

uMiRF

High Speed Micro Transceiver

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1 Overview

The uMiRF is an expanded and refined version of the SFE MiRF. It shares many of the same attributes as the MiRF, such as the use of an nRF2401A. But the uMiRF brings a new dimension of versatility in a very compact size.

New functions available on the uMiRF include access to a second receive channel and a power-down mode for very low current consumption.

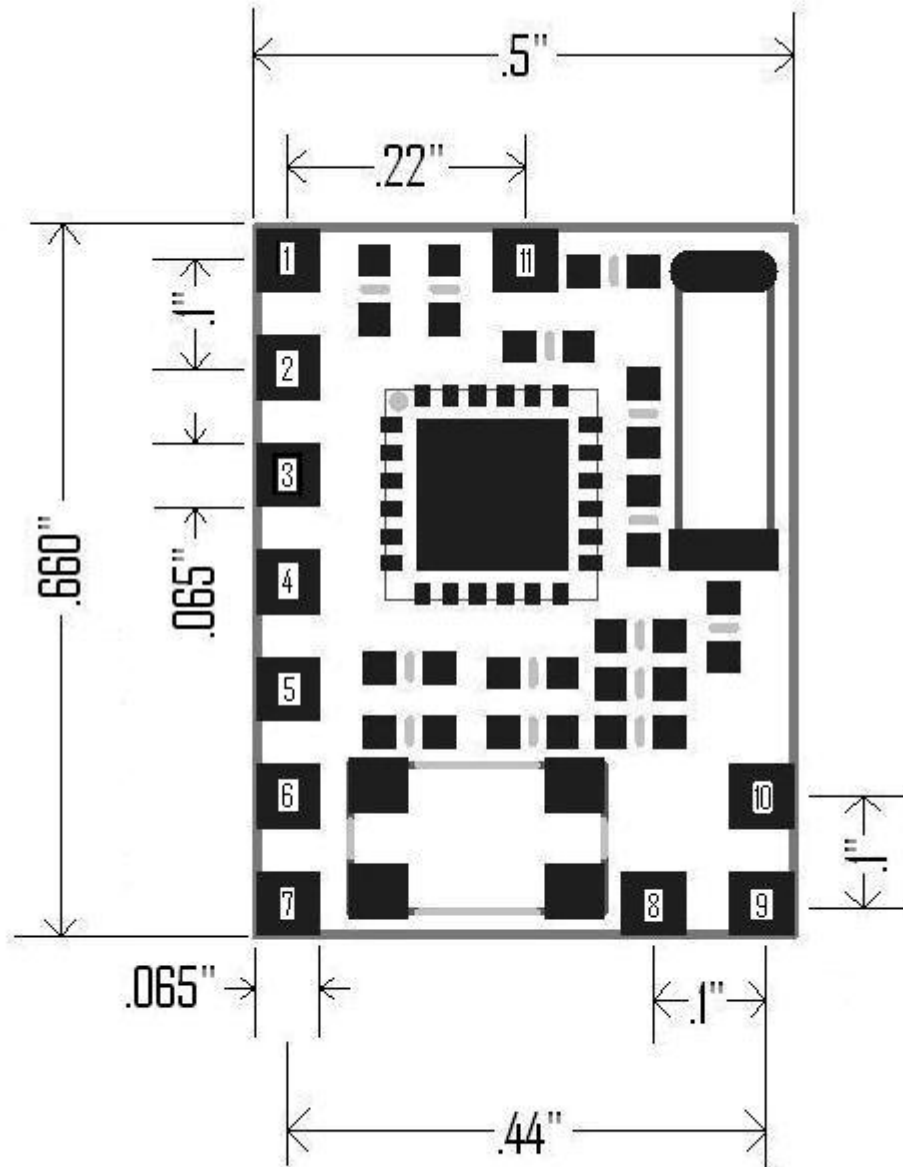
2 Specifications

- Frequency: 2.4~2.524 GHz
- 124 discrete channels
- Modulation type: GFSK
- Operating Voltage 1.9-3.6V
- Output Power: -20dBm to 0dBm
- Data Rate: 1Mbps and 250Kbps
- Miniscule footprint size: 0.5x0.675"
- Operating Temperature: -40 ~ +85 C
- Long Range: 50' indoors, 125' outdoors
- Built-in 2.45GHz ceramic antenna

3 Pinout

- 1) **3.3V**: VCC In
- 2) **CE**: Chip Enable
- 3) **CS**: Chip Select
- 4) **DR1**: Data Ready Channel 1
- 5) **CLK1**: Clock Input #1
- 6) **DATA**: Data I/O #1
- 7) **GND**
- 8) **DO2**: Data Out Channel 2
- 9) **CLK2**: Clock Input #2
- 10) **DR2**: Data Ready Channel 2
- 11) **PRU**: Power Up

Please see the dimensional drawing on Page 2 for exact pin locations.



4 Some Notes on Usage

4.1 Using the Second Channel

Using the second channel is remarkably simple, but a few things should be kept in mind. Whenever the unit is configured to receive, the second channel is also active. It is automatically set to receive 8 channels above channel 1. For exam-

ple, if you've configured your uMiRF to receive on channel 50 the second channel will be on 58. To receive on this channel all you have to do is wait for DR2 to go high, then clock out the data using CLK2 and DO2 instead of CLK1 and DATA.

4.2 Using the Power Up Pin

The function of the power up pin is also

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very simple. When the PRU is held high, the uMiRF functions normally. When the PRU is held low, the unit goes to sleep and no inputs are recognized.

PRU is held high through a 100k resistor. This pin can therefore be left open if not needed.

4.3 Dimensions and Footprint

As can be seen in the drawing on page 2, the uMiRF come in a very small package. We've tried to make it conducive to both a through-hole mount to satisfy most of the do-it-yourselfers, as well as an SMD mount for higher-volume designs. The idea behind the SMD mount is that without 0.1" headers in place, the unit can be placed directly onto another PCB with a footprint matching the dimensions on the drawing. The end user has only to solder the header holes to the pads underneath.

For SMD type mounting, it is recommended that there be no ground plane on the PCB directly underneath the antenna for maximum performance.