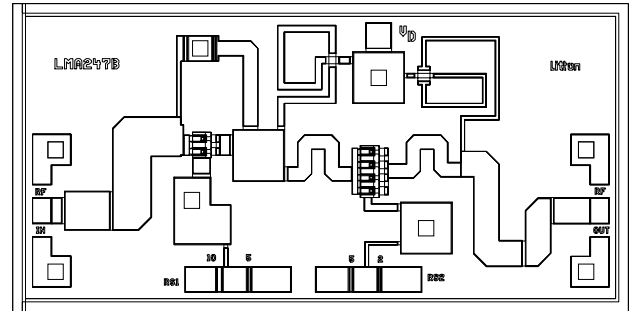


Features

- 9dB Typical Gain
- 17dBm Saturated Output Power
- 12dB Input/Output Return Loss Typical
- 18-26GHz Frequency Bandwidth
- +4 Volts Single Bias Supply
- DC Decoupled RF Input and Output
- Chip Size : 1.19mmX2.38mm (.046"X.094")
- Chip Thickness : 100 μ m
- Pad Dimension : 100 μ m²



Description

The Filtronic LMA247B is a medium power PHEMT amplifier which operates from 18 to 26GHz. This 2-stage reactive matched amplifier provides 9dB of linear power gain and 1-dB gain compression power output of +15dBm. The LMA247B is suitable for mm-W (millimeter wave) PCN/PCS 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

(VDD=+4.0V, Z_{in}=Z_{out}=50 Ω)

Symbol	Parameter	Test Conditions	Limit			Units
			Min.	Typ.	Max.	
BW	Operating Bandwidth		18		26	GHz
S ₂₁	Small Signal Gain	V _D =4V, R _s =10/5 Ω	8	9		dB
I _{dss}	Drain Current at Saturation	R _s =0 Ω @ I _{dss}	90	195	270	mA
Δ S ₂₁	Small Signal Gain Flatness			± 0.5		dB
R _L in	Input Return Loss			-14		dB
R _L out	Output Return Loss			-16		dB
S ₁₂	Reverse Isolation			-40		dB
P-1dB	1-dB Gain Compression Power			15		dBm

