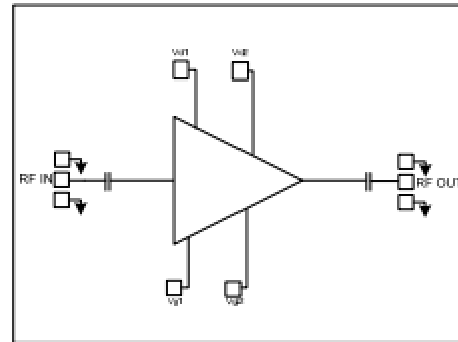
MM3053

**GaAs pHEMT MMIC
Power Amplifier
18-42GHz**

Features

- **Frequency: 18-42GHz**
- **Small Signal Gain: 19.5dB**
- **Gain Flatness: ±0.75dB**
- **P1dB: 24.5dBm**
- **Psat: 25.5dBm**
- **Power Supply: +5V@400mA**
- **Input/Output: 50Ω**
- **Die Size: 2.78 x 1.77 x 0.1 mm**

Functional Block Diagram



Typical Applications

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

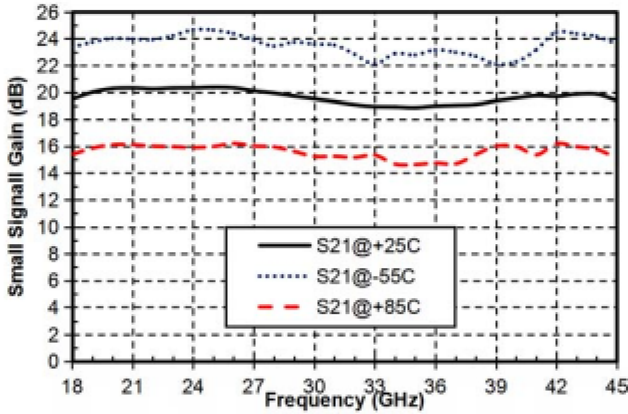
Electrical Specifications

TA = +25ºC, Vd = +5V

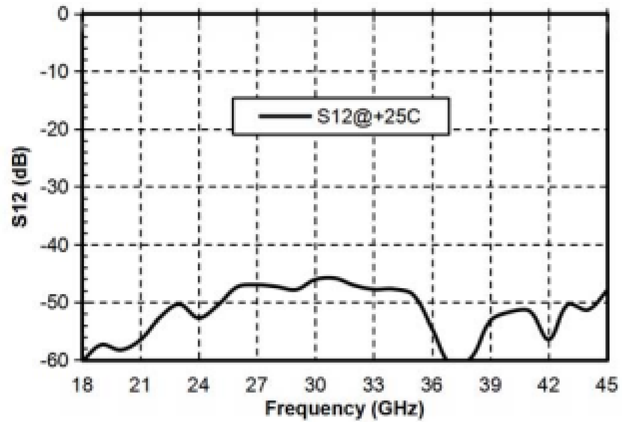
Parameters	Min.	Typ.	Max.	Units
Frequency		18-42		GHz
Small Signal Gain	18.5	19.5	20	dB
Gain Flatness		±0.75		dB
P1dB		24.5		dBm
Psat		25.5		dBm
Input Return Loss	13	18		dB
Output Return Loss	18	26		dB
Quiescent Current		400		mA

*By tuning the Vg terminal voltage -2V~0V, up to 400mA, Vg terminal voltage is expected to -0.7V.

