

MEIRGEN

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MLNM0250A

May 2015

20 MHz - 500 MHz

Low Noise Amplifier

Data Sheet

Description

MLNM0250A is 20 MHz to 500 MHz wideband low noise amplifier with very flat gain. The input and output are matched to 50 Ω with DC blocking capacitors.

MLNM0250A offers good output P1dB under low current consumption. The compact size and thin thickness design are suitable for portable device applications.

Features

- 250 mil x 250 mil surface mount package
- Excellent flatness in S21
- Fully matched input and output
- High linearity and P1dB
- Unconditionally stable across load condition
- Single 5V supply

Applications

- Mobile Infrastructures
- Wireless Base Stations
- Broadcast
- Security System
- Wireless Measurement
- Fixed Wireless

Specifications at 240 MHz 5V43mA(typical)

- 0.77dB noise figure
- 16.7dBm output P1dB
- 18.8dB input return loss
- 19dB output return loss
- 21.37dB gain

Electrical Specifications at room temperature

index	Testing Item	Symbol	Test Conditions	min	nom	max	unit
1	Gain	S21	20 MHz-500 MHz	20	21.5		dB
2	Gain variation	ΔG	20 MHz-500 MHz		+/-0.8	+/-1.2	dB
3	Input return loss	S11	20 MHz-500 MHz	12.5	18		dB
4	Output return loss	S22	20 MHz-500 MHz	14	20		dB
5	Reverse isolation	S12	20 MHz-500 MHz	22	24		dB
6	Noise figure	NF	20 MHz-500 MHz		0.77	0.92	dB
7	Output power 1dB compression point	OP1dB	20 MHz-500 MHz	15	16.3		dBm
8	Output-Third-Order interception point	OIP3	20 MHz-500 MHz	28	29.3		dBm
8	Current consumption	I _{dd}	25°C	38	43	48	mA
9	Power supply operating voltage	V _{dd}		4.7	5	5.3	V
10	Maximum average RF input power	P _{in,max}	DC to 6 GHz			10	dBm
11	Operating Temperature	T _o		-40		85	°C
12	Storage temperature	T _o		-55		150	°C

Ordering information

Model Number	MLNM0250A
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Marking : MLNM0250A

