PAN1783
Bluetooth® Low Energy Module

[OVERVIEW]

The PAN1783 is a Bluetooth 5.3 Low Energy (LE) module based on the Nordic nRF5340 single chip controller. It is available with an on-board chip antenna and with a RF-bottom pad. The Bluetooth 5.3 features isochronous channels and LE audio. It supports high throughput of 2 Mbps, advertising extensions, and long range. The all-in-one SoC including a superset of the most prominent nRF52 Series features combined with more performance and memory, while minimizing current consumption.

An output power of up to 3 dBm and the improved sensitivity of the nRF5340 in combination with the LE coded PHY make the module very attractive for advanced computer peripherals and I/O devices, advanced wearables, and wireless audio devices.
In addition, the ultra-low current consumption of the PAN1783 makes the module an ideal choice for battery powered devices.

With two Cortex®-M33 processors, one as an application processor (with 128 MHz or 64 MHz operation, 512 kB RAM, built-in 1 MB flash memory) and the other one as a network processor (with 64 MHz operation, 64 kB RAM, 256 kB flash), the PAN1783 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™ 312 security subsystem provide the necessary means for secure device operation in the IoT space.

The PAN1783 supports angle of arrival (AoA) and angle of departure (AoD) direction finding using Bluetooth. Additionally, the PAN1783 also supports Type 2 Near Field Communication (NFC-A) for use in simplified pairing and payment solutions (external antenna required).

[FEATURES]

- Surface mount type dimensions: 15.6 mm × 8.7 mm × 2.2 mm
- Same form factor as PAN1780 with the same pitch but one more pin
- Nordic nRF5340 featuring two Cortex-M33 processors: one as an application processor, and the other one as a network processor
- Bluetooth 5.3 LE including LE 2M and LE Coded PHY
- Supports 802.15.4 ZigBee® and Thread
- Includes ARM TrustZone CryptoCell 312, SPU, KMU, ACL
- Security features: Trusted execution, root-of-trust, secure key storage, 128-bit AES
- Up to 48× General Purpose I/Os (GPIO), which are shared by up to 5× SPI, 4× I²C, 4× UART, 4× PWM, 8× ADC, NFC-A, QSPI, nRESET
- USB 2.0 full-speed device interface
- APPROTECT available

Wireless Connectivity

[BLOCK DIAGRAM]
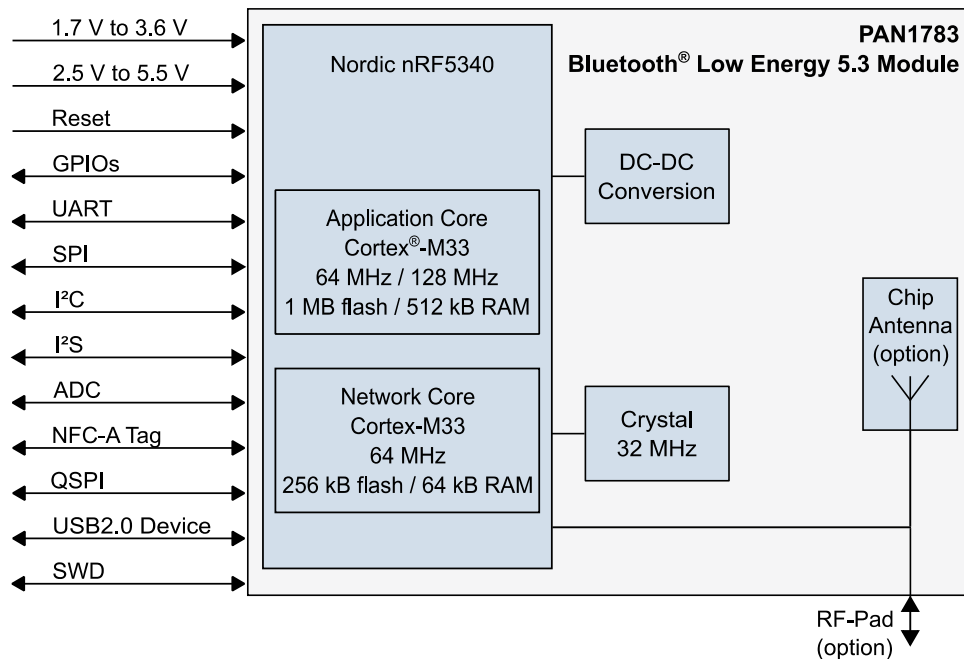
[BLUETOOTH]

- LE Audio: audio streaming over Bluetooth LE, multi-stream synchronized audio and Audio Sharing
- Long range
- High-through-put 2 Mbps and Advertising Extensions features
- Bluetooth mesh

[TECHNICAL CHARACTERISTICS]

- Typical sensitivity: -98 dBm (at 1 Mb/s) and -104 dBm (at 125 kb/s in LE-mode – long range)
- Programmable from: 3 dBm to -20 dBm in 1 dB steps
- Typical System current consumption: 0.9 µA (in System OFF), 1.3 µA (in System ON), 1.5 µA (in System ON with network core RTC running)
- Typical Radio current consumption: 5.1 mA (at 3 dBm Tx power), 3.4 mA (at 0 dBm Tx power), 2.7 mA (in Rx at 1 Mbps), 3.1 mA (in Rx at 2 Mbps)
- 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