



# EMP104

ISSUED DATE: 07-12-04

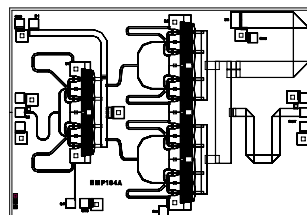
## 5.0 – 6.5 GHz Power Amplifier MMIC

### 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  $\pm$  15um



Caution! ESD sensitive device.

### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ , 50 ohm, $V_{DD}=10\text{V}$ , $IDQ=1000\text{mA}$ )

SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
F	Operating Frequency Range	5.0		6.5	GHz
P1dB	Output Power at 1dB Gain Compression	32.0	33.0		dBm
Gss	Small Signal Gain	15.0	17.0		dB
OIMD3	Output 3 <sup>rd</sup> Order Intermodulation Distortion @ $\Delta f=10\text{MHz}$ , Each Tone Pout 22dBm		-40		dBc
Input RL	Input Return Loss		-8	-6	dB
Output RL	Output Return Loss		-6		dB
Idss	Saturate Drain Current $V_{DS}=3\text{V}$ , $V_{GS}=0\text{V}$		1680		mA
$V_{DD}$	Power Supply Voltage		10		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		7		$^\circ\text{C/W}$
Tb	Operating Base Plate Temperature	- 35		+ 80	$^\circ\text{C}$

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

SYMBOL	CHARACTERISTIC	VALUE
$V_{DS}$	Drain to Source Voltage	10V
$V_{GS}$	Gate to Source Voltage	- 4V
$I_{DD}$	Drain Current	Idss
$I_{GSF}$	Forward Gate Current	35 mA
$P_{IN}$	Input Power	@ 3dB compression
$T_{CH}$	Channel Temperature	150 $^\circ\text{C}$
$T_{STG}$	Storage Temperature	-65/150 $^\circ\text{C}$
$P_T$	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  $T_{HS}$  = 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)

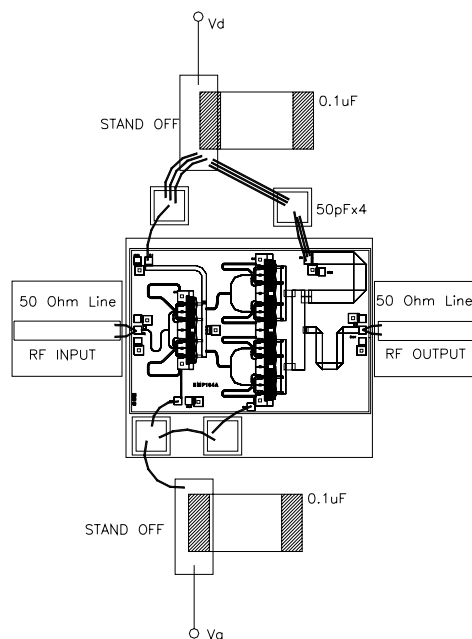
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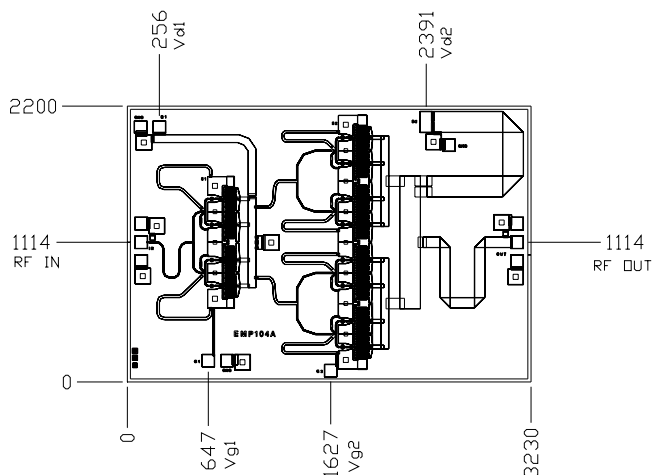
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### ASSEMBLY DRAWING

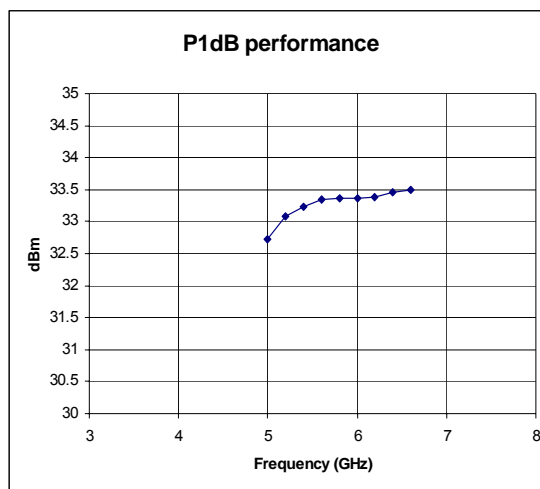
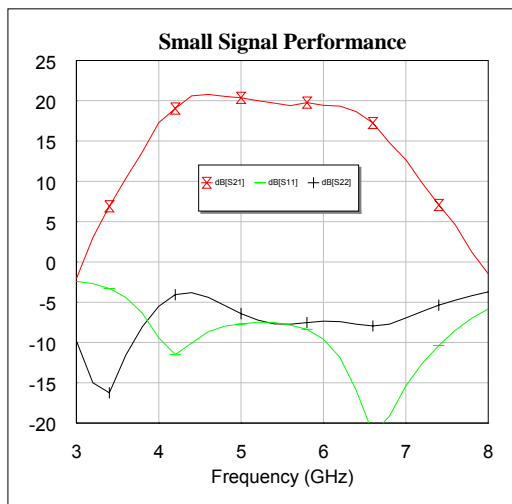


### CHIP OUTLINE



All Dimensions in Microns

### TYPICAL PERFORMANCE



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

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