

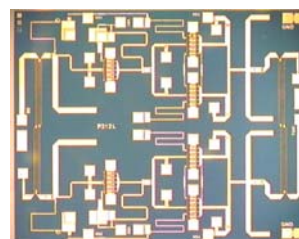
## 21.0 – 24.0 GHz Power Amplifier MMIC

### FEATURES

- 21.0 – 24.0 GHz Operating Frequency Range
- 28.5dBm Output Power at 1dB Compression
- 13.0 dB Typical Small Signal Gain
- -40dBc OIMD3 @Each Tone Pout 18.5dBm

### APPLICATIONS

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



Dimension: 2140um X 2650um  
Thickness: 75um ± 13um



Caution! ESD sensitive device.

### ELECTRICAL CHARACTERISTICS ( $T_a = 25\text{ }^\circ\text{C}$ , 50 ohm, VDD=7V, IDQ=760mA)

SYMBOL	PARAMETER/TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>F</b>	Operating Frequency Range	21.0		24.0	GHz
<b>P1dB</b>	Output Power at 1dB Gain Compression	27.0	28.5		dBm
<b>Gss</b>	Small Signal Gain	10.0	13.0		dB
<b>OIMD3</b>	Output 3 <sup>rd</sup> Order Intermodulation Distortion @ $\Delta f=10\text{MHz}$ , Each Tone Pout 18.5dBm		-40	-37	dBc
<b>Input RL</b>	Input Return Loss		-15	-10	dB
<b>Output RL</b>	Output Return Loss		-15	-10	dB
<b>Idss</b>	Saturate Drain Current $V_{DS} = 3\text{V}$ , $V_{GS} = 0\text{V}$	858	1072	1288	mA
<b>VDD</b>	Power Supply Voltage	7		8	V
<b>Rth</b>	Thermal Resistance (Au-Sn Eutectic Attach)		8		$^\circ\text{C/W}$
<b>Tb</b>	Operating Base Plate Temperature	-35		+85	$^\circ\text{C}$

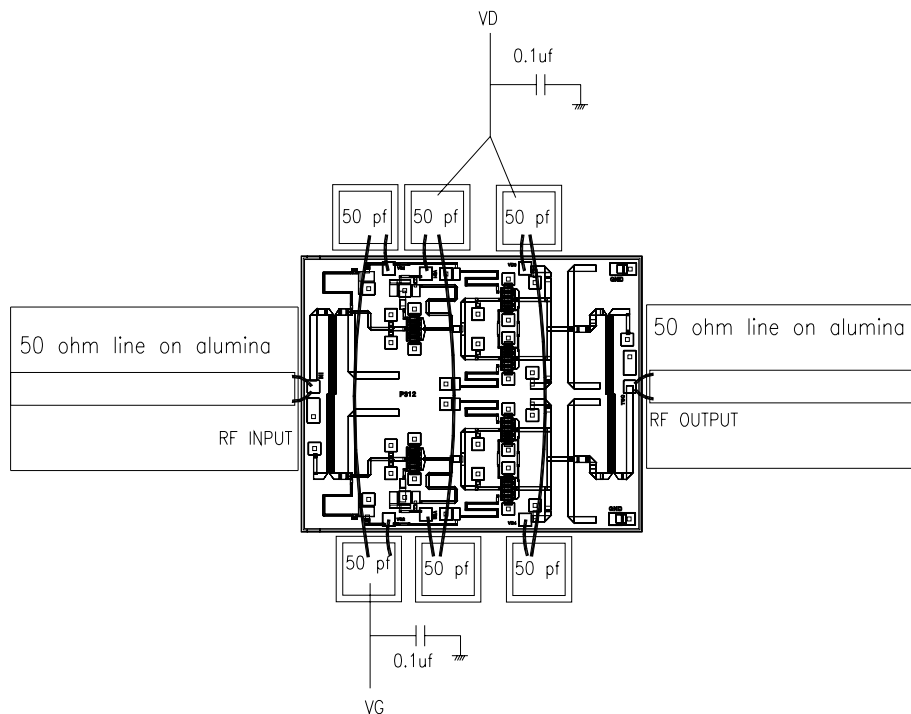
### ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION<sup>1,2</sup>

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 $^\circ\text{C}$
$T_{STG}$	Storage Temperature	-65/150 $^\circ\text{C}$
$P_T$	Total Power Dissipation	12.6W

1. Operating the device beyond any of the above rating may result in permanent damage.

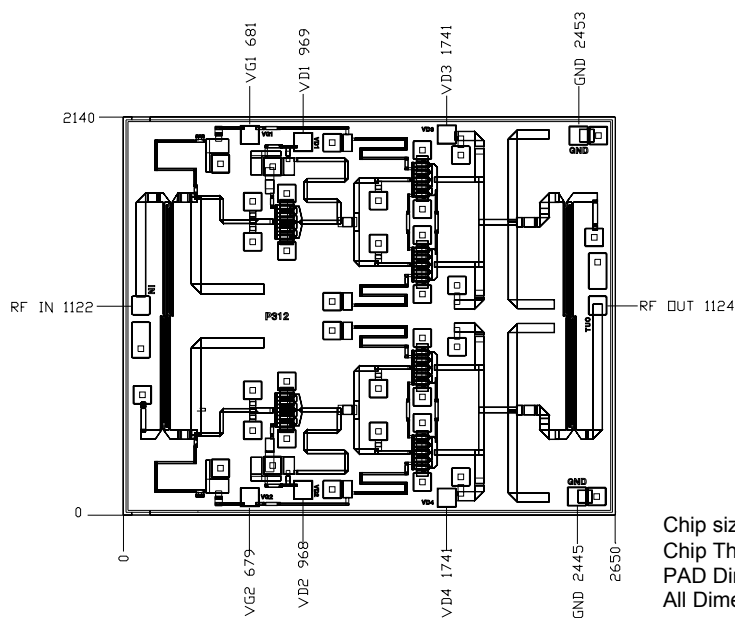
2. Bias conditions must also satisfy the following equation  $V_{DS} \cdot I_{DS} < (T_{CH} - T_{HS})/R_{TH}$ ; where  $T_{HS}$  = ambient temperature

### 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 2140 X 2650 microns  
 Chip Thickness: 75±13 microns  
 PAD Dimensions: 100 x 100 microns  
 All Dimensions in Microns