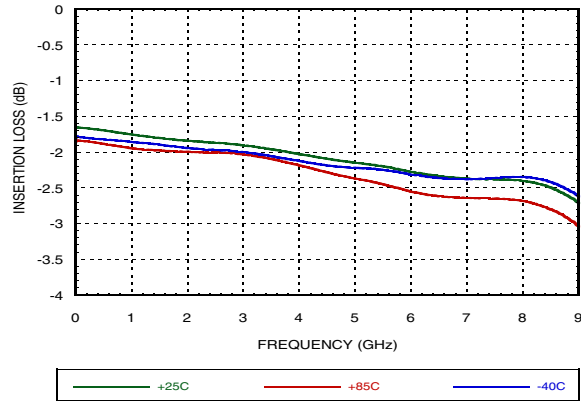
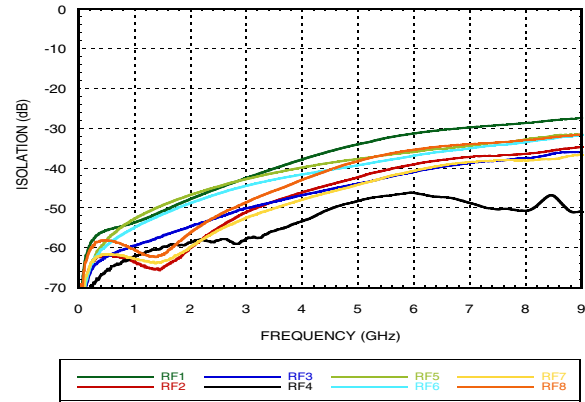


**GaAs MMIC SP8T NON-REFLECTIVE
POSITIVE CONTROL SWITCH, DC* - 8 GHz**

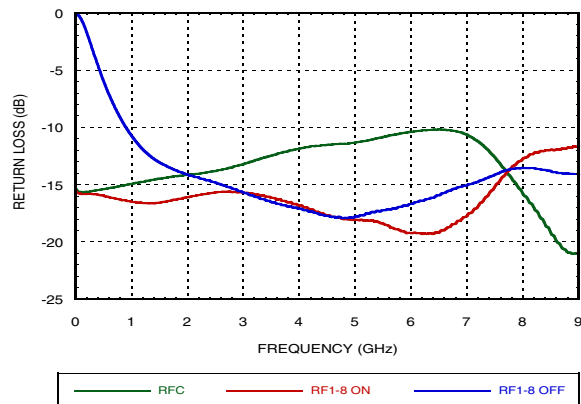
Insertion Loss vs. Temperature



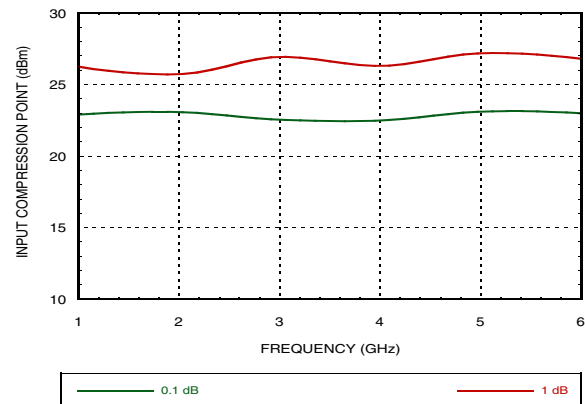
Isolation



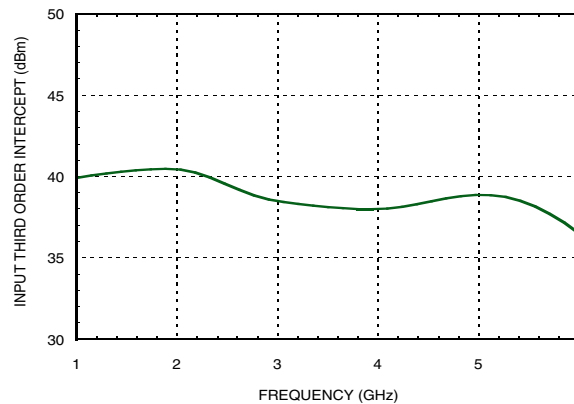
Return Loss



0.1 and 1 dB Input Compression Point



Input Third Order Intercept Point



GaAs MMIC SP8T NON-REFLECTIVE POSITIVE CONTROL SWITCH, DC* - 8 GHz

Bias Voltage & Current

Vdd Range = +5 Vdc \pm 10%		
Vdd (Vdc)	Idd (Typ.) (mA)	Idd (Max.) (mA)
+5	4	8

Control Voltages

State	Bias Condition
Low	0 to +0.8 Vdc at 0 μ A Typical
High	+2.0 to +5 Vdc at 20 μ A Typical

