

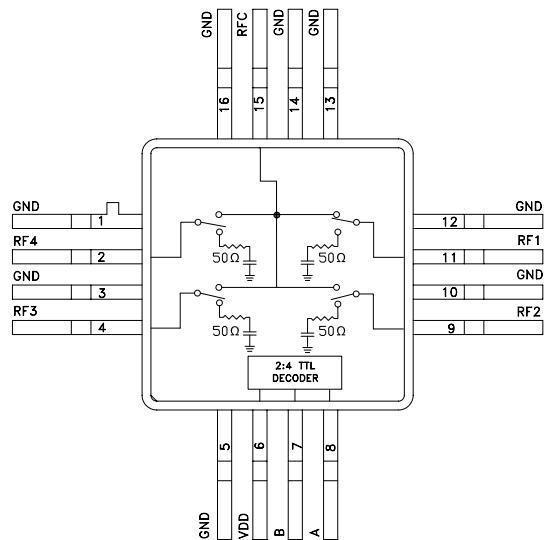
**GaAs MMIC SP4T NON-REFLECTIVE
SWITCH, DC - 4 GHz**

Typical Applications

The HMC244AG16 is ideal for:

- Telecom Infrastructure
- Military Radios, Radar & ECM
- Space Applications
- Test Instrumentation

Functional Diagram



Electrical Specifications, $T_A = +25^\circ C$, With 0/+5V Control, 50 Ohm System

Parameter		Frequency	Min.	Typ.	Max.	Units
Insertion Loss	DC - 1.0 GHz			0.6	0.9	dB
	DC - 3.0 GHz			0.9	1.1	dB
	DC - 3.5 GHz			1.0	1.4	dB
	DC - 4.0 GHz			1.2	1.8	dB
Isolation	DC - 1.0 GHz	40	45			dB
	DC - 2.0 GHz	36	40			dB
	DC - 3.0 GHz	30	35			dB
	DC - 4.0 GHz	24	28			dB
Return Loss	"On State"	DC - 3.5 GHz DC - 4.0 GHz		22 16		dB dB
Return Loss	RF 1 - 4 "Off State"	0.2 - 4.0 GHz 0.5 - 4.0 GHz		10 15		dB dB
Input Power for 1 dB Compression		0.5 - 4.0 GHz	24	28		dBm
Input Third Order Intercept (Two-Tone Input Power = +10 dBm Each Tone)		0.5 - 3.0 GHz 0.5 - 4.0 GHz	43 40	47 45		dBm dBm
Switching Characteristics tRISE, tFALL (10/90% RF) tON, tOFF (50% CTL to 10/90% RF)		DC - 4.0 GHz		40 150		ns ns

