



EMP103

ISSUED DATE: 07-12-04

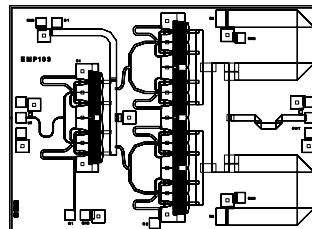
6.4 – 8.0 GHz Power Amplifier MMIC

FEATURES

- 6.4 – 8.0 GHz Operating Frequency Range
- 32.5dBm Output Power at 1dB Compression
- 15.0 dB Typical Small Signal Gain
- -40dBc OIMD3 @Each Tone Pout 22dBm

APPLICATIONS

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



Dimension: 2200um X 3000um
Thickness: 65um ± 15um



Caution! ESD sensitive device.

ELECTRICAL CHARACTERISTICS ($T_a = 25\text{ }^\circ\text{C}$, 50 ohm, $V_{DD}=10\text{V}$, $IDQ=1000\text{mA}$)

| SYMBOL | PARAMETER/TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|-----------------|---|------|-------|-----|-------|
| F | Operating Frequency Range | 6.4 | | 8.0 | GHz |
| P1dB | Output Power at 1dB Gain Compression | 31.5 | 32.5 | | dBm |
| Gss | Small Signal Gain | 13.0 | 15.0 | | dB |
| OIMD3 | Output 3 rd Order Intermodulation Distortion @ $\Delta f=10\text{MHz}$, Each Tone Pout 22dBm | | -40.0 | | dBc |
| Input RL | Input Return Loss | | -15 | -10 | dB |
| Output RL | Output Return Loss | | -6 | | dB |
| Idss | Saturate Drain Current $V_{DS}=3\text{V}$, $V_{GS}=0\text{V}$ | | 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 | °C |

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 $V_{DS} \cdot I_{DS} < (T_{CH} - T_{HS})/R_{TH}$; where T_{HS} = ambient temperature

Specifications are subject to change without notice.

Excelics Semiconductor, Inc. 310 De Guigne Drive, Sunnyvale, CA 94085

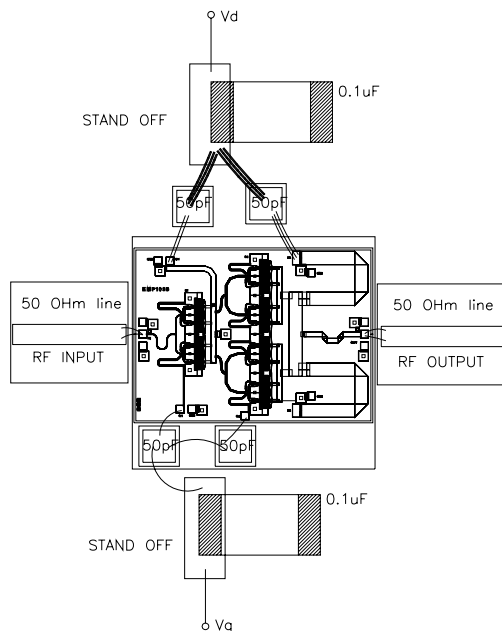
Phone: 408-737-1711 Fax: 408-737-1868 Web: www.excelics.com

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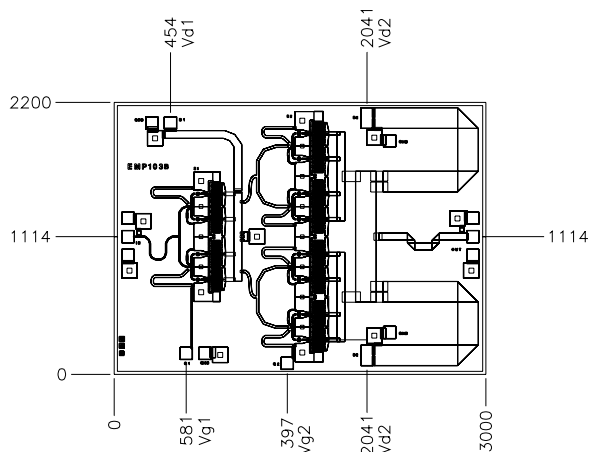
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ASSEMBLY DRAWING

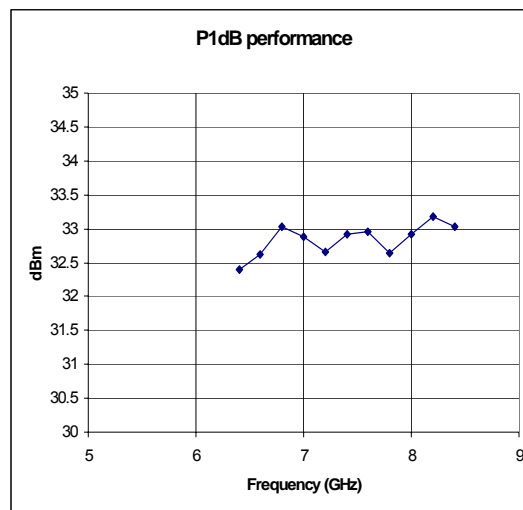
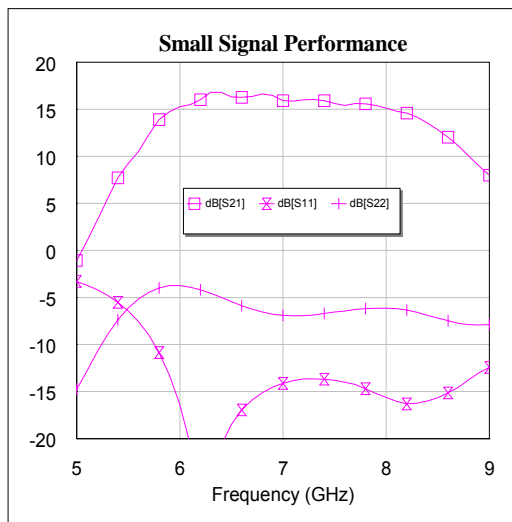


CHIP OUTLINE



All Dimensions in Microns

TYPICAL PERFORMANCE



Data measured @ $V_d=10V$, $I_d=950mA$

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