MILLER MMIC

MM3018

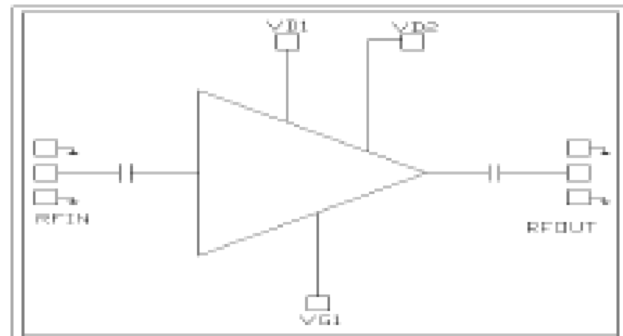
V1.0.0

GaAs MMIC
Driver Amplifier
29-31GHz

Features

- Frequency: 29-31GHz
- Small Signal Gain: 18dB
- P1dB: 23dBm
- Psat: 24dBm
- Power Supply: +5.5V/190mA
- Input/Output: 50Ω
- Die Size: 2.6 x 1.2 x 0.1 mm

Functional Block Diagram



Typical Applications

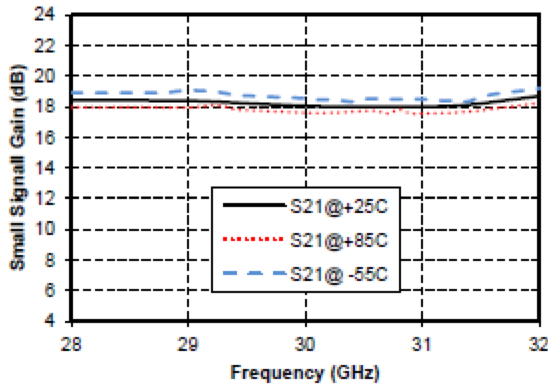
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

Electrical Specifications

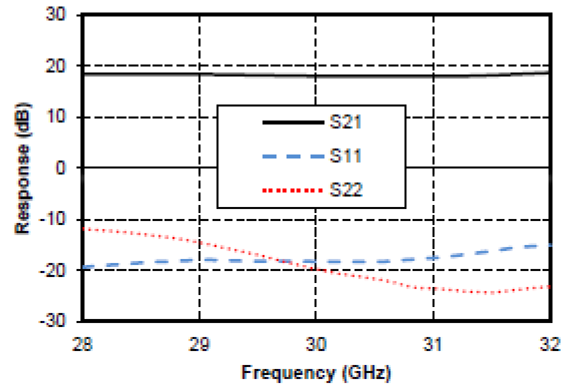
TA = +25°C, Vd = +5.5V

Parameters	Min.	Typ.	Max.	Units
Frequency		29-31		GHz
Small Signal Gain	17.9	18	18.4	dB
Gain Flatness		±0.25		dB
Output 1dB Compression (P1dB)	22.7	23	24.2	dBm
Saturated Output Power (Psat)	23.6	24	24.6	dBm
Input Return Loss		18		dB
Output Return Loss		18		dB
Static Current		190		mA
* Adjust VG (-2V-0V) to obtain device current of 190mA.				

