



MRF24WG0MA/MB

2.4 GHz, IEEE Std. 802.11™ b/g RF Transceiver Module Product Brief

FEATURES:

- IEEE Std. 802.11-compliant RF Transceiver
- Serialized unique MAC address
- Data Rate: 1, 2, 5.5, 11 Mbps 802.11b; 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11g
- IEEE Std. 802.11™ b/g/n compatible
- Small size: 21 mm x 31 mm 36-pin surface mount footprint compatible to MRF24WB0M parts
- MA – Integrated PCB antenna +18 dBm output
- MB – External antenna U.FL connector +18 dBm output
- Range: up to 400m (1300 ft.)
- Easy integration into final product – accelerates product development and provides quicker time to market
- Designed for use with Microchip microcontroller families (PIC18, PIC24, dsPIC33, and PIC32) with downloadable Microchip TCP/IP Stack

OPERATIONAL:

- Single operating voltage: 2.8V-3.6V (3.3V typical)
- Temperature Range: -40°C to +85°C Industrial
- Simple, four-wire SPI interface with interrupt
- Low current consumption:
 - RX mode – 95 mA (typical)
 - TX mode – 275 mA (+18 dBm, 802.11b)
 - Sleep – 500 µA (typical)
 - Hibernate – <2 µA (typical)

RF/ANALOG FEATURES:

- ISM Band 2.400 GHz-2.484 GHz operation
- 14 Channels selectable individually or domain- restricted
- Data – 4500 kbps
- -95 dBm typical sensitivity at 1 Mbps
- +18 dBm typical 802.11b Tx power with control
- +14 dBm typical 802.11g Tx power with control
- Integrated RSSI readings available to host

MAC/BASEBAND FEATURES:

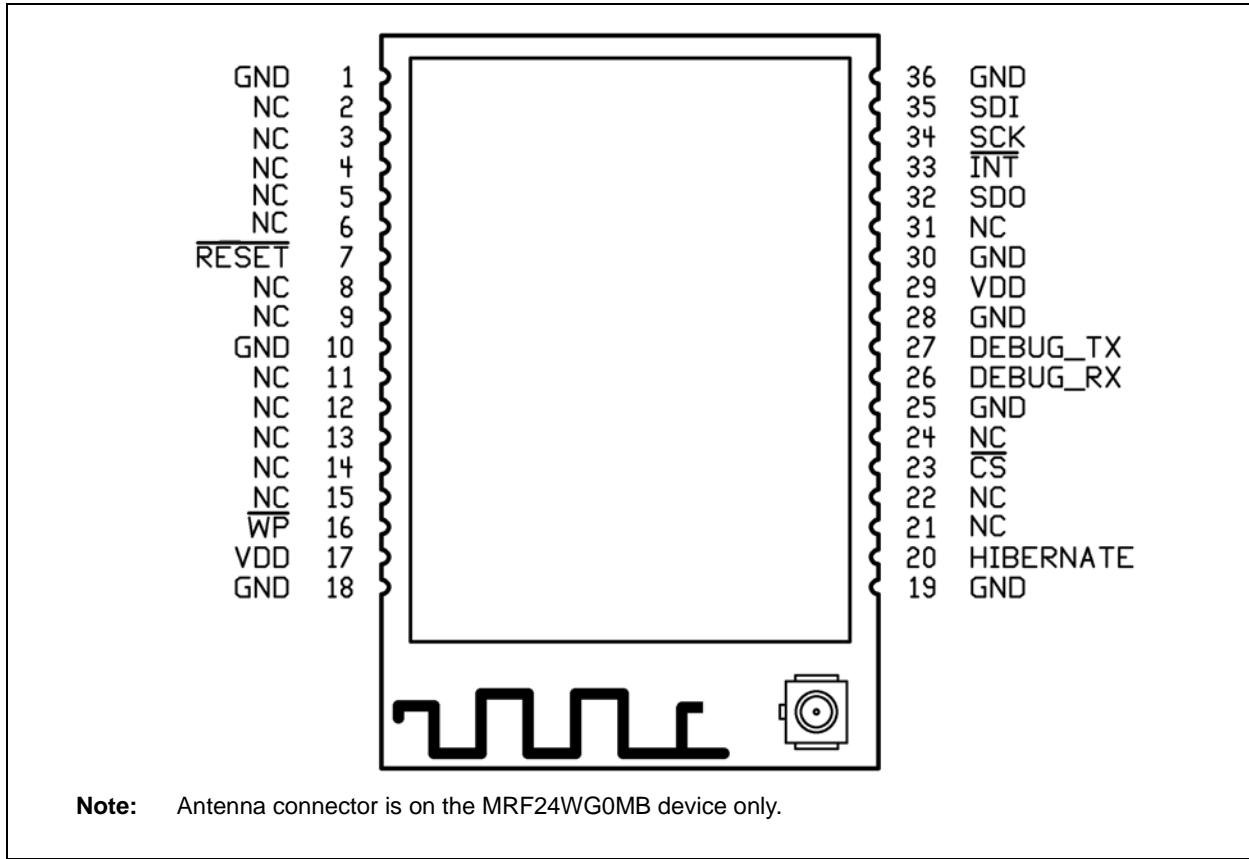
- Hardware CSMA/CA access control, automatic ACK, and FCS creation and checking
- Hardware Security Engine for AES and RC4-based ciphers
- Supports 802.1x, 802.1i security: WEP, WPA-PSK, and WPA-2-PSK

