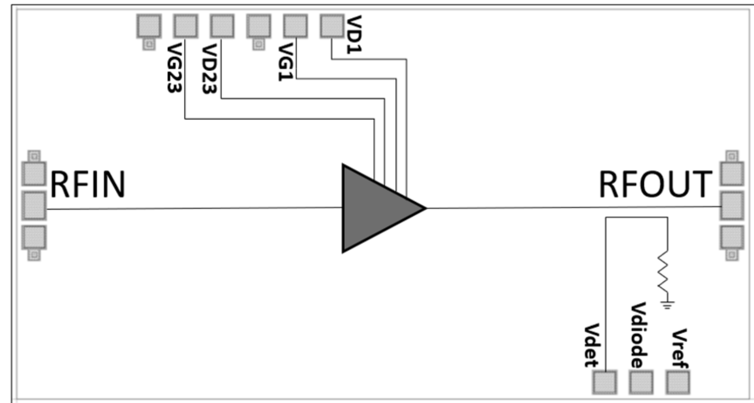
Features

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

Functional Block Diagram



Typical Applications

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

Electrical Specifications

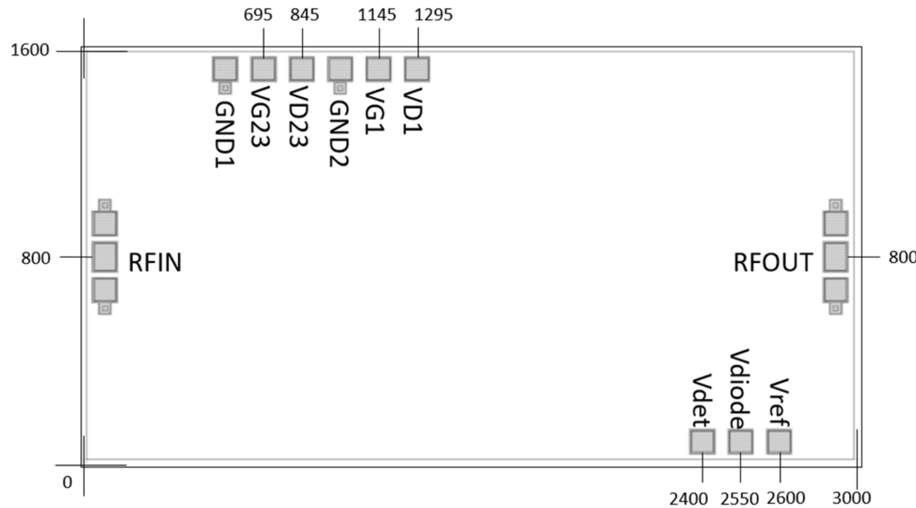
TA = +25ºC, VD1, VD23 = +6V, VG1, VG23 = -0.26V, ID1 = 91mA, ID2 = 92mA

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:

