

# GW1NRF-LV4MOD/CEIT Datasheet

## Introduction

The Gowin GW1NRF-LV4MOD/CEIT is a certified Bluetooth Low Energy 5.0 wireless module. The module includes the Gowin GW1NRF4 Bluetooth  $\mu$ SoC FPGA along with an antenna, passives, oscillators, IO headers and interference shield in a small 20.5x18.5mm<sup>2</sup> footprint. The GW1NRF-LV4MOD/CEIT module is designed to simplify and enable faster development of products using the Gowin GW1NRF-4B FPGA with its BLE transceiver and baseband.

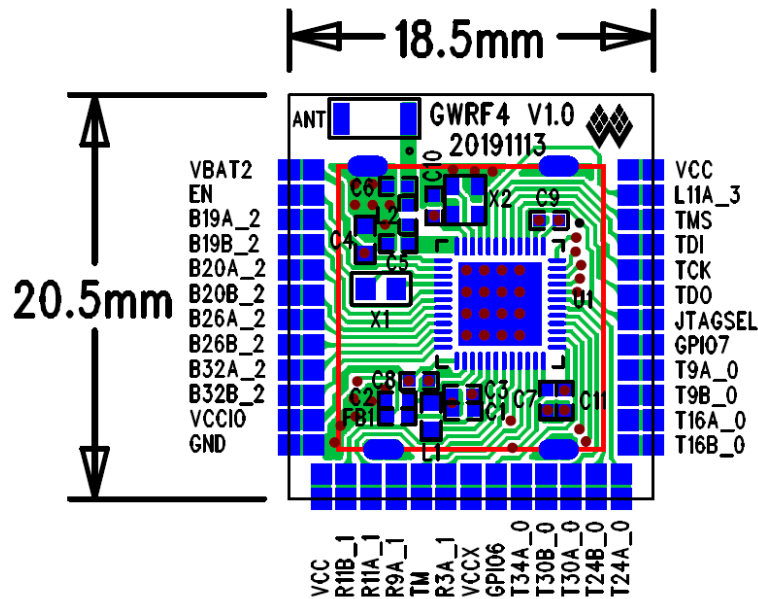
## Hardware Features

- -94dBm Bluetooth LE receiver sensitivity
- -34 to +6.1dBm transmitter output power range
- Flexible GPIO voltage (1.8-3.3V)
- Separate power rails enable Gowin COOLSmart technology for 5nA power gating mode
- JTAG interface for FPGA and ARC processor programming
- Integrated Antenna
- Integrated 32Khz and 48Mhz oscillators
- Edge or 2mm header connector for flexibility

## Software Features

- GW1NRF-4B FPGA development supported in GOWIN IDE v1.9.3 and above
- Gowin GW1NRF configuration editor v1.0 provided for processor and BLE configuration and firmware loading
- Synopsys Metaware provide for ARC processor debug
- Example designs provided with mobile apps for iPhone and Android

