

## **MRF24WG0MAMB Transceiver Module – Circuit Description**

The MRF24WG0MAMB module is built around the MRF24WG0 MAC/Baseband IC and AL2236 RF transceiver IC. The WBAA1 MAC/Baseband IC contains a standard SPI serial data interface to an external data source. The data source will typically be a microcontroller which may also support the application for the product that uses the module. The IC also includes a voltage regulator which provides regulated power to all of the internal circuits on the IC. Bypass capacitors are provided around the IC as needed.

An external crystal at 40.0000 MHz generates the clock for all of the digital circuitry on the IC. It also serves as a reference for the frequency synthesizer used to generate the RF carrier. This is the only clock source for the IC.

The transmitter function of the MRF24WG0 MAC/Baseband IC takes the data from the external data source over the SPI interface and creates packets in the MAC and baseband processor. In conjunction with the AL2236 RF transceiver, it generates an RF signal source and modulator to create the 2412 - 2484 MHz RF output signal.

The receiver function of the AL2236 RF transceiver down converts the RF signal to baseband where the data is taken out of the incoming packets by the MAC and passed to the external data unit over the SPI interface.

There are two versions of this module, one that is configured with an integrated PCB antenna, distinguished as Model: MRF24WG0MA and the other is configured to use an external antenna distinguished as Model: MRF24WG0MB.

The antenna output of the MRF24WG0MA is impedance matched to a fixed PCB antenna. The external antenna option on the MRF24WG0MB connects the Rx/Tx output to external connector J1.