HMC244A* Product Page Quick Links

Last Content Update: 08/30/2016

Comparable Parts

View a parametric search of comparable parts

Evaluation Kits

- HMC244A Evaluation Board

Documentation

Data Sheet

- HMC244AG16: GaAs MMIC SP4T Non-Refelctive Switch, DC-4 GHz Data Sheet

Design Resources

- HMC244A Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

Discussions

View all HMC244A EngineerZone Discussions

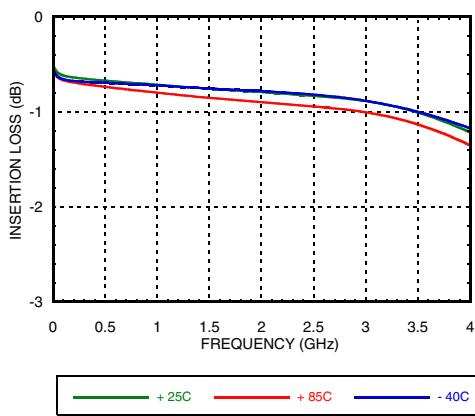
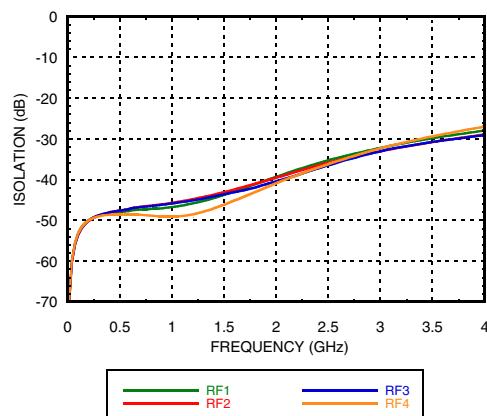
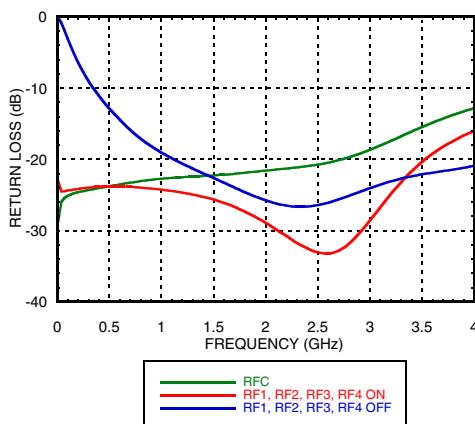
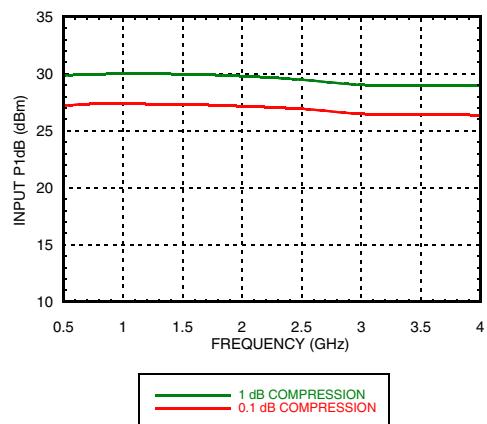
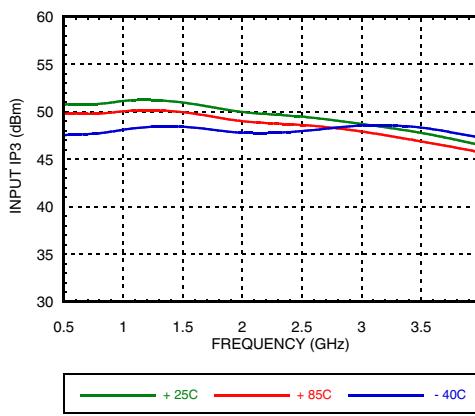
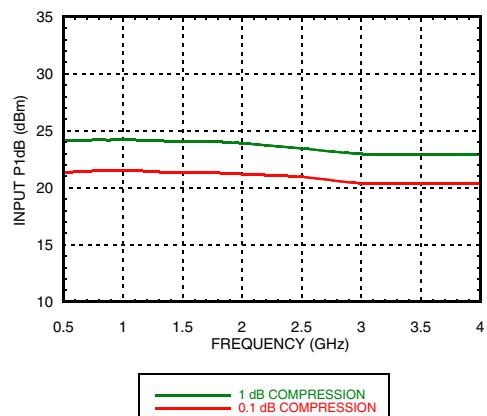
Sample and Buy

Visit the product page to see pricing options

Technical Support

Submit a technical question or find your regional support number

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**GaAs MMIC SP4T NON-REFLECTIVE
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Insertion Loss

Isolation

Return Loss

0.1 and 1 dB Input Compression Point

Input Third Order Intercept Point

0.1 and 1 dB Input Compression Point, 3V


**GaAs MMIC SP4T NON-REFLECTIVE
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Absolute Maximum Ratings

Bias Voltage Range (Port Vdd)	+7.0 Vdc
Control Voltage Range (A & B)	-0.5V to Vdd +1 Vdc
Channel Temperature	150 °C
Thermal Resistance (Insertion Loss Path)	171 °C/W
Thermal Resistance (Terminated Path)	332 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
Maximum Input Power Vdd = +5 Vdc	+20 dBm (0.05 - 0.5 GHz) +27 dBm (0.5 - 3.5 GHz)

Bias Voltage & Current

Vdd Range = +5 Vdc ±10%		
Vdd (Vdc)	Idd (Typ) (mA)	Idd (Max) (mA)
+5	3	7.0
+3	7	7.0