Truth Table

Control Input			Signal Path State
A	B	C	RFC to:
Low	Low	Low	RF1
High	Low	Low	RF2
Low	High	Low	RF3
High	High	Low	RF4
Low	Low	High	RF5
High	Low	High	RF6
Low	High	High	RF7
High	High	High	RF8

Note:

DC blocking capacitors are required at ports RFC and RF1, 2, 3, 4, 5, 6, 7, 8. Their value will determine the lowest transmission frequency.

Absolute Maximum Ratings

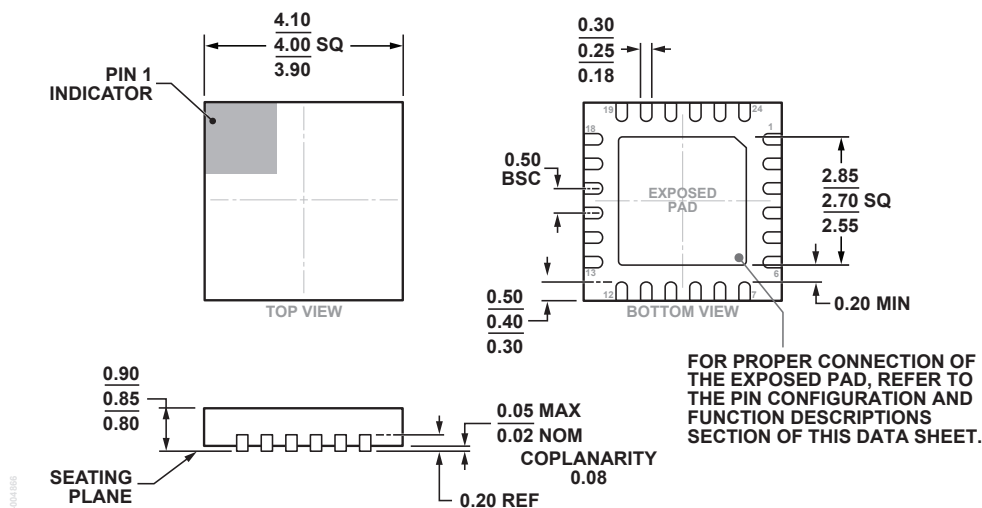
Bias Voltage Range (Port Vdd)	+7.0 Vdc
Control Voltage Range (A, B, & C)	-0.5V to Vdd +0.5 Vdc
Maximum Input Power Vdd = +5V	+26 dBm
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1A
ESD Sensitivity (FICDM)	Class II



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

GaAs MMIC SP8T NON-REFLECTIVE POSITIVE CONTROL SWITCH, DC* - 8 GHz

Outline Drawing



COMPLIANT TO JEDEC STANDARDS MO-220-VGGD-8.

24-Lead Lead Frame Chip Scale Package [LFCSP]
4 mm × 4 mm Body and 0.85 mm Package Height
(CP-24-16)

Dimensions shown in millimeters

Package Information


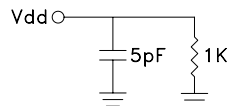
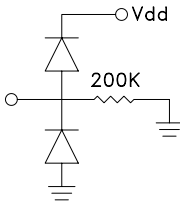
Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking ^[2]
HMC321ALP4E	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL3 ^[1]	H321A XXXX

