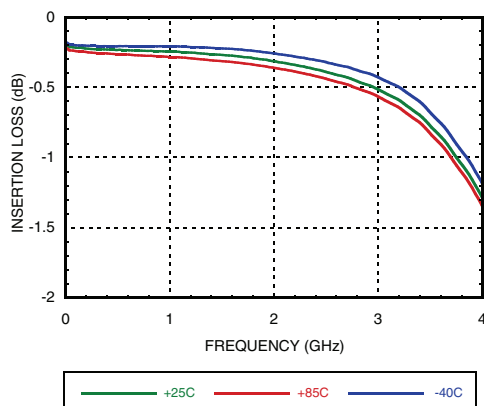
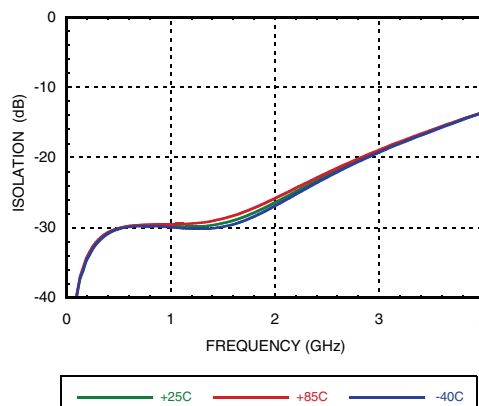
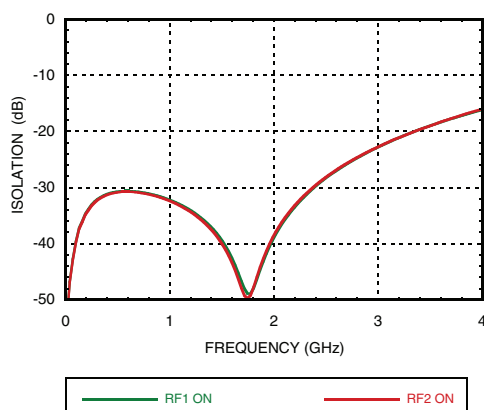
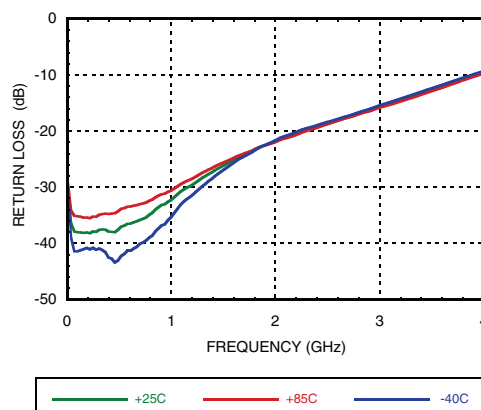
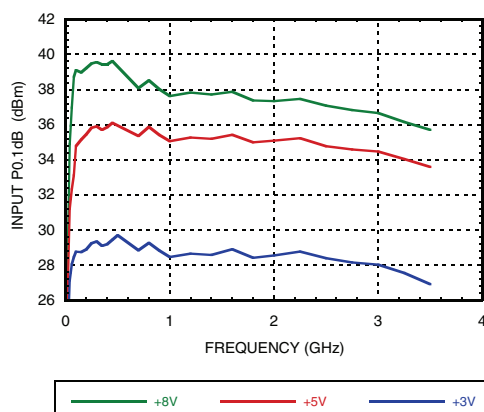
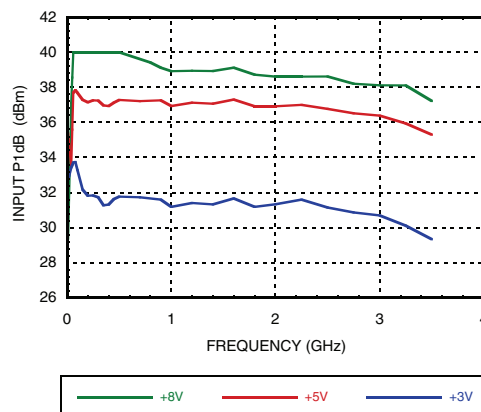
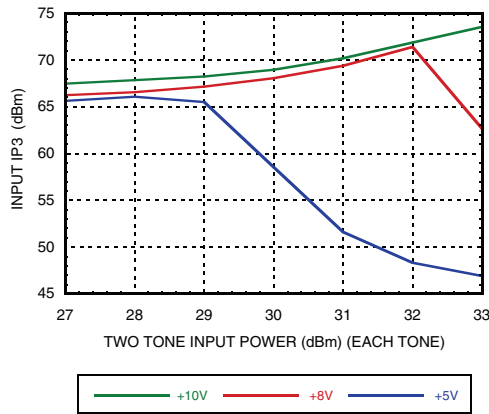


