

EMP209

UPDATED 05/08/2008

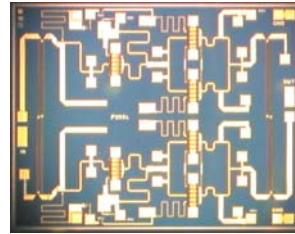
17.0 – 20.0 GHz Power Amplifier MMIC

FEATURES

- 17.0 – 20.0 GHz Operating Frequency Range
- 29.0dBm Output Power at 1dB Compression
- 15.0 dB Typical Small Signal Gain
- -40dBc OIMD3 @Each Tone Pout 19.5dBm

APPLICATIONS

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



Dimension: 2100um x 2650um
Thickness: 75um ± 13um



Caution! ESD sensitive device.

ELECTRICAL CHARACTERISTICS (T_a = 25 °C, 50 ohm, VDD=7V, IDQ=760mA)

SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
F	Operating Frequency Range	17.0		20.0	GHz
P1dB	Output Power at 1dB Gain Compression	28.0	29.0		dBm
Gss	Small Signal Gain	12.0	15.0		dB
OIMD3	Output 3 rd Order Intermodulation Distortion @Δf=10MHz, Each Tone Pout 19.5dBm		-40	-37	dBc
Input RL	Input Return Loss		-15	-10	dB
Output RL	Output Return Loss		-15	-10	dB
Idss	Saturate Drain Current V _{DS} =3V, V _{GS} =0V	858	1072	1286	mA
V _{DD}	Power Supply Voltage		7	8	V
Rth	Thermal Resistance (Au-Sn Eutectic Attach)		9		°C/W
Tb	Operating Base Plate Temperature	-35		+85	°C

ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION^{1,2}

SYMBOL	CHARACTERISTIC	VALUE
V _{DS}	Drain to Source Voltage	8 V
V _{GS}	Gate to Source Voltage	-4 V
I _{DD}	Drain Current	Idss
I _{GSF}	Forward Gate Current	15mA
P _{IN}	Input Power	@ 3dB compression
T _{CH}	Channel Temperature	150°C
T _{STG}	Storage Temperature	-65/150°C
P _T	Total Power Dissipation	12.6W

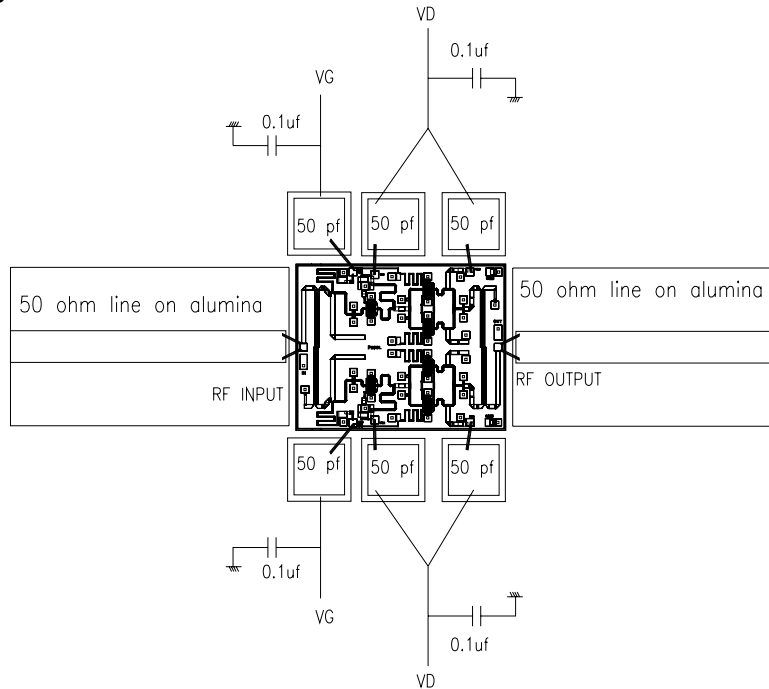
1. Operating the device beyond any of the above rating may result in permanent damage.
2. Bias conditions must also satisfy the following equation $V_{DS} \cdot I_{DS} < (T_{CH} - T_{HS})/R_{TH}$; where T_{HS} = ambient temperature

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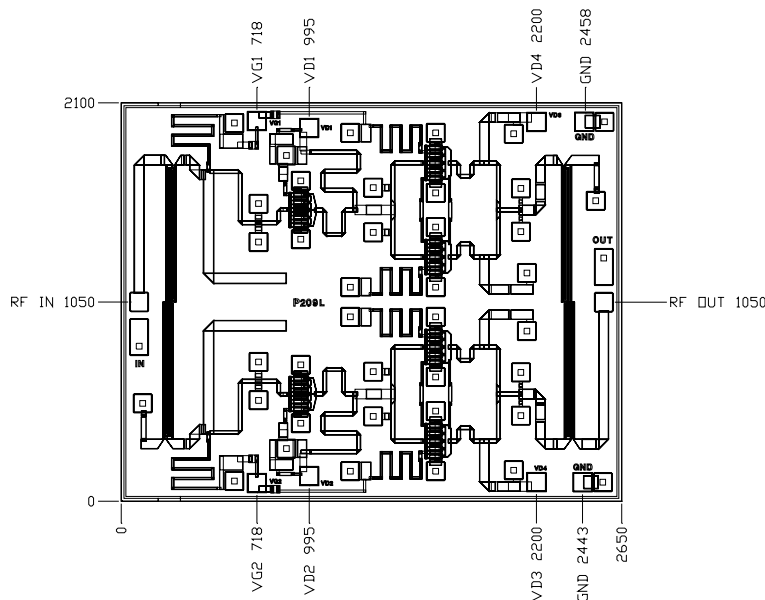
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Assembly Drawing



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 2100 x 2650 microns
 Chip Thickness: 75 ± 13 microns
 PAD Dimensions: 100 x 100 microns
 All Dimensions in Microns

Specifications are subject to change without notice.

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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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