

TISA

BT 5.4 Module

Description

TISA is a highly integrated ultra-low-power standalone certified full featured BT 5.4 (Bluetooth Low Energy) module. This small form-factor module reduces the system cost and gives design flexibility to the user by combining a high-performance Arm® Cortex®-M4 64MHz CPU with a comprehensive mix of analog and digital peripherals, embedded flash, integrated antenna and needed crystals. This fine-tuned RF module is designed to deliver good performance and reliable wireless operation with no host.

TISA is based on Nordic semiconductor's nRF52805 SoC. This globally certified module reduces user's development cost and time to market with integrated wireless stacks, network stack, and application APIs.

Features

- ❖ Standalone BT 5.4 (BLE) module that runs BT stack and applications
- ❖ Highly optimized hardware for ultra-low power consumption with excellent performance
- ❖ AES 128-bit hardware encryption
- ❖ 192 KB flash, 24 KB SRAM
- ❖ Secure over the air device firmware upgrade (OTA DFU)
- ❖ Nordic SDK with examples and comprehensive documentation covers all the features supported by the module.
- ❖ Foot print compatible with NILE series
- ❖ Flexible power management options
- ❖ Up to 10 GPIO
- ❖ EasyDMA support for high performance
- ❖ Temperature: -40°C to 85°C
- ❖ Power: 1.7V to 3.6V with integrated DC-DC

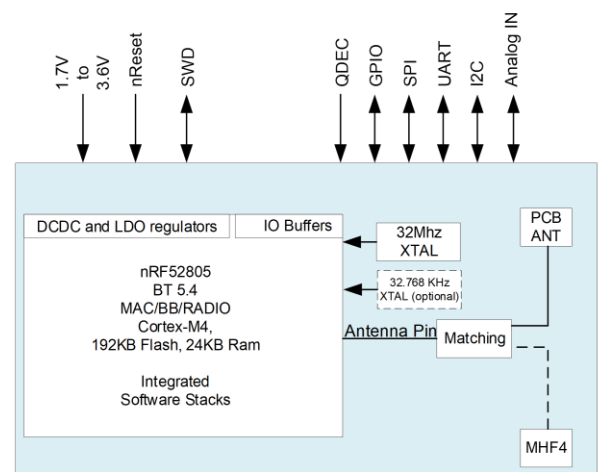


Footprint: 10 mm x 15 mm x 1.6 mm

Applications

- ❖ Beacons
- ❖ Mouse/Keyboard and Mobile HID
- ❖ Disposable medical sensors
- ❖ Sports and fitness trackers
- ❖ Wearables like VR headsets
- ❖ Stylus and presenters
- ❖ Toys and gaming peripherals
- ❖ Building and home automation
- ❖ Industrial lighting

Block Diagram



Specifications

| | |
|--|---|
| Wireless Protocols | Bluetooth 5.4 |
| Frequency | 2.402 – 2.480 GHz |
| Data rates | 2 Mbps, 1 Mbps |
| Security Features | AES 128 HW encryption with Easy DMA |
| Antenna options | PCB Trace Antenna or MHF4 connector |
| Operating modes | BLE |
| Range | 450meters |
| Programmable TX output power | -20 to 4 dBm in 4 dBm steps |
| Receive Sensitivity | Bluetooth: -97 dBm at 1 Mbps -93 dBm at 2 Mbps |
| Current consumption | Deep-power down mode: 300nA TX (0 dBm): 4.6mA RX (1M PHY): 4.6mA |
| GPIO | 9 |
| Power supply and operating voltage range | Integrated DC-DC, 1.7v to 3.6v |
| Temperature | -40oC to 105oC |
| Humidity | 5-90% non-condensing |
| Package | 10 mm x 15 mm x 1.6 mm (including shield), 0.5mm pitch |

Interfaces and peripherals

- ❖ UART (CTS/RTS) with Easy DMA
- ❖ SPI master/slave with Easy DMA
- ❖ I2C master/slave
- ❖ 2 channel x 12bit ADC
- ❖ 3 x 32b timer with counter mode
- ❖ 2 x RTC
- ❖ QDEC
- ❖ Temperature sensor
- ❖ Random Number Generator
- ❖ Integrated DC-DC

Certifications and approvals

- ❖ Module certifications: FCC, IC, CE, TELEC
- ❖ Bluetooth qualification: v5.4

Part Ordering

| | |
|---------------|---|
| | I505M0L0-I2LT (PCB Antenna, Tray packing) |
| TISA | I505M0L0-I2LR (PCB Antenna, Tape/Reel packing) |
| module | I506M0L0-I3LT (MHF4 connector, Tray packing) |
| | I506M0L0-I3LR (MHF4 connector, Tape/Reel packing) |

Development Kit

Features:

- ❖ On board debugger LPC Link / Segger Jlink
- ❖ Arduino Uno Rev 3 shield compatible connector
- ❖ Access to I/O and interfaces via edge connectors and user programmable Buttons and LEDs

Additional Information

For the latest collaterals, please visit <http://www.ivativ.com>