Typical Data

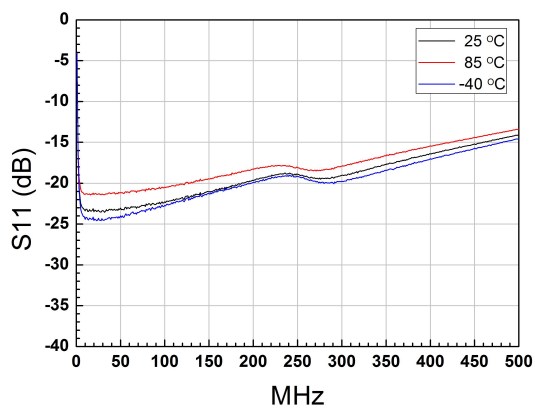


Figure.1 Input return loss vs Temperature

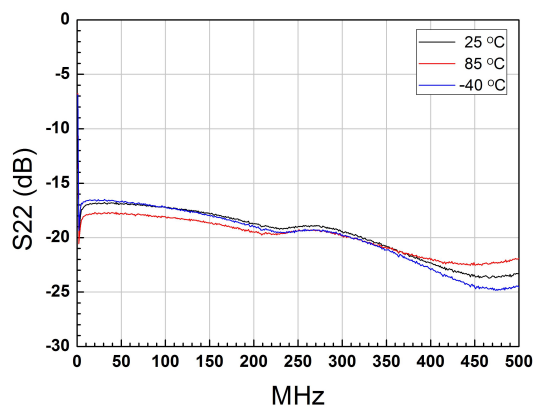


Figure.2 Output return loss vs Temperature

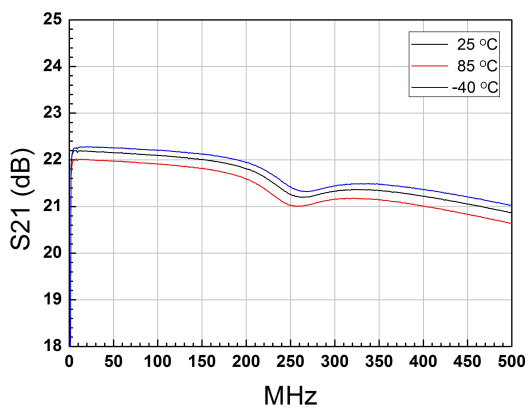


Figure.3 Gain vs Temperature

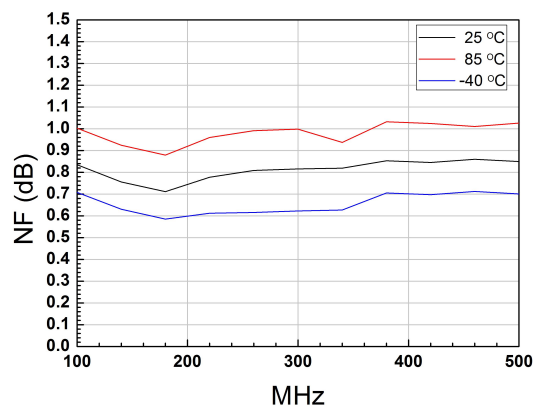


Figure.4 Noise figure vs Temperature

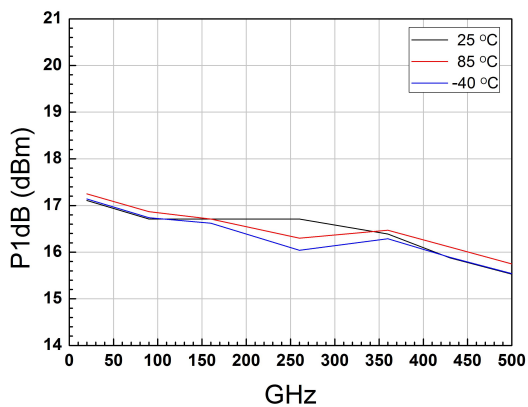


Figure.5 P1dB compression point vs Temperature

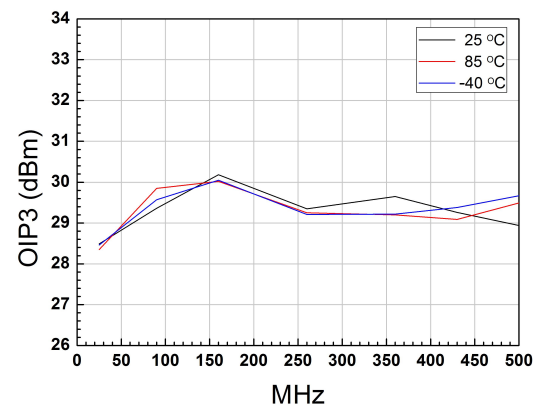


Figure.6 OIP3 vs Temperature

Solder reflow.

The high temperature solder SN100 was used for the inside assembly of ABT, MLN and MLT series modules. The melting temperature point of the high temperature solder SN100 is around 227 °C. Thus, melting temperature of the solder paste should be below 205 °C for assembling ABT, MLN and MLT series module on the test board. SN63 solder paste melting temperature point is around 183 °C and is suitable for the assembly purpose.



Caution! ESD sensitive device.

Following three suggestions that can avoid ESD effectively:

- a) Workers who directly handle ABT, MLN and MLT series or boards on which devices have been mounted can wear both wrist straps and ESD protective shoes.
- b) Gloves and finger sacks with ESD protection should be used. Especially, the finger sacks used when handling devices with bare hands must be conductive or electrostatic diffusive.
- c) Workers should make efforts to wear clothing made from materials that do not generate static electricity.

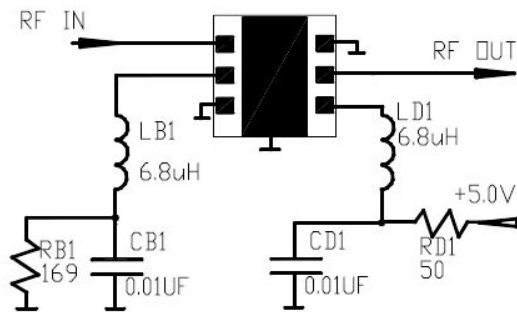


Figure.7 Typical application schematic for MLNM0250A