EMP201

17.5 – 21.0 GHz Power Ammplifier MMIC

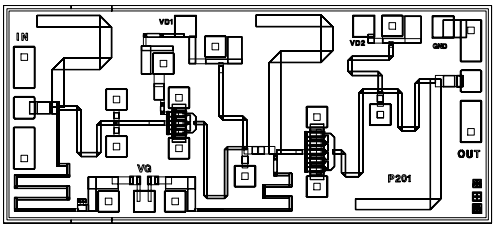
Issued Date: 12-18-03

FEATURES

- **17.5 – 21.0 GHz Bandwidth**
- **24.5dBm Output Power at 1dB Compression**
- **18.0 dB Typical Power Gain**

APPLICATIONS

- **Point-to-point and point-to-multipoint radio**
- **Military Radar Systems**



Dimension: 2250um X 1000um

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
F	Operating Frequency Range	17.5		21.0	GHz
P_{1dB}	Output Power at 1dB Compression V_{DS} = 8 V, I_{DSQ} ≈ 1/2 I_{DSS}	23.5	24.5		dBm
Gss	Small Signal Gain	16	18		dB
IP3	Third Order Interception Point		31		dBm
Input RL	Input Return Loss	8	10		dB
Output RL	Output Return Loss	6	8		dB
Idd	Power Supply Current		150	210	mA
Vdd	Power Supply Voltage		7	8	V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		50		°C/W

ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION[1,2]

SYMBOL	CHARACTERISTIC	VALUE
V_{DS}	Drain to Source Voltage	8 V
V_{GS}	Gate to Source Voltage	-3 V
I_{DD}	Drain Current	300mA
I_{GSF}	Forward Gate Current	8mA
P_{IN}	Input Power	@ 3dB compression
T_{CH}	Channel Temperature	150°C
T_{STG}	Storage Temperature	-65/150°C
P_T	Total Power Dissipation	3.4W

1. Operating the device beyond any of the above rating may result in permanent damage.
2. Bias conditions must also satisfy the following equation V_{DS}*I_{DS} < (T_{CH} –T_{HS})/R_{TH}; where T_{HS} = ambient temperature

Excelics Semiconductor, Inc. 310 De Guigne Drive, Sunnyvale, CA 94085
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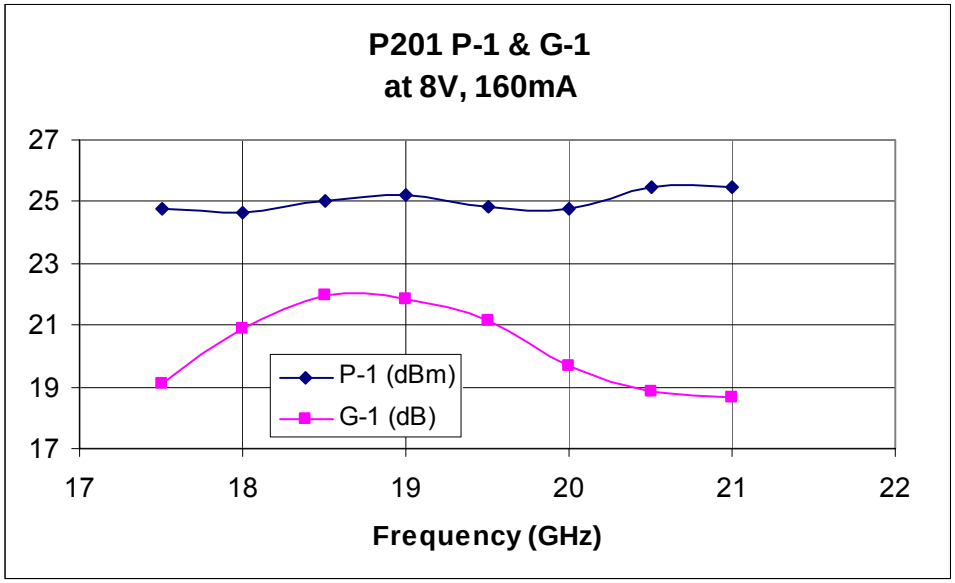
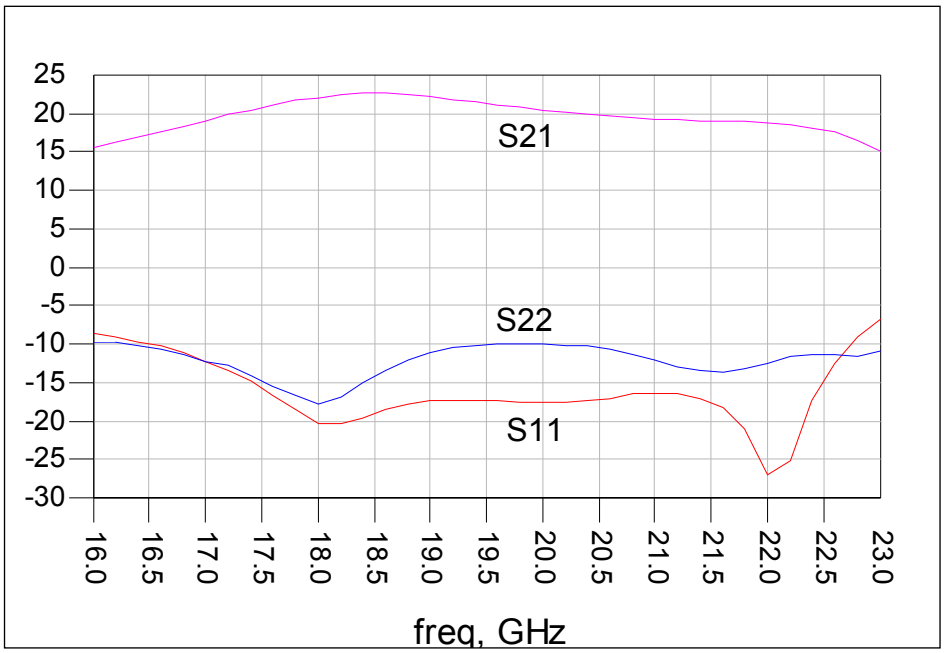
Typical Performance:

1. **P-1 and G-1**



2. **Linear Gain and Return Loss Versus Frequency**



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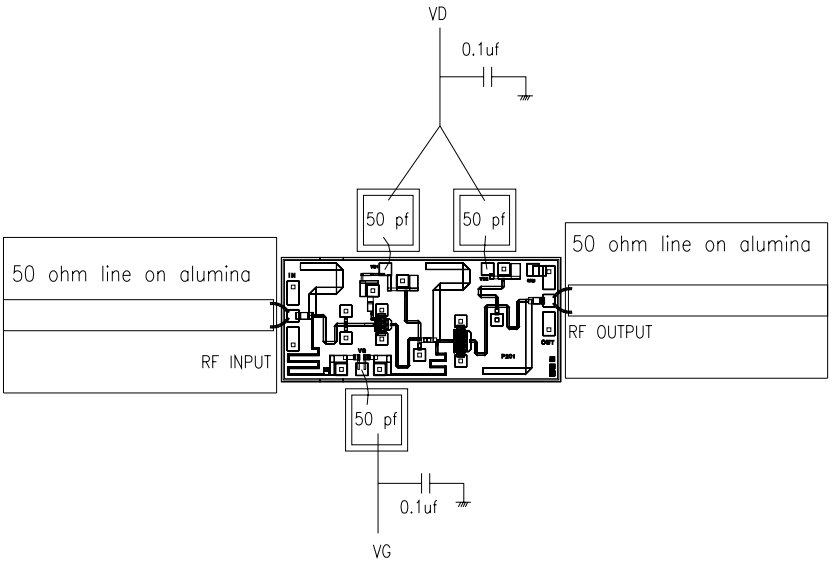
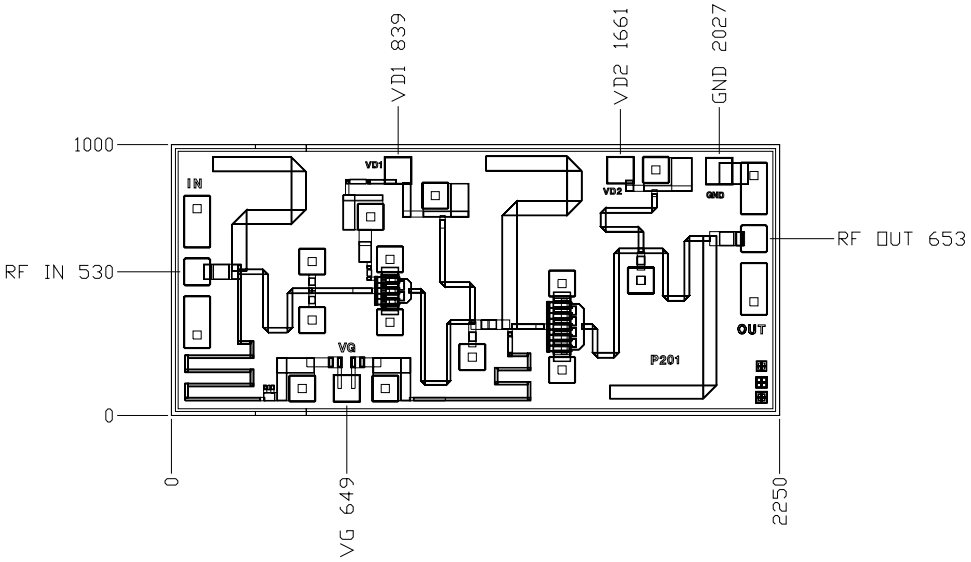
ASSEMBLY DRAWING



The length of RF wires should be as short as possible. Use at least two wires between RF pad and 50 ohm line and separate the wires to minimize the mutual inductance.

CHIP OUTLINE



Chip Size 1000 x 2250 microns
Chip Thickness: 75 ± 13 microns
PAD Dimensions: 100 x 100 microns
All Dimensions in Microns

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