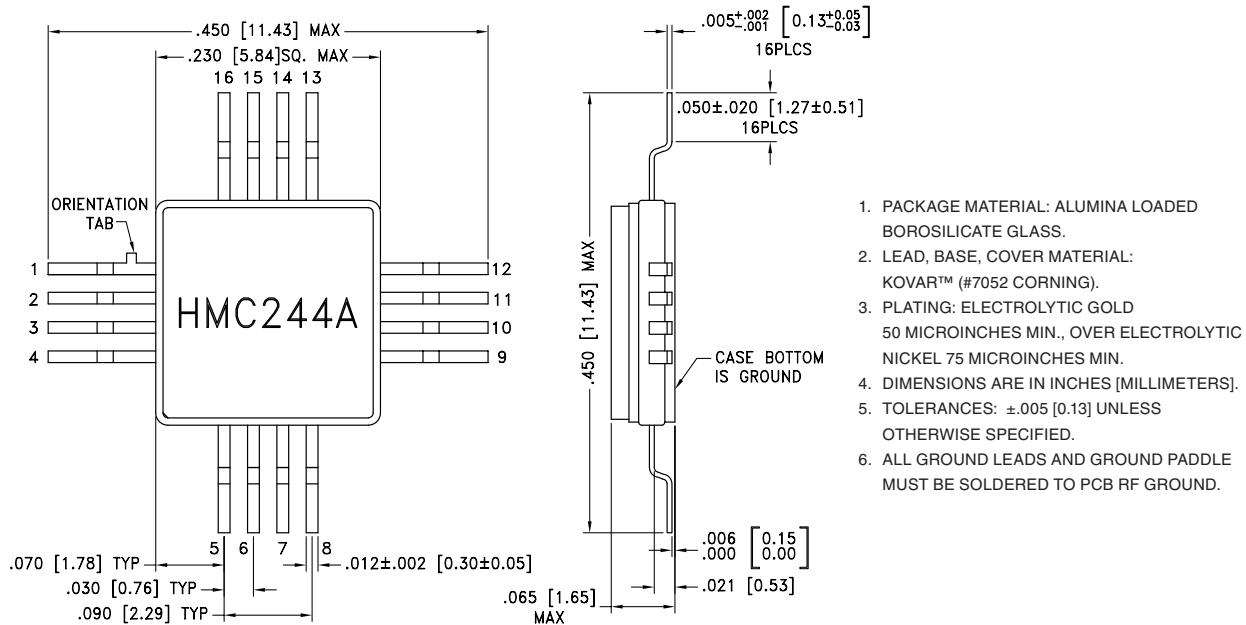
TTL/CMOS Control Voltages

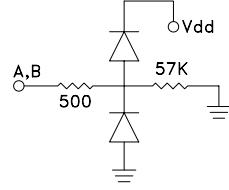
State	Bias Condition
Low	0 to +0.8 Vdc @ 0.5 µA Typ.
High	+2.0 to +Vdd @ 70 µA Typ.

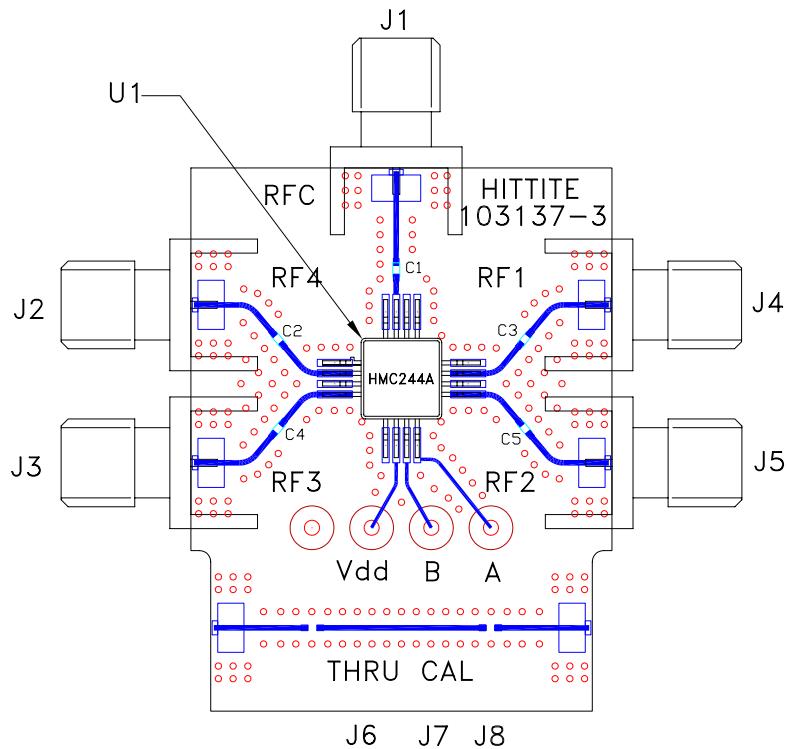
Truth Table

Control Input		Signal Path State
A	B	RF COM to:
Low	Low	RF1
High	Low	RF2
Low	High	RF3
High	High	RF4


**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

**GaAs MMIC SP4T NON-REFLECTIVE
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Outline Drawing

Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1, 3, 5, 10, 12, 13, 14, 16	GND	Package bottom has exposed metal paddle that must also be connected to PCB RF ground.	
2, 4, 9, 11, 15	RF4, RF3, RF2, RF1, RFC	These pins are DC coupled and matched to 50 Ohms. Blocking capacitors are required.	
6	Vdd	Supply Voltage +5 Vdc $\pm 10\%$	
7	B	See truth table and control voltage table.	
8	A	See truth table and control voltage table.	

**GaAs MMIC SP4T NON-REFLECTIVE
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Evaluation PCB

List of Materials for Evaluation PCB EV1HMC244AG16 [1]

Item	Description
J1 - J5	PCB Mount SMA RF Connector
J6 - J8	DC Pin
C1 - C5	330 pF Capacitors, 0402 Pkg.
U1	HMC244AG16 SP4T Switch
PCB [2]	103137 Evaluation PCB

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350

The circuit board used in the application should be generated with proper RF circuit design techniques. Signal lines at the RF port should have 50 ohm impedance and the package ground leads and package bottom should be connected directly to the ground plane similar to that shown above. The evaluation circuit board shown above is available from Analog Devices upon request.