MILLER MMIC

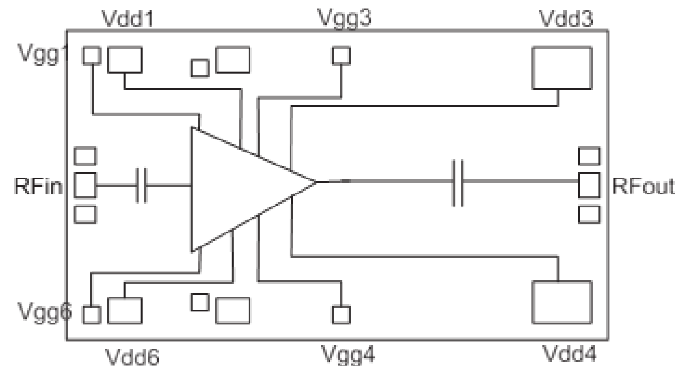
V1.0.0

GaAs MMIC
Power Amplifier
6-18GHz

Features

- Frequency: 6-18GHz
- Gain: 23dB
- P1dB: 33dBm
- OIP3: +40dBm
- Power Supply : +8.0V@1150mA
- Die Size : 4.68 x 2.84 mm

Functional Block Diagram



Typical Applications

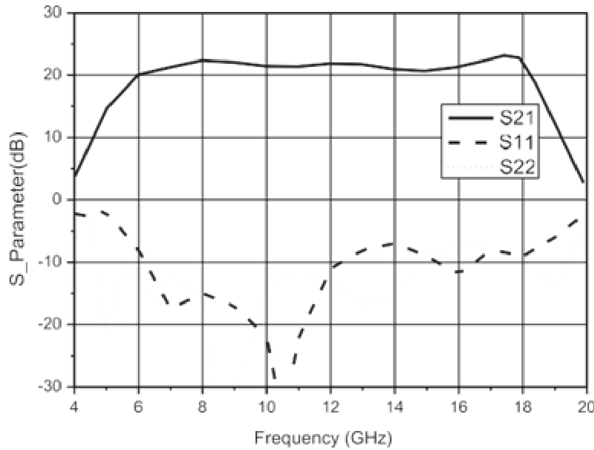
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

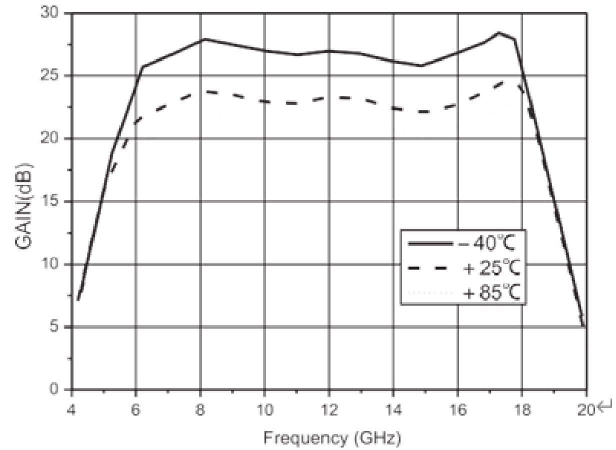
TA = +25ºC, Vdd = +8V, Vgg = -0.67V (On-wafer Measurement Results)

Parameters	Min.	Typ.	Max.	Units
Frequency		6-18		GHz
Gain		23		dB
Gain Flatness		±1.5		dB
P1dB		33		dBm
OIP3		40		dBm
Psat		35		dBm
PAE		26		%
Input Return Loss		14		dB
Output Return Loss		17		dB
Operating Current		1150		mA

