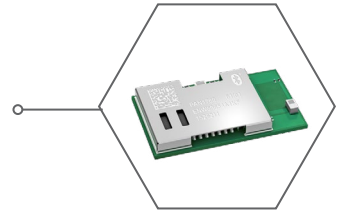


PANASONIC PRELIMINARY PRODUCT INFORMATION

PAN1780 Series *Bluetooth*[®] 5.0 Low Energy RF Module

Panasonic's New Bluetooth 5.0 Low Energy RF Module Based On The Nordic nRF52840 Single-Chip Controller



Introducing the anticipated availability of Panasonic's **NEW PAN1780 Series RF Module!** The PAN1780 Series is Panasonic's Bluetooth 5.0 Low Energy RF Module based on the Nordic nRF52840 single-chip controller.

The **NEW PAN1780 Series** Bluetooth 5.0 features enable 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 the performance in high interference environments. Furthermore, the new LE advertising extensions allow for much larger amounts of data to be broadcasted in connectionless scenarios.

An output power of up to 8 dBm and the high sensitivity of the Nordic nRF52840 in combination with the LE coded PHY make the **NEW PAN1780 Series** RF Module very attractive in applications where a long range is required. In addition, the ultra-low current consumption of the **NEW PAN1780** makes this RF Module an ideal choice for battery powered devices.

With the Cortex[™] M4F processor, 256 kB RAM and the build-in 1 MB flash memory the **NEW PAN1780 Series** can easily be used in standalone mode, thereby eliminating the need for an external processor, saving complexity, space, and cost. The rich set of security features from the ARM[®] TrustZone[®] Cryptocell 310 security subsystem provide the necessary means for secure device operation in the IoT space.

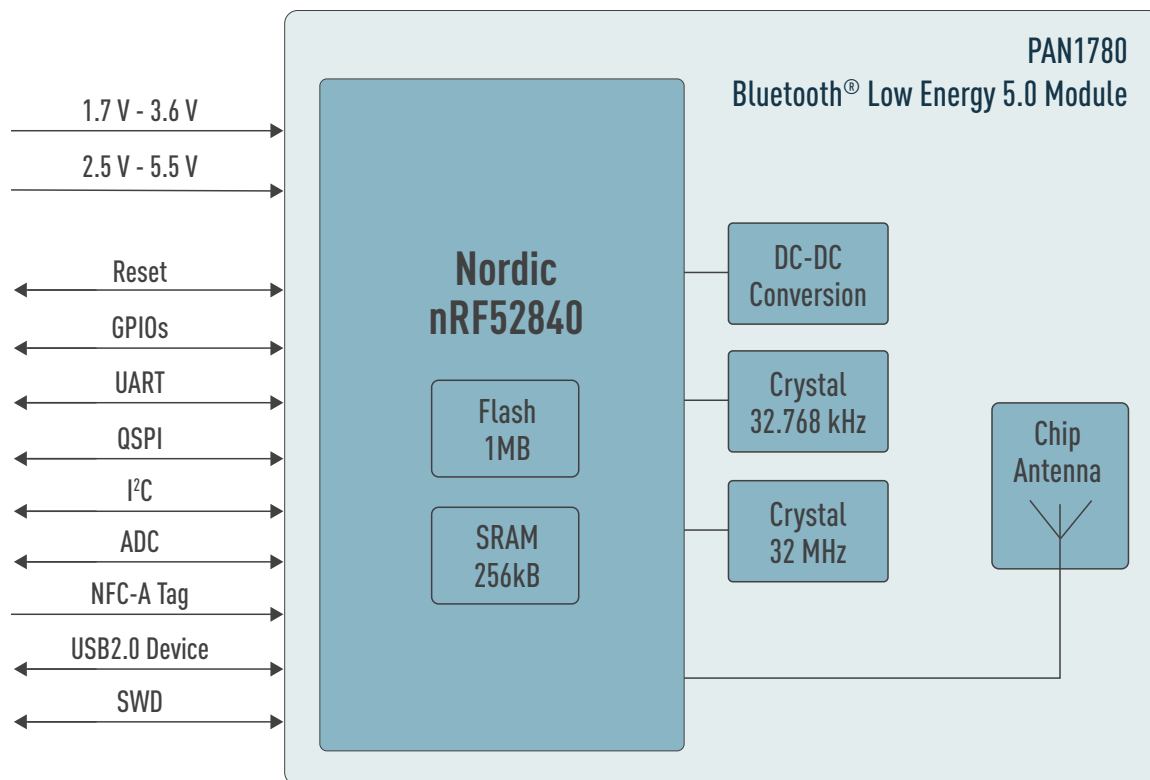
The **NEW PAN1780** also supports Type 2 Near Field Communication (NFC-A) for use in simplified pairing and payment solutions (external antenna required).

FCC, IC, and CE approval are in preparation.

General Features and Benefits

- Surface Mount Type Dimensions: 15.6 mm x 8.7 mm x 2.1 mm
- Same Form Factor as PAN1026A and PAN1762
- Nordic nRF52840 Featuring ARM[®] Cortex[®]-M4F With 64 MHz
- Bluetooth 5.0 Low Energy Including LE 2M And LE Coded PHY
- Embedded 1 MB Flash Memory And 256 kB Internal RAM
- Includes ARM[®] TrustZone[®] Cryptocell 310 And Supports Secure Boot Including Root-of-Trust
- Up To 48 General Purpose I/Os, Which Are Shared By Up To 4 SPI, 2 I²C, 2 UART, 4 PWM, 8 ADC, 1 USB 2.0, 1 NFC-A
- Built-in Temperature Sensor

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
- Over-The-Air Update Of Application Software

Technical Characteristics

- Typical Sensitivity -95 dBm @ 1 Mb/s And -103 dBm @ 125 kb/s
- Typical Maximum Output Power 8 dBm, Configurable From -20 dBm In 4dB Steps
- Typical Current Consumption Of 4.8 mA In TX (@ 0 dBm) And 4.6 mA In RX Mode
- Typical Current Consumption Of 0,4 µA In System OFF Mode, 1,5 µA With Wake-On-RTC
- 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