

## Product Preview

MRFIC2408PP/D  
Rev. 0, 08/2002

2.4 GHz RF Power  
Amplifier for Bluetooth™  
Applications



# MRFIC2408



(Scale 2:1)

### Package Information

Plastic Package  
Case 1408  
(QFN-12)

### Ordering Information

| Device    | Marking | Package |
|-----------|---------|---------|
| PRFIC2408 | 2408    | QFN-12  |

The MRFIC2408 is a single chip RF Power Amplifier intended for 2.4 GHz ISM Band applications. It can be used to implement Bluetooth™ Class I operation and contains power control circuitry.

- Power Supply Range: 2.7 to 3.6 V
- Power Amplifier Enable/Disable Function
- Over 20 dB of Power Control
- Low Power Shutdown Mode

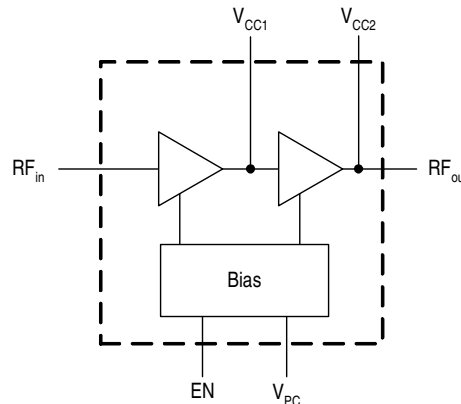


Figure 1. Simplified Block Diagram

**Table 1. Maximum Ratings**

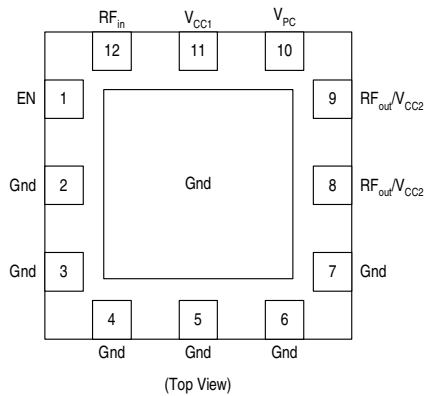
| Ratings                          | Symbol    | Value      | Unit |
|----------------------------------|-----------|------------|------|
| Supply Voltage                   | $V_{CC}$  | 6.0        | V    |
| Storage Temperature Range        | $T_{stg}$ | -55 to 150 | °C   |
| Operating Case Temperature Range | $T_C$     | -40 to 110 | °C   |
| Input Signal (PA In)             | $P_{in}$  | 5.0        | dBm  |

**NOTE:** Maximum Ratings are those values beyond which damage to the device may occur. Functional operation should be restricted to the limits in the Electrical Characteristics tables.

**Table 2. Electrical Characteristics**  
( $V_{CC} = 3.0\text{ V}$ ,  $RF_{in} = 2.0\text{ dBm}$ ,  $f = 2.45\text{ GHz}$ ,  $T_A = 25^\circ\text{C}$ )

| Characteristic         | Conditions  | Symbol           | Min | Typ   | Max | Unit |
|------------------------|---|------------------|-----|-------|-----|------|
| Quiescent Current      | No RF, $V_{EN} = 3.0\text{ V}$ ,<br>$V_{PC} = 3.0\text{ V}$                     | $I_{CCQ}$        | -   | 220   | -   | mA   |
| Shut-Off Current       | No RF, $V_{EN} = 0\text{ V}$ ,<br>$V_{PC} = 3.0\text{ V}$                       | $I_{CCS}$        | -   | 0.001 | -   | mA   |
| Saturated Output Power | $V_{EN} = 3.0\text{ V}$ ,<br>$V_{PC} = 3.0\text{ V}$                            | $P_{out}$        | -   | 23    | -   | dBm  |
| Power Gain             | $V_{EN} = 3.0\text{ V}$ ,<br>$V_{PC} = 3.0\text{ V}$                            | $G_P$            | -   | 21    | -   | dB   |
| Disable Isolation      | $RF_{in} = 2.0\text{ dBm}$ ,<br>$V_{EN} = 0\text{ V}$ , $V_{PC} = 3.0\text{ V}$ | $ S_{21} _{off}$ | 30  | -     | -   | dB   |
| Harmonics (2f, 3f, 4f) | $V_{EN} = 3.0\text{ V}$ ,<br>$V_{PC} = 3.0\text{ V}$                            | $f_o$            | -   | -     | -25 | dB   |

**NOTE:**  $V_{EN}$  = Enable Voltage and  $V_{PC}$  = Power Control Voltage.



**Figure 2. Pin Connections**



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Motorola Japan Ltd.; SPS, Technical Information Center,  
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