



# EMP104

ISSUED DATE: 07-12-04

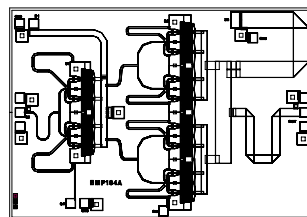
## 5.0 – 6.5 GHz Power Amplifier MMIC

### FEATURES

- 5.0 – 6.5 GHz Operating Frequency Range
- 33.0dBm Output Power at 1dB Compression
- 17.0 dB Typical Small Signal Gain
- -40dBc OIMD3 @Each Tone Pout 22dBm

### APPLICATIONS

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



Dimension: 2200um X 3230um  
Thickness: 65um ± 15um



Caution! ESD sensitive device.

### ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25 °C, 50 ohm, V<sub>DD</sub>=10V, I<sub>DQ</sub>=1000mA)

SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>F</b>	Operating Frequency Range	5.0		6.5	GHz
<b>P1dB</b>	Output Power at 1dB Gain Compression	32.0	33.0		dBm
<b>G<sub>ss</sub></b>	Small Signal Gain	15.0	17.0		dB
<b>OIMD3</b>	Output 3 <sup>rd</sup> Order Intermodulation Distortion @Δf=10MHz, Each Tone Pout 22dBm		-40		dBc
<b>Input RL</b>	Input Return Loss		-8	-6	dB
<b>Output RL</b>	Output Return Loss		-6		dB
<b>I<sub>dss</sub></b>	Saturate Drain Current V <sub>DS</sub> =3V, V <sub>GS</sub> =0V		1680		mA
<b>V<sub>DD</sub></b>	Power Supply Voltage		10		V
<b>R<sub>th</sub></b>	Thermal Resistance (Au-Sn Eutectic Attach)		7		°C/W
<b>T<sub>b</sub></b>	Operating Base Plate Temperature	- 35		+ 80	°C

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

SYMBOL	CHARACTERISTIC	VALUE
V <sub>DS</sub>	Drain to Source Voltage	10V
V <sub>GS</sub>	Gate to Source Voltage	- 4V
I <sub>DD</sub>	Drain Current	I <sub>dss</sub>
I <sub>GSF</sub>	Forward Gate Current	35 mA
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	17W

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<sub>HS</sub> = ambient temperature

Specifications are subject to change without notice.

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

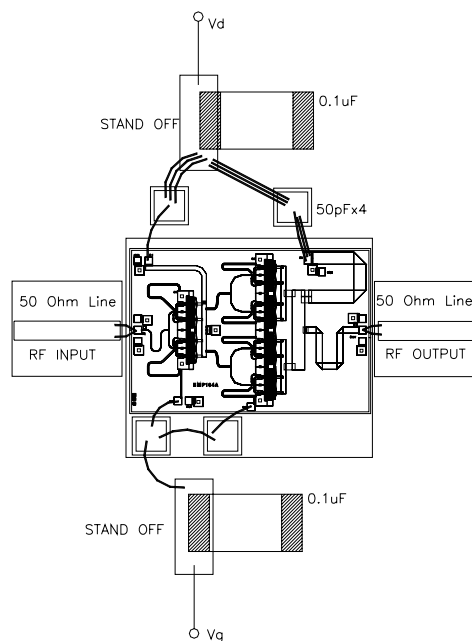
Phone: 408-737-1711 Fax: 408-737-1868 Web: [www.excelics.com](http://www.excelics.com)

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Revised July 2004

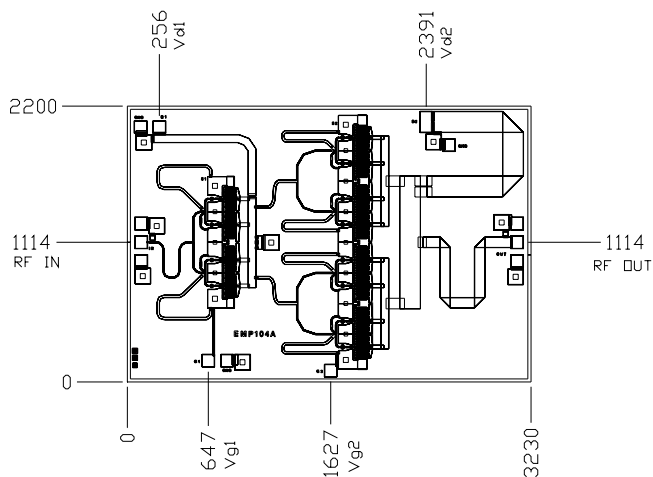
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### ASSEMBLY DRAWING

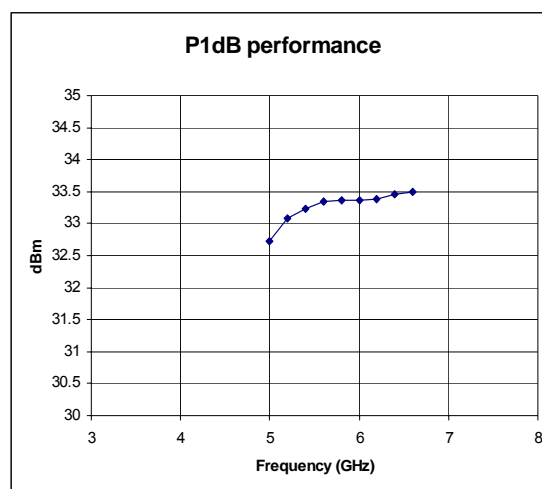
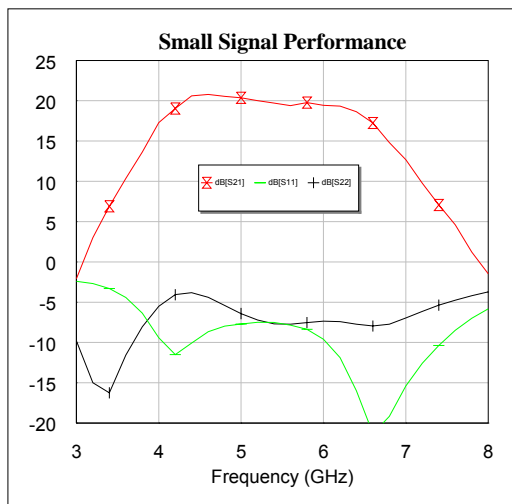


### CHIP OUTLINE



All Dimensions in Microns

### TYPICAL PERFORMANCE



Data measured @ Vd=10V, Id=950mA

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