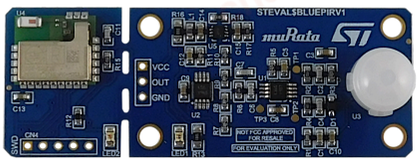
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STEVAL-BLUEPIRV1

Data brief

Wireless motion detector based on Bluetooth® Low Energy and PIR sensor



Product summary	
Wireless motion detector based on Bluetooth® Low Energy and PIR sensor	STEVAL-BLUEPIRV1
Very low power application processor module for Bluetooth® Low Energy v5.2	BlueNRG-M2SA
Nanopower (580 nA) rail-to-rail I/O 5 V CMOS op-amp	TSU102IST
Rail-to-rail 0.9 V nanopower, open drain dual comparators	TS883IST
Bluetooth® Low Energy sensor application for Android and iOS	STBLESensor
Application	Industrial Sensors

Features

- BlueNRG-M2SA module for communication
- Signal conditioning based on TSU102
- Window comparator based on TS883
- STLQ020 power management
- CR2032 coin cell batter
- Connectivity with STBLESensor app
- Motion detection range up to 5 m
- Low-power design
- RoHS compliant

Description

The STEVAL-BLUEPIRV1 evaluation board is an application example design of a wireless motion detector based on a passive infrared (PIR) sensor and featuring Bluetooth® Low Energy wireless connectivity.

The passive infrared sensors are the most used sensors for motion detection, thanks to their low-power consumption and price.

The STEVAL-BLUEPIRV1 evaluation board uses IRA-S210ST01 by Murata. The detection range of the IML-0688 Fresnel lens is up to 5 m.

The on-board low-power TSU102 CMOS op-amp and TS883 comparator perform the analog signal conditioning with a power consumption in a sub-µA range.

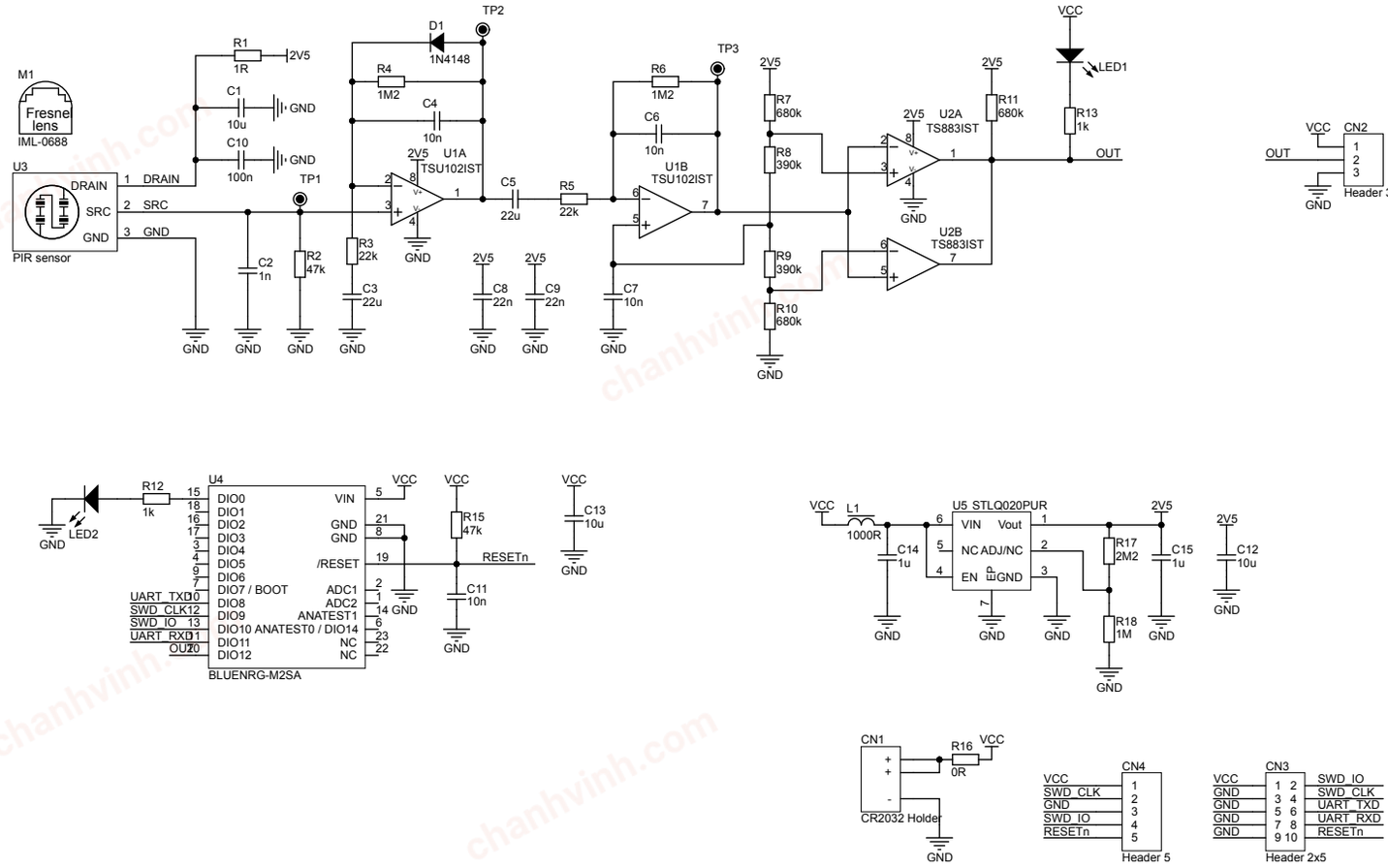
The embedded BlueNRG-M2SA FCC and IC certified radio module (FCC ID: S9N-BNRGM2S and IC: 8976CBNRGM2SA), which integrates an application microcontroller based on an Arm®Cortex®-M0 core, features the Bluetooth® Low Energy connectivity.

The whole design has been built by focusing on low-power consumption. Even though powered via a CR2032 coin-cell battery, the board expected lifetime is around a year.

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1 Schematic diagrams

Figure 1. STEVAL-BLUEPIRV1 circuit schematic



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2 Board versions

Table 1. **STEVAL-BLUEPIRV1 versions**

PCB version	Schematic diagrams	Bill of materials
STEVAL$BLUEPIRV1A (1)	STEVAL$BLUEPIRV1A schematic diagrams	STEVAL$BLUEPIRV1A bill of materials

1. *This code identifies the STEVAL-BLUEPIRV1 evaluation board first version. It is printed on the board PCB.*

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Revision history

Table 2. **Document revision history**

Date	Revision	Changes
11-Apr-2022	1	Initial release.

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