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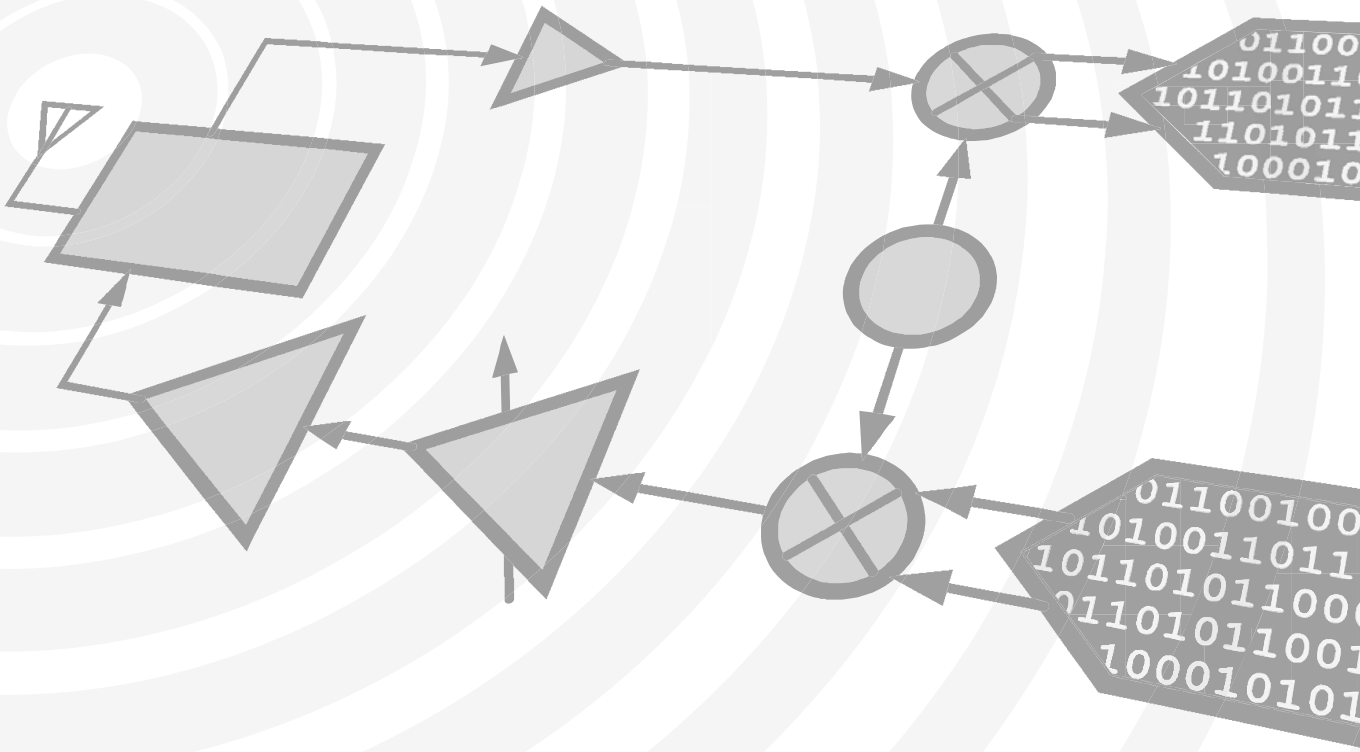
NO CONTENT ON THE ATTACHED DOCUMENT HAS CHANGED



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v02.0805

OBSOLETE PRODUCT

HMC239S8 / 239S8E

GaAs MMIC SPDT SWITCH DC - 2.5 GHz

Typical Applications

The HMC239S8 / HMC239S8E is ideal for:

- MMDS & WirelessLAN
- Basestation Infrastructure
- Portable Wireless

Features

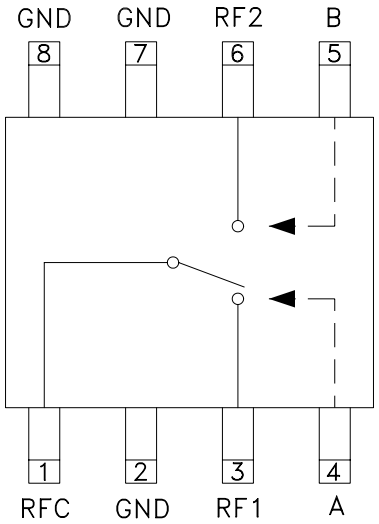
Low Insertion Loss: 0.4 dB

High Isolation: 35 dB

Fast Switching Speed: 2ns

High Input IP3: +50 dBm

Functional Diagram



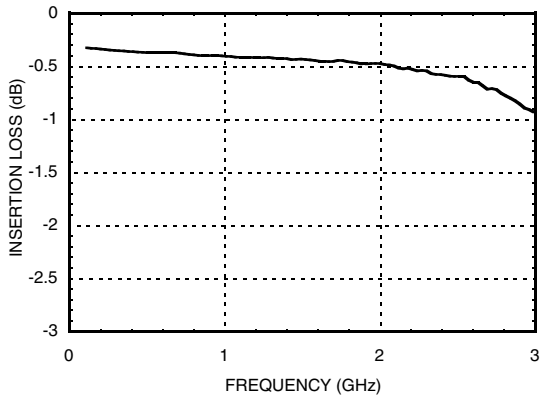
General Description

The HMC239S8 & HMC239S8E are low-cost GaAs MMIC SPDT switches in 8-lead SOIC packages. The switch can control signals from DC to 2.5 GHz. It is especially suited for low or medium power applications which require extremely fast switching with minimal insertion loss. The two control voltages require a minimal amount of DC current which is optimal for battery powered radio systems. RF1 and RF2 are reflective shorts when “Off”.

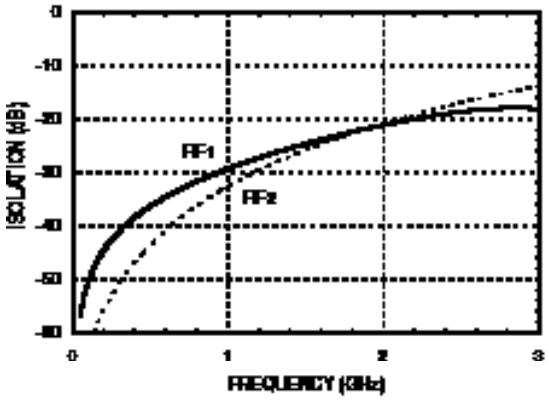
Electrical Specifications, T_A = +25° C, Vctl = 0/-5V, 50 Ohm System

Parameter		Frequency	Min.	Typ.	Max.	Units
Insertion Loss		DC - 0.1 GHz DC - 0.5 GHz DC - 1.0 GHz DC - 2.0 GHz DC - 2.5 GHz		0.4 0.4 0.5 0.6 0.7	0.6 0.6 0.7 0.8 1.0	dB dB dB dB dB
Isolation		DC - 0.5 GHz DC - 1.0 GHz DC - 2.0 GHz DC - 2.5 GHz	33 26 18 14	36 29 21 17		dB dB dB dB
Return Loss		DC - 1.0 GHz DC - 2.0 GHz DC - 2.5 GHz	18 17 15	21 21 20		dB dB dB
Input Power for 1dB Compression	0/-5V Control	0.5 - 1.0 GHz 0.5 - 2.5 GHz	25 23	29 27		dBm dBm
Input Third Order Intercept (Two-Tone Input Power = +7 dBm Each Tone)	0/-5V Control	0.5 - 1.0 GHz 0.5 - 2.5 GHz	45 44	50 49		dBm dBm
Switching Characteristics		DC - 2.5 GHz				
	tRISE, tFALL (10/90% RF)			2		ns
	tON, tOFF (50% CTL to 10/90% RF)			10		ns

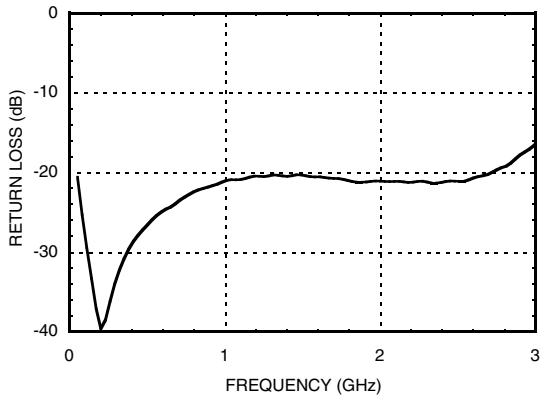
Insertion Loss



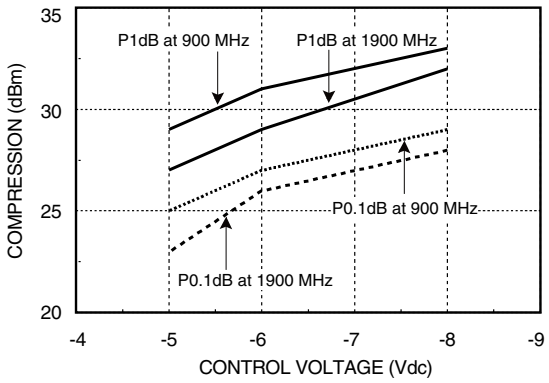
Isolation



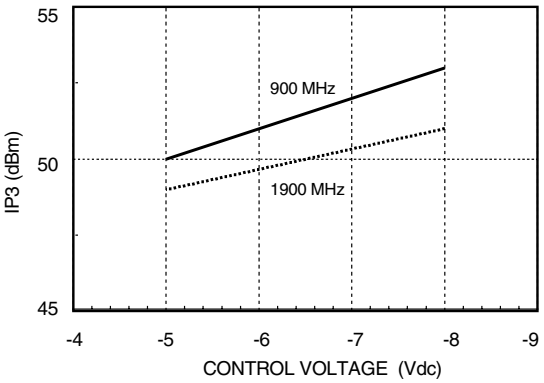
Return Loss



Input 0.1 and 1.0 dB Compression vs. Control Voltage



Input Third Order Distortion vs. Control Voltage



Truth Table

*Control Input Voltage Tolerances are ± 0.2 Vdc.