**GaAs MMIC 3 WATT T/R SWITCH
DC - 3 GHz**
Insertion Loss

Isolation Between RFC and RF1/RF2

RF1 to RF2 Isolations

Return Loss

Input P0.1dB vs. Vctl

Input P1dB vs. Vctl


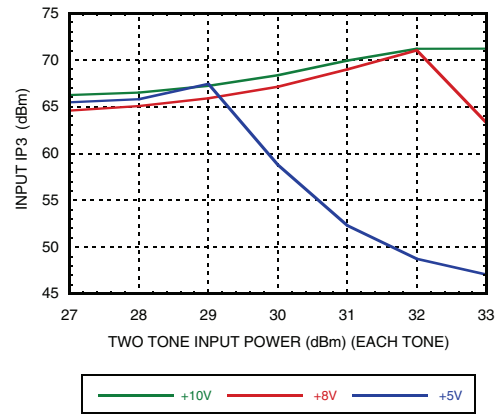


GaAs MMIC 3 WATT T/R SWITCH DC - 3 GHz

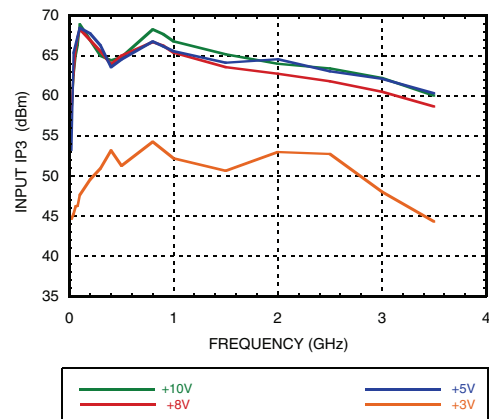
Input IP3 vs. Input Power @ 900 MHz



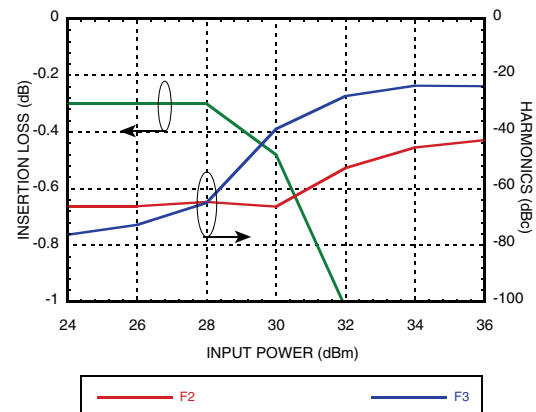
Input IP3 vs. Input Power @ 1900 MHz



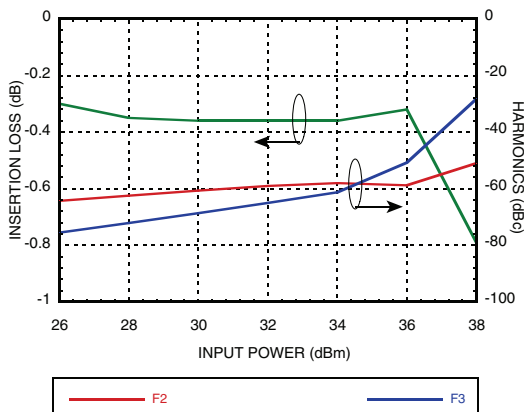
Input Third Order Intercept Point



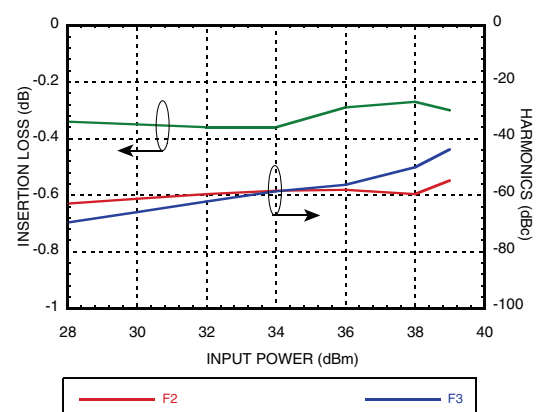
2nd & 3rd Harmonics @ 900 MHz
Vctl = +3 Volts