APPLICATIONS:

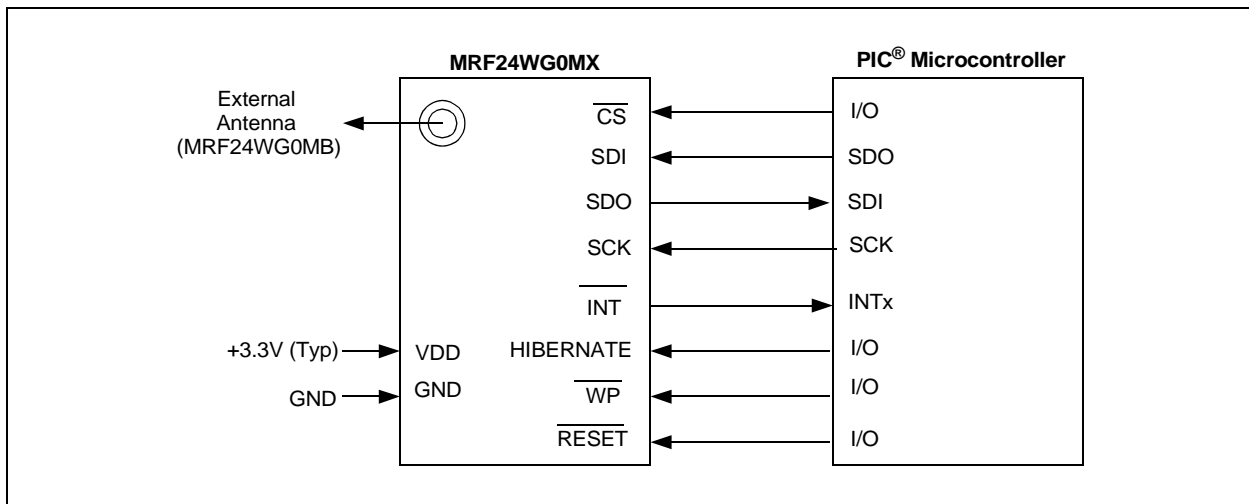
- Utility and Smart Energy
 - Thermostats
 - Smart Meters
 - White Goods
 - HVAC
- Consumer Electronics
 - Remote Controls
 - Internet Radio
 - Home Security
 - Toys
- Industrial Controls
 - Chemical Sensors
 - HVAC
 - Security Systems
 - M2M Communication
- Remote Device Management
 - Location and Asset Tracking
 - Automotive
 - Code Update
- Retail
 - POS Terminals
 - Wireless Price Tags
 - Digital Remote
- Medical, Fitness, and Healthcare
 - Glucose Meters
 - Fitness Equipment
 - Patient Asset Tracking

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Pin Diagram



Connection Diagram



MRF24WG0MA/MB

TABLE 1: PIN DESCRIPTION

Pin	Symbol	Type	Description
1	GND	P	Ground
2	NC	NC	No connect
3	NC	NC	No connect
4	NC	NC	No connect
5	NC	NC	No connect
6	NC	NC	No connect
7	$\overline{\text{RESET}}$	I: Constant ⁽¹⁾	Module Reset input
8	NC	NC	No connect
9	NC	NC	No connect
10	GND	P	Ground
11	NC	NC	No connect
12	NC	NC	No connect
13	NC	NC	No connect
14	NC	NC	No connect
15	NC	NC	No connect
16	$\overline{\text{WP}}$	I: Constant ⁽¹⁾	Write protect (this pin is used to enable Flash update)
17	VDD	P	Power
18	GND	P	Ground
19	GND	P	Ground
20	HIBERNATE	I	Hibernate mode enable (high input will disable the module)
21	NC	NC	No connect
22	NC	NC	No connect
23	$\overline{\text{CS}}$	I: Constant ⁽¹⁾	SPI Chip Select input; constant drive or pull-up required
24	NC	NC	No connect
25	GND	P	Ground
26	DEBUG_RX	I	Serial debug port input (see Section 2.0)
27	DEBUG_TX	O	Serial debug port output (see Section 2.0)
28	GND	P	Ground
29	VDD	P	Power
30	GND	P	Ground
31	NC	NC	No connect
32	SDO	O	SPI data out
33	$\overline{\text{INT}}$	O	Interrupt output (open drain – requires a pull-up)
34	SCK	I	SPI clock input
35	SDI	I	SPI data in
36	GND	P	Ground

Legend: Pin type abbreviation: P = Power input, I = Input, O = Output, NC = Not Connected.

