GSW - 0012DT-P-PD-CQ3

GaAs MMIC Absorptive SPDT Switch Chip, DC- 12 GHz

Performance characteristics

- Frequency range: DC - 12 GHz
- Positive power supply, positive power control, can be fully shut down
- Insertion loss : 1.4 dB
- Isolation: 50 dB
- On-state VSWR : 1.2
- 50Ohm input/output
- QFN3X3mm

Product Introduction

GSW-0012DT-P-PD-CQ3 is a GaAs MMIC absorptive single-pole double-throw switch chip with a frequency range of DC ~12 GHz , powered by +5V, and controlled by 0V/+5V (compatible with +3.3V). The switch uses a 3X3mm surface-mount leadless ceramic tube shell to achieve airtight packaging. The surface of the pin pad is gold-plated and is suitable for reflow soldering installation.

Use limit parameters (exceeding any maximum limit may cause permanent damage)	
Control voltage range	- 0.5V~+6V
Supply voltage range	+ 6V
Maximum input power	+27dBm
Operating temperature	-55 ~ +85°C
Storage temperature	-65 ~ +150°C

Electrical parameters (TA = +25°C , EN = 0V , VDD = +5V , CTRL = 0/+5V)				
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	DC-12			G Hz
Insertion loss	-	1.4	-	dB
Isolation	-	50	-	dB
Input return loss	-	20	-	dB
Output return loss	-	20	-	dB
P-1dB	-	24	-	dBm
Switching speed	-	15	-	ns
Input high level	2.7	-	5	V
Input low level	0	-	0.8	V

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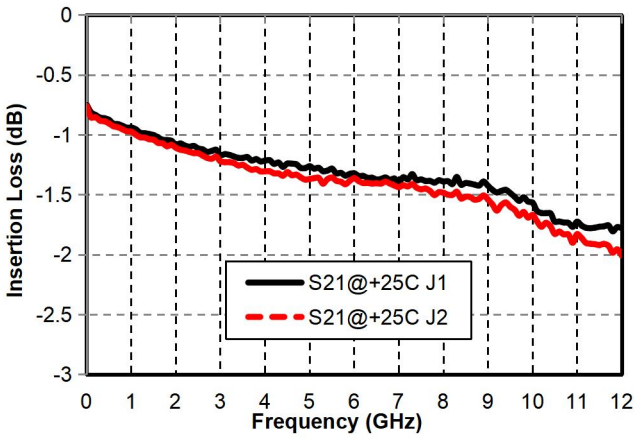
Control current		-	1	mA
Voltage		+5		V
Quiescent Current	-	1.5	-	mA

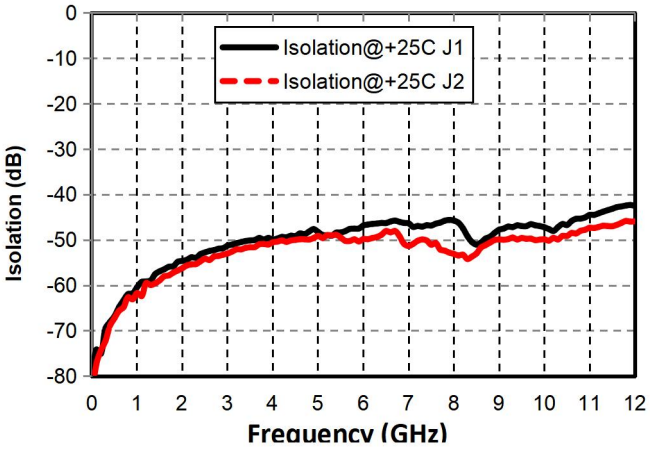
GaAs MMIC Absorptive SPST Switch Chip, DC- 12 GHz

