MILLER MMIC

MML066

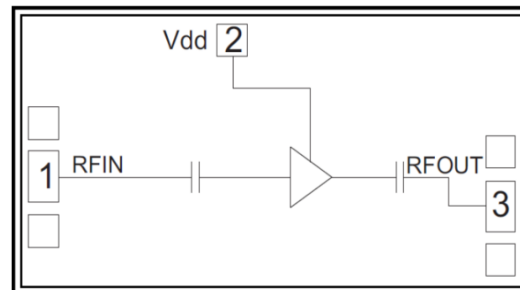
V1.0.0

GaAs MMIC
Low Noise Amplifier
24-40GHz

Features

- Single Biasing Voltage (Self Biased)
- Frequency: 24-40GHz
- Small Signal Gain: 21.5dB
- Noise Figure: 2.0 dB typ./2.2dB max.
- P1dB: 10.5dBm
- Power Supply: +5V/42mA
- Input/Output: 50Ω
- Die Size: 1.6 x 0.95 x 0.09 mm

Functional Block Diagram



Typical Applications

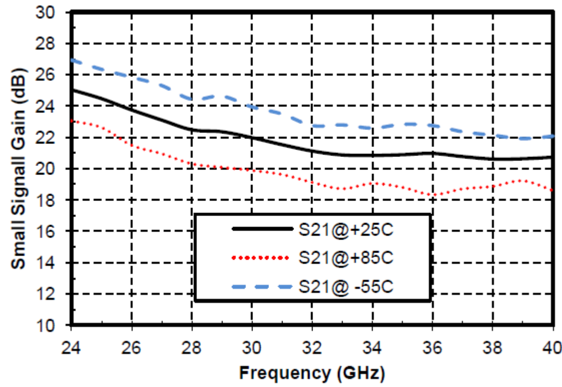
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

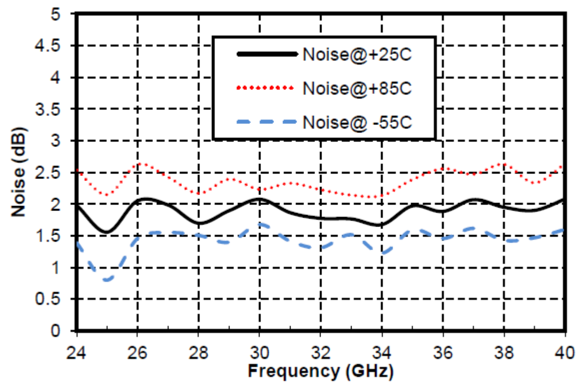
TA = +25ºC, Vd = +5V

Parameters	Min.	Typ.	Max.	Units
Frequency		24-40		GHz
Small Signal Gain	20.5	21.5	24.5	dB
Gain Flatness		±2.0		dB
Noise Figure	1.5	2.0	2.2	dB
Output 1dB Compression (P1dB)	9	10.5	11.5	dBm
Saturated Output Power (Psat)	11	11.5	12	dBm
Input Return Loss	9	12	-	dB
Output Return Loss	14	16	-	dB
Static current		42		mA