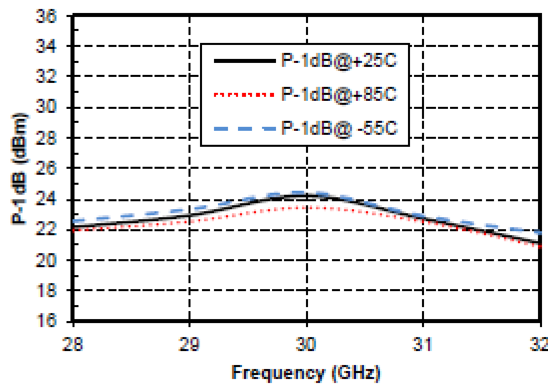
Gain vs. Frequency



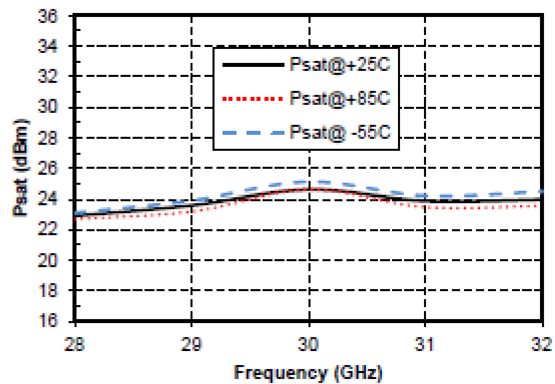
Gain&Return Loss vs. Frequency



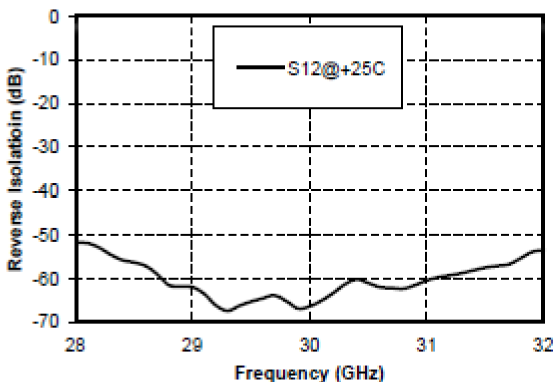
P1dB vs. Frequency



Psat vs. Frequency

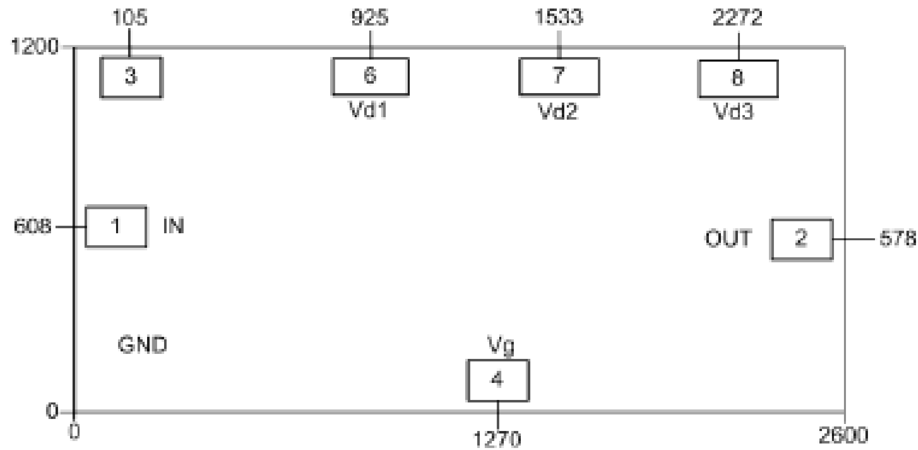


Reverse Isolation vs. Frequency



Outline Drawing:

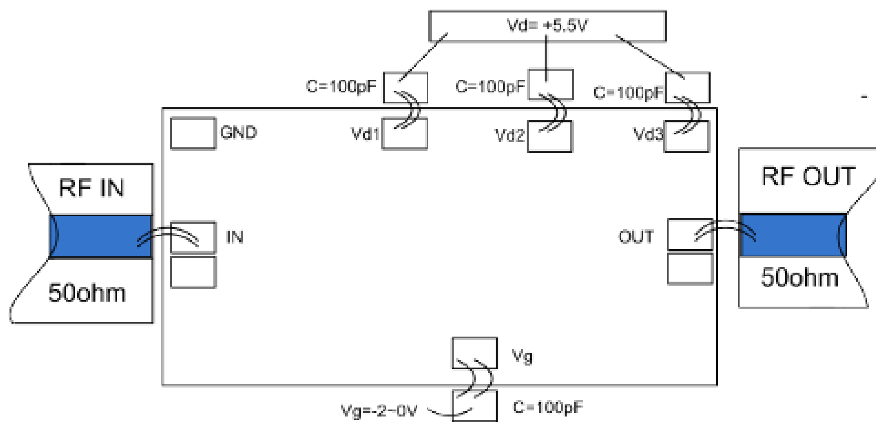
All Dimensions in µm



Pad Description

Pad	Function	Description	Equivalent Circuit
1	RF IN	RF signal input terminal; no blocking capacitor required.	
2	RF OUT	RF signal output terminal; no blocking capacitor required.	
6	Vd1	Amplifier drain bias; external 100pF bypass capacitor required.	
7	Vd2	Amplifier drain bias; external 100pF bypass capacitor required.	
8	Vd3	Amplifier drain bias; external 100pF bypass capacitor required.	
4	Vg	Amplifier gate bias; external 100pF bypass capacitor required.	
3	GND	Ground point for probe test.	
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. Maximum gate bias: -3V
3. Maximum input power: +15dBm
4. Operating temperature: -55℃ to +85℃
5. Storage temperature: -65℃ to +150℃