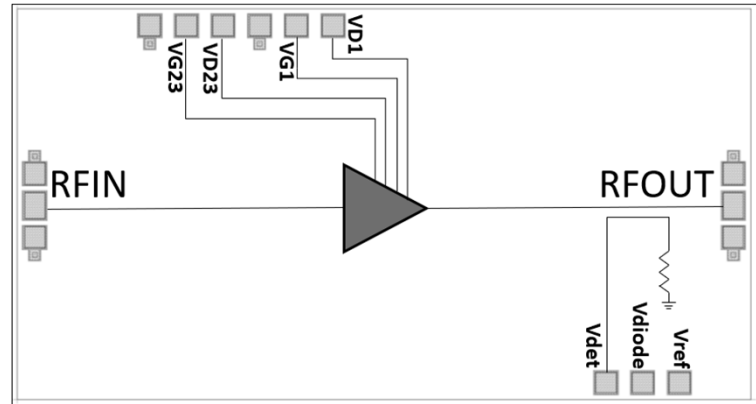


Features

- Frequency: 19GHz - 40GHz
- Small Signal Gain: 17dB
- Gain Flatness: $\leq \pm 1.5$ dB
- Noise Figure < 8dB, 25GHz – 45GHz
- P1dB: > 22.5dBm, 20GHz – 44GHz
- Power Supply: +6V/183mA
- Input/Output: 50 Ω
- Die Size: 3.0 x 1.6 x 0.07 mm

Typical Applications

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

Functional Block Diagram

Electrical Specifications

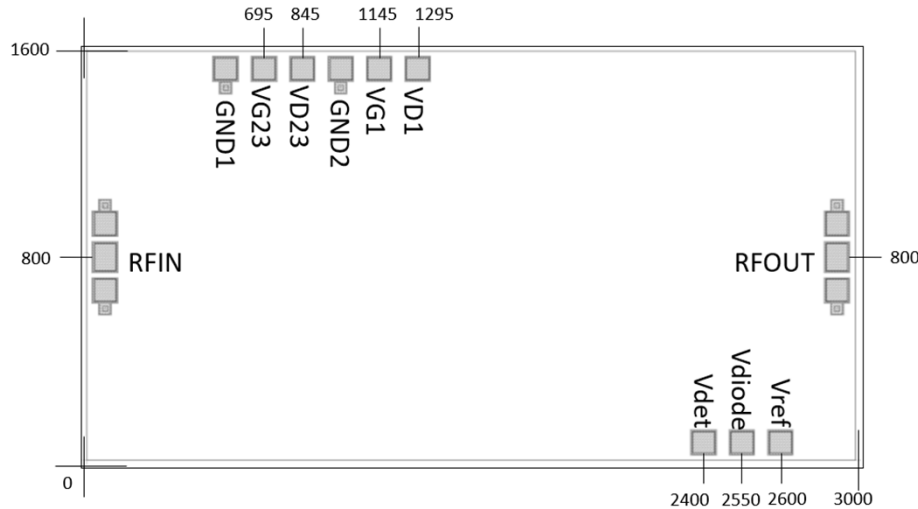
TA = +25°C, VD1, VD23 = +6V, VG1, VG23 = -0.26V, ID1 = 91mA, ID2 = 92mA

Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency		19-38			38-40		GHz
Small Signal Gain		17			17		dB
Gain Flatness		± 1.5			± 1		dB
Noise Figure		< 11			< 6		dB
Output 1dB Compression (P1dB)		>22.5			21		dBm
Saturated Output Power (Psat)		24			22.5		dBm
Input Return Loss		> 10			> 5		dB
Output Return Loss		> 5			> 5		dB

* Adjust VG1, VG23 slightly to obtain device current of ID1 = 91mA and ID2 = 92 mA.



