BlueFan BT680F, Bluetooth 5 Module

Automobile Temperature Available, Bluetooth Range to 3000 Meters

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Features

BlueFan BT680 Series modules use Toshiba TC35680 Series SoCs. With an integrated PCB trace antenna or an u.FL connector for external antenna, FCC, and other certifications, it allows faster time to market with reduced development cost.

Ultra Long Bluetooth Range

With a high performance PCB trace antenna, +8 dBm TX power and CODED-PHY to improve receiver sensitivity, Bluetooth range for 125 Kbps data rate between 2 modules is measured at 3000 meters. Bluetooth range for 1Mbps data rate is 750 meters.

Module Variants

- BT680F: Integrated PCB trace antenna, stores your codes in on-board flash memory for standalone operation, or uses HCI commands with an external MCU.
- BT680E: Same features as BT680F except with an u.FL for external antenna.
- BT680T: Uses HCI commands with an external MCU, needs an external serial EEPROM for standalone mode.
- BT680TA: automobile temperature range (-40°C to +125°C), uses HCI commands with an external MCU, needs an external serial EEPROM for standalone mode

Specifications

- Toshiba TC35680/1 SoCs, 32 MHz,Cortex M0.
- Bluetooth RF analog core, baseband digital core
- Transmitter power up to +8 dBm;
- Receiver sensitivity: -95 dBm at 1Mbps
- Receiver sensitivity: -105 dBm at 125 Kbps
- 2Mbps, 1Mbps, and 125Kbps data Rates

- Bluetooth Low Energy (BLE) V5 GATT profile with OTA (Over The Air) support.
- BLE 5 mesh stacks
- Secure connection
- Up to18 GPIOs to be configured by firmware:
  - SPI interface
  - I^{2}C interface
  - UART interface, 9600bps to 921.6 Kbps
  - Support for wake up interfaces
  - Up to 5 ADC channels (1 for internal monitoring of VDD).
  - Up to 4 PWM channels
- On board 32 MHz main clock
- External 32.768 kHz sleep clock
- Operation voltage: 1.9V-3.6V
- Peak current consumption, 11.5 mA, +8 dBm TX, 2 Mbps.
- deep sleep mode <0.1uA
- Size: 15x20.8x1.9mm
- Hybrid pins: 16 Castellated and 24 LGA pins.
- Integrated shield to resist EMI

Certifications

- FCC ID: X8WBT680
- Industrial Canada ID: 4100A-B
- QDID:

Applications

- Wearable
- Access Points
- Industrial Control
- Medical
- Scanners
- iOS and Android devices
- Wireless sensors
- Cable replacement
- Instrumentation

Part Number	BT680F	BT680T	BT680TA	BT680E
SoC	TC35680FSG-002	TC35681FSG-002	TC35681FSG-002	TC35680FSG-002
Memory ROM/RAM/flash	240KB/144KB/128KB	240KB/144KB/0KB	240KB/144KB/0KB	240KB/144KB/128KB
HCI Commands	Yes	Yes	Yes	Yes
Standalone mode	Yes	Need ext. EEPROM	Need ext. EEPROM	Yes
Antenna	PCB Trace	PCB Trace	PCB Trace	u.FL for external antenna
Bluetooth range at 1Mbps	750 meters	750 meters	750 meters	
Bluetooth range at 125 Kbps	3000 meters	3000 meters	3000 meters	
Operation temperature	-40°C to +85°C	-40°C to +85°C	-40°C to +125°C	-40°C to +85°C
Evaluation board	EV-BT680F	EV-BT680T	EV-BT680TA	EV-BT680E
Price at 1K pcs	$3.86	$3.00	$5.83	$4.25