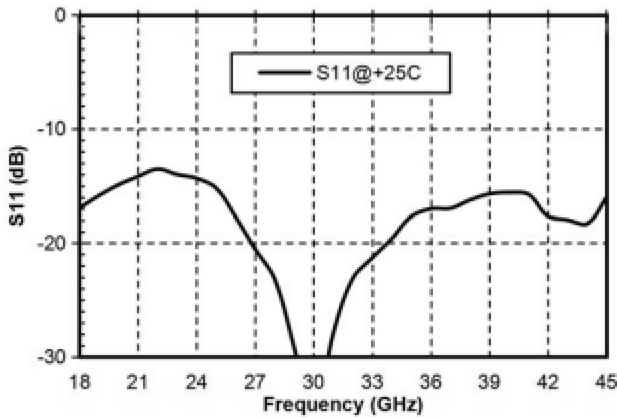
Gain vs. Frequency



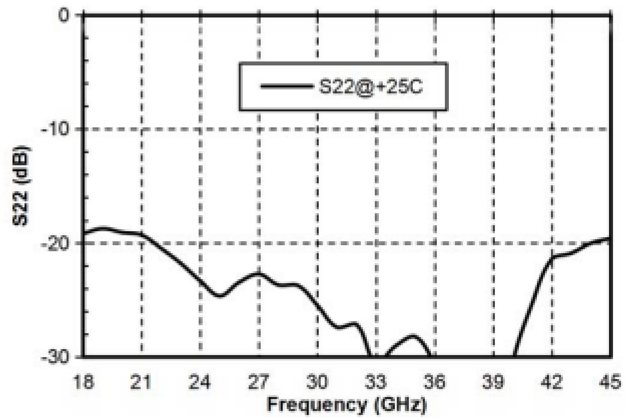
Reverse Isolation vs. Frequency



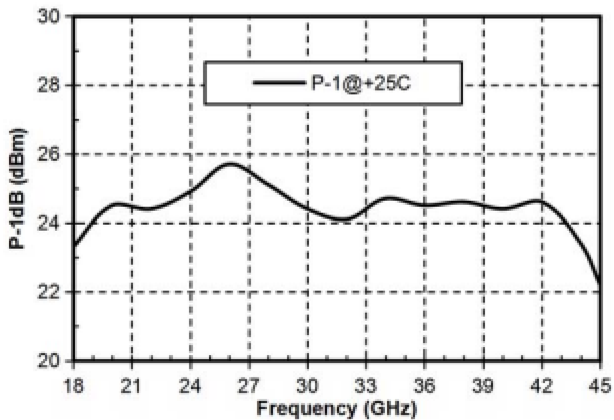
Input Return Loss vs. Frequency



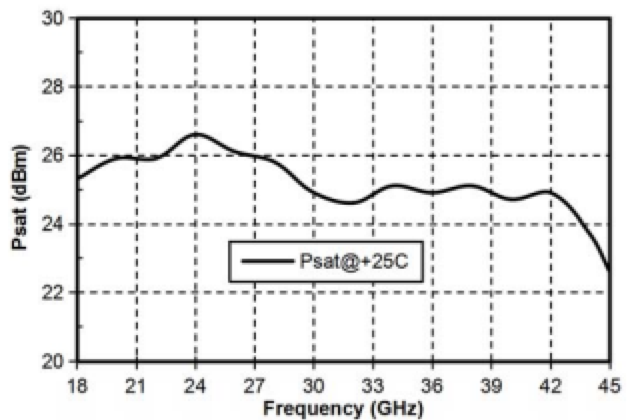
Output Return Loss vs. Frequency



P-1dB vs. Frequency

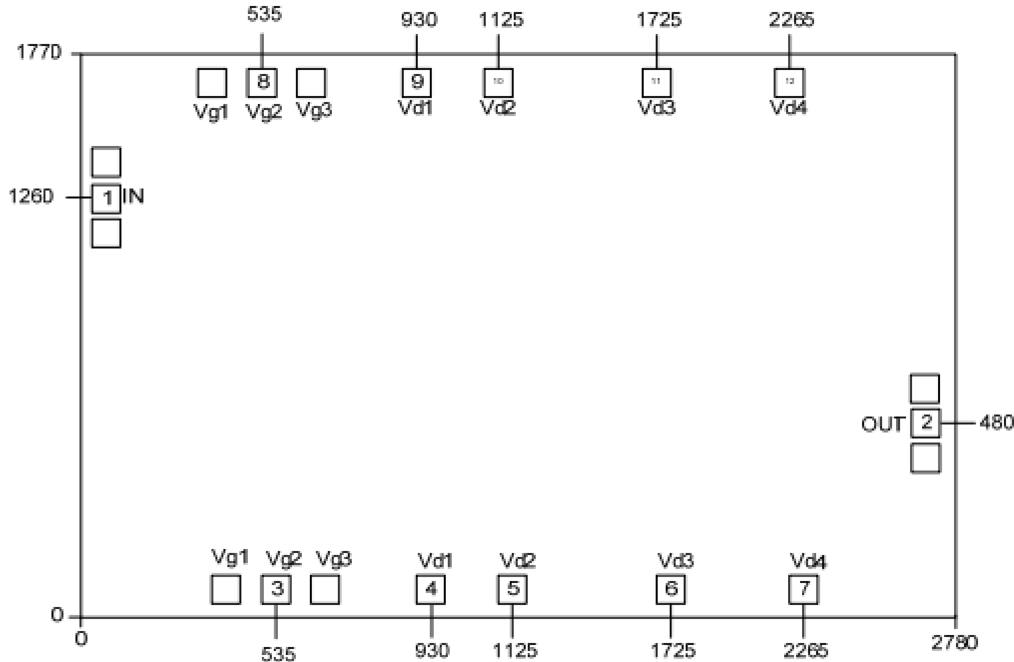


Psat vs. Frequency



Outline Drawing:

