-00068T-PD-CQ5M is a GaAs MMIC absorptive single-pole eight-throw switch chip, with 50Ω matching at the input/output end , a frequency range covering DC ~6 GHz , +5V power supply, 0V/+5V control (compatible with +3.3V), a switching speed of 30ns, and a 1dB compression input power of +30 dBm . The switch uses a 5X5mm surface-mount leadless ceramic tube shell to achieve airtight packaging, the pins can be tinned, and the surface of the pin pads is gold-plated, which is suitable for reflow soldering installation process.

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.

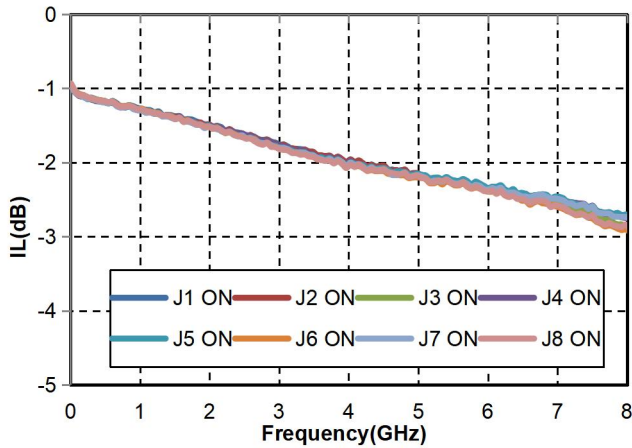
Electrical Parameters (TA = +25°C, VDD = + 5V , VC = 0/+5V)

Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	DC-6			G Hz
Insertion loss @6GHz	-	2.5	-	dB
Isolation	-	44	-	dB
Input return loss	-	19	-	dB
Output return loss	-	20	-	dB
P-1dB		25@0.1~0.2GHz		dBm
		27@0.5GHz		dBm
		29@1GHz		dBm
	-	30@2-3GHz	-	dBm
Switching speed	-	30	-	ns
Control voltage	-	0/+5 (compatible with +3.3)	-	V
Voltage	-	+5	-	V
Quiescent Current	-	15	-	mA

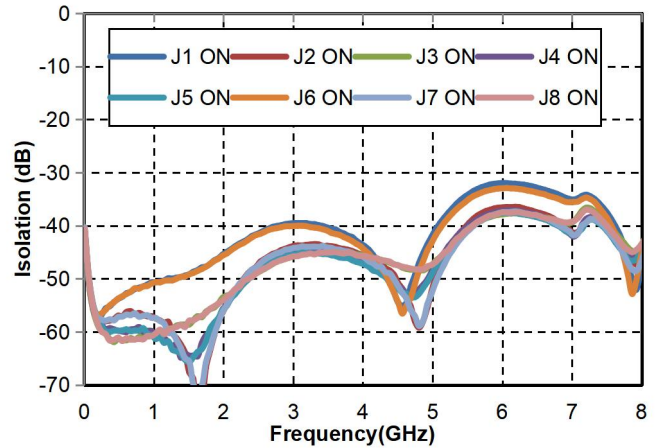
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Main index test curve