Outline Drawing:
All Dimensions in μm

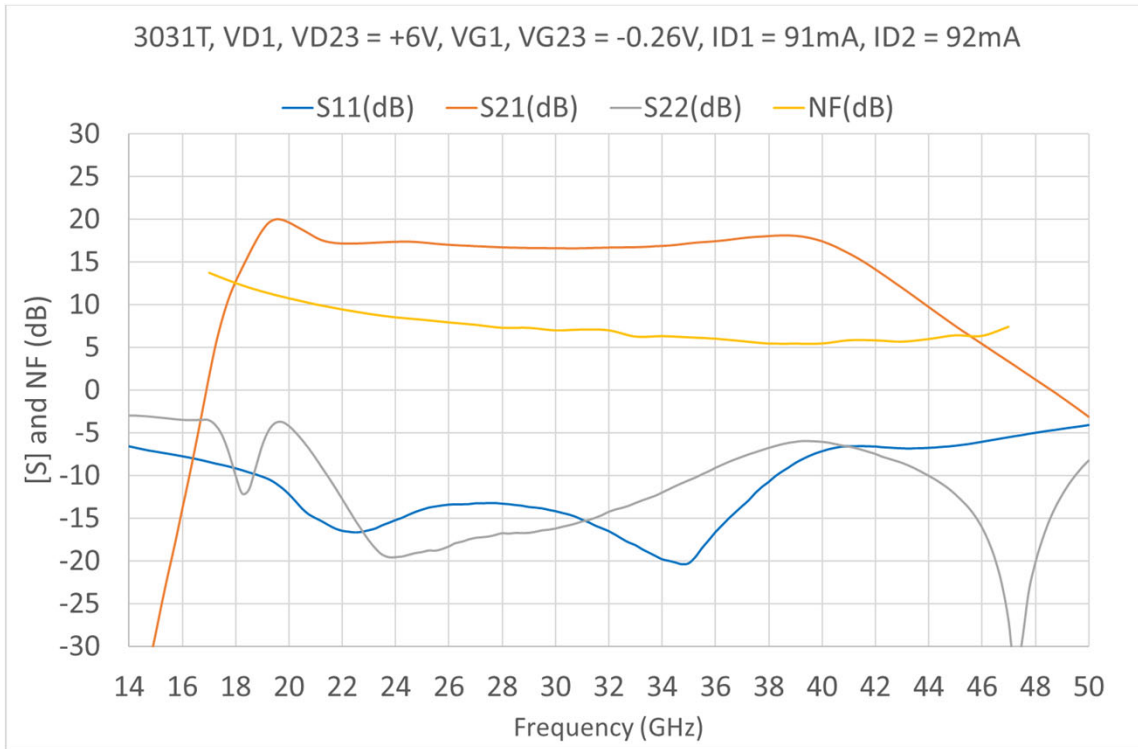


Pad Description

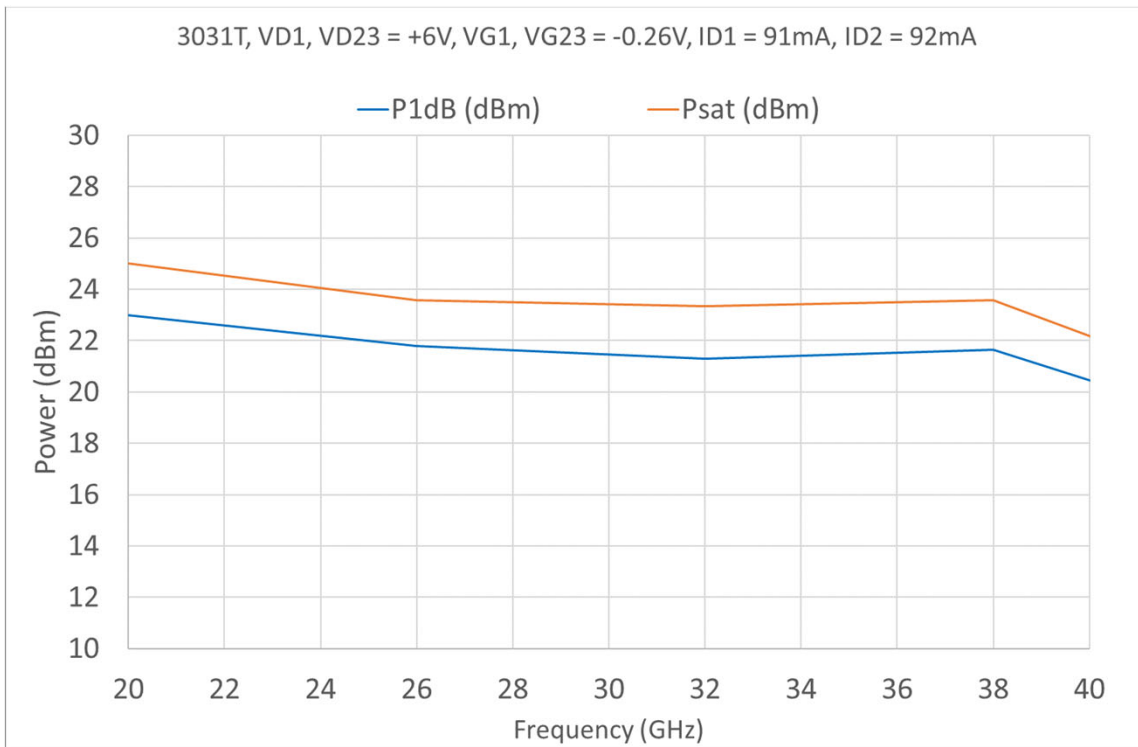
No	Function	Description
1	RF IN	Signal input terminal, connected to 50 Ω circuit
2	RF OUT	Signal output terminal, connected to 50 Ω circuit
3	VG1	Amplifier 1 st gate bias; connect to external 1000pF and 0.01uF bypass capacitors.
4	VG23	Amplifier 2 nd gate bias; connect to external 1000pF and 0.01uF bypass capacitors.
5	VD1	Amplifier 1 st drain bias; connect to external 1000pF and 0.01uF bypass capacitors.
6	VD23	Amplifier 2 nd drain bias; connect to external 1000pF and 0.01uF bypass capacitors
7	Vdiode	Diode biasing voltage
8	Vref	Reference diode output voltage
9	Vdet	Detector output voltage
10	GND1, GND2	Ground pads.



