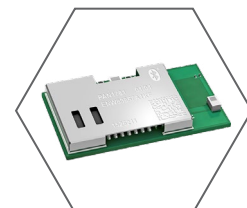


## New Product Introduction

### PAN1781 Series *Bluetooth*® 5 Low Energy Module

#### Panasonic's Newest Bluetooth 5 Low Energy RF Module Based On The Nordic nRF52820 Single-Chip Controller For IoT Applications Where A Long Range Is Required



Introducing Panasonic's **NEW PAN1781 Series RF Module** ... yet another high technology Panasonic RF Module device featuring the Nordic nRF52820 Single-Chip Controller. This newest addition to the Panasonic Wireless Connectivity RF Module product line is ideal for IoT Wireless Connectivity applications!

The Bluetooth 5 features as the LE coded PHY for an elongated range or the high speed 2M PHY are supplemented by the support of angle of arrival (AoA) and angle of departure (AoD) direction finding using Bluetooth.

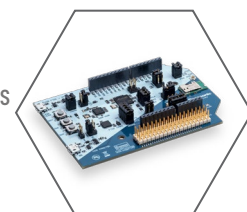
An output power of up to 8 dBm and the high sensitivity of the nRF52820 in combination with the LE coded PHY make the **NEW PAN1781 Series RF Module** very attractive in applications where a long range is required. The **PAN1781 Series RF Module** also supports Bluetooth Mesh, Thread and Zigbee Mesh protocols.

In addition, the ultra-low current consumption of the **NEW PAN1781 Series** makes the Module an ideal choice for Battery powered devices. With the Cortex® M4 processor, 32kB RAM, and the built-in 256 kB flash memory, the **NEW PAN1781 Series RF Module** can easily be used in standalone mode, thereby eliminating the need for an external processor, saving complexity, space and cost.

A 128-bit AES/ECB/CCM/AAR co-processor may be used for on-the-fly packet encryption. So, the **NEW PAN1781 Series RF Module** provides advanced Bluetooth security in a small package which is ideal in Wireless Connectivity applications where a long range is required such as smart home, industrial and many more.

### 1x PAN1781 Series Evaluation Kit

The **NEW 1x PAN1781 Series Evaluation Kit** is packed in a small case. The board has an Arduino Footprint and allows hardware access to the module pins as well as easy stacking of separate sensor test shields. The **NEW 1x PAN1781 Series Evaluation Kit** enables quick prototyping and software testing.



## Part Number Information

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

## Software

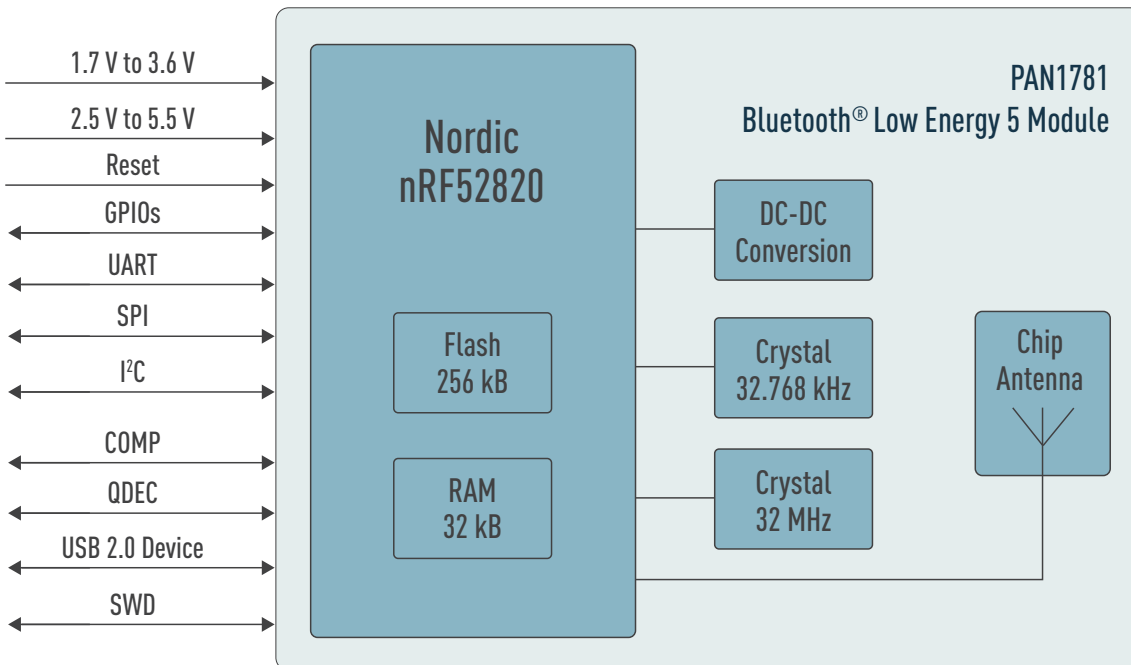
The Nordic SDK is the best way to easily implement applications on the **NEW PANASONIC PAN1781 Series RF Module**. In addition to the nRF5 SDK Nordic provides a SDK for Mesh and Thread & ZigBee.

<https://www.nordicsemi.com/Products/Low-power-short-range-wireless/nRF52820>

## General Features and Benefits

- ARM® Cortex®-M4 (64MHz) With 256 kB Flash Memory And 32 kB Internal RAM
- 128-bit AES/ECB/CCM/AAR Co-Processor For On-The-Fly Packet Encryption
- Bluetooth 5 Compliant (Long Range, 2Mbps PHY, Angle Of Arrival And Angle Of Departure Direction Finding)
- Up To 16 General Purpose I/Os, Which Are Shared By Up To 2 SPI, 2 I<sup>2</sup>C, 1 UART, COMP, QDEC, nRESET
- USB 2.0 Full Speed Device Interface
- Built-In Temperature Sensor
- Qualified Bluetooth Mesh Profile Stack
- REACH And RoHS Compliant
- Drop-In Replacement For PAN1026A Series and PAN1762 Series Panasonic RF Modules

## Block Diagram



## Bluetooth®

- LE 2 Mbps high speed PHY, LE Long Range Coded PHY
- LE Advertising Extensions (Advertising On 40 Channels Total)
- Channel Selection Algorithm #2
- LE Secure Connections
- Angle Of Arrival (AoA) And Angle Of Departure (AoD) Direction Finding

## Technical Characteristics

- Surface Mount Type (SMT) 15.6 mm x 8.7 mm x 2.1 mm
- Typical Max. Output Power: 8 dBm, Configurable From -20 dBm In 4dB Steps And -40dBm In Whisper Mode
- Sensitivity: -95 dBm @ 1 Mb/s And -103 dBm @ 125 kb/s
- Current Consumption: 4.9 mA In Tx (@ 0 dBm) And 4.7 mA In RX Mode
- Voltage Range: 1.7 V To 5.5 V
- Temperature Range: -40°C To 85°C