Main index test curve

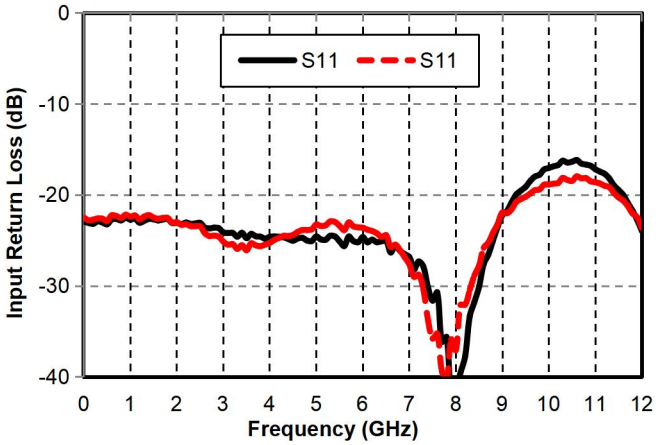
Insertion Loss vs. Operating Frequency



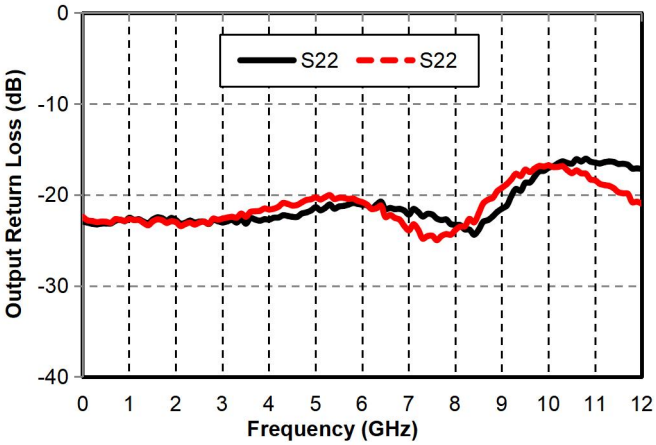
Isolation vs. Operating Frequency



Input Wave Loss vs. Operating Frequency



Output Wave Loss vs. Operating Frequency



Off-state output standing wave vs. operating frequency

Fully OFF Isolation vs. Operating Frequency

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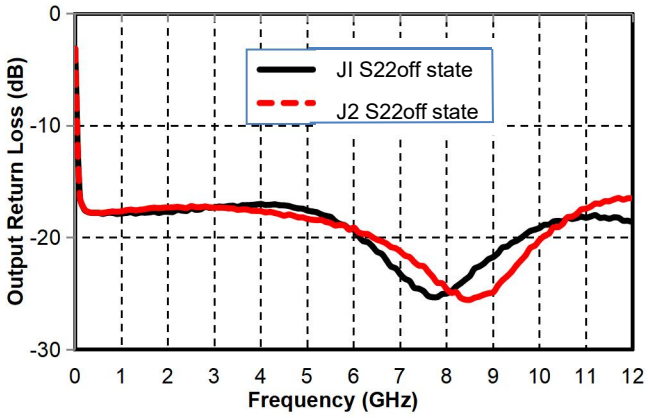
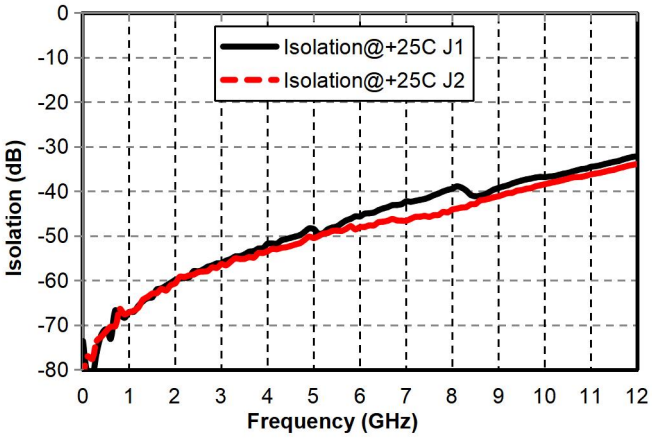
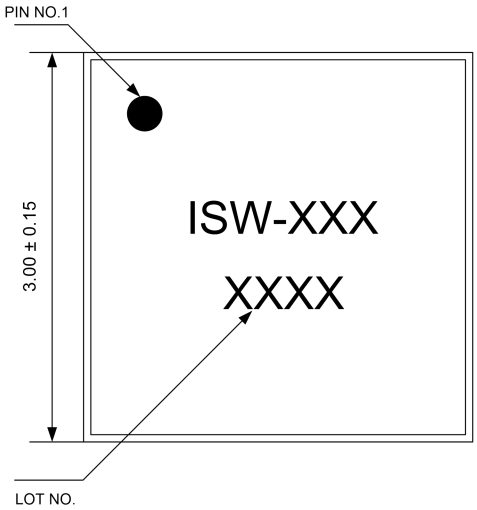


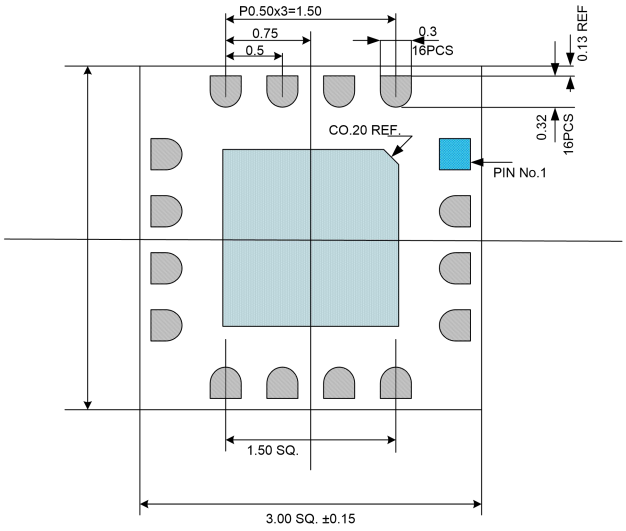


GaAs MMIC Absorptive SPST Switch Chip, DC- 12 GHz

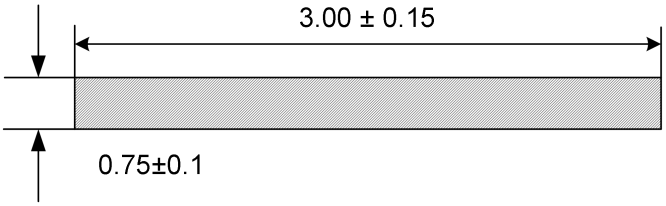
Appearance structure



Top view



Bottom view



Side View

All units in the figures are millimeters .

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Truth Table			
VDD	EN	CTRL	Function
+5V	0	Low (0)	RFC-RF1
	0	High (1)	RFC-RF2
	+5	-	All Off

High (1), +2.7~ +5V; Low (0), 0~ + 0.8V

GaAs MMIC Absorptive SPST Switch Chip, DC- 12 GHz

Pin Definition

Pin number	Function Symbol	Functional Description
3	RFIN	Signal input terminal , external DC blocking capacitor is required
7, 14	OUT1/2	Signal output terminal, external DC blocking capacitor is required
16	VDD	voltage
1	CTRL	Positive level control port
5	EN	Enable control terminal
2, 4, 6, 8, 13, 15	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	The pin is left floating and can be grounded

Application Circuit