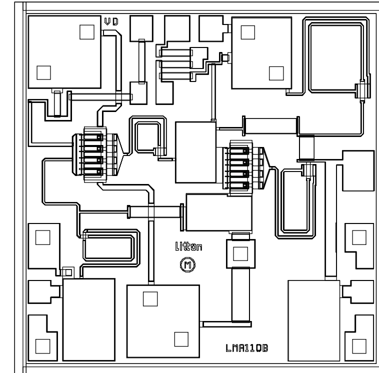
Filtronic
Solid State

.5-8GHz MESFET Amplifier

LMA110B

Features

- 3.5dB Typical Noise Figure
- 12.5dB Typical Gain
- 12dBm Saturated Output Power
- 12dB Input/Output Return Loss Typical
- 0.5-6GHz Frequency Bandwidth
- +8 Volts Single Bias Supply
- DC Decoupled RF Input and Output
- Chip Size : 1.62mmX1.62mm (.064"X.064")
- Chip Thickness : 100µm
- Pad Dimension : 100µm^2



Description

The Filtronic LMA110B is a GaAs monolithic distributive amplifier which operates from 0.5 to 8 GHz. This amplifier produces a typical gain of 12.5dB with a noise figure of 3.5dB. The LMA110B is suitable for wide-band low noise gain block, EW and commercial PCN applications. DC decoupled input and output RF port. Ground is provided to the circuitry through vias to the backside metallization.

Electrical Specifications at T_a=25°C

(V_{DD}=+8.0V, Zin=Zout=50Ω)

Symbol	Parameter	Test Conditions	Min.	Limit Typ.	Max.	Units
BW	Operating Bandwidth		0.5		8	GHz
S21	Small Signal Gain	V_D=8V, Vg1=Vg2=8V	11	12.5		dB
Ids	Drain Operating Current		60	85	110	mA
∆S21	Small Signal Gain Flatness			±1	±1.5	dB
NF	Noise Figure	@ 50% Idss		3.5	4.5	dB
RLin	Input Return Loss			-10	-8	dB
RLout	Output Return Loss			-10	-8	dB
S12	Reverse Isolation			-30		dB
P-1dB	1-dB Gain Compression Power		8	10		dBm

Absolute Maximum Ratings

Symbol	Parameter/Conditions	Min.	Max.	Units
Vdd	Drain Supply Voltage		13	Volts
Idd	Total Drain Current		110	mA
Pin	RF Input Power		24	dBm
Pt	Power Dissipation		1.5	W
Tch	Operating Channel Temperature		150	°C
Tstg	Storage Temperature	-65	165	°C
Tmax.	Max. Assembly Temp. (1 min. max.)		300	°C