Control Input*		Control Current		Signal Path State	
A (Vdc)	B (Vdc)	Ia (uA)	Ib (uA)	RF to RF1	RF to RF2
-5	0	-25	10	ON	OFF
0	-5	10	-25	OFF	ON
-6	0	-75	30	ON	OFF
0	-6	30	-75	OFF	ON
-7	0	-130	60	ON	OFF
0	-7	60	-130	OFF	OM
-8	0	-190	80	ON	OFF
0	-8	80	-190	OFF	ON

OBSOLETE PRODUCT

HMC239S8 / 239S8E

GaAs MMIC SPDT SWITCH DC - 2.5 GHz

Compression vs. Bias Voltage

	Carrier at 900 MHz		Carrier at 1900 MHz	
Control Input	Input Power for 0.1 dB Compression	Input Power for 1.0 dB Compression	Input Power for 0.1 dB Compression	Input Power for 1.0 dB Compression
(Vdc)	(dBm)	(dBm)	(dBm)	(dBm)
-5	25	29	23	27
-6	27	31	26	29
-8	29	33	28	32

Caution: Do not operate in 1 dB compression at power levels above +30 dBm and do not "hot switch" power levels greater than +20 dBm (Vctl= -5 Vdc).

Distortion vs. Bias Voltage

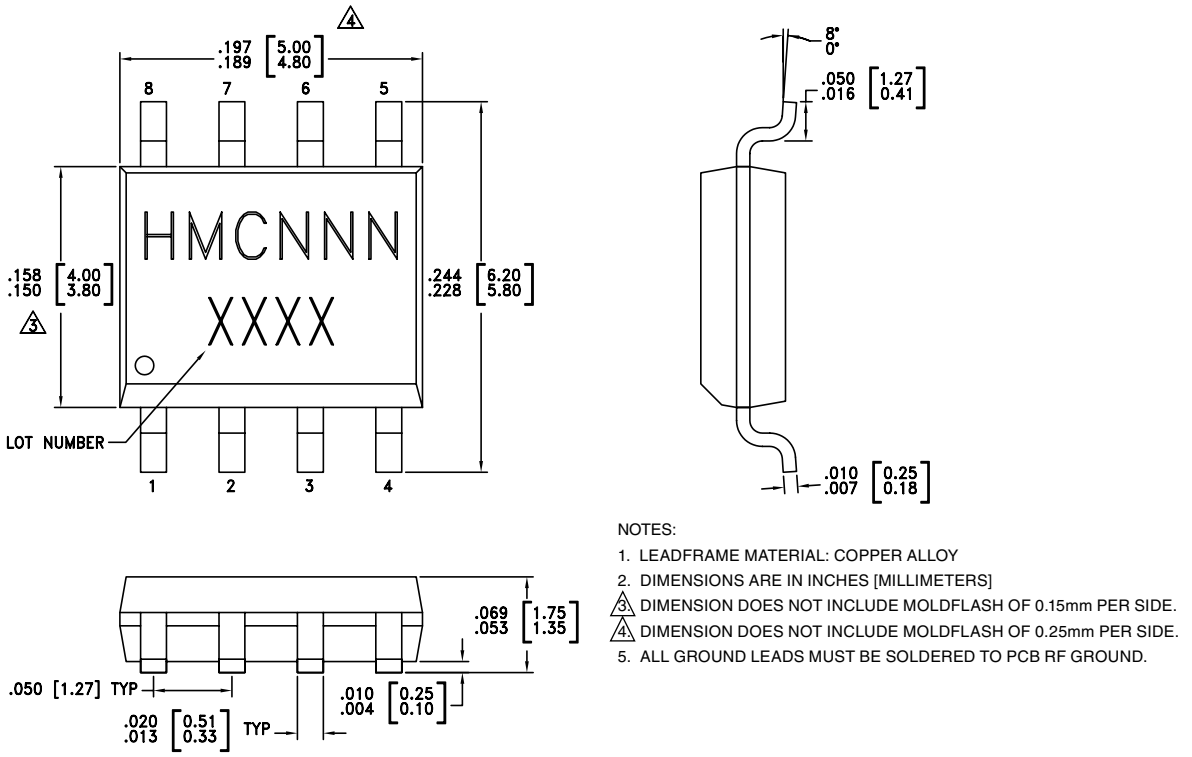
Control Input	Third Order Intercept (dBm) +7 dBm Each Tone	
(Vdc)	900 MHz	1900 MHz
-5	50	49
-8	53	51

