

EMP210

UPDATED 05/08/2008

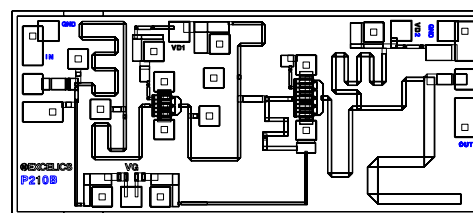
9.5 – 12 GHz Power Amplifier MMIC

FEATURES

- 9.5 – 12.0 GHz Operating Frequency Range
- 24.0dBm Output Power at 1dB Compression
- 17.0 dB Typical Small Signal Gain
- -41dBc OIMD3 @Each Tone Pout 12.5dBm

APPLICATIONS

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



Dimension: 2250um X 1000um
Thickness: 75um ± 13um



Caution! ESD sensitive device.

ELECTRICAL CHARACTERISTICS (T_a = 25 °C, 50 ohm, VDD=7V, IDQ=180mA)

SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
F	Operating Frequency Range	9.5		12.0	GHz
P1dB	Output Power at 1dB Gain Compression	22.5	24.0		dBm
Gss	Small Signal Gain	15.0	17.0		dB
OIMD3	Output 3 rd Order Intermodulation Distortion @Δf=10MHz, Each Tone Pout 12.5dBm Vdd=7V, Idsq=60%±10%Idss		-41	-38	dBc
Input RL	Input Return Loss		-10	-8	dB
Output RL	Output Return Loss		-8	-5	dB
Idss	Saturated Drain Current V _{DS} =3V, V _{GS} =0V	211	264	317	mA
V _{DD}	Drain Voltage		7	8	V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		34		°C/W
Tb	Operating Base Plate Temperature	-35		+85	°C

MAXIMUM RATINGS AT 25°C^{1,2}

SYMBOL	CHARACTERISTIC	ABSOLUTE	CONTINUOUS
V _{DS}	Drain to Source Voltage	12V	8 V
V _{GS}	Gate to Source Voltage	-8V	-4 V
I _{DD}	Drain Current	Idss	264
I _{GSF}	Forward Gate Current	24mA	4mA
P _{IN}	Input Power	20dBm	@ 3dB compression
T _{CH}	Channel Temperature	175°C	150°C
T _{STG}	Storage Temperature	-65/175°C	-65/150°C
P _T	Total Power Dissipation	4.1W	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 $V_{DS} \cdot I_{DS} < (T_{CH} - T_{HS}) / R_{TH}$; where T_{HS} = ambient temperature

Specifications are subject to change without notice.

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

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page 1 of 3

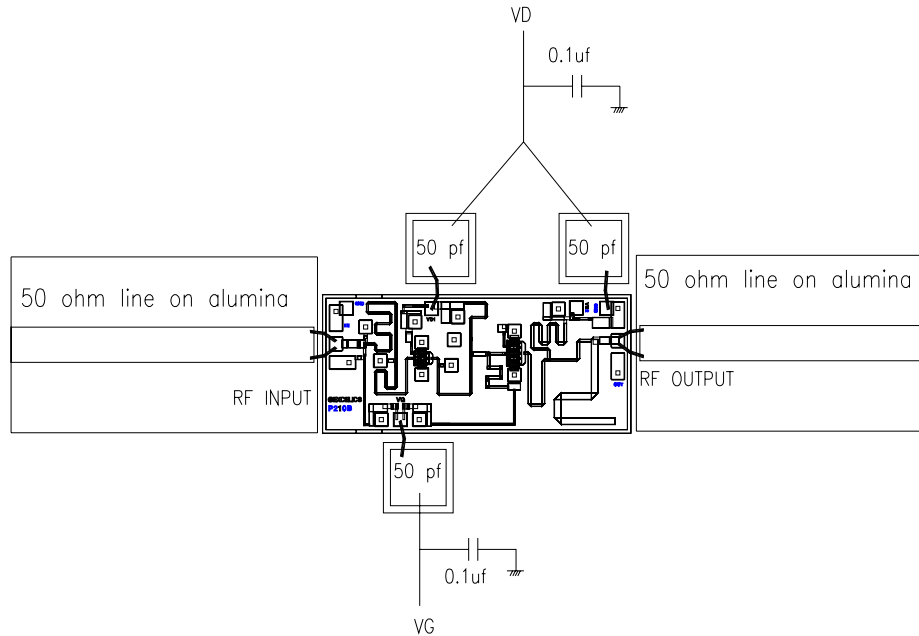
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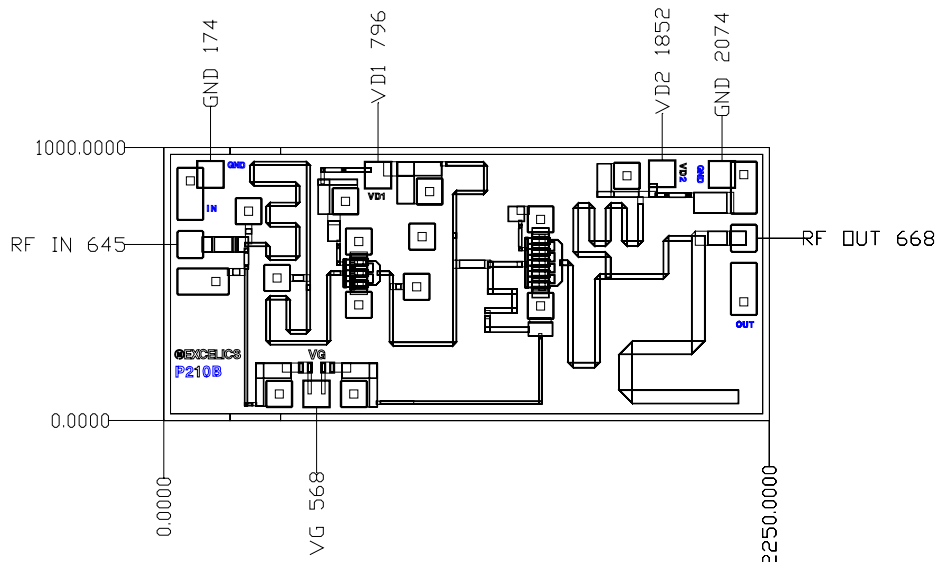
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ASSEMBLY DRAWING



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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page 2 of 3
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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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page 3 of 3
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