[1] Max peak reflow temperature of 260 °C

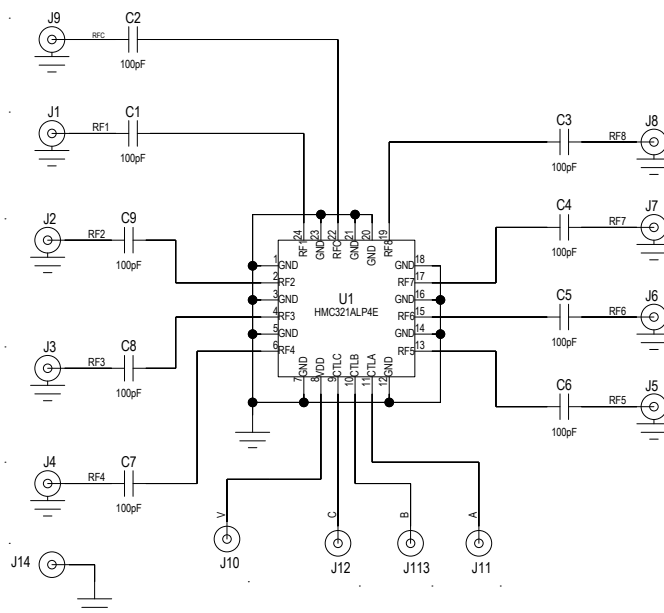
[2] 4-Digit lot number XXXX

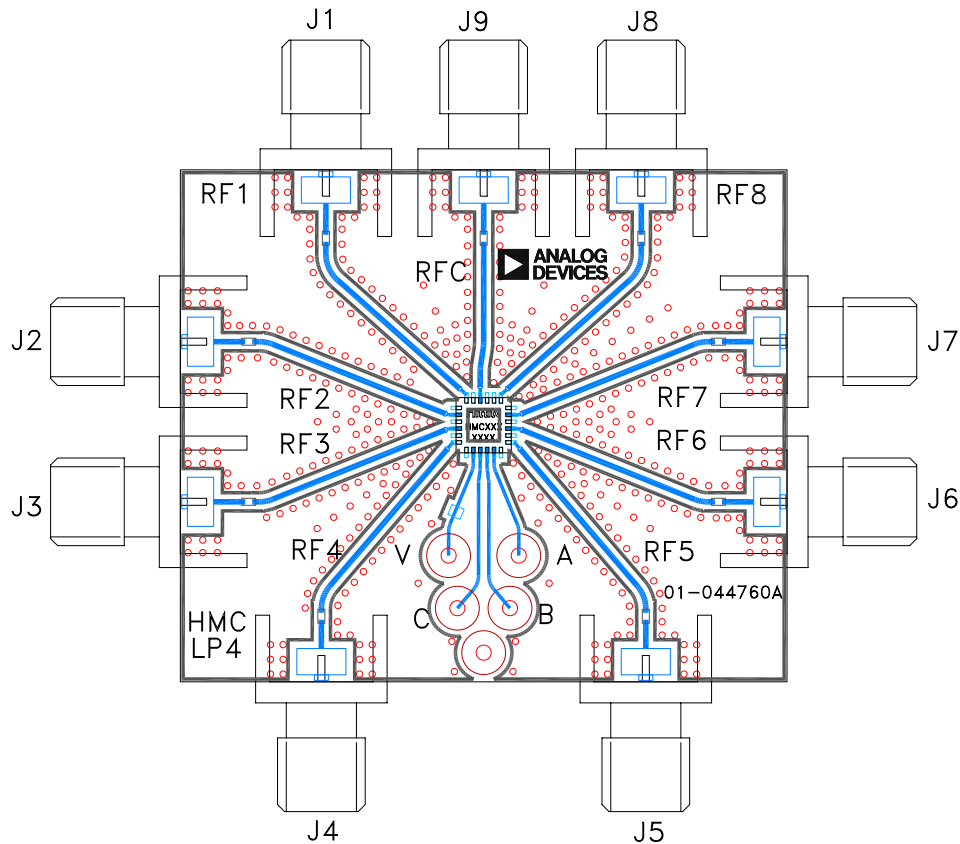
GaAs MMIC SP8T NON-REFLECTIVE POSITIVE CONTROL SWITCH, DC* - 8 GHz

Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1, 3, 5, 7, 12, 14, 16, 18, 20, 21, 23	GND	Package bottom has exposed metal paddle that must also be connected to PCB RF ground.	
2, 4, 6, 13, 15, 17, 19, 22, 24	RF1 - RF8 & RFC	This pin is DC coupled and matched to 50 Ohm. Blocking capacitors are required.	
8	VDD	Supply Voltage +5V ± 10%	
9	CTLC	See truth table and control voltage table.	
10	CTLB	See truth table and control voltage table.	
11	CTLA	See truth table and control voltage table.	

Application Circuit



**GaAs MMIC SP8T NON-REFLECTIVE
POSITIVE CONTROL SWITCH, DC* - 8 GHz**
Evaluation PCB

List of Materials for Evaluation PCB EV1HMC321ALP4E [1]

Item	Description
J1 - J9	PCB Mount SMA RF Connector
J10 - J14	DC Pin
C1 - C9	100 pF Capacitor, 0402 Pkg.
U1	HMC321ALP4E SP8T Switch
PCB [2]	01-044760 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 backside ground slug 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.