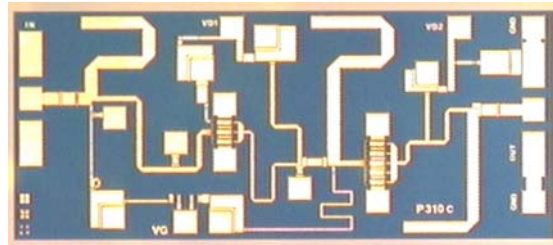


### FEATURES

- 21.0 – 24.0 GHz Operating Frequency Range
- 24.0dBm Output Power at 1dB Compression
- 14.0 dB Typical Small Signal Gain
- -40dBc OIMD3 @Each Tone Pout 14dBm

### 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<sub>a</sub> = 25 °C, 50 ohm, VDD=7V, IDQ=170mA)

SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>F</b>	Operating Frequency Range	21.0		24.0	GHz
<b>P1dB</b>	Output Power at 1dB Gain Compression	23.0	24.0		dBm
<b>G<sub>ss</sub></b>	Small Signal Gain	11.0	14.0		dB
<b>OIMD3</b>	Output 3 <sup>rd</sup> Order Intermodulation Distortion @Δf=10MHz, Each Tone Pout 14dBm		-40	-37	dBc
<b>Input RL</b>	Input Return Loss		-10	-8	dB
<b>Output RL</b>	Output Return Loss		-10	-8	dB
<b>I<sub>dss</sub></b>	Saturate Drain Current V <sub>DS</sub> =3V, V <sub>GS</sub> =0V	211	264	317	mA
<b>V<sub>DD</sub></b>	Power Supply Voltage		7	8	V
<b>R<sub>th</sub></b>	Thermal Resistance (Au-Sn Eutectic Attach)		34		°C/W
<b>T<sub>b</sub></b>	Operating Base Plate Temperature	-35		+85	°C

### ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION<sup>1,2</sup>

SYMBOL	CHARACTERISTIC	VALUE
V <sub>DS</sub>	Drain to Source Voltage	8 V
V <sub>GS</sub>	Gate to Source Voltage	-4 V
I <sub>DD</sub>	Drain Current	I <sub>dss</sub>
I <sub>GSF</sub>	Forward Gate Current	4mA
P <sub>IN</sub>	Input Power	@ 3dB compression
T <sub>CH</sub>	Channel Temperature	150°C
T <sub>STG</sub>	Storage Temperature	-65/150°C
P <sub>T</sub>	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<sub>HS</sub> = ambient temperature

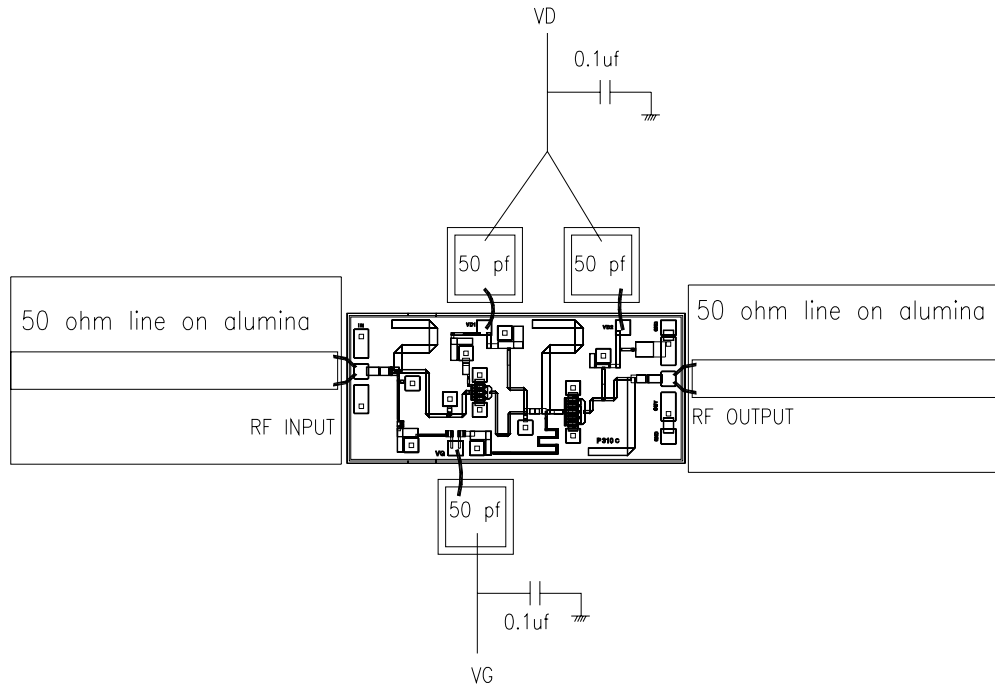
Specifications are subject to change without notice.

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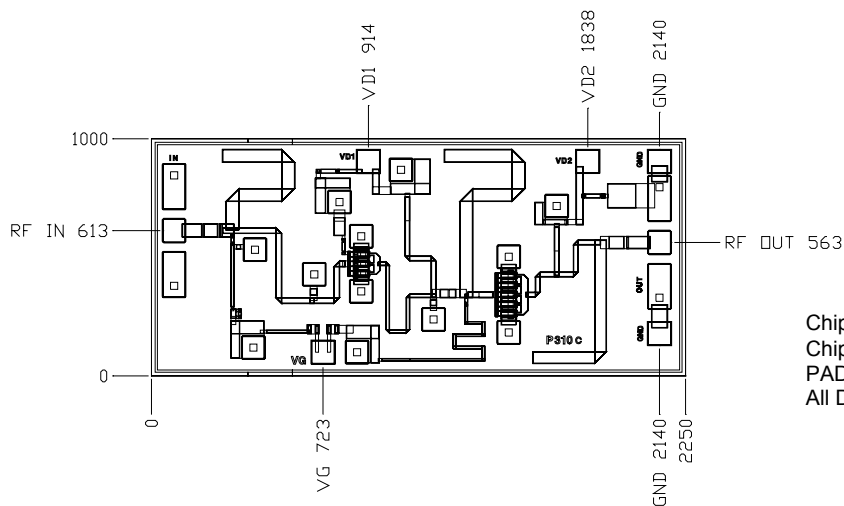
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 Revised May 2008

### 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

Specifications are subject to change without notice.



# EMP310

UPDATED 05/08/2008

## 21.0 – 24.0 GHz Power Amplifier MMIC

### DISCLAIMER

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AS HERE IN:

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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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