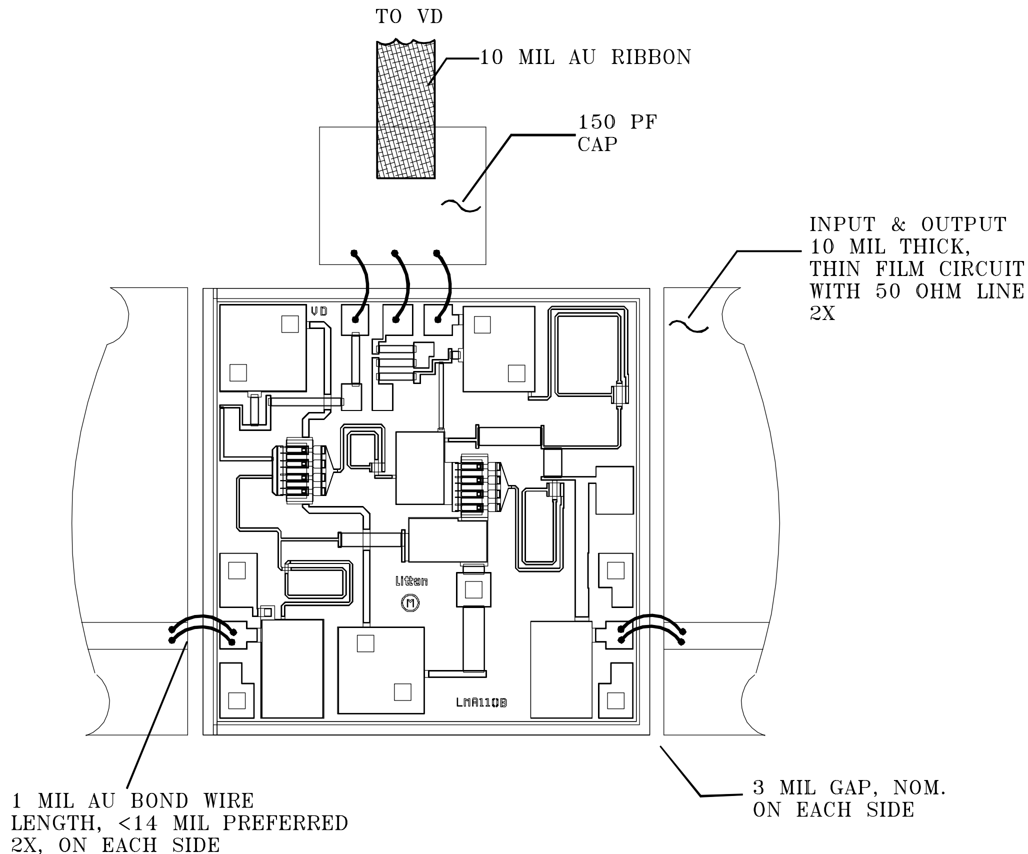
Notes :

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.

Phone: (408) 988-1845 ***Internet:*** http://www.FiltronicSolidState.com ***Fax:*** (408) 970-9950

Assembly Diagram

SIMPLE BIAS SCHEME



Notes:

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 Ablebond silver epoxy, the stabilize bake temperature is set at 150°C for 45 minutes.

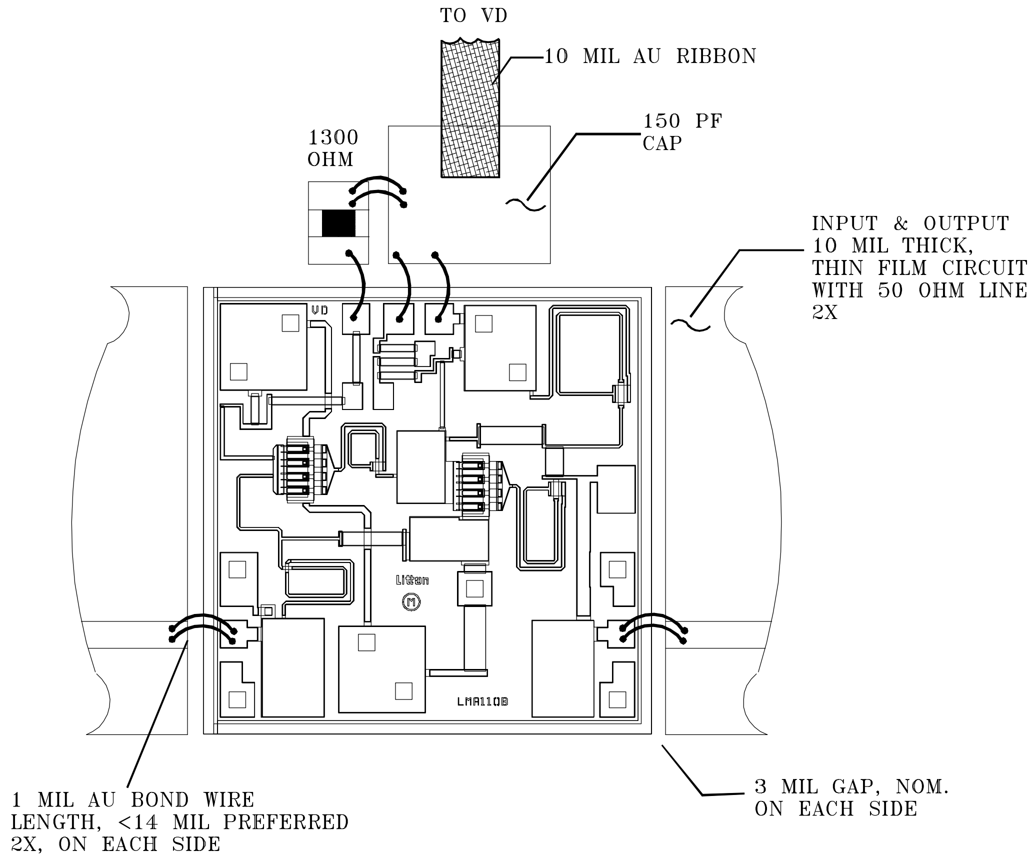
3.) Bond on bond or stitch bond acceptable.