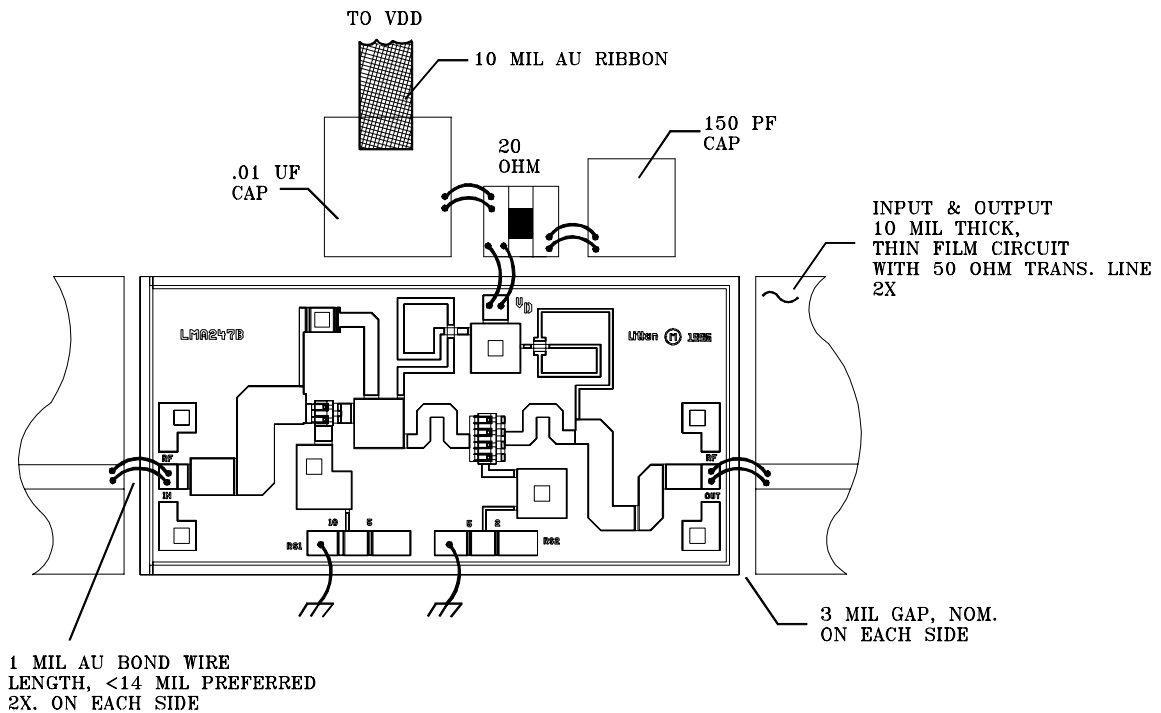
Absolute Maximum Ratings

Symbol	Parameter/Conditions	Min.	Max.	Units
V _{dd}	Drain Supply Voltage		4	Volts
I _{dd}	Total Drain Current		270	mA
P _{in}	RF Input Power		15	dBm
P _t	Power Dissipation		1.2	W
T _{ch}	Operating Channel Temperature		150	°C
T _{stg}	Storage Temperature	-65	165	°C
T _{max.}	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.

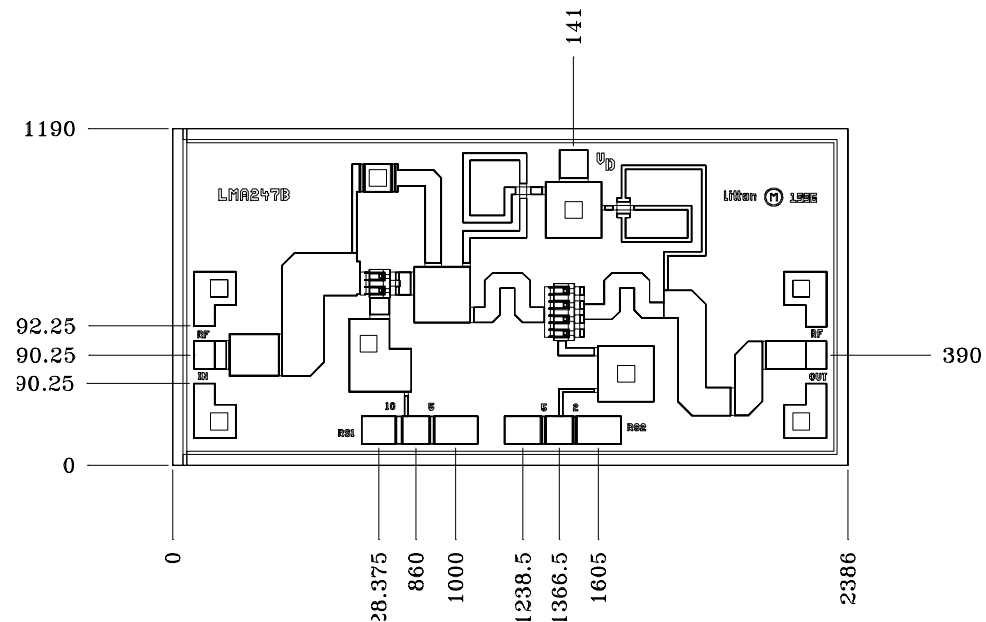
Assembly Diagram



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 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% N₂, 10% H₂) for best results.
- 3.) Bond on bond or stitch bond acceptable.
- 4.) Conductor over conductor acceptable. Conductors must not short.

Mechanical Outline



Notes:

- 1.) Unless Otherwise specified.
- 2.) All units are in micron (μm).
- 3.) All bond pads are $100 \times 100 \mu\text{m}^2$.
- 4.) Bias pad (V_{DD}) size is $100 \times 121.5 \mu\text{m}^2$.

DSS 012 WC