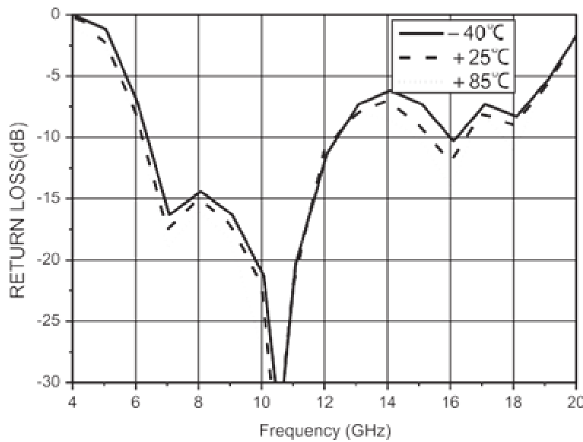
S-Parameter vs. Frequency



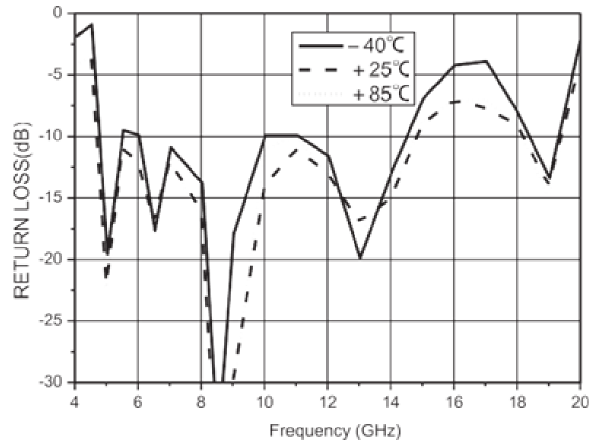
Gain vs. Temperature



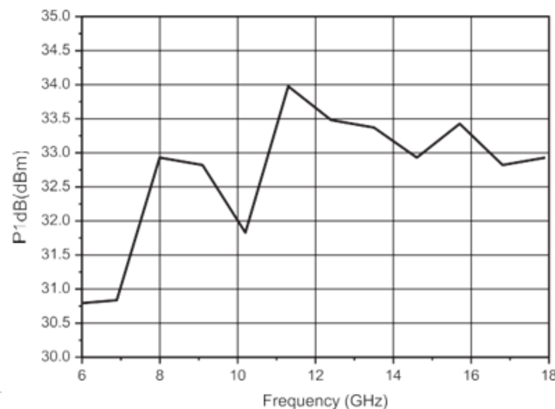
Input Return Loss vs. Temperature



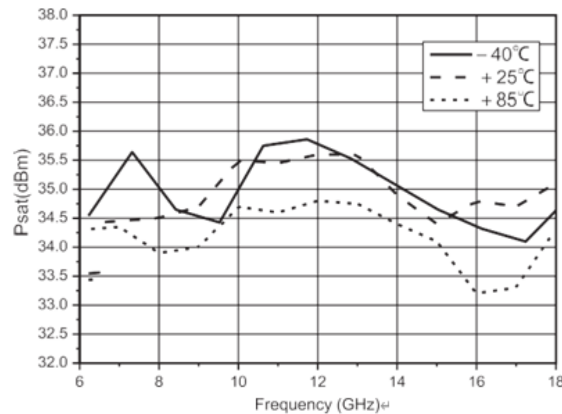
Output Return Loss vs. Temperature



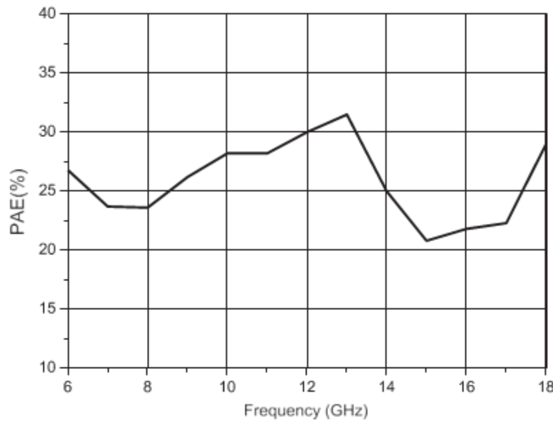
P1dB vs. Frequency



Psat vs. Temperature

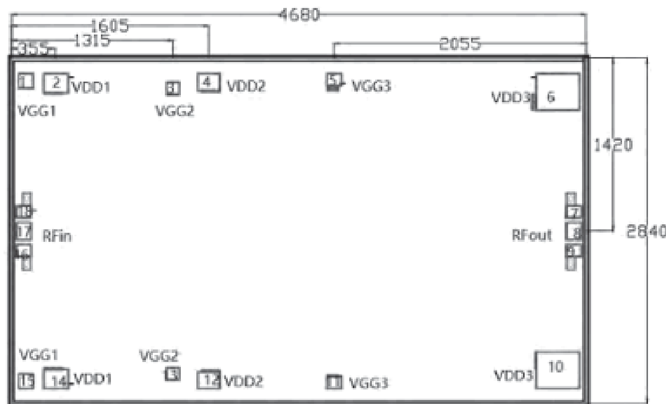


PAE at Psat vs. Frequency



Outline Drawing:

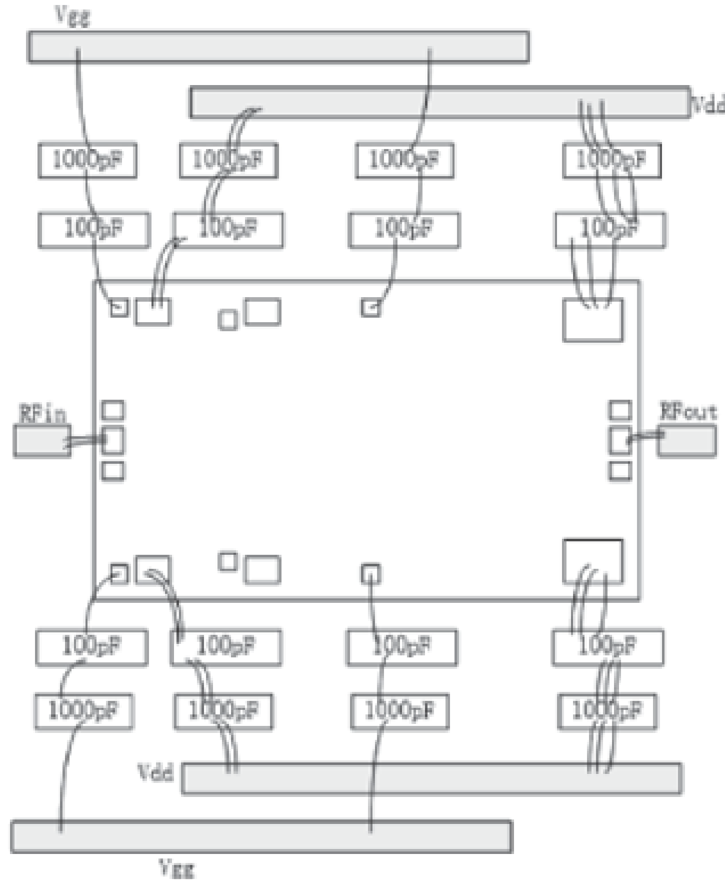
All Dimensions in μm



Pad Description

Pad	Function	Description
17	RF IN	Signal input terminal, connected to 50Ω circuit.
8	RF OUT	Signal output terminal, connected to 50Ω circuit.
2,4,6,10,12,14	Vdd	Amplifier power supply; external 100pF capacitor required.
1,3,5,11,13,15	Vgg	Amplifier gate control power supply, and the current can be changed by applying different gate voltages.
7,9,16,18	GND	Die bottom must be connected to RF/DC ground.

Assembly Drawing (Bond testing)



Notes:

1. Die thickness: 100um
2. Typical bond pad is 100*100 μm²
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. Supply voltage: +9V
2. RF Input power: +16dBm
3. Operating temperature: -55℃ to +85℃
4. Storage temperature: -65℃ to +150℃