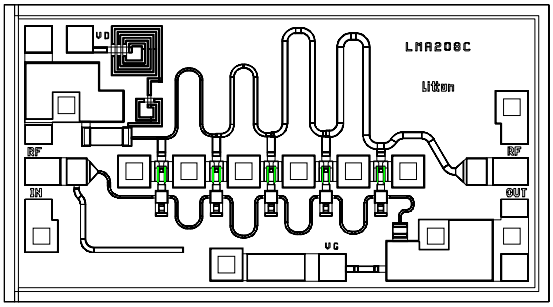
Filtronic
Solid State

2-26 GHz PHEMT Amplifier

LMA208C

Features

- 9dB Typical Gain
- 18dBm 1-dB Gain Compression Power
- 15dB Input/Output Return Loss Typical
- 2-26GHz Frequency Bandwidth
- DC Decoupled RF Input and Output
- Chip Size : 1.986mmX1.082mm (.078"X.043")
- Chip Thickness : 100µm
- Pad Dimension : 100µm^2



Description

The Filtronic LMA208C is a medium power PHEMT amplifier that operates from 2 to 26GHz. This 5-stage travelling wave amplifier provides 10dB nominal gain and 1-dB gain compression power output of greater than 19dBm. The LMA208C is designed for use as wideband driver amplifer in ECM (Electronic Counter-Measure) and commercial communication system applications. Ground is provided to the circuitry through vias to the backside metallization.

Electrical Specifications at T_a=25°C

(V_{DD}=+4.0V, Zin=Zout=50Ω)

Symbol	Parameter	Test Conditions	Limit			Units
			Min.	Typ.	Max.	
BW	Operating Bandwidth		2		26	GHz
S21	Small Signal Gain (2-20GHz)	@ .5Idss	7	9		dB
S21	Small Signal Gain (20-26GHz)	@ .5Idss	6	7		dB
Idss	Drain Current at Saturation	Idss @ Vg=0 V	75	162	225	mA
ΔS21	Small Signal Gain Flatness			±1.5	±2.0	dB
RLin	Input Return Loss			-13		dB
RLout	Output Return Loss			-14		dB
S12	Reverse Isolation			-30		dB
P-1dB	1-dB Gain Compression Power	@ .5Idss	16	18		dBm
Psat	Saturated Output Power			21		dBm

Absolute Maximum Ratings

Symbol	Parameter/Conditions	Min.	Max.	Units
Vdd	Drain Supply Voltage		7	Volts
Idd	Total Drain Current		225	mA
Pin	RF Input Power		12	dBm
Pt	Power Dissipation		1.6	W
Tch	Operating Channel Temperature		150	°C
Tstg	Storage Temperature	-65	165	°C
Tmax.	Max. Assembly Temp. (1 min. max.)		300	°C

Notes:

1. This GaAs MMIC is susceptible to damage from Electrostatic Discharge. Proper precautions should be used when handling these devices.
2. Specifications subject to change without notice.