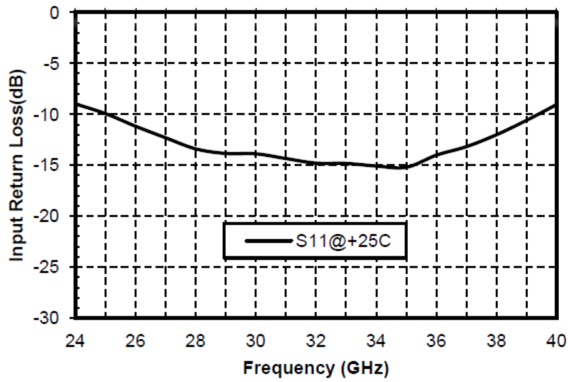
Gain vs. Frequency



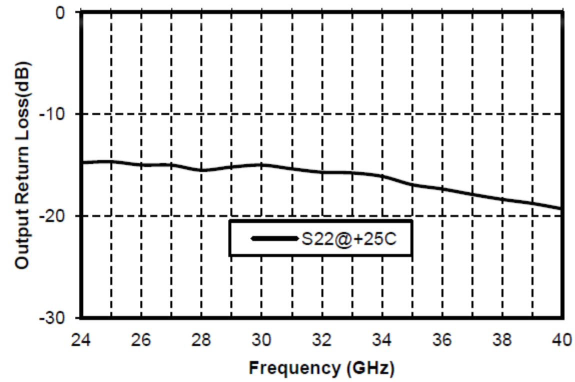
Noise Figure vs. Frequency



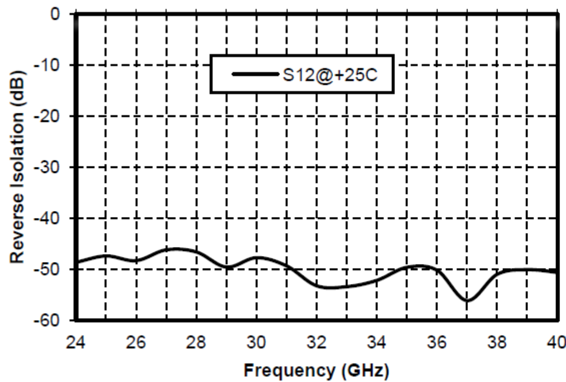
Input Return Loss vs. Frequency



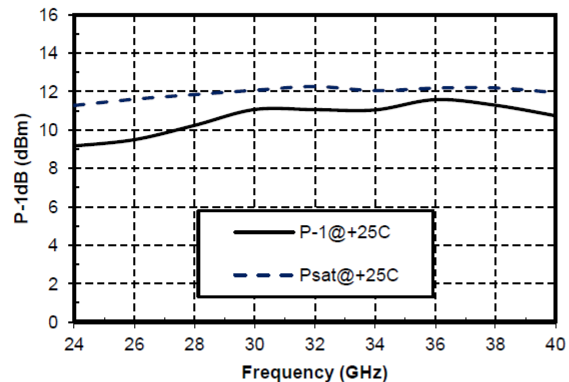
Output Return Loss vs. Frequency



Reverse Isolation vs. Frequency

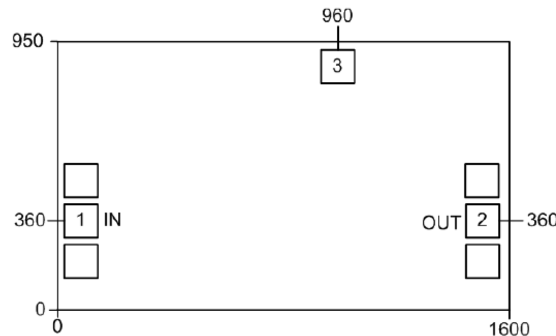


P1dB/Psat vs. Frequency



Outline Drawing:

All Dimensions in μm



Pad Description

Pad	Function	Description	Equivalent Circuit
1	RF IN	RF signal input terminal, no blocking capacitor required.	RF IN
2	RF OUT	RF signal output terminal, no blocking capacitor required.	RF OUT
3	Vd	Amplifier drain bias; external 100pF bypass capacitor required.	Vdd
Die bottom	GND	Die bottom must be connected to RF/DC ground.	GND

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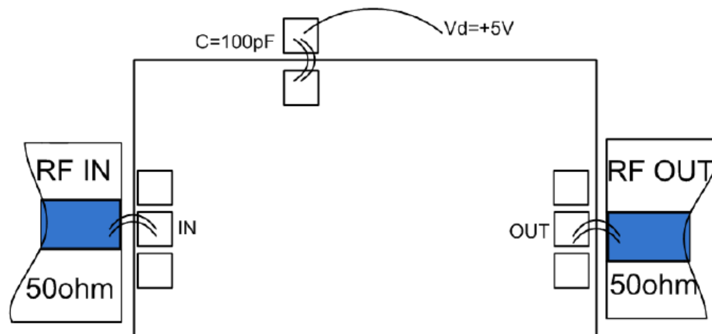
Assembly Drawing



Notes:
1. Die thickness: 100um
2. Typical bond pad is 100*100 μm^2
3. Bond pad metalization: Gold
4. Backside metalization: Gold
5. Backside of the die (GND)
6. No connection required for unlabeled bond pads

Maximum Ratings:
1. Maximum drain voltage: +7V
2. Maximum input power: +20dBm
3. Operating temperature: -55℃ to +85℃
4. Storage temperature: -65℃ to +150℃