ANALOG DEVICES

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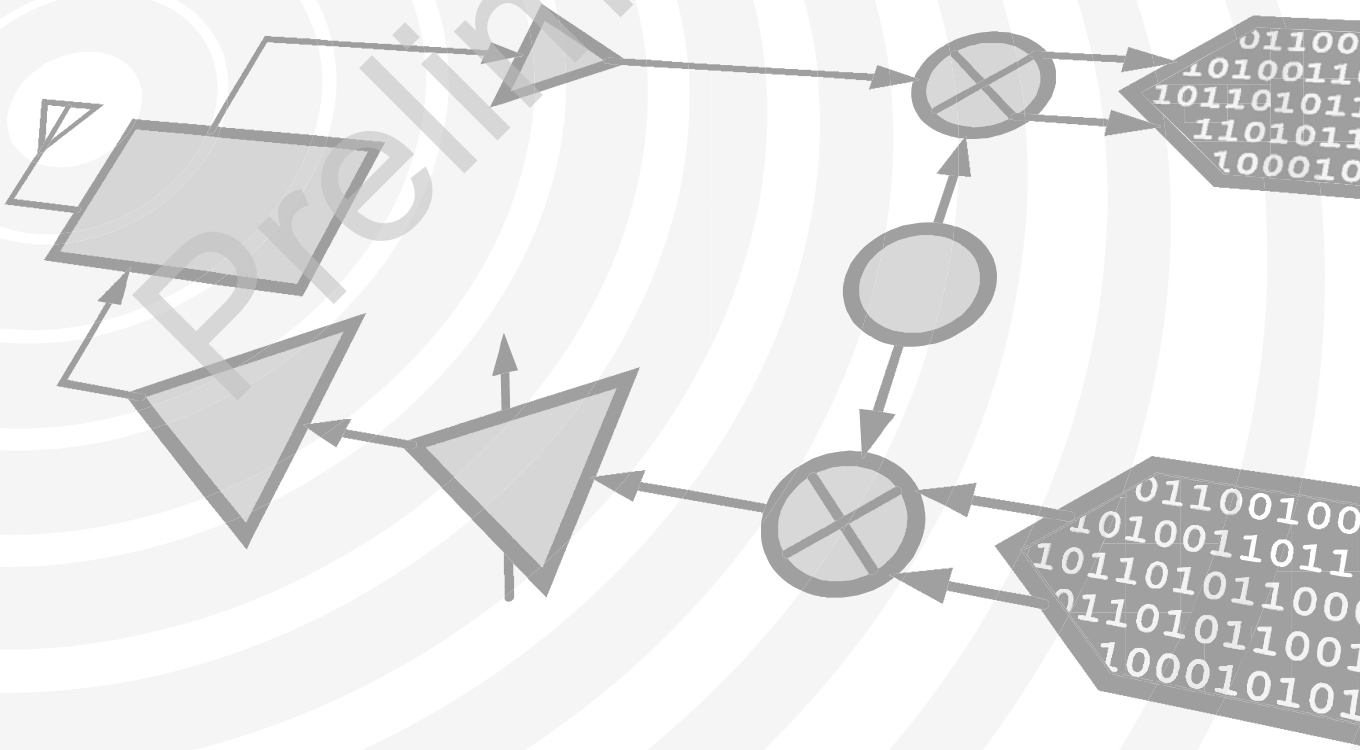

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HMC784AMS8GE

v00.1115

GaAs MMIC 10 WATT T/R SWITCH DC - 4 GHz

Typical Applications

The HMC784AMS8GE is ideal for:

- Cellular / 4G Infrastructure
- WiMAX, WiBro & Fixed Wireless
- Automotive Telematics
- Mobile Radio
- Test Equipment

Features

Input P1dB: +40 dBm @ Vdd = +8V

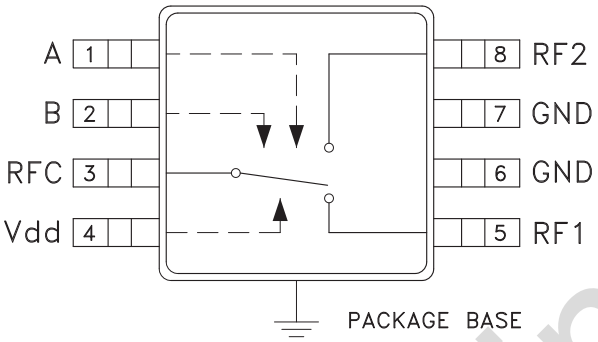
High Third Order Intercept: +62 dBm

Positive Control: +3 to +8 V

Low Insertion Loss: 0.4 dB

MSOP8G Package: 14.8 mm^2

Functional Diagram



General Description

The HMC784AMS8GE is a high power SPDT switch in an 8-lead MSOPG package for use in transmit-receive applications which require very low distortion at high input signal power levels. The device can con-trol signals from DC to 4 GHz. The design provides exceptional intermodulation performance; > +60 dBm third order intercept at +5V bias. RF1 and RF2 are refl ective shorts when "OFF". On-chip circuitry allows single positive supply operation from +3 Vdc to +8 Vdc at very low DC current with control inputs compatible with CMOS and most TTL logic families.

