

Preliminary
Technical Brief
**2.4 GHz RF Power Amplifier
for Bluetooth™ Applications**

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 1 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

MRFIC2408



Package Information

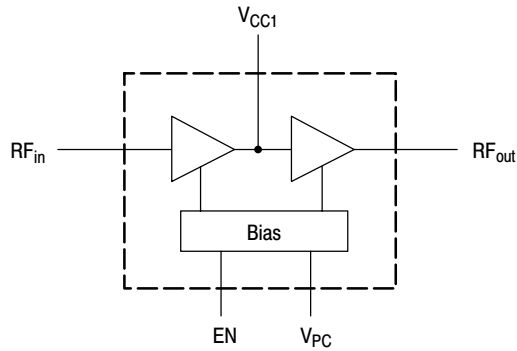
Plastic Package
Case 1345
(QFN-12)

Ordering Information

Device	Operating Temperature Range	Package
MRFIC2408	T _C = -45 to 85°C	QFN-12

1 Block Diagram

Figure 1. Simplified Block Diagram



Maximum Ratings

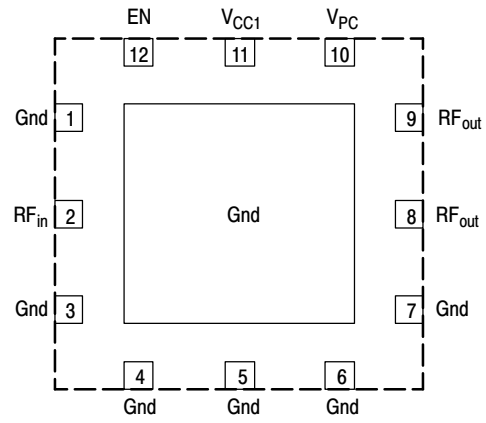
Rating	Symbol	Value	Unit
Supply Voltage	V_{CC}	6.0	Vdc
Operating Case Temperature	T_C	-45 to 85	°C
Storage Temperature Range	T_{stg}	-55 to 150	°C
Input Signal (PA In)	P_{in}	5.0	dBm

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 or Pin Descriptions section.

Electrical Characteristics ($V_{CC} = 2.7\text{ V}$, $V_{PC} = 2.7\text{ V}$, $T_A = 25^\circ\text{C}$, unless otherwise noted.)

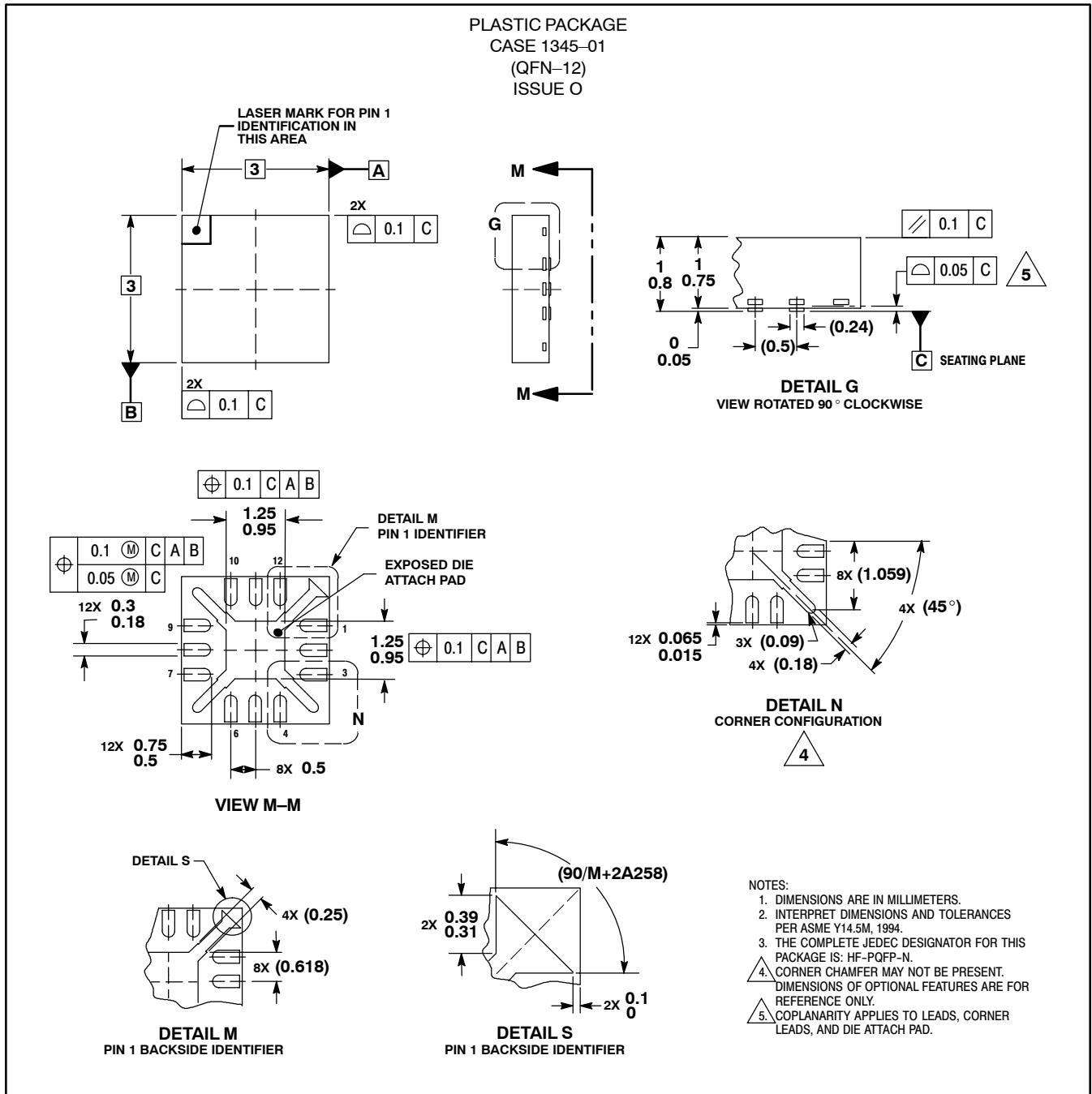
Characteristic	Symbol	Min	Typ	Max	Unit
DC SPECIFICATIONS (P_{in} @ $RF_{in} = 2.0\text{ dBm}$)					
Power Supply Current					mA
EN = L (Sleep mode) = 0 V	I_{CCS}	–	0.001	–	
EN = H (Transmit Mode) = V_{CC}	I_{CCT}	–	210	–	
PA AC SPECIFICATIONS ($f_{in} = 2.4\text{ to }2.5\text{ GHz}$, $P_{in} = 2.0\text{ dBm}$, $EN = 2.7\text{ V}$)					
Saturated Output Power	P_{out}	–	23	–	dBm
Power Gain	G_P	–	21	–	dB
Disable Isolation ($P_{in} = +2.0\text{ dBm}$)	$ S_{21} _{off}$	30	–	–	dB
Harmonics (2f, 3f, 4f)		–	–	-25	dB
Power Control	P_{ctl}				dBm
$V_{PC} = 1.1\text{ V}$		–	0	–	
$V_{PC} = 1.3\text{ V}$		–	5.0	–	
$V_{PC} = 1.4\text{ V}$		–	10	–	
$V_{PC} = 1.6\text{ V}$		–	15	–	
$V_{PC} = 2.0\text{ V}$		–	20	–	
$V_{PC} = 2.7\text{ V}$		–	23	–	

2 Contact Connections



3 Packaging

Figure 2. Outline Dimensions



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