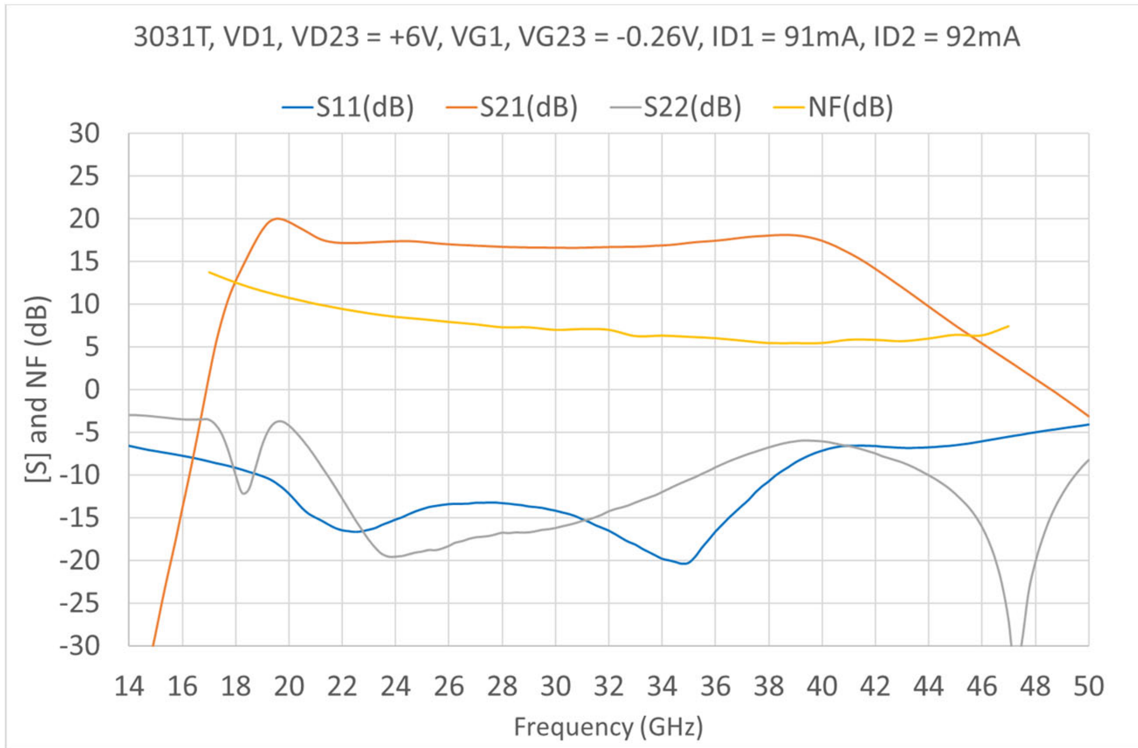
All Dimensions in µm



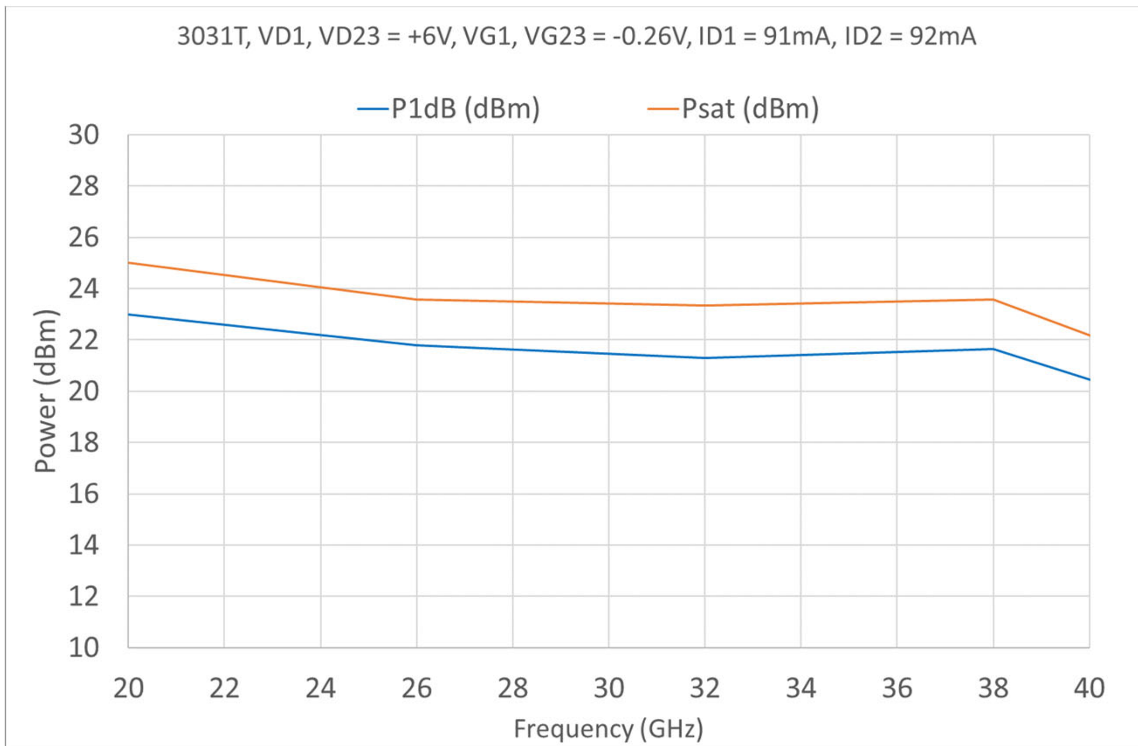
Pad Description

No	Function	Description
1	RF IN	Signal input terminal, connected to 50Ω circuit
2	RF OUT	Signal output terminal, connected to 50Ω circuit
3	VG1	Amplifier 1st gate bias; connect to external 1000pF and 0.01uF bypass capacitors.
4	VG23	Amplifier 2nd gate bias; connect to external 1000pF and 0.01uF bypass capacitors.
5	VD1	Amplifier 1st drain bias; connect to external 1000pF and 0.01uF bypass capacitors.
6	VD23	Amplifier 2nd 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.

