

EMP212

UPDATED 04/04/2008

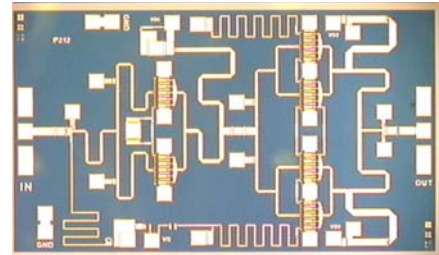
9.50 – 12.0 GHz Power Amplifier MMIC

FEATURES

- 9.5 – 12.0 GHz Operating Frequency
- 30.5dBm Output Power at 1dB Compression
- 18 dB Typical Power Gain
- 43dBc OIMD3 @ EACH TONE Pout 19dBm

APPLICATIONS

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



Dimension: 2500um X 1600um
Thickness: 85um ± 15um

ELECTRICAL CHARACTERISTICS (T_a = 25 °C, V_{dd}*=7V, I_{dss}=800mA)

SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
F	Operating Frequency Range	9.5		12.0	GHz
P_{1dB}	Output Power at 1dB Gain Compression	29.5	30.5		dBm
G_{ss}	Small Signal Gain V _{dd} =5V	15	18		dB
OIMD3	Output 3 rd Order Intermodulation Distortion @Δf=10MHz, Each Tone Pout 19dBm I _{ds} = 60%±10%I _{dss}		-43	-40	dBc
Input RL	Input Return Loss		-10	-7	dB
Output RL	Output Return Loss		-8	-5	dB
I_{dss}	Saturated Drain Current V _{ds} =3V, V _{gs} =0V	950	1250	1500	mA
V_{dd}	Drain Voltage	7		8	V
R_{th}	Thermal Resistance (Au-Sn Eutectic Attach)		8.5		°C/W
T_b	Operating Base Plate Temperature	-35		+85	°C

*Unless otherwise specified

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	I _{dss}	1300mA
I _{GSF}	Forward Gate Current	114mA	19mA
P _{IN}	Input Power	27dBm	@ 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	12.4W	10.4W

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} = Operating Base Plate 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

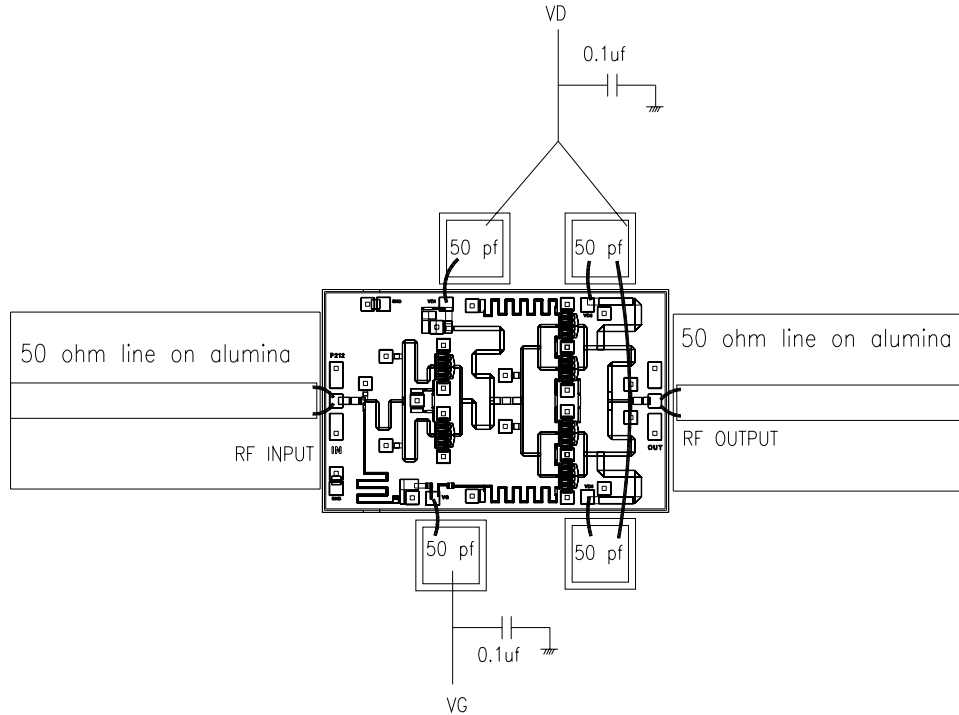
page 1 of 2
Revised April 2008

EMP212

UPDATED 04/04/2008

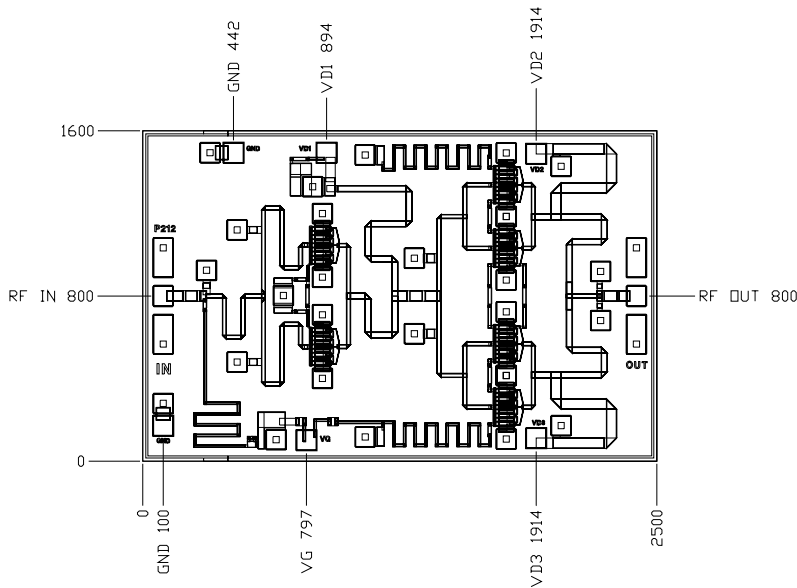
9.50 – 12.0 GHz Power Amplifier MMIC

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 2500 x 1600 microns
 Chip Thickness: 85 ± 15 microns
 PAD Dimensions: 100 x 100 microns
 All Dimensions in Microns

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

page 2 of 2
 Revised April 2008