MILLER MMIC

MMW007

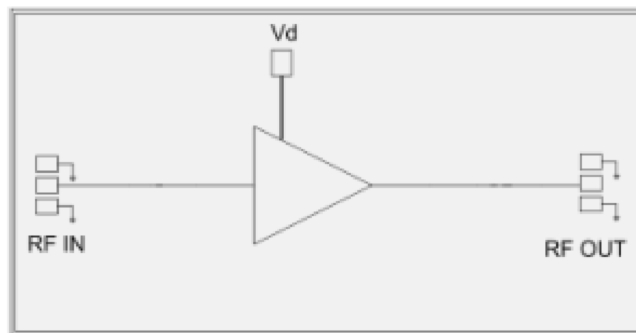
V1.0.0

GaAs MMIC
Wide-band Amplifier
2-18GHz

Features

- Frequency: 2-18GHz
- Small Signal Gain: 13dB
- P1dB: 27.5dBm
- Psat: 28.5dBm
- Power Supply: +10V/350mA
- Input/Output: 50Ω
- Die Size: 2.25 x 1.45 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 = +10V, Ids=350mA

Parameters	Min.	Typ.	Max.	Units
Frequency		2-18		GHz
Small Signal Gain	9.5	13	15.5	dB
Gain Flatness		±3		dB
Output 1dB Compression (P1dB)	26.5	27.5	28.5	dBm
Saturated Output Power (Psat)	27.5	28.5	29.5	dBm
Input Return Loss	15	18	-	dB
Output Return Loss	10	12	-	dB
Thermal Resistance	Basal plate temperature +85℃, RF signal input, Rth=18.5℃/W			

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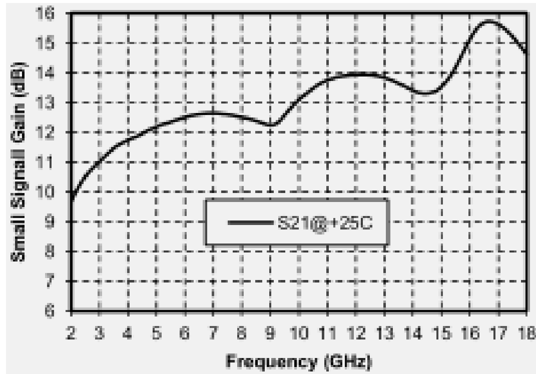
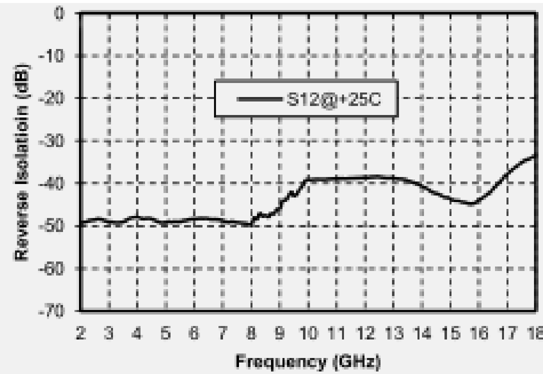
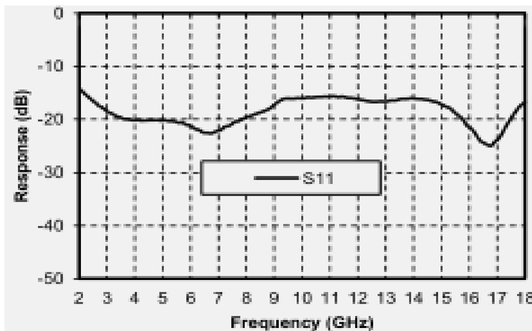
Gain vs. Frequency



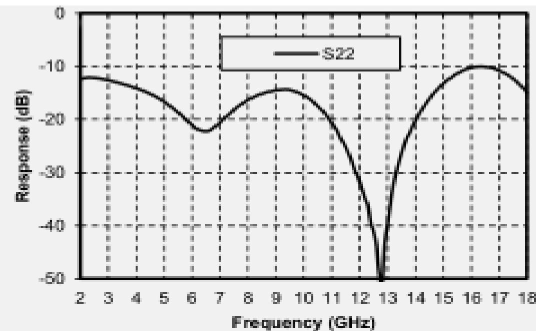
Reverse Isolation vs. Frequency



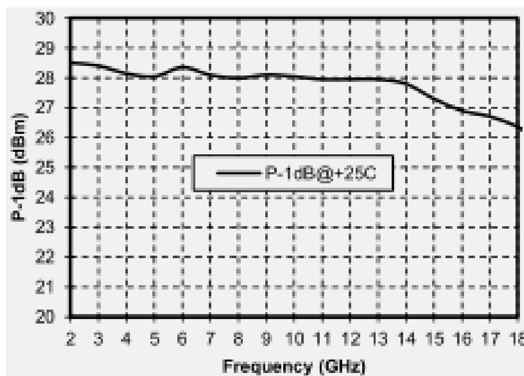
Input Return Loss vs. Frequency



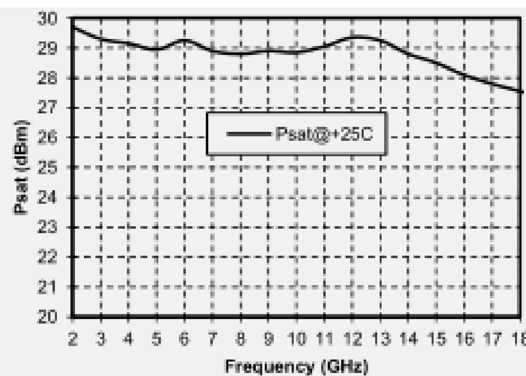
Output Return Loss vs. Frequency



P1dB vs. Frequency



Psat vs. Frequency



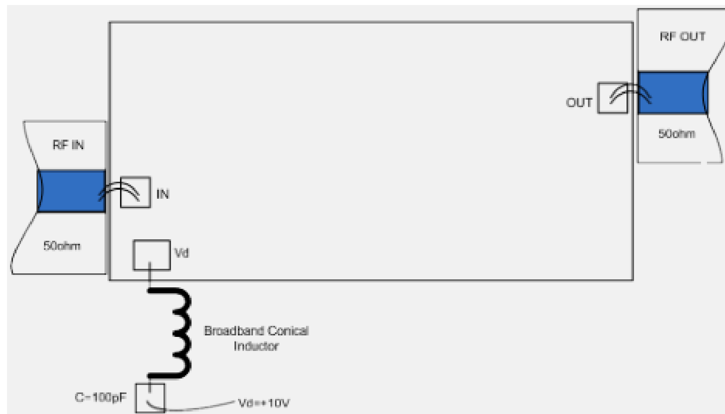
Outline Drawing:

All Dimensions in μm

Pad Description

Pad	Function	Description	Equivalent Circuit
1	RF IN	Signal input terminal, connected to 50Ω circuit; blocking capacitor required.	
2	RF OUT	Signal output terminal, connected to 50Ω circuit; blocking capacitor required.	
3	Vd	Amplifier drain bias, connected to external wide-band inductor and 100pF 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: +14V
2. Maximum gate bias: -3V
3. Maximum input power: +23dBm
4. Operating temperature: -55℃ to +85℃
5. Storage temperature: -65℃ to +150℃