EMD1705QFN4 Driver Amplifier

DC-20 GHz GaAs PHEMT MMIC

Eclipse Microdevices EMD1705QFN4 is a GaAs MMIC PHEMT distributed general purpose driver amplifier. This MMIC is ideal for applications that requires a typical P1dB output power of +23 dBm up to 14 GHz, while requiring only 190mA from a + 8 Volt supply. Gain flatness of this device is less than 2.0 dB from DC to 20 GHz. The EMD1705QFN4 comes in a small RoHS compliant 4mm QFN leadless package and has excellent RF and thermal properties, ideal for commercial and industrial applications.

Technical Characteristics

Product Features
15.0 dB gain @ 10 GHz
+24.0 dBm P1dB output power @ 10 GHz
+8.0V @ 190 mA typical supply voltage
Low cost QFN 4mm leadless RoHS compliant/hermetically sealed
Die available upon request

Max. Ratings	
RF Input Power:	+18.0 dBm
Drain Voltage (Vdd):	+8.0 VDC
Gate Voltage (Vgg):	-2.0 to 0 VDC
Max. T_J 85° C:	+110°C
Storage Temperature:	-55 to +150°
Operating Temperature:	-40 to +85°

Electrical Specifications @ +25°C, Vdd= 8.0, Ids= 190mA

Parameters	Freq. (GHz)	Min.	Typical	Max.	Units
Gain	2.0 8.0 14.0 20.0		16.7 15.5 17.5 15.3		dB dB dB dB
Gain Flatness	DC to 10.0 GHz 10.0 to 20 GHz		+/- 1.00 +/- 1.45	+/- 1.40 +/- 1.80	dB dB
Gain Variation Over Temperature				.02	dB/°C
Noise Figure			6.5		dB
Input Return Loss			10.0 10.0 10.0		dB dB dB
Output Return Loss	 10.0		8.0 9.3 8.0		dB dB dB
1dB Compression Point	2.0 8.0 14.0 20.0		23.0 24.0 22.5 19.1		dBm dBm dBm dBm
Saturated Output Power	2.0 8.0 14.0 20.0		25.0 24.6 24.2 21.0		dBm dBm dBm dBm
3rd Order Intercept Point			28.0		dBm

About EclipseMDI

ECLIPSE MDI is located in San Jose, California. ECLIPSE has been developing high performance analog semiconductors for use in wireless radio frequency (RF), microwave, and millimeter wave for commercial and industrial applications. ECLIPSE has formed a strategic alliances - with foundries that feature leading state-of-the-art process technologies and with manufacturing facilities for high-volume production of innovative RFIC's.

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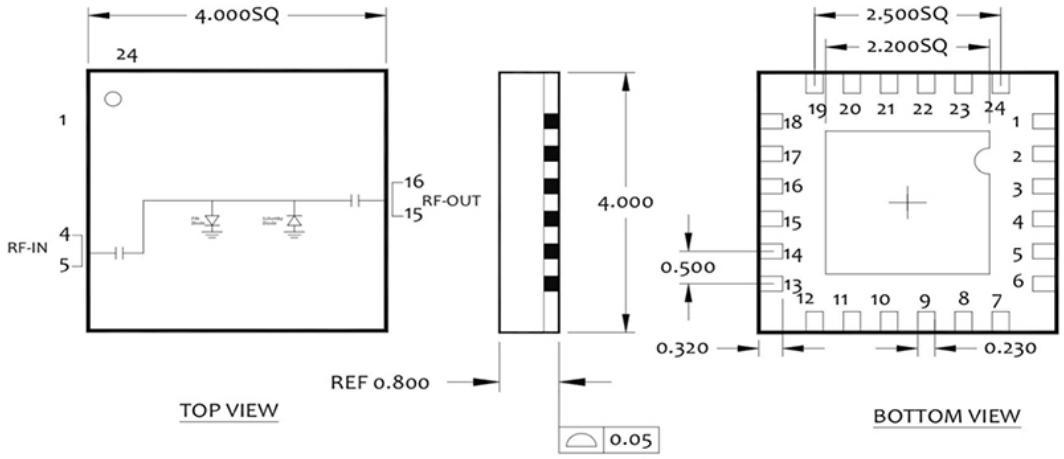
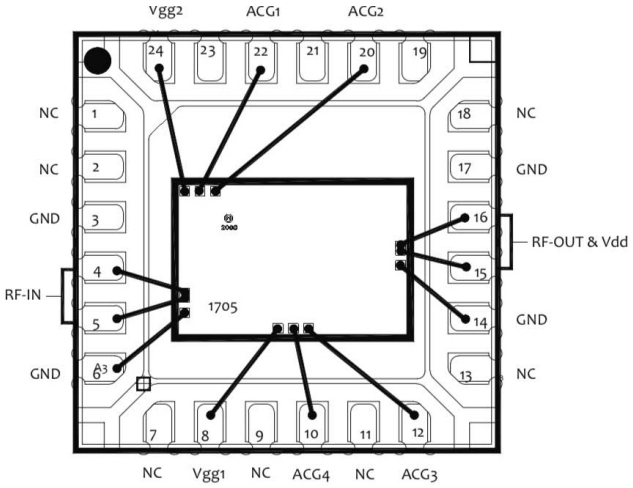
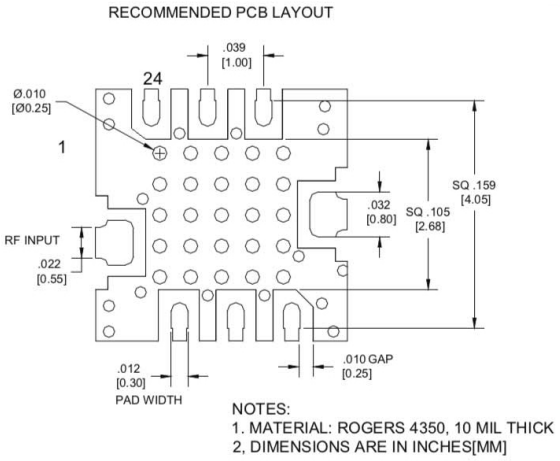
Outline Drawing



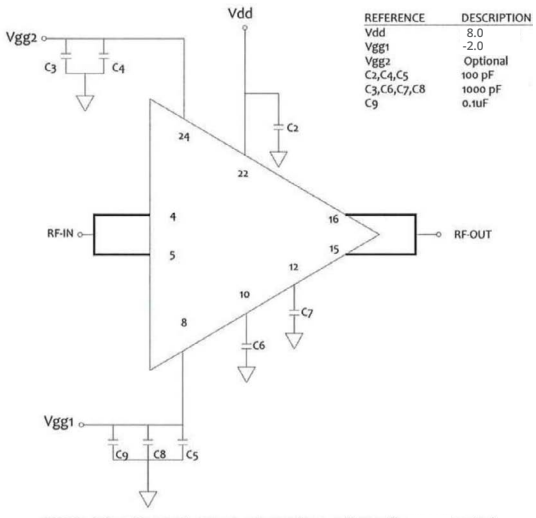
Functional block diagram



Recommended PCB layout



Application Circuit



REFERENCE	DESCRIPTION
Vdd	8.0
Vgg1	-2.0
Vgg2	Optional
C2,C4,C5	100 pF
C3,C6,C7,C8	1000 pF
C9	0.1uF

NOTE: Adjust Vgg1 to between -2 to 0 volts to achieve Ids= 190mA typical

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