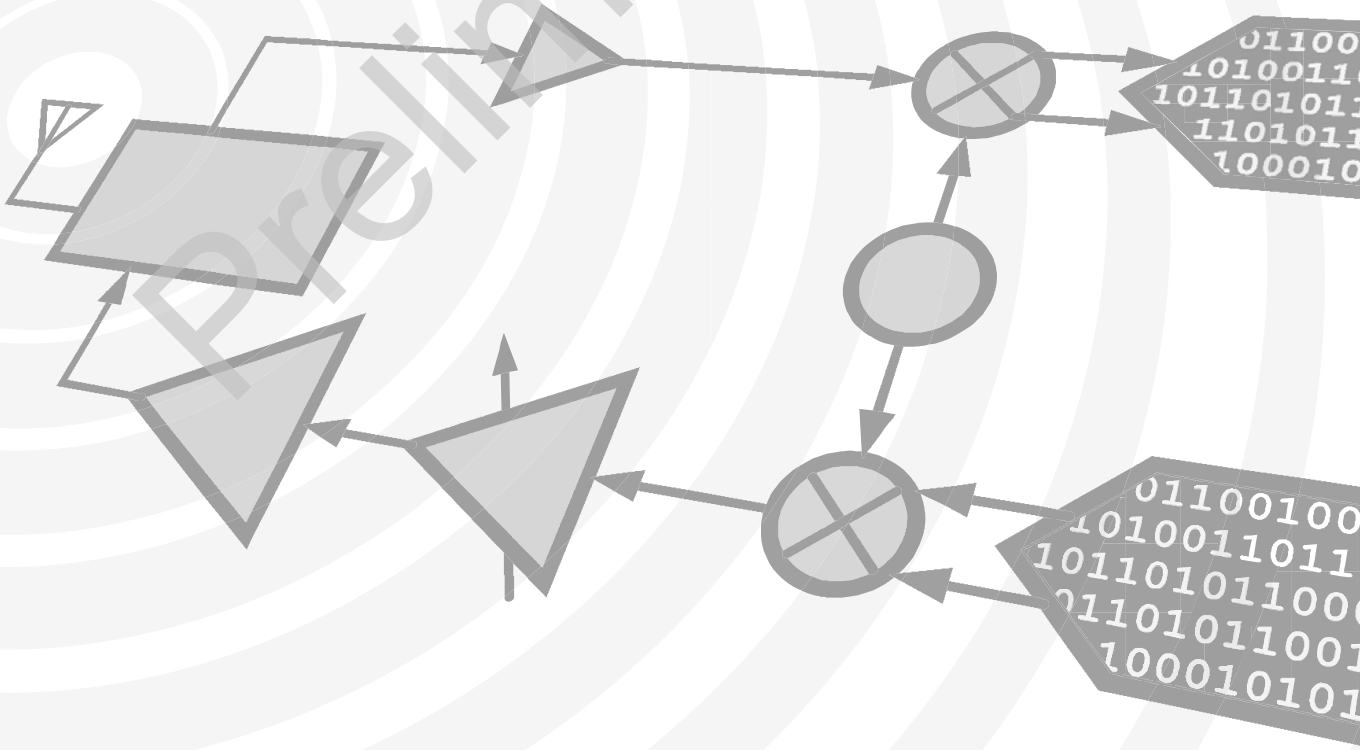
ANALOG DEVICES

Hittite MICROWAVE PRODUCTS FROM ANALOG DEVICES

Analog Devices Welcomes Hittite Microwave Corporation

Preliminary



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Preliminary

HMC347A

v00.1115

GaAs MMIC SPDT NON-REFLECTIVE SWITCH, DC - 20 GHz

Typical Applications

This switch is suitable DC - 20 GHz applications:

