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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

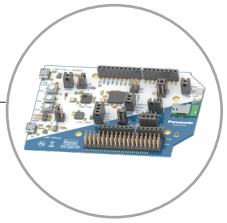
Panasonic introduces the new **PAN1782 Series Bluetooth® 5.1 Low Energy Module** based on the Nordic nRF52833 single-chip controller, allowing for much larger amounts of data broadcasted in connectionless scenarios. Bluetooth® 5.1 features a higher symbol rate of 2 Mbps using the high-speed LE 2M PHY 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 4× SPI, 2× I^2C, 2× UART, 8CH ADC, COMP, QDEC, NFC-A, 4× 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

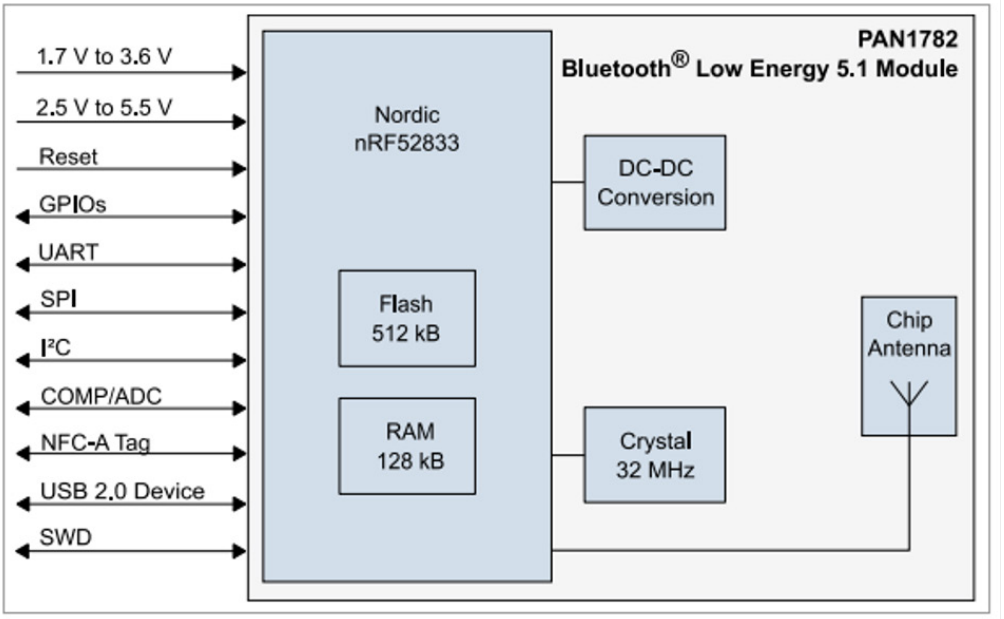
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Part Numbers	Description	Series Name
ENW-89857A1KF	PAN1781 Series RF Module	PAN1781
ENW89857AXKF	PAN1781 Series Evaluation Kit (1x PAN1781 Series Evaluation Kit)	1x PAN1781 Series Evaluation Kit

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

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