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

Phone: (408) 988-1845 ***Internet:*** http://www.FiltronicSolidState.com ***Fax:*** (408) 970-9950

Assembly Diagram

OPTIMUM BIAS SCHEME



Notes:

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.

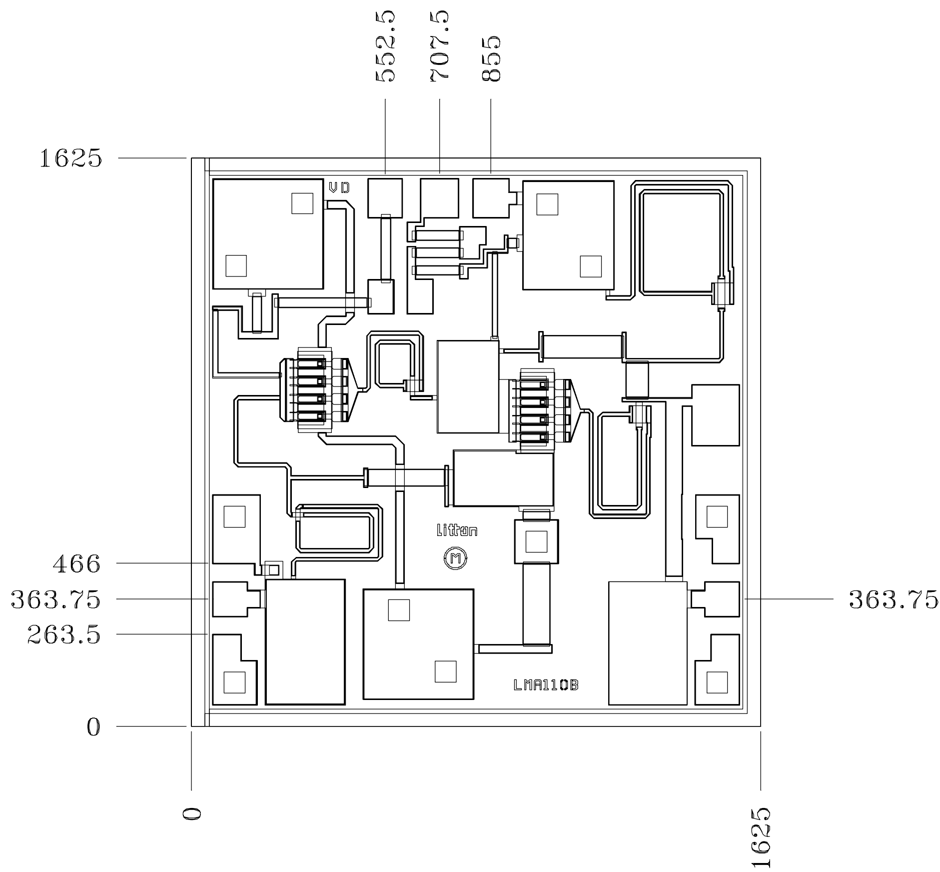
2.) The recommended die attach is Ablebond silver epoxy, the stabilize bake temperature is set at 150°C for 45 minutes.

3.) Bond on bond or stitch bond acceptable.

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

Phone: (408) 988-1845 *Internet:* http://www.FiltronicSolidState.com *Fax:* (408) 970-9950

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.

Phone: (408) 988-1845 ***Internet:*** http://www.FiltronicSolidState.com ***Fax:*** (408) 970-9950