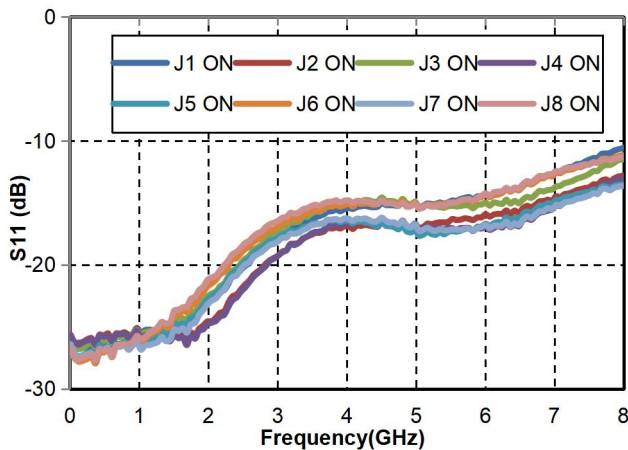
Insertion Loss vs. Operating Frequency



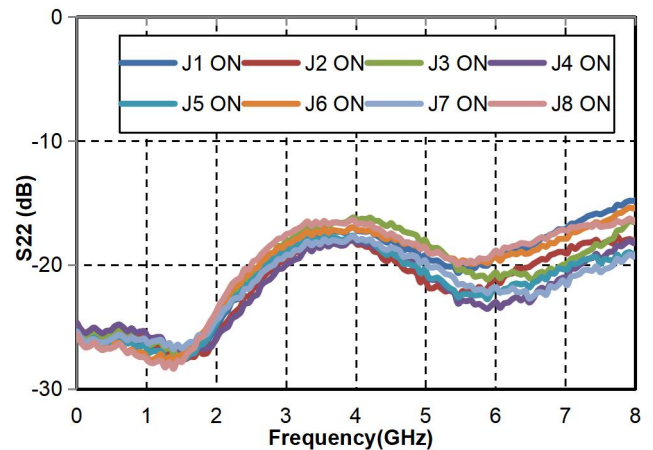
Isolation vs. Operating Frequency



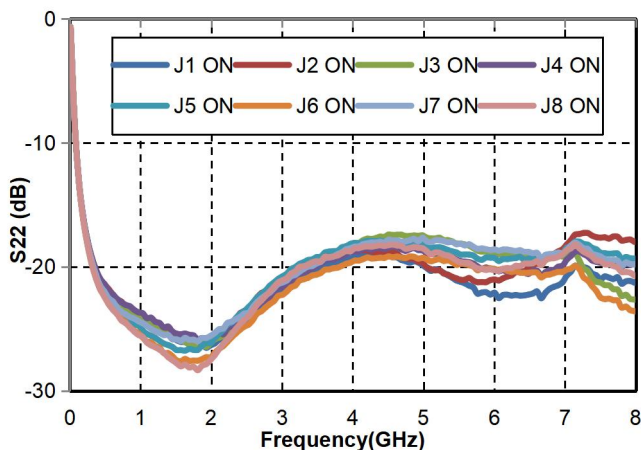
On-state input wave loss vs. operating frequency



On-state output return loss vs. operating frequency

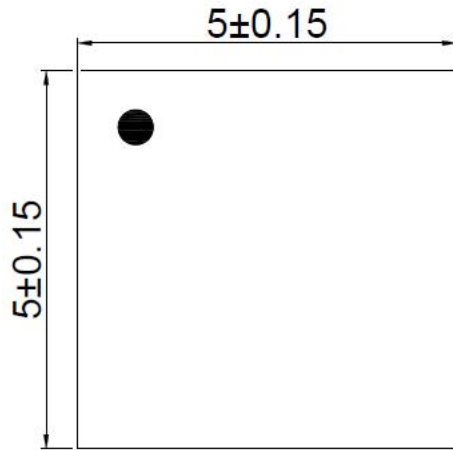


Off-state output standing wave

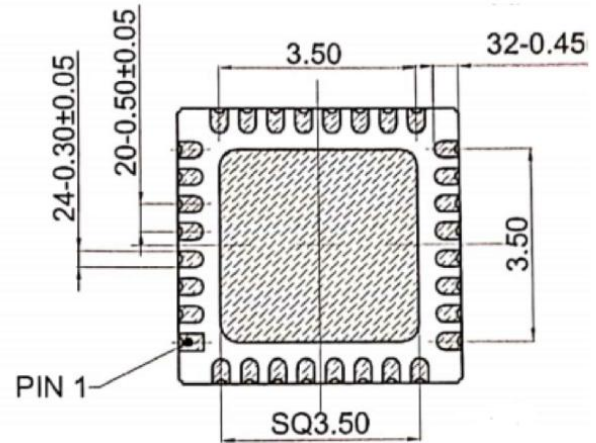


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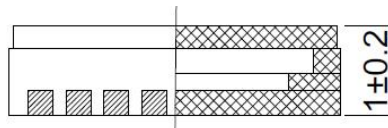
Appearance structure



Top view



Bottom view



Side View

The units in the figures are all in millimeters , and the tolerance is ± 0.15 mm.

