1. INTRODUCTION

Overview

FSC-BT646 is Bluetooth Low Energy 4.2(BLE4.2) Module. It can be used as an application processor as well as a data pump in fully hosted systems. MCU is 32-bit microcontroller. It supports a wide range of applications from low-end, price sensitive designs to computing-intensive ones and provides advanced high-end features in economical products.

Very low active RF, MCU current and low-power mode current consumption provide excellent battery lifetime and allow for operation on small coin cell batteries and in energy-harvesting applications.

The BLE4.2 firmware includes the L2CAP service layer protocols, Security Manager (SM), At-tribute Protocol (ATT), the Generic Attribute Profile (GATT) and the Generic Access Profile (GAP).

Features

- 2.4-GHz RF Transceiver Compatible With Bluetooth low energy (BLE) 4.2
- Programmable TX power up to 13dBm(Class 1)
- RX sensitivity up to -90dBm
- Postage stamp sized form factor
- Programmable baud-rate generator(baudrate can up to 921600bps)
- UART, I2C,SPI,12-bit ADC,PWM connection interfaces
- Bluetooth stack profiles support: HID
- Operating Voltage:2.0V to 3.6V
- Operating Temperature: -40°C to +85°C

Application

- Health Thermometer
- Heart Rate
- Blood Pressure
- Proximity
- Human Interface Device (HID)
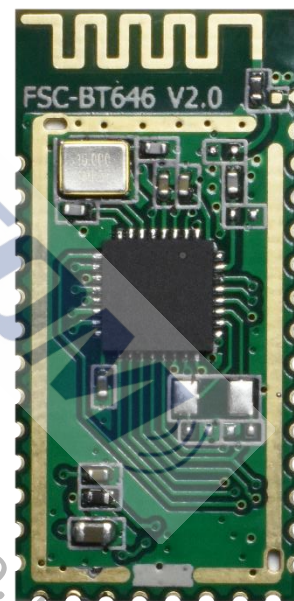
Module picture as below showing

Figure 1: FSC-BT646 Picture

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2. General Specification

Table 1: General Specifications

Categories	Features	Implementation
Wireless Specification	Bluetooth Version	Bluetooth low energy 4.2
	Frequency	2.402 - 2.480 GHz
	Transmit Power	+13 dBm (Maximum)
	Receive Sensitivity	-90 dBm (Typical)
	Modulation	GFSK
Host Interface and Peripherals	UART Interface	TX, RX, CTS, RTS
		General Purpose I/O
		Default 115200,N,8,1
		Baudrate support from 1200 to 921600
		5, 6, 7, 8 data bit character
	GPIO	22(maximum – configurable) lines
		Pull-up resistor (33 KΩ) control
		Read pin-level
	I2C Interface	2(configurable from GPIO total). Up to 400 kbps
	ADC Interface	Analog input voltage range: 0.4V ~ 1.4V(or 2.4V) based on configure
		Supports single 12-bit SAR ADC conversion
		8 channels (configured from GPIO total)
		Up to 200MSPS conversion
	PWM	8 PWM outputs
		Supports edge-alignment or center-alignment
		Supports fault detection
Profiles	Class Bluetooth	No Support
	Bluetooth Low Energy	GATT Client & Peripheral - Any Custom Services
Maximum Connections	Classic Bluetooth	No Support
FW upgrade		J-Link
Supply Voltage	Supply	2.0V ~ 3.6V
Power Consumption		Deep Sleep - 2uA(Wake up by wakeup PAD or RESET)
Physical	Dimensions	13mm X 26.9mm X 2.0mm; Pad Pitch 1.5mm
Environmental	Operating	-40°C to +85°C
	Storage	-40°C to +125°C
Miscellaneous	Lead Free	Lead-free and RoHS compliant
	Warranty	One Year
Humidity		10% ~ 90% non-condensing
MSL grade:		MSL 3
ESD grade:	Human Body Model	All pins: ±4000V
	Charged device model	RF pins/ Non-RF pins: ±750V