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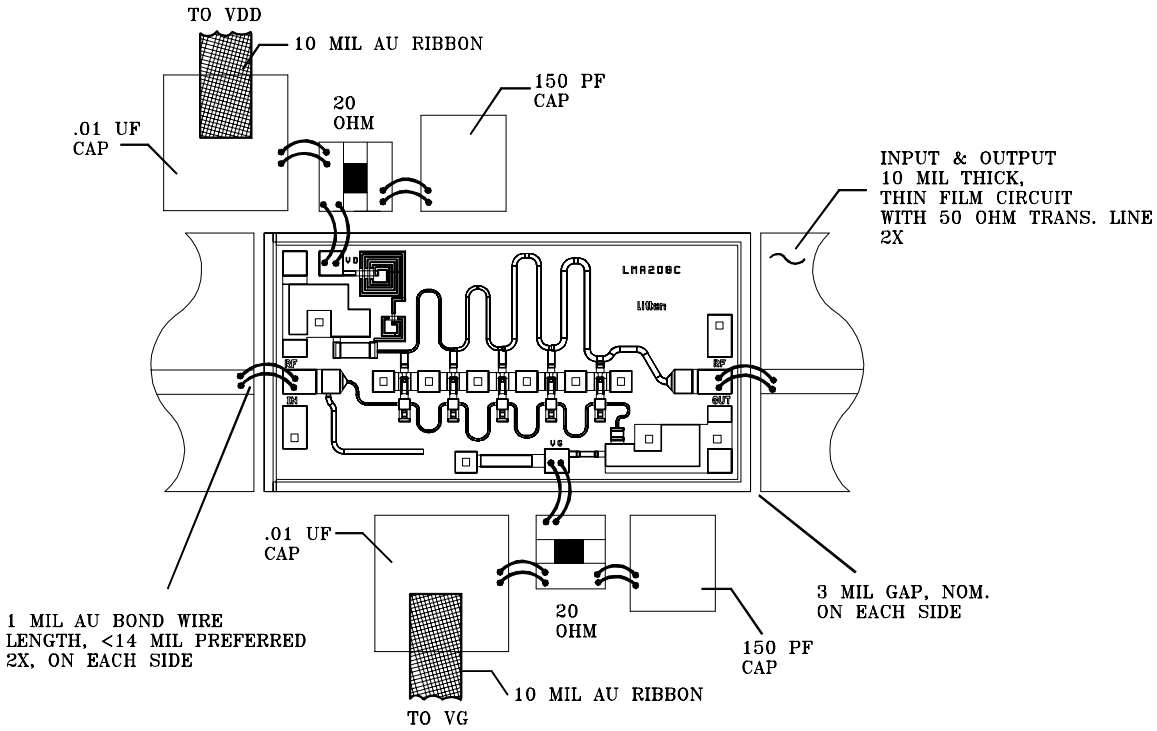
Assembly Diagram



1.) Recommended lead bond technique is thermocompression wedge bonding with 0.001" (25µm) diameter wire. The bond tool force shall be 35-38 gram. Bonding stage temperature shall be 230-240°C, heated tool (150-160°C) is recommended. Ultrasonic bonding is not recommended.

2.) The recommended die attach is an eutectic 80/20 Gold/Tin solder, using a stage temperature of 285-290°C. Maximum time at temperature is 1 minute. Use of forming gas (90% N_2, 10% H_2) for best results.

3.) Bond on bond or stitch bond acceptable.

4.) Conductor over conductor acceptable. Conductors must not short.

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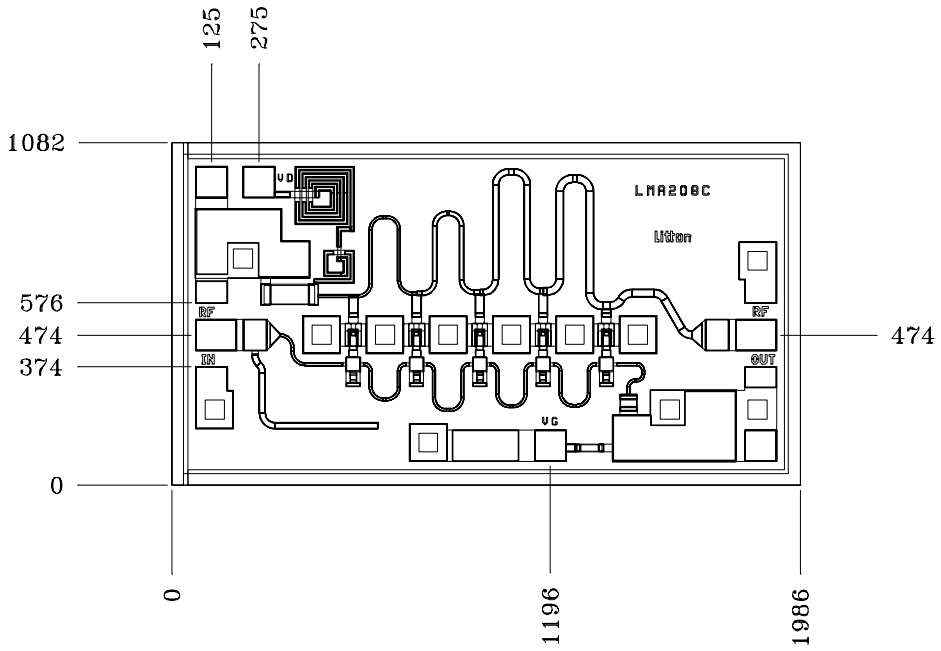
Mechanical Outline



Notes:

1.) **Unless Otherwise specified.**
2.) **All units are in micron (µm).**
3.) **All bond pads are 100 X 100 µm^2.**
4.) **Bias pad (V_{DD}) size is 100 X 121.5 µm^2.**

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