## Module Diagram

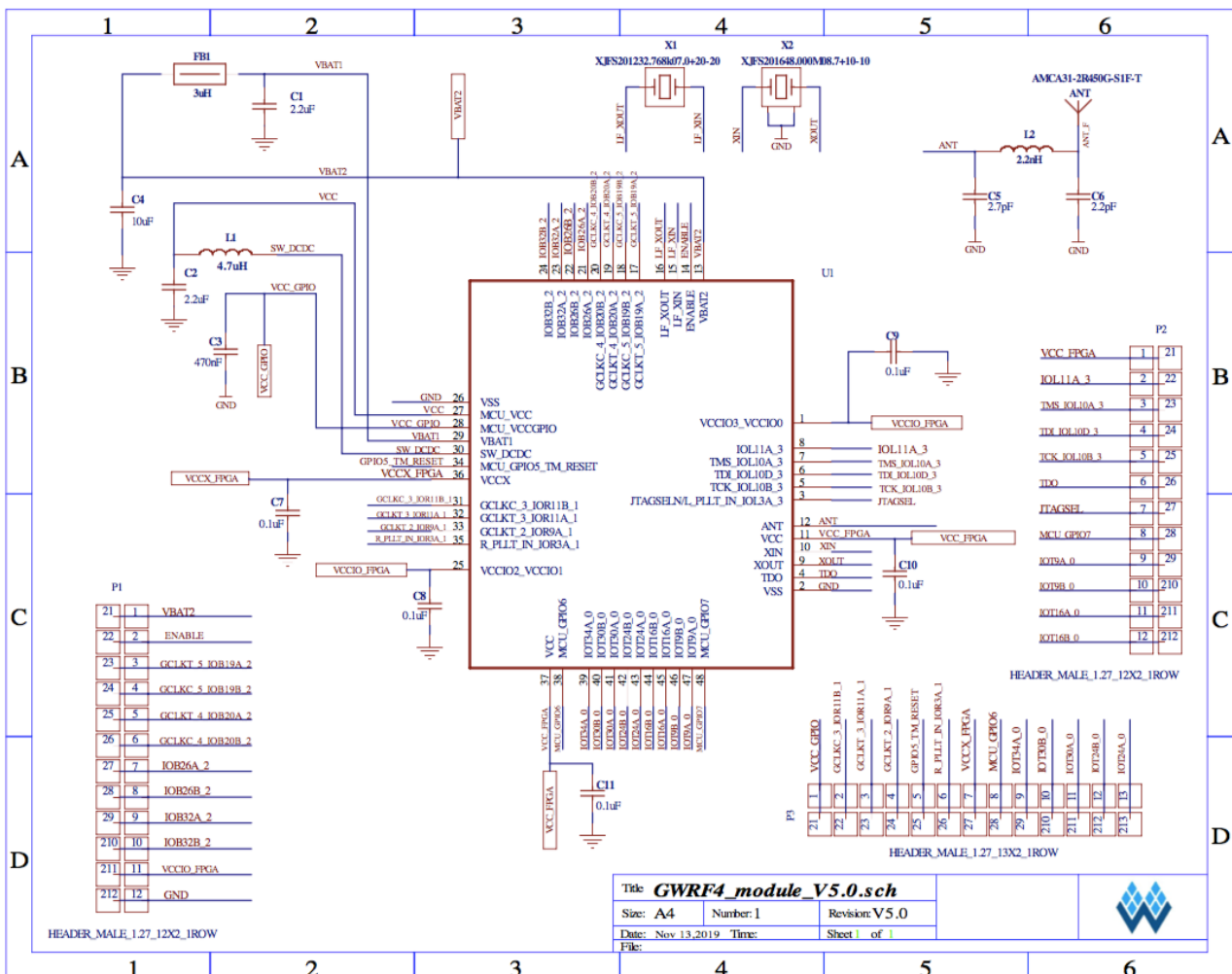


## Pinout Table

Header Pin Number	Signal Name	Description
L1	VBAT	Battery Voltage Rail (1.9 – 3.6V); provides MCU and BLE VCC core voltage via built in Step Down DCDC
L2	EN	Enable. Used to enable BLE and ARC power rails
L3	B19A_2	FPGA GPIO
L4	B19B_2	FPGA GPIO
L5	B20A_2	FPGA GPIO
L6	B20B_2	FPGA GPIO
L7	B26A_2	FPGA GPIO
L8	B26B_2	FPGA GPIO
L9	B32A_2	FPGA GPIO
L10	B32B_2	FPGA GPIO
L11	VCCIO_FPGA	VCCIO for FPGA (-)
L12	GND	Ground
B1	VCC_GPIO	VCCIO for MCU (-)
B2	R11B_1	FPGA GPIO
B3	R11A_1	FPGA GPIO
B4	R9A_1	FPGA GPIO
B5	TM	MCU GPIO 5 and/or MCU reset
B6	R3A_1	FPGA GPIO
B7	VCCX	FPGA VCCX Voltage (2.5- 3.3V)
B8	GPIO6	MCU GPIO 6
B9	T34A_0	FPGA GPIO
B10	T30B_0	FPGA GPIO
B11	T30A_0	FPGA GPIO
B12	T24B_0	FPGA GPIO
B13	T24A_0	FPGA GPIO

Header Pin Number	Signal Name	Description
R1	VCC	FPGA VCC core voltage (LV = 1.2V, UV = 1.8-3.3V)
R2	L11A_3	FPGA GPIO
R3	TMS	JTAG for FPGA and MCU
R4	TDI	JTAG for FPGA and MCU
R5	TDO	JTAG for FPGA and MCU
R6	JTAGSEL	JTAG for FPGA and MCU
R7	GPIO7	MCU GPIO 7
R8	T9A_0	FPGA GPIO
R9	T9B_0	FPGA GPIO
R10	T16A_0	FPGA GPIO
R11	T16B_0	FPGA GPIO

## Schematic



## Support and Feedback

Gowin Semiconductor provides customers with comprehensive technical support. If you have any questions, comments, or suggestions, please feel free to contact us directly using the information presented below.

Website: [www.gowinsemi.com](http://www.gowinsemi.com)

E-mail: [support@gowinsemi.com](mailto:support@gowinsemi.com)

## Revision History

Date	Version	Description
12/02/2019	1.0E	Preliminary Version published.

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