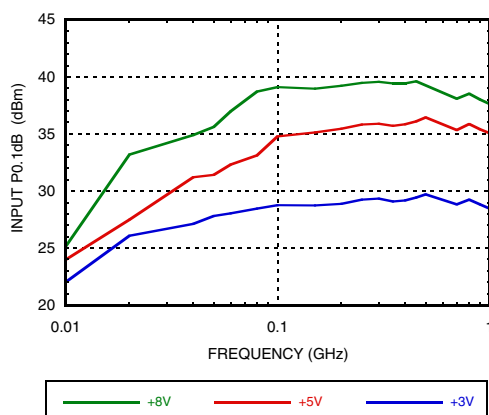
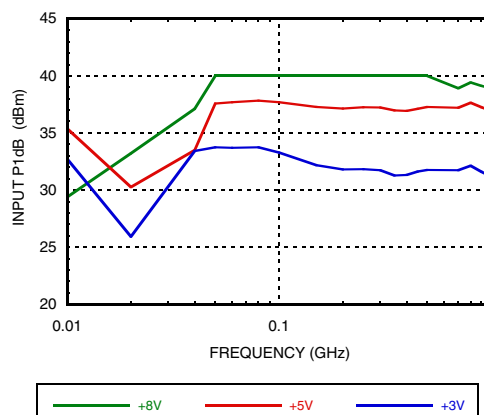


2nd & 3rd Harmonics @ 900 MHz
Vctl = +5 Volts



2nd & 3rd Harmonics @ 900 MHz
Vctl = +8 Volts




**GaAs MMIC 3 WATT T/R SWITCH
DC - 3 GHz**
Input P0.1dB vs. Vctl

Input P1dB vs. Vctl

Absolute Maximum Ratings

Max. Input Power $V_{ctl} = 0/+8V$	0.5 - 2.5 GHz	39 dBm
Control Voltage Range (A & B)	-0.2 to +12 Vdc	
Channel Temperature	150 °C	
Continuous Pdiss ($T = +85$ °C) (derate 9.2 mW/°C above 85 °C)	0.597W	
Thermal Resistance	109 °C/W	
Storage Temperature	-65 to +150 °C	
Operating Temperature	-40 to +85 °C	
ESD Sensitivity (HBM)	Class 1A	

DC Blocks are required at ports RFC, RF1 and RF2

Control Voltages

State	Bias Condition
Low	0 to +0.2 Vdc @ 10 μ A Typical
High	+3 Vdc @ 2 μ A Typical to +8 Vdc @ 100 μ A Typical (± 0.2 Vdc)

Truth Table

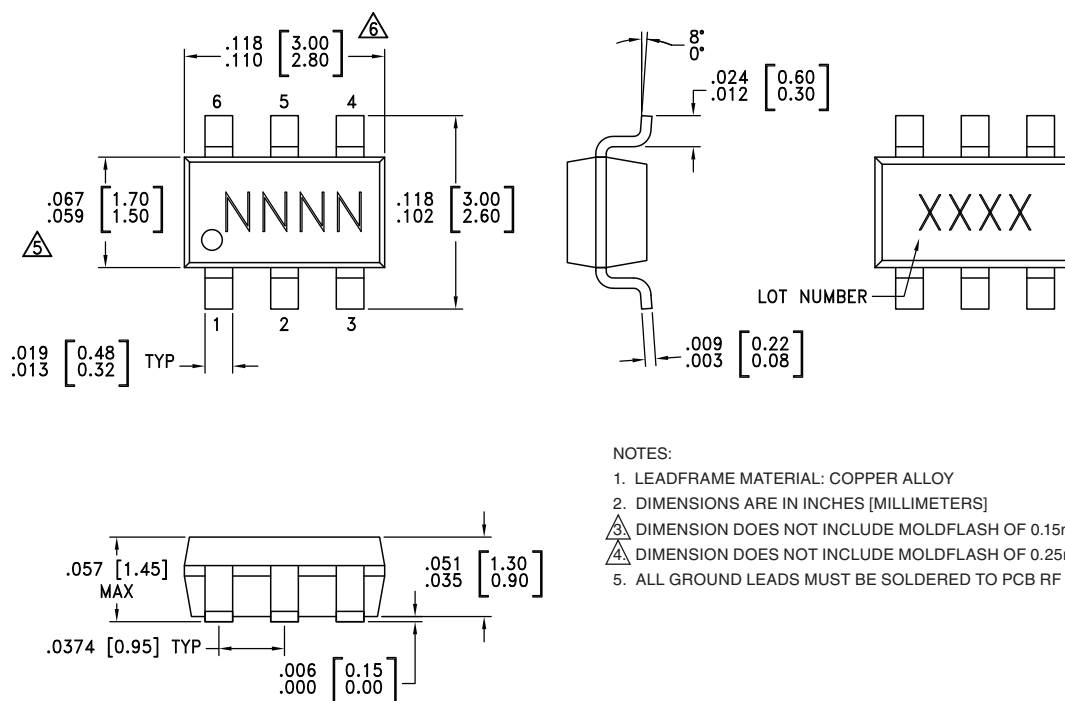
Control Input (Vctl)		Signal Path State	
A	B	RFC to RF1	RFC to RF2
High	Low	Off	On
Low	High	On	Off