Electrical Specifications, T_A = +25° C, Vctl = 0/Vdd, Vdd = +5V (Unless Otherwise Stated), 50 Ohm System

Parameter	Frequency	Min.	Typ.	Max.	Units
Insertion Loss	DC - 1.0 GHz DC - 2.0 GHz DC - 2.5 GHz DC - 3.0 GHz DC - 4.0 GHz		0.4 0.6 0.8 0.9 1.3	0.6 0.8 1.1 1.3 2.0	dB dB dB dB dB
Isolation	DC - 4.0 GHz	26	30		dB
Return Loss (On State) DC - 1.0 GHz DC - 2.0 GHz DC - 3.0 GHz DC - 4.0 GHz			35 30 20 10		dB dB dB dB
Input Power for 0.1dB Compression Vdd = +3V Vdd = +5V Vdd = +8V	0.1 - 4.0 GHz		32 37 38		dBm dBm dBm
Input Power for 1dB Compression Vdd = +3V Vdd = +5V Vdd = +8V	0.1 - 4.0 GHz	32 35 38	35 38 41		dBm dBm dBm
Input Third Order Intercept (Two-tone input power = +30 dBm each tone) 0.02 - 0.1 GHz 0.1 - 2.0 GHz 0.1 - 3.0 GHz 0.1 - 4.0 GHz			42 62 61 60		dBm dBm dBm dBm
Switching Characteristics tRISE, tFALL (10/90% RF) tON, tOFF (50% CTL to 10/90% RF)	DC - 4.0 GHz		15 40		ns ns

For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

GaAs MMIC 10 WATT T/R SWITCH DC - 4 GHz

Bias Voltage & Current

Vdd (V)	Typical Idd (µA)
+3	0.5
+5	2
+8	20

Control Voltages & Currents

State	Vdd = +3V (µA)	Vdd = +5V (µA)	Vdd = +8V (µA)
Low (0 to +0.2V)	0.5	2	20
High (Vdd ±0.2V)	0.1	0.1	0.1

Truth Table

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

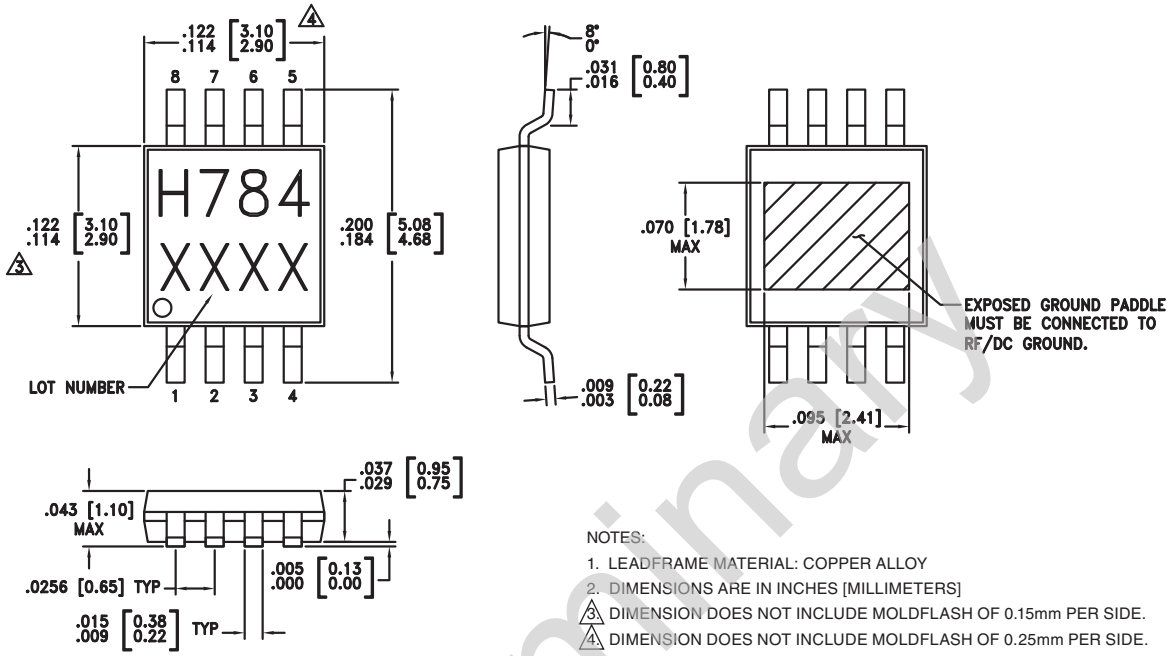
Absolute Maximum Ratings

RF Input Power (Vdd = +8V, 50 Ohm source & load impedances)	+39 dBm (T = +85 °C)
Supply Voltage Range (Vdd) (Vctl = 0V)	-0.2 to +9V
Control Voltage Range (A & B)	-0.2 to Vdd +0.5V
Channel Temperature	150 °C
Continuous Pdiss (T = 85 °C) (derate 25 mW/°C above 85 °C)	1.217 W
Thermal Resistance (Channel to ground paddle)	53.4 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Rating	Class 1A HBM

Note: DC blocking capacitors are required at ports RFC, RF1 and RF2. Their value will determine the lowest transmission frequency.

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 AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.