

# PAN1760A

## Bluetooth Low Energy Module

**Panasonic**



### [OVERVIEW]

The PAN1760A is Panasonic's next generation Bluetooth module with the industry's lowest power Bluetooth Low Energy SoC.

The module is based on Toshiba's single chip TC35678 Bluetooth semiconductor device with embedded Toshiba Bluetooth 4.2 LE stack and embedded flash for the user application in stand-alone operation. Peak power consumption of only 3.3 mA in Tx and Rx mode allows advanced wireless functionalities in IoT, medical, and industrial applications without compromising battery life. Mandatory and optional Bluetooth 4.2 features are supported.

The PAN1760A can either be operated in AT-Command or Host mode for very simple integration of Bluetooth connectivity into existing products, or in Stand-Alone mode.

In Stand-Alone mode, with 256 kB flash memory and 83 kB RAM for user application, the PAN1760A can be used for many applications without the need for an external processor, saving cost, complexity, and space.

Older versions of the PAN1760, the PAN1761, and the PAN1026 share the same footprint.

Only minor code changes are required when migrating from PAN1026 or PAN1760. Previously developed software (Bluetooth Low Energy profiles and applications) can be easily migrated with a minimal effort.

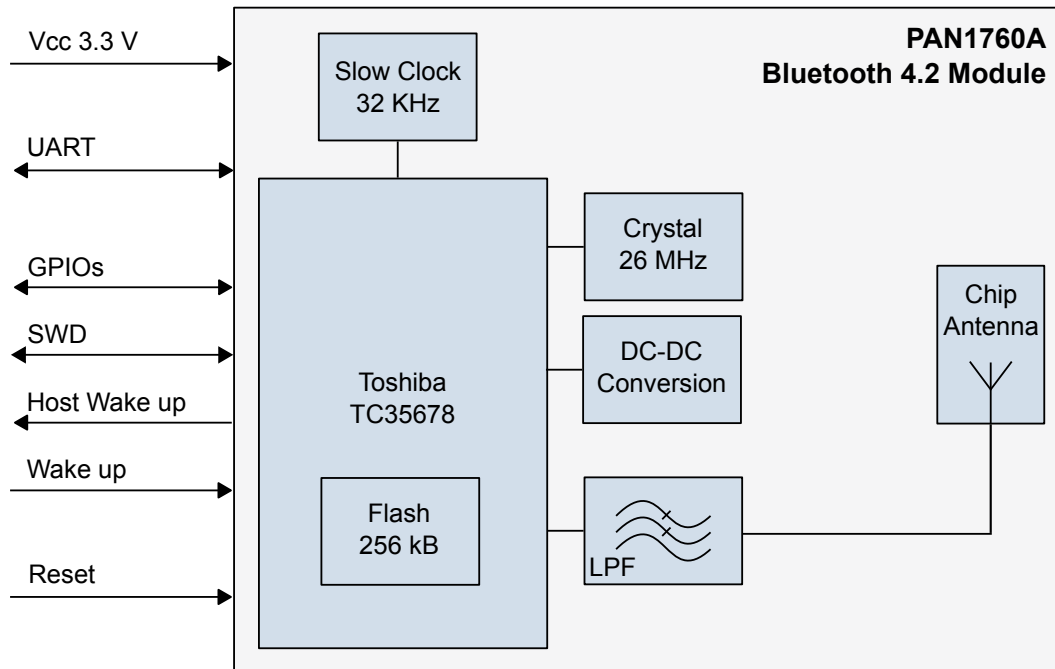
FCC, IC, and CE approval are in preparation.

### [FEATURES]

- Small 15.6 mm x 8.7 mm x 1.9 mm SMD module
- Same form factor and pinout as PAN1026, PAN1760, and PAN1761
- Bluetooth Low Energy 4.2 compliant
- Embedded 256 kB flash memory and 192 kB internal RAM
- 83 kB RAM available for user application
- AT Command mode, Host mode, Stand-Alone mode
- Standard SIG BLE profiles as well as SPPoverBLE profile
- UART (2x), SPI & I2C interface, PWM output (4x), ADC (5 ext, 1 int), 17 programmable I/O
- ARM Cortex-M0 processor with Single Wire Debug (SWD) interface

WIRELESS MODULES  
Panasonic Industrial Devices Europe GmbH

## [BLOCK DIAGRAM]



## [BLUETOOTH]

- GAP central and peripheral support for LE
- GATT, SMP, and SDB support for LE
- Over-the-Air firmware update
- Support for Scatternet
- BT 4.2 secure connections support through Elliptic-Curve-DH Cryptography
- AES-128 hardware encryption (FIPS-approved)
- Frequent changing of device address (improved privacy, reduced tracking ability)
- Larger packet sizes (more efficient application and network layer security)

## [CHARACTERISTICS]

- Receiver sensitivity -93 dBm typ.
- Output power 0 dBm maximum setting
- Power supply 1.8 V to 3.6 V single operation voltage
- Transmit and receive 3.3 mA Tx/Rx peak power consumption
- Low Power 50 nA Deep Sleep mode
- Operating temperature range -40 °C to +85 °C