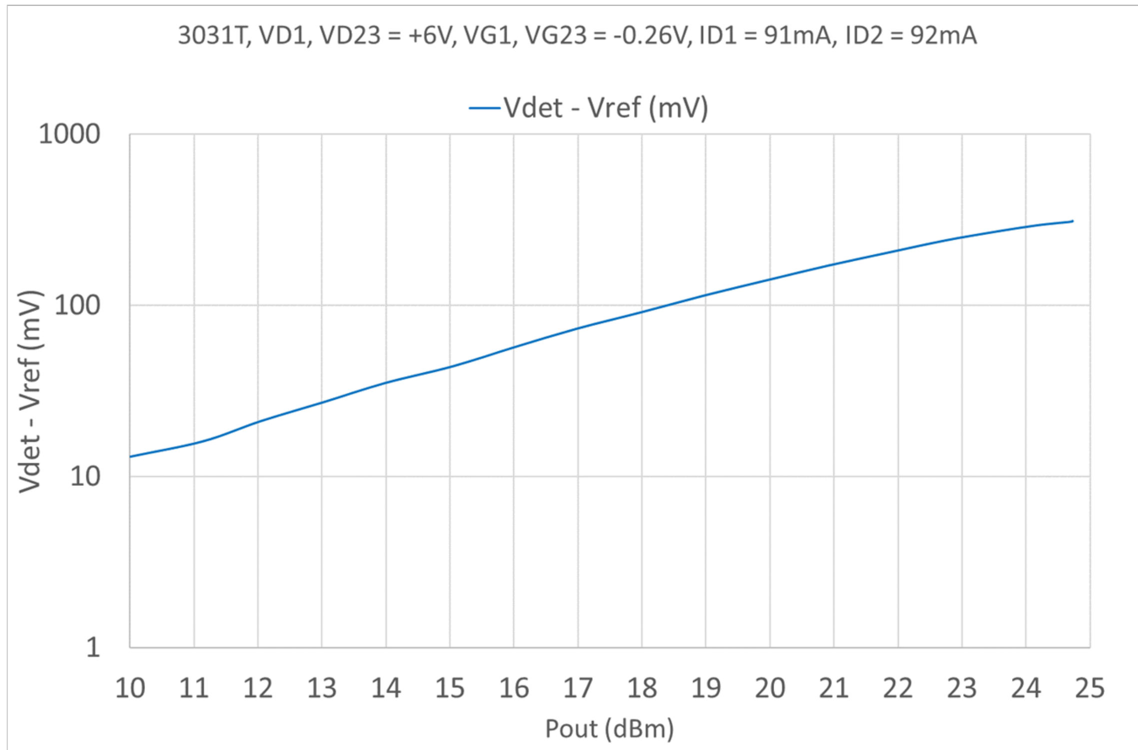
Measurement Plots: S-parameters



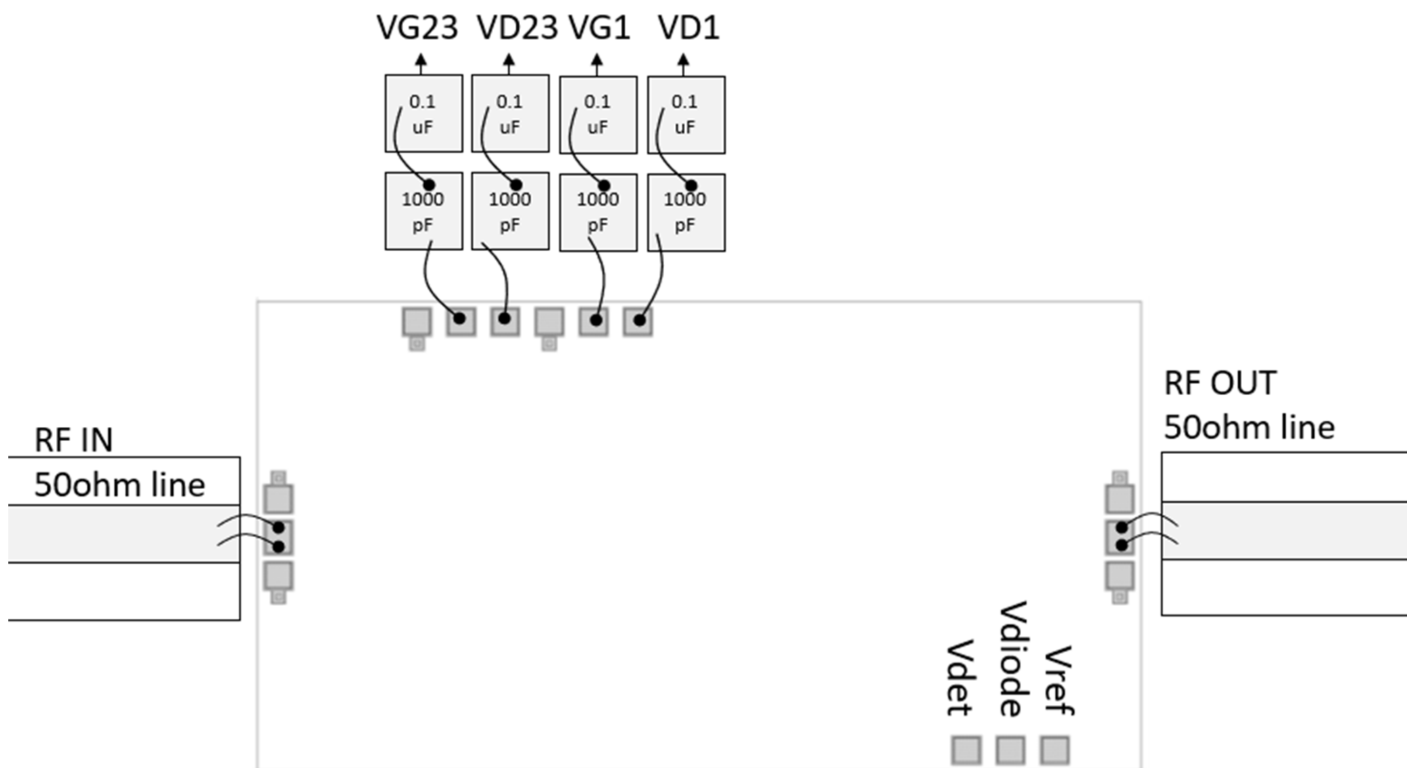
Measurement Plots: P1dB and Psat



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)