**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**



GaAs MMIC 3 WATT T/R SWITCH DC - 3 GHz

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


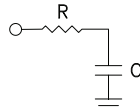
Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking ^[3]
HMC595A	Low Stress Injection Molded Plastic	Sn/Pb Solder	MSL1 ^[1]	H595A XXXX
HMC595AE	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 ^[2]	595AE XXXX

[1] Max peak reflow temperature of 235 °C

[2] Max peak reflow temperature of 260 °C

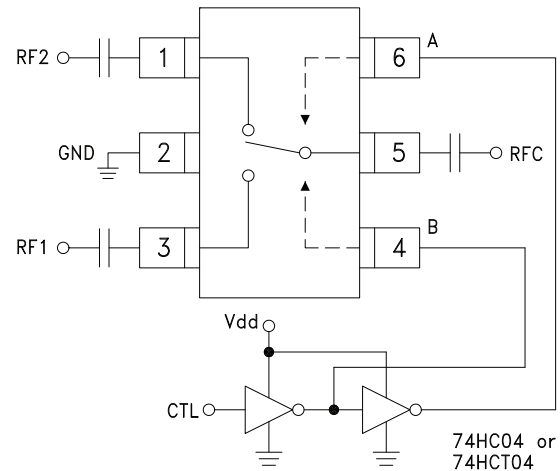
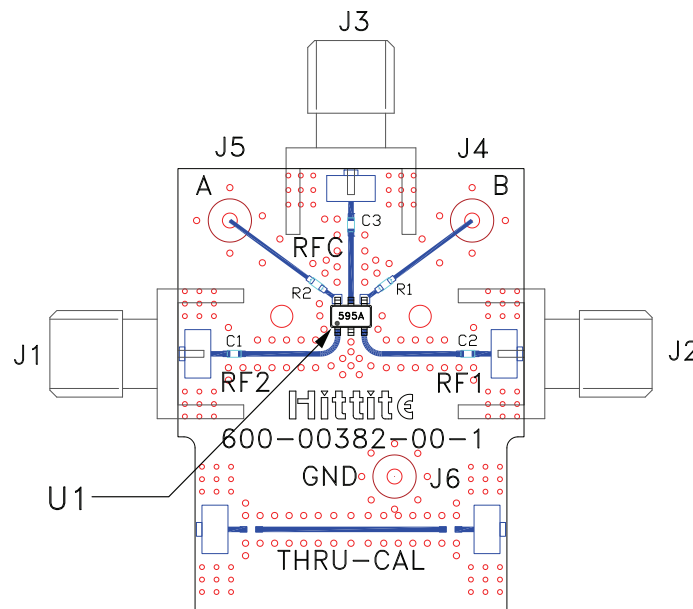
[3] 4-Digit lot number XXXX

Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1, 3, 5	RF2, RF1, RFC	This pin is DC coupled and matched to 50 Ohm. Blocking capacitors are required.	
2	GND	This pin must be connected to RF/DC ground.	
4	B	See truth table and control voltage table.	
6	A	See truth table and control voltage table.	

**GaAs MMIC 3 WATT T/R SWITCH
DC - 3 GHz**
Typical Application Circuit
Notes:

1. Set logic gate and switch Vdd = +3V to +5V and use HCT series logic to provide a TTL driver interface.
2. Control inputs A/B can be driven directly with CMOS logic (HC) with Vdd of +3 to +8 Volts applied to the CMOS logic gates.
3. DC Blocking capacitors are required for each RF port as shown. Capacitor value determines lowest frequency of operation.
4. Highest RF signal power capability is achieved with V set to +10V. The switch will operate properly (but at lower RF power capability) at bias voltages down to +3V.


Evaluation Circuit Board

List of Materials for Evaluation PCB EV1HMC595A [1]

Item	Description
J1 - J3	PCB Mount SMA RF Connector
J4 - J6	DC Pin
C1 - C3	330 pF capacitor, 0402 Pkg.
R1, R2	1 kOhm Resistor, 0402 Pkg.
U1	HMC595A / 595AE T/R Switch
PCB [2]	101659 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.