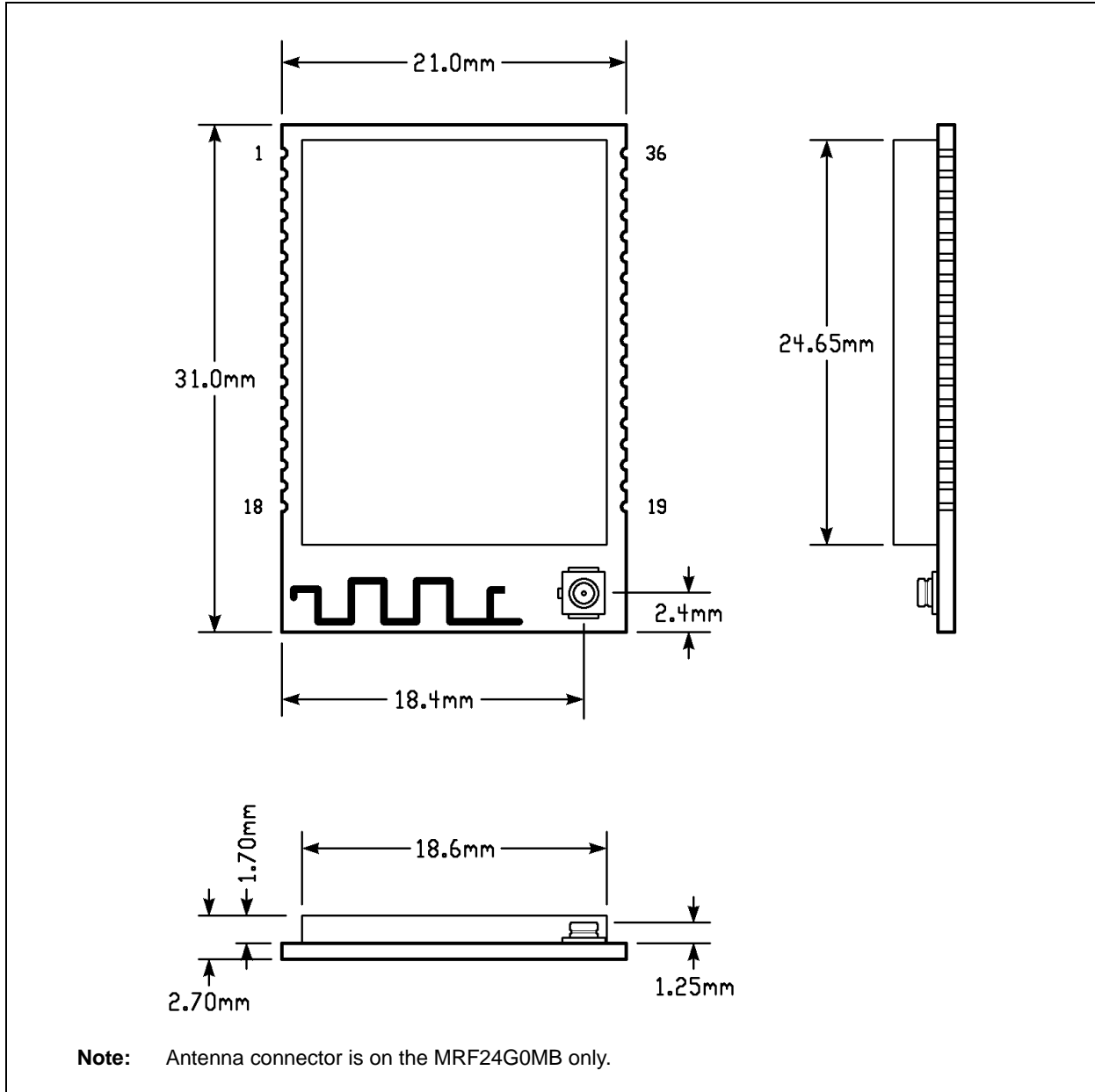
Note 1: Signals of Type “I: Constant” must either be constantly driven by the host, or have a pull-up or pull-down (in case the host is likely to tri-state the signal during power-down modes). The constant drive is used to ensure defined operation of the part and to minimize leakage current during low-power modes.

MRF24WG0MA/MB

MOUNTING DETAILS

The MRF24WG0MA/MRF24WG0MB is a surface mountable module. Module dimensions are shown in Figure 1. The module Printed Circuit Board (PCB) is 1 mm thick with castellated mounting points on two sides. The form factor is compatible with the MRF24WB0M family.

FIGURE 1: MRF24WG0MA/MRF24WG0MB MODULE PHYSICAL DIMENSIONS



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