EMP104

UPDATED 03/19/2008

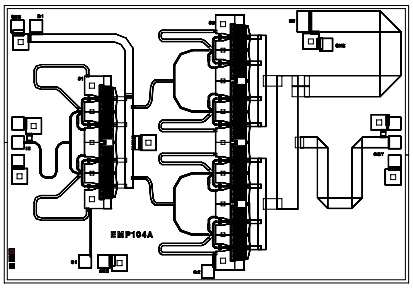
5.0 – 6.5 GHz Power Amplifier MMIC

FEATURES

- **5.0 – 6.5 GHz Operating Frequency Range**
- **33.0dBm Output Power at 1dB Compression**
- **18.0 dB Typical Small Signal Gain**
- **-44dBc 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_a = 25 °C, 50 ohm, VDD=10V, IDQ=1000mA)

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	16.0	18.0		dB
OIMD3	Output 3rd Order Intermodulation Distortion @Δf=10MHz, Each Tone Pout 22dBm		-44	-40	dBc
Input RL	Input Return Loss		-8	-6	dB
Output RL	Output Return Loss		-6		dB
Idss	Saturate Drain Current V_{DS} =3V, V_{GS} =0V		1680		mA
V_{DD}	Power Supply Voltage		10		V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		7		°C/W
Tb	Operating Base Plate Temperature	- 35		+ 80	ºC

ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION[1,2]

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°C
T_{STG}	Storage Temperature	-65/150°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}*I_{DS} < (T_{CH} –T_{HS})/R_{TH}; where T_{HS} = ambient temperature

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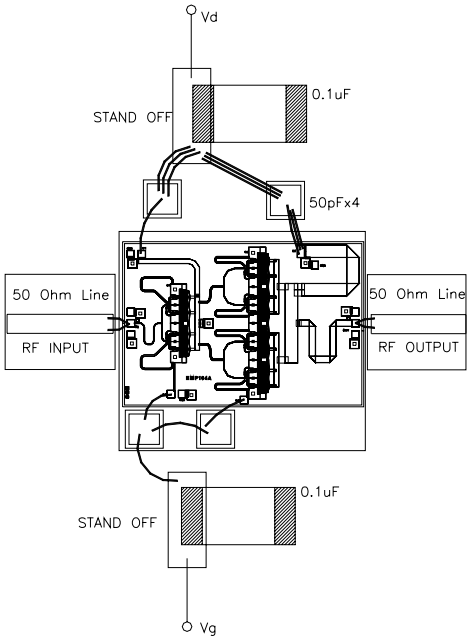
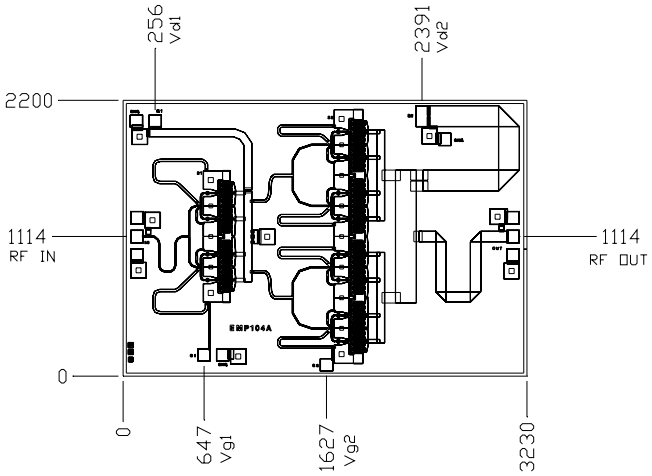
ASSEMBLY DRAWING

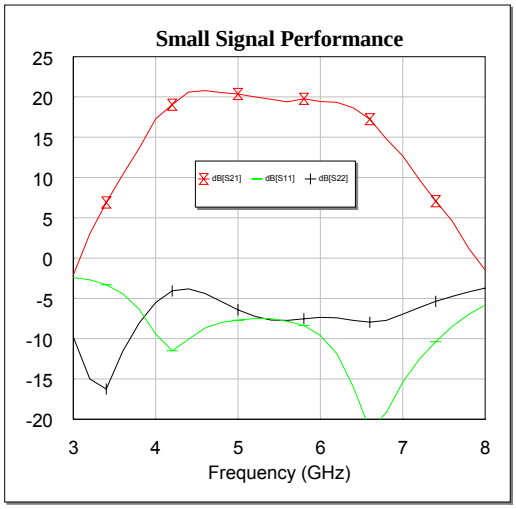


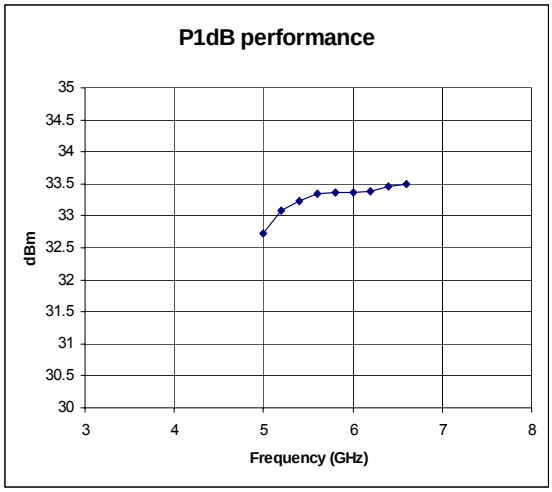
CHIP OUTLINE



All Dimensions in Microns

TYPICAL PERFORMANCE





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