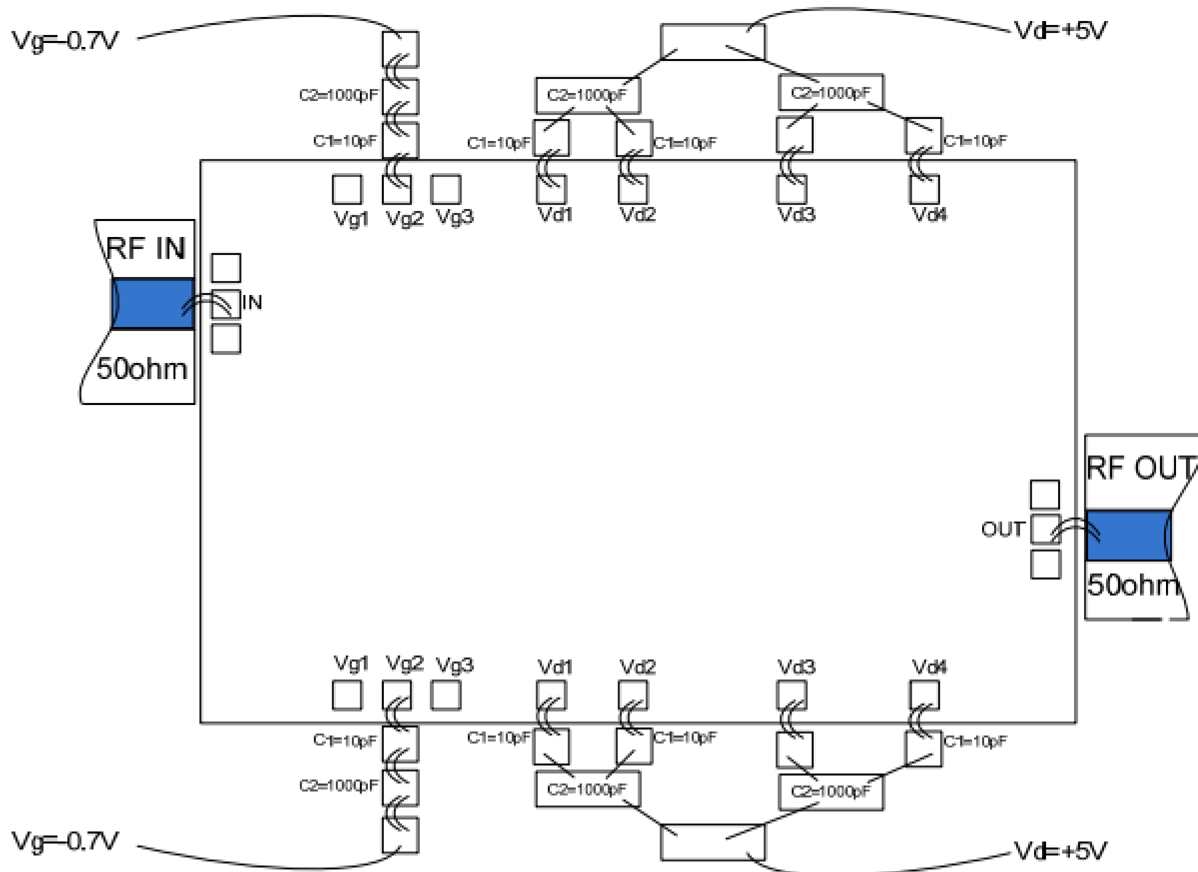
All Dimensions in um



Pad Description

PAD	Function	Description
1	RF IN	RF signal input terminal, no blocking capacitor required
2	RF OUT	RF signal output terminal, no blocking capacitor required
3,8	Vg2	Amplifier drain bias, connected to external 10pF, 1000pF bypass capacitor.
4,5,6,7,9,10, 11,12	Vd1~Vd4	Amplifier gate bias, connected to external 10pF, 1000pF bypass capacitor.
Die Bottom	GND	Die bottom must be connected to RF/DC ground

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. 5/5000 Maximum gate bias:-3V

3. Maximum input power: +20dBm

4. Operating temperature: -55℃ to +85℃

5. Storage temperature: -65℃ to +150℃