- Fiber Optics
- Microwave Radio
- Military
- Space
- VSAT

Features

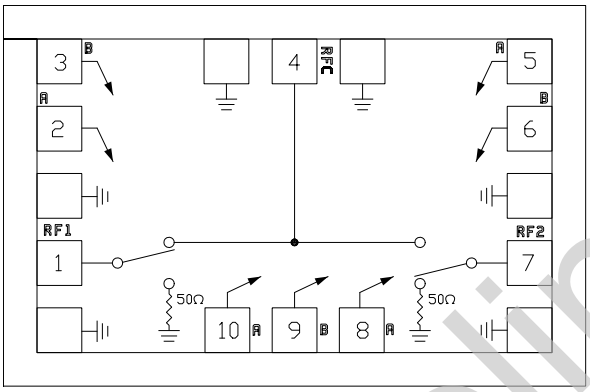
High Isolation: >40 dB @ 20 GHz

Low Insertion Loss: 1.6 dB @ 20 GHz

Non-Reflective Design

Small Size: 1.3 x 0.8 x 0.1 mm

Functional Diagram



General Description

The HMC347A is a broadband non-reflective GaAs MESFET SPDT MMIC chip. Covering DC to 20 GHz, the switch offers high isolation and low insertion loss. The switch features over 50 dB isolation at lower frequencies and over 40 dB at higher frequencies due to the implementation of on-chip via hole structures. The switch operates using two negative control voltage logic lines of -5/0V, requires no Vee and has no current consumption. The switch operates down to DC. The chip features coplanar I/Os that allow 100% RF testing prior to delivery to the customer.

Preliminary

Electrical Specifications, T_A = +25° C, With 0/-5V Control, 50 Ohm System

Parameter		Frequency	Min.	Typ.	Max.	Units
Insertion Loss		DC - 20.0 GHz		1.7	2.2	dB
Isolation		DC - 20.0 GHz	40	45		dB
Return Loss	“On State”	DC - 20.0 GHz	10	13		dB
Return Loss RF1, RF2	“On State”	DC - 20.0 GHz	8	10		dB
Input Power for 1 dB Compression		0.5 - 20.0 GHz	19	23		dBm
Input Third Order Intercept		0.5 - 20.0 GHz	38	43		dBm
Switching Characteristics tRISE, tFALL (10/90% RF) tON, tOFF (50% CTL to 10/90% RF)		DC - 20.0 GHz		3 6		ns ns

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Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

GaAs MMIC SPDT NON-REFLECTIVE SWITCH, DC - 20 GHz

Absolute Maximum Ratings

RF Input Power (Vctl = -5V)	+27 dBm
Control Voltage Range (A & B)	+0.5V to -7.5 Vdc
Channel Temperature	150 °C
Thermal Resistance (Insertion Loss Path)	440 °C/W
Thermal Resistance (Terminated Path)	540 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C
ESD Sensitivity (HBM)	Class 1A

Control Voltages

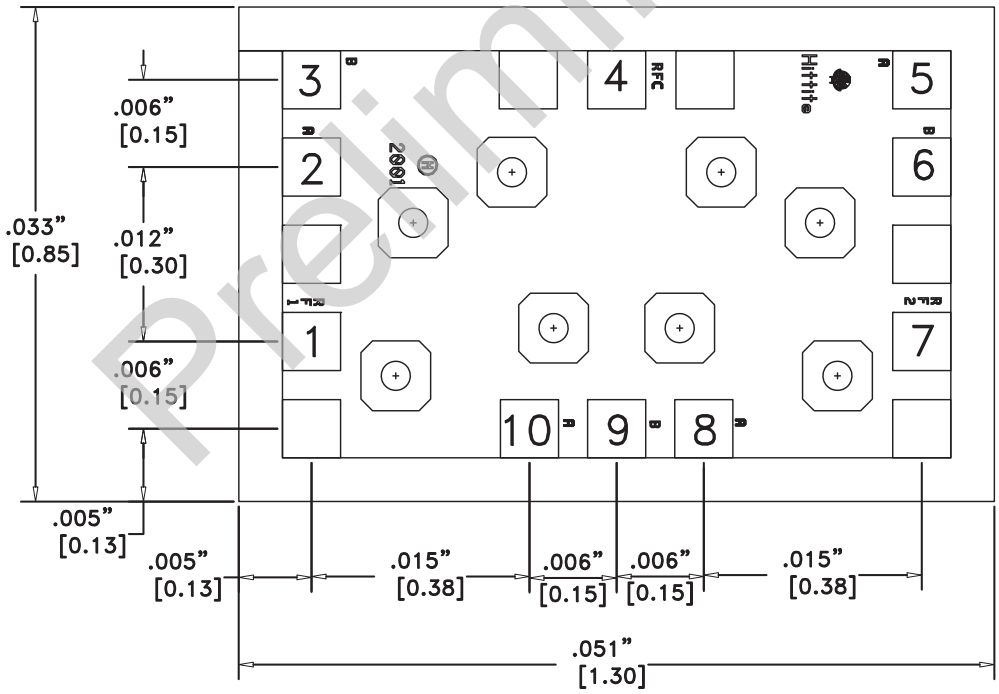
State	Bias Condition
Low	0 to -0.2V @ 10 uA Max.
High	-5V @ 10 uA Typ. to -7V @ 40 uA Max.

Truth Table

Control Input		Signal Path State	
A	B	RFC to RF1	RFC to RF2
High	Low	ON	OFF
Low	High	OFF	ON

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



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