EMP212

UPDATED 04/04/2008

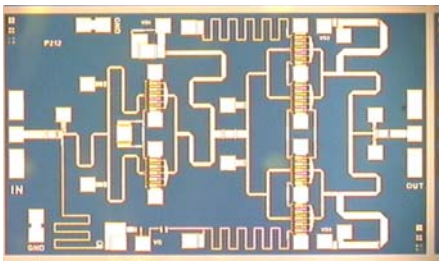
9.50 – 12.0 GHz Power Amplifier MMIC

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, Vdd*=7V, Idsq=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
Gss	Small Signal Gain Vdd=5V	15	18		dB
OIMD3	Output 3rd Order Intermodulation Distortion @Δf=10MHz, Each Tone Pout 19dBm Ids= 60%±10%Idss		-43	-40	dBc
Input RL	Input Return Loss		-10	-7	dB
Output RL	Output Return Loss		-8	-5	dB
Idss	Saturated Drain Current Vds=3V, Vgs=0V	950	1250	1500	mA
Vdd	Drain Voltage	7		8	V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		8.5		°C/W
Tb	Operating Base Plate Temperature	-35		+85	ºC

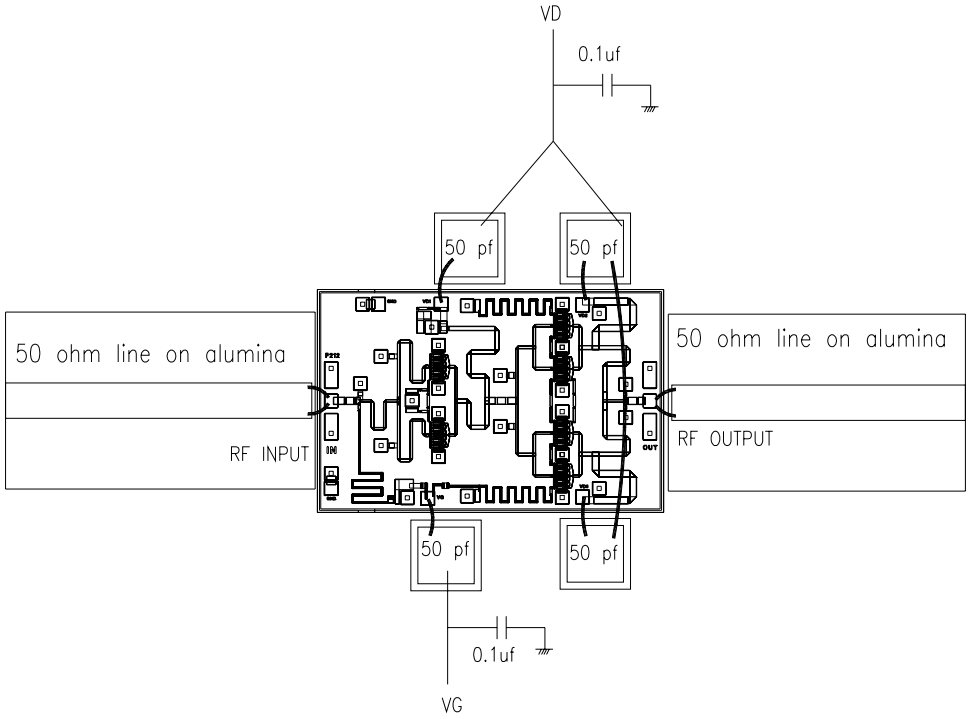
*Unless otherwise specified

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	Idss	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

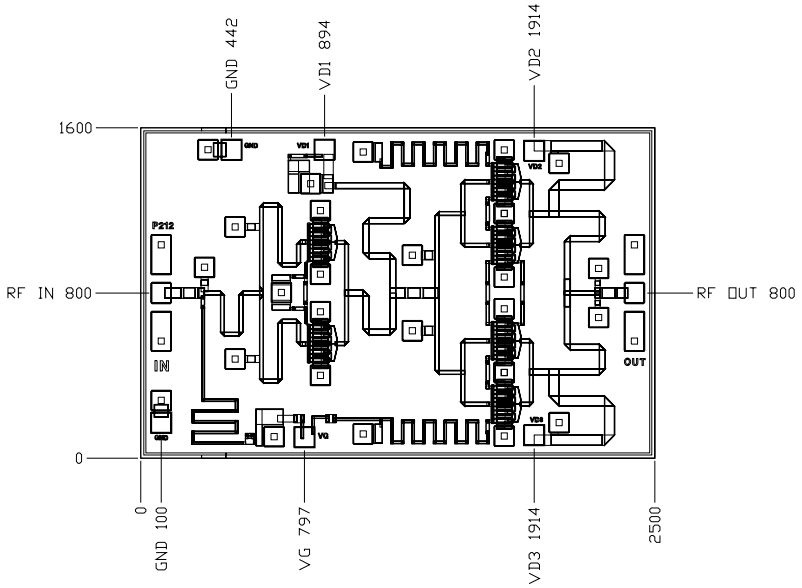
1. Operating the device beyond any of the above rating may result in permanent damage.
2. Bias conditions must also satisfy the following equation $V_{DS}*I_{DS}<(T_{CH}-T_{HS})/R_{TH}$; where T_{HS} =Operating Base Plate temperature

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