# EMP103B

## DATA SHEET

ISSUED DATE: 02-24-04

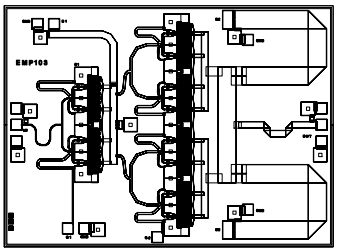
## 6.4 – 8.0 GHz Power Amplifier MMIC

### FEATURES

- **6.4 – 8.0 GHz Bandwidth**
- **33dBm Output Power at 1dB Compression**
- **14 dB Typical Power Gain**

### APPLICATIONS

- **Point-to-point and point-to-multipoint radio**



Dimension: 3000um x 2200um

### ELECTRICAL CHARACTERISTICS ($T_a$ = 25 °C)

| SYMBOL | PARAMETER/TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|
| **F** | Operating Frequency Range | 6.4 | | 8.0 | GHz |
| **$P_{1dB}$** | Output Power at 1dB Gain Compression | | 32.7 | | dBm |
| **Gss** | Small Signal Gain | 13 | 15 | | dB |
| **IP3** | Third Order Intercept | | 43 | | dBm |
| **Input RL** | Input Return Loss | 10 | 15 | | dB |
| **Output RL** | Output Return Loss | | 6 | | dB |
| **Idd** | Power Supply Current | | 950 | | mA |
| **Vdd** | Power Supply Voltage | | 10 | | V |
| **Rth** | Thermal Resistance (Au-Sn Eutectic Attach) | | 7 | | $^{o}$C/W |

### ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION[1,2]

| SYMBOL | CHARACTERISTIC | VALUE |
|---|---|---|
| $V_{DS}$ | Drain to Source Voltage | 10 V |
| $V_{GS}$ | Gate to Source Voltage | -4 V |
| $I_{DD}$ | Drain Current | Idss |
| $I_{GSF}$ | Forward Gate Current | 35mA |
| $P_{IN}$ | 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 $V_{DS}$*$I_{DS}$ < ($T_{CH}$ –$T_{HS}$)/$R_{TH}$; where $T_{HS}$ = ambient temperature

**Excelics Semiconductor, Inc. 310 De Guigne Drive, Sunnyvale, CA 94085**
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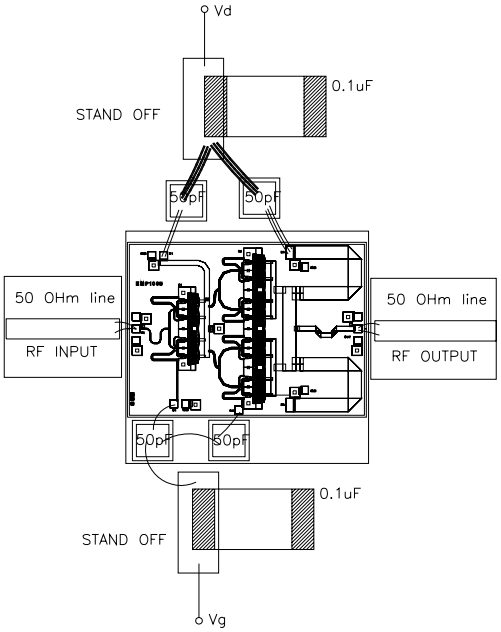
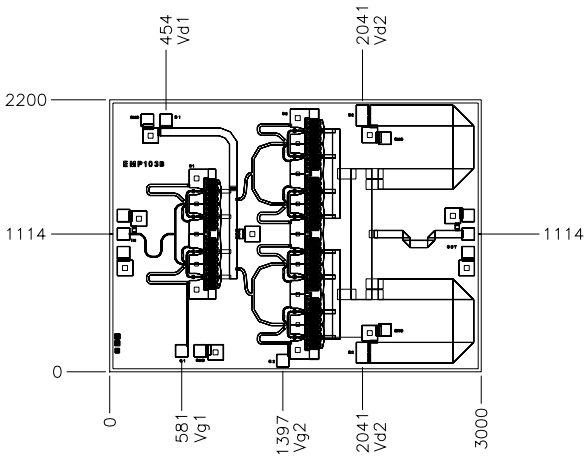
### ASSEMBLY DRAWING

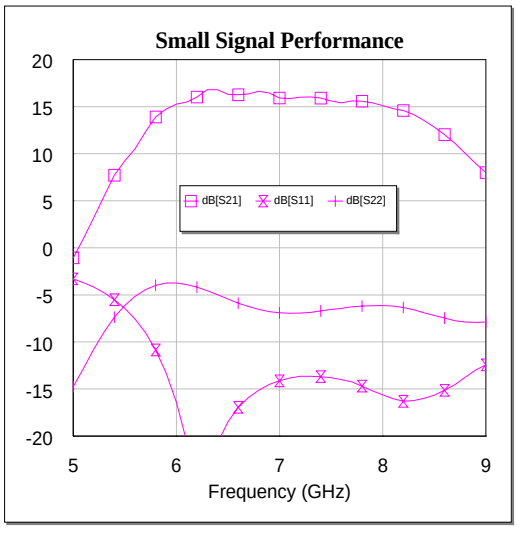


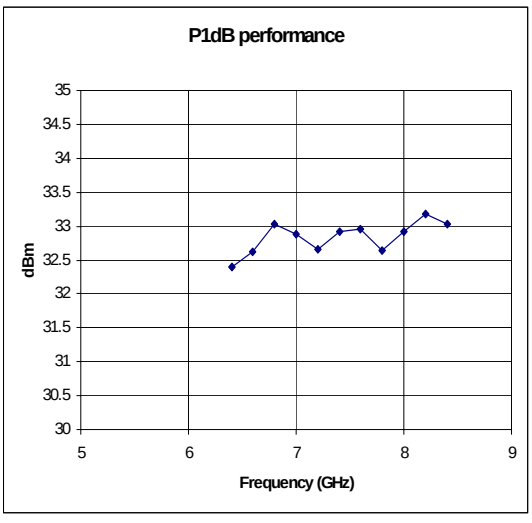

### CHIP OUTLINE




Chip size: 3000x2200microns
Chip thickness: 75 ± 13 microns
All Dimensions in Microns

### TYPICAL PERFORMANCE




Data measured @ Vd=10V, Id=950mA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