Measurement Plots: S-parameters

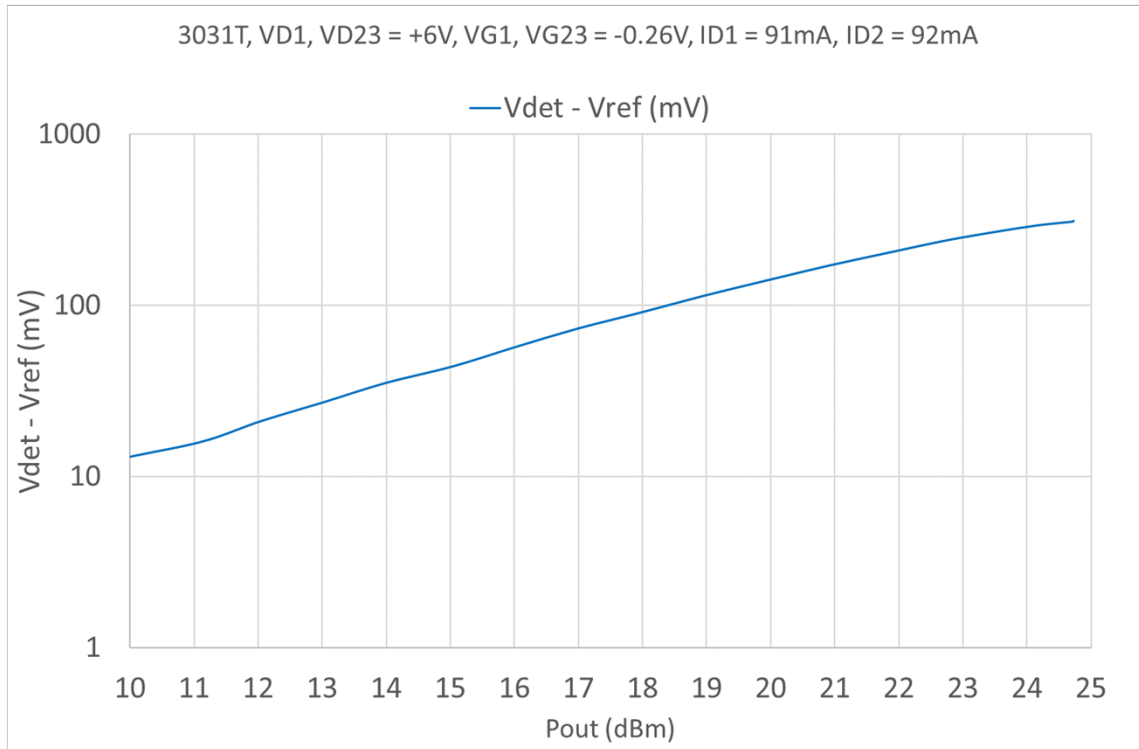


Measurement Plots: P1dB and Psat



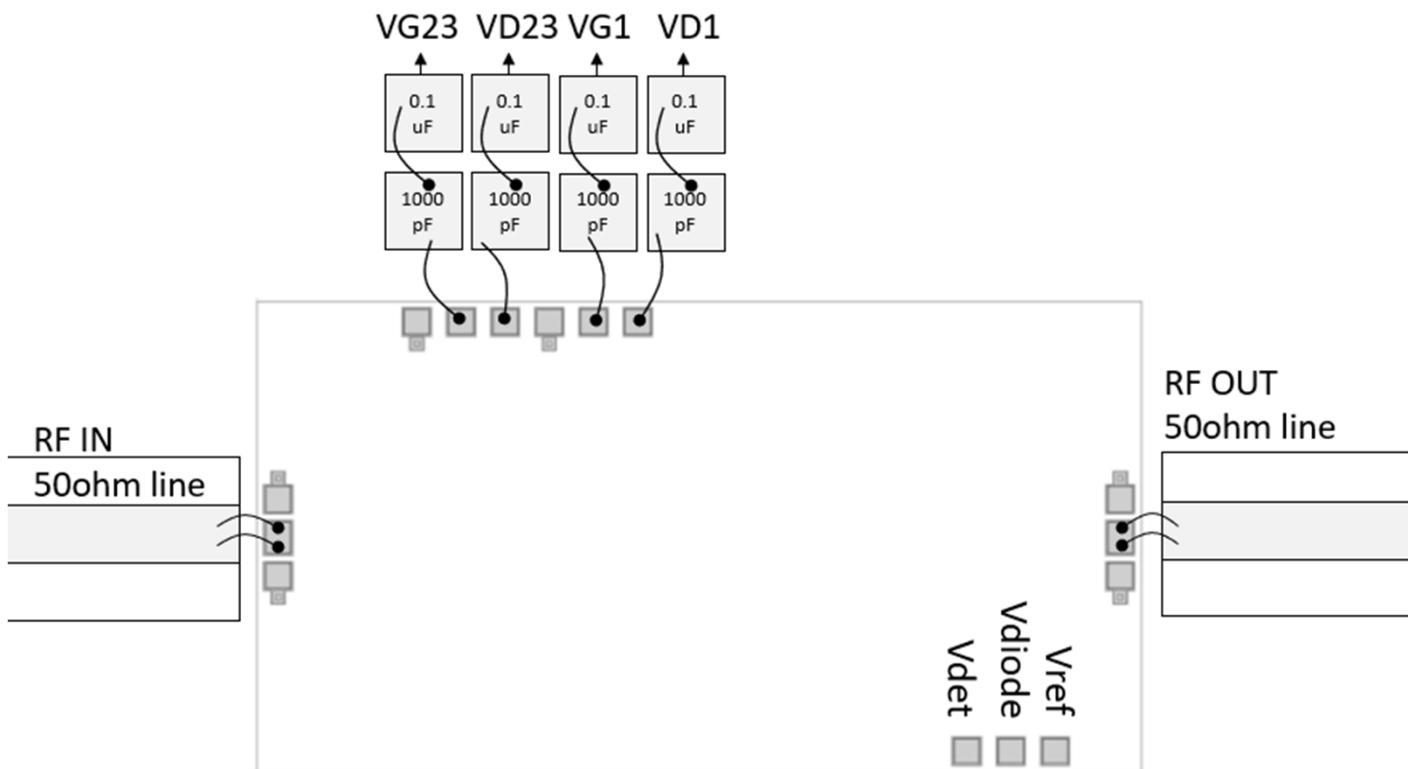


Measurement Plots: Vdet – Vref (V)





Assembly Drawing



Notes:

1. Die thickness: 70um
2. DC bond pad is 100 x 100 μm^2
3. RF IN/OUT bond pad is 100 x 160 μm^2
4. Bond pad metalization: Gold
5. Backside metalization: Gold
6. Backside of the die (GND)