

## New Product Introduction

### PAN1782 Series Bluetooth® Low Energy RF Module

Panasonic's New Bluetooth® 5.1 LE RF Module Featuring Angle of Arrival and Angle of Departure Direction Finding



Panasonic introduces the new PAN1782 Series Bluetooth® 5.1 Low Energy Module based on the Nordic nRF52833 single-chip controller, allowing for much larger amounts of data broadcasted in connectionless scenarios. Bluetooth® 5.1 features a higher symbol rate of 2 Mbps using the high-speed LE 2M PHY or a significantly longer range using the LE Coded PHY at 500 kb/s or 125 kb/s. The new channel selection algorithm, CSA#2, improves performance in high-interference environments.

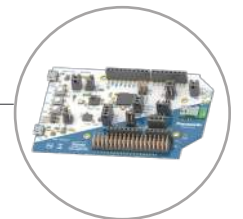
The output power of up to 8 dBm and the high sensitivity of the nRF52833, combined with the LE Coded PHY, make the module very attractive in applications with long-range requirements. The PAN1782 Series includes up to 16 shared general purpose I/O's (GPIO), with up to 4x SPI, 2x I<sup>2</sup>C, 2x UART, 8CH ADC, COMP, QDEC, NFC-A, 4x PWM, nRESET but limited by the number of available GPIO ports.

In addition, the ultra-low current consumption of the PAN1782 Series makes the module an ideal choice for battery-powered devices. With the ARM® Cortex®-M4 processor, 128 kB RAM, and the built-in 512 kB flash memory, the PAN1782 Series can easily be used in standalone mode, eliminating the need for an external processor, saving complexity, space, and cost.

Using Bluetooth, the PAN1782 Series supports angle of arrival (AOA) and angle of departure (AOD) direction finding, suitable for asset tracking and inventory management. It also features a 128-bit AES/ECB/CCM/AAR co-processor for on-the-fly packet encryption. This new module supports Type 2 Near Field Communication or NFC-A for simplified pairing and payment solutions with an external antenna.

### PAN1782 Series Evaluation Board

Part Numbers: ENW89858AXKF - 1x PAN1782 Series Evaluation Board (Arduino Form Factor)



### Evaluation Board Features

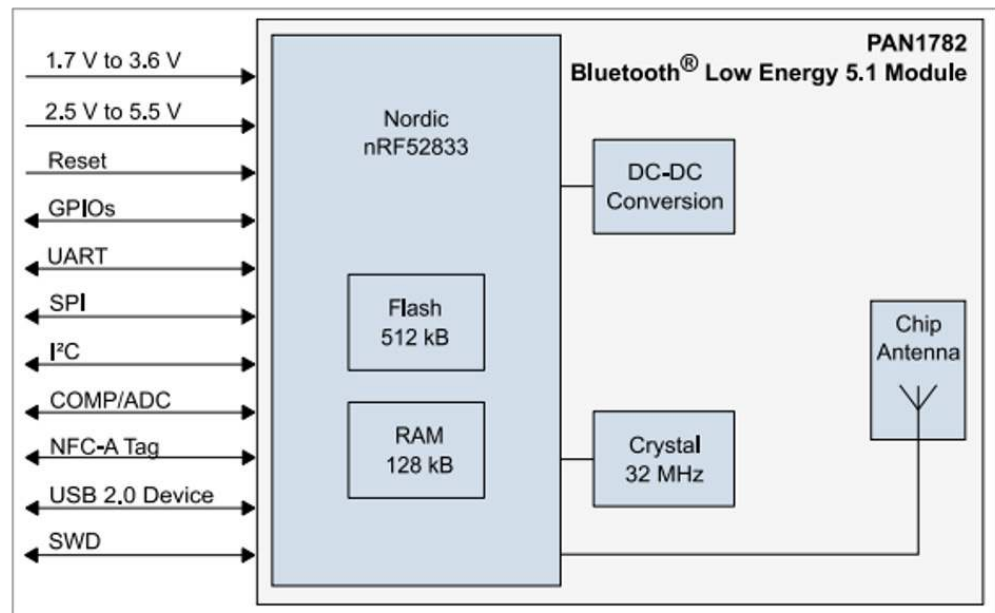
- PAN1782 module with improved APPROTECT
- Segger J-Link On-board Debugger
- FTDI UART-USB Converter
- 2 User Buttons
- 2 User LEDs
- Native USB interface
- NFC Interface
- Access to all GPIOs
- Arduino Form Factor

Part Numbers	Description	Series Name
ENW-89857A1KF	PAN1781 Series RF Module	PAN1781
ENW89857AXKF	PAN1781 Series Evaluation Kit (1x PAN1781 Series Evaluation Kit)	1x PAN1781 Series Evaluation Kit

## General Features and Benefits

- Pin Compatible Hardware Drop-In Replacement for PAN1026A, PAN1762, and PAN1781
- Nordic nRF52833 featuring ARM® Cortex® -M4 processor running with 64 MHz
- Bluetooth® 5.1 LE, Including LE 2M and LE Coded PHY
- Embedded 512 kB Flash Memory and 128 kB Internal RAM
- 128-bit AES/ECB/CCM/AAR Co-processor
- Up to 16 General Purpose I/O's (GPIO)
- USB 2.0 Full-Speed Device Interface
- Built-in Temperature Sensor
- FCC, Industry Canada, and EU RED Certified

## Block Diagram



## Applications

- Industrial IoT/Smart Mesh Network
- Smart Home/Building
- Asset Tracking
- Medical Devices/Patient Monitoring

## Technical Characteristics

- Surface Mount Type Dimensions: 15.6 mm × 8.7 mm × 2 mm
- Typical max. Output power: 8 dBm, Configurable from -20 dBm in 4 dB steps and -40 dBm in Whisper Mode
- Sensitivity: -96 dBm at 1 Mb/s and -103 dBm at 125 kb/s
- Typical Current Consumption: 4.9 mA in Tx (at 0 dBm) and 4.7 mA in Rx Mode
- Typical Current Consumption: 0.6 µA in System OFF Mode, 1.5 µA with RTC Wake Up
- On-module DC-DC and LDO Regulators with Automated Low Current Modes
- Voltage Range: 1.7 V to 5.5 V
- Temperature Range: -40°C to 85°C