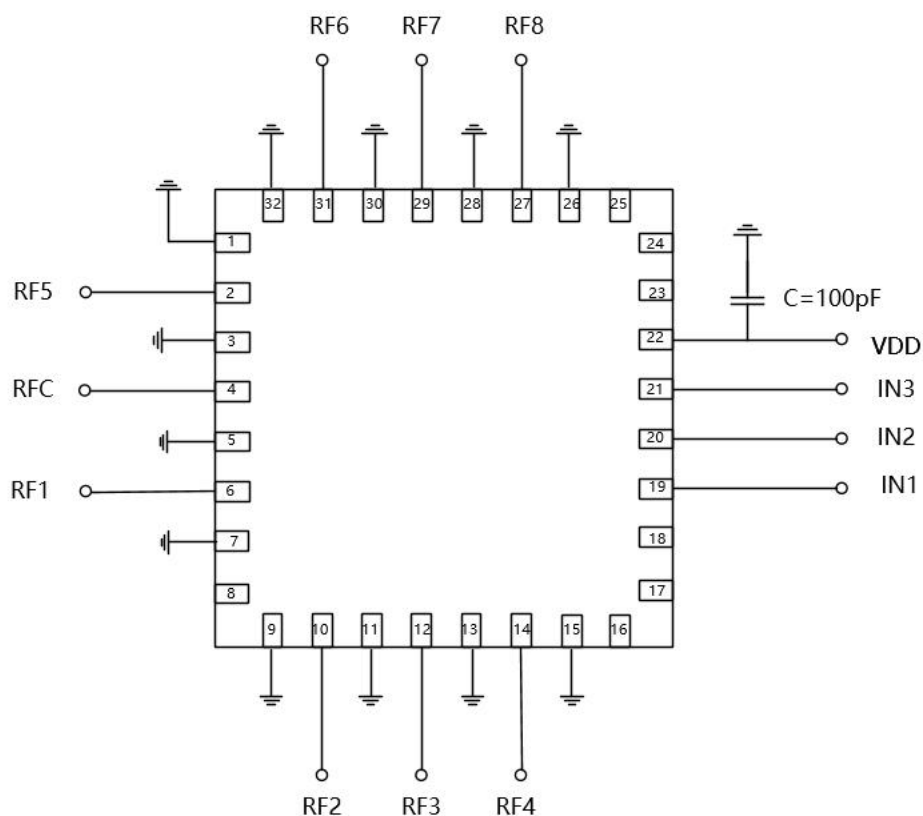
Truth table:

Control Input			Signal path state
IN1	IN2	IN3	RFCOM
0V	0V	0V	RF1
+5V (compatible with +3.3V)	0V	0V	RF2
0V	+5V (compatible with +3.3V)	0V	RF3
+5V (compatible with +3.3V)	+5V (compatible with +3.3V)	0V	RF4
0V	0V	+5V (compatible with +3.3V)	RF5
+5V (compatible with +3.3V)	0V	+5V (compatible with +3.3V)	RF6
0V	+5V (compatible with +3.3V)	+5V (compatible with +3.3V)	RF7
+5V (compatible with +3.3V)	+5V (compatible with +3.3V)	+5V (compatible with +3.3V)	RF8

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Pin Definition		
Pin Definition	Function Symbol	Functional Description
4	RF C	RF signal input terminal
2, 6, 10, 12, 14, 27, 29, 31	RFOUT	RF signal output terminal
19, 20, 21	IN1~IN3	Signal control port, on/off control
22	VDD	Power supply terminal
1, 3, 5, 7, 9, 11, 13, 15, 26, 28, 30, 32	GND	The pins need to be well grounded to the RF and DC grounds
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC
other	NC	No welding required, can be grounded

Recommended circuit diagram



Precautions for use

- Sealing material : Ceramic material that meets ROHS standards
- Lead surface plating: gold, gold layer thickness 0.3um MIN
- Maximum reflow peak temperature: 260 °C