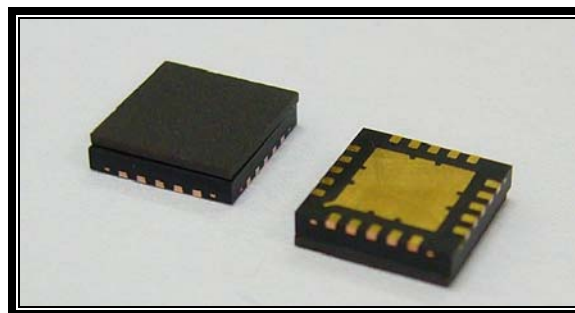


FEATURES

- 5.0 – 6.5 GHz Operating Frequency Range
- 33.0dBm Output Power at 1dB Compression
- 17.0 dB Typical Small Signal Gain
- -44dBc OIMD3 @Each Tone Pout 22.0dBm

APPLICATIONS

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



Caution! ESD sensitive device.

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

| SYMBOL | PARAMETER/TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|------------------|---|------|------|-----|--------------------|
| F | Operating Frequency Range | 5.0 | | 6.5 | GHz |
| P1dB | Output Power at 1dB Gain Compression | 32.0 | 33.0 | | dBm |
| Gss | Small Signal Gain | 15.0 | 17.0 | | dB |
| OIMD3 | Output 3 rd Order Intermodulation Distortion @ $\Delta f=10\text{MHz}$, Each Tone Pout 22.0dBm | | -44 | -40 | dBc |
| Input RL | Input Return Loss | | -6 | | dB |
| Output RL | Output Return Loss | | -6 | | dB |
| Idss | Saturate Drain Current $V_{DS} = 3\text{V}$, $V_{GS} = 0\text{V}$ | | 1680 | | mA |
| VDD | Power Supply Voltage | | 10 | | V |
| Rth | Thermal Resistance ¹ | | 7.5 | | $^\circ\text{C/W}$ |
| Tb | Operating Base Plate Temperature | -35 | | +75 | $^\circ\text{C}$ |

ABSOLUTE MAXIMUM RATINGS FOR CONTINUOUS OPERATION^{2,3}

| SYMBOL | CHARACTERISTIC | CONTINUOUS |
|-----------|-------------------------|--------------------------|
| 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 $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | -65/150 $^\circ\text{C}$ |
| P_T | Total Power Dissipation | 17W |

1. R_{th} is mounting dependent. Measured result when used with Excelics recommended evaluation board. Adequate heat sinking recommended.

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

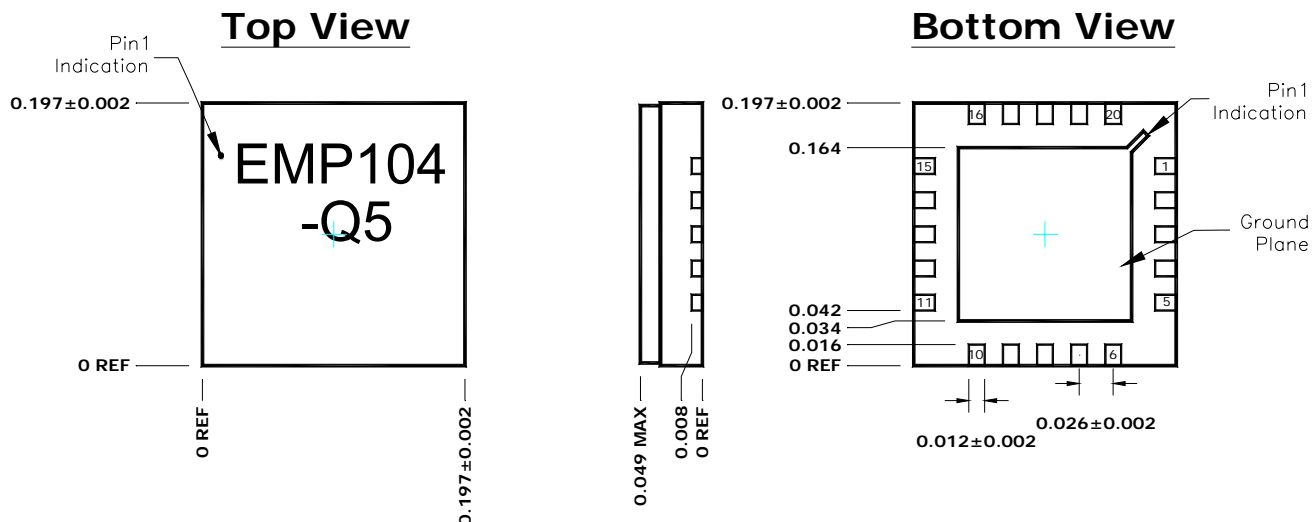
3. Bias conditions must also satisfy the following equation $V_{DS} \cdot I_{DS} < (T_{CH} - T_{HS})/R_{TH}$; where T_{HS} = ambient temperature

Specifications are subject to change without notice.