Absolute Maximum Ratings

Max. Input Power (VCTL = 0/-8V)	0.05 GHz 0.5 - 2 GHz	+27 dBm +34 dBm
Control Voltage Range (A & B)		+2 to -12 Vdc
Storage Temperature		-65 to +150 °C
Operating Temperature		-40 to +85 °C

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



NOTES:

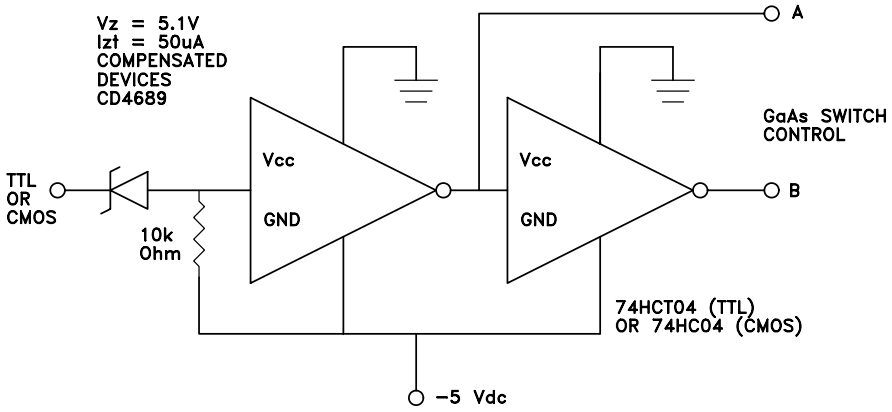
1. LEADFRAME MATERIAL: COPPER ALLOY
2. DIMENSIONS ARE IN INCHES [MILLIMETERS]
3. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.15mm PER SIDE.
4. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.25mm PER SIDE.
5. ALL GROUND LEADS MUST BE SOLDERED TO PCB RF GROUND.

Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking [3]
HMC239S8	Low Stress Injection Molded Plastic	Sn/Pb Solder	MSL1 [1]	HMC239 XXXX
HMC239S8E	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 [2]	HMC239 XXXX

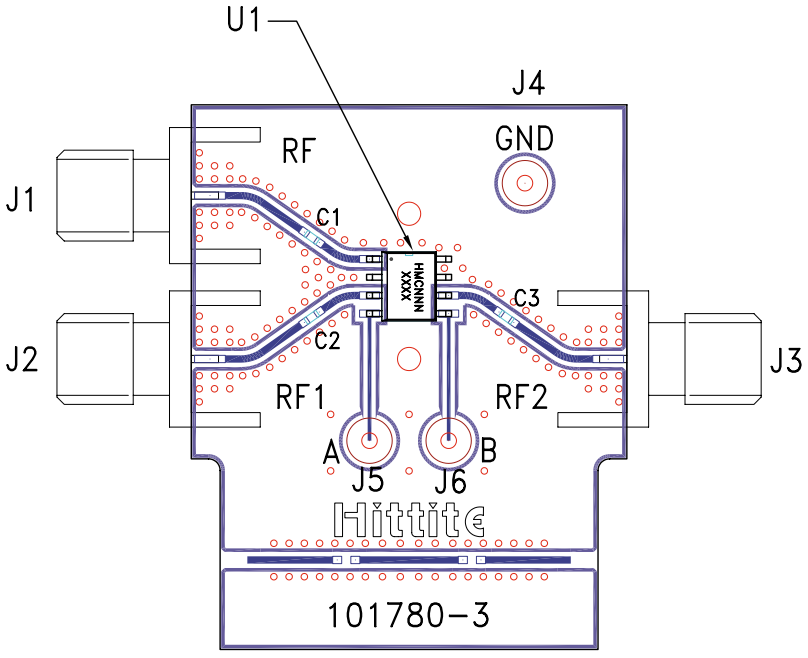
[1] Max peak reflow temperature of 235 °C
[2] Max peak reflow temperature of 260 °C
[3] 4-Digit lot number XXXX

Typical Application Circuit



Simple driver using inexpensive standard logic ICs provides fast switching using minimum DC current.

Evaluation Circuit Board



List of Materials for Evaluation PCB 101782 [1]

Item	Description
J1 - J3	PCB Mount SMA RF Connector
J4 - J6	DC Pin
C1 - C3	330 pF capacitor, 0402 Pkg.
U1	HMC239S8 / HMC239S8E SPDT Switch
PCB [2]	101780 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 Hittite Microwave Corporation upon request.