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

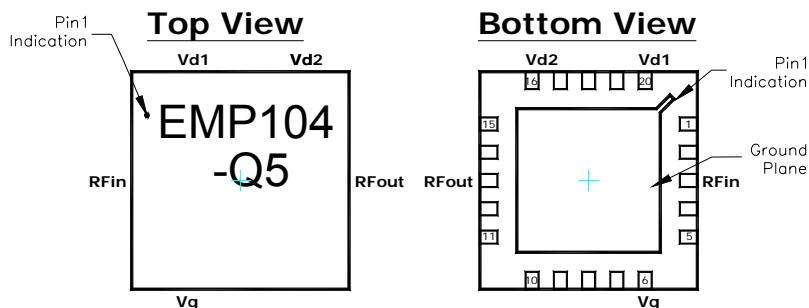
Phone: 408-737-1711 Fax: 408-737-1868 Web: www.excelics.com

CHIP OUTLINE AND PIN ASSIGNMENT



Additional Notes:

- 1) Ground Plane must be soldered to PCB RF ground
- 2) All dimensions are in inches
- 3) Refer to Excelics application notes on QFNs for further guidelines
- 4) Pin Assignment:



| Pin | Assignment |
|-----------------------------|-------------------|
| 1, 2, 4, 5 | NC |
| 3 | RF _{in} |
| 6 | V _g |
| 7, 8, 9, 10, 11, 12, 14, 15 | NC |
| 13 | RF _{out} |
| 16 | V _{d2} |
| 17, 18, 19 | NC |
| 20 | V _{d1} |

Specifications are subject to change without notice.



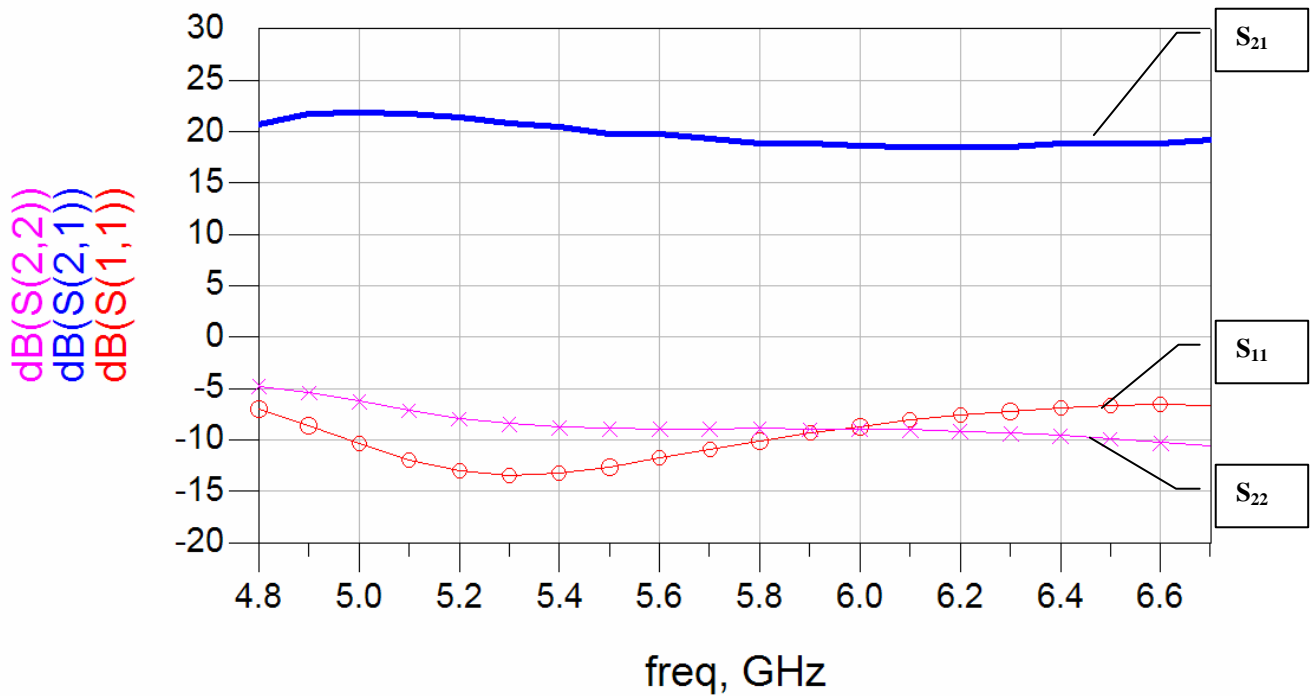
EMP104-Q5

5.0 – 6.5 GHz Surface-Mounted PA

UPDATED: 04/24/2008

Typical Performance:

1. Small-Signal Parameters (@Vds = 10V, Ids = 1000mA)



2. P1-dB & G1-dB (@Vds = 10V, Ids = 1000mA)

