



ST17H66T

Bluetooth Low Energy (BLE) System on Chip

Key Feature

- 32-bit Low-power Processor
- Memory
 - 96K ROM
 - 32KB SRAM, all programmable retention in sleep mode
 - 16KB OTP (embedded change pump)
- 9 General Purpose I/O Pins
 - All configurable as serial interface and programmable IO MUX function mapping
 - All pins can be configured for wake-up
 - All pins for triggering interrupt
 - 3 Quadrature Decoder (QDEC)
 - 6-channel PWM
 - I2C
 - 2-channel SPI (a master and a slave)
 - 2-channel UART
 - SWD
- 10-channel 12-bit ADC
- 4-channel 32-bit Timer, 1 Watchdog Timer
- Real Timer Counter (RTC)
- Power, Clock and Reset Controller
- Flexible Power Management
 - Operating Voltage range 1.8V to 4.3V
 - Embedded LDOs
 - Battery monitor: support low battery
 - Support lithium battery charging
- Power Consumption
 - 2.8uA@OFF Mode (IO wake up only)
 - 4uA@Sleep Mode with 32KHz RTC
- Receive Mode: 10mA@3.3V Power Supply
- Transmit Mode: 10mA (0dBm output power)
- RC Oscillator Hardware Calibrations
 - 32KHz RC osc for RTC with +/-200ppm accuracy
 - 32MHz RC osc for HCLK with 3% accuracy
- High Speed Throughput
 - Support BLE 2Mbps Protocol
 - Support Data Length Extension
 - Throughput up to 1.6Mbps (DLE+2Mbps)
- 2.4 GHz Transceiver
 - Support BLE 5.0 RF PHY 1Mbps/2Mbps
 - Proprietary 500K Protocol Stack
 - FSK with configurable Gaussian filter (configurable modulation index)
- Sensitivity:
 - 94dBm@BLE 1Mbps data rate
 - 91dBm@BLE 2Mbps data rate
- Tx power -20 to +6dBm in 3dB steps
- Single-pin antenna: no RF matching or Rx/Tx switching required
- RSSI (1dB resolution)
- AES-128 Encryption Hardware
- Operating Temperature: -40°C ~+125 °C
- RoHS Package: TSSOP16

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1 Introduction

ST17H66T is a System on Chip (SoC) for Bluetooth® low energy applications. It has high-performance low-power 32-bit processor with 32K retention SRAM, 96KB ROM, 16KB OTP, and an ultra-low power, high performance, multi-mode radio. Also, ST17H66T can support BLE with security, Serial peripheral IO and integrated application IP enables customer product to be built with minimum bill-of-material (BOM) cost.

2 Pin Assignments and Functions

This section describes the pin assignment and the pin functions for the package types of TSSOP16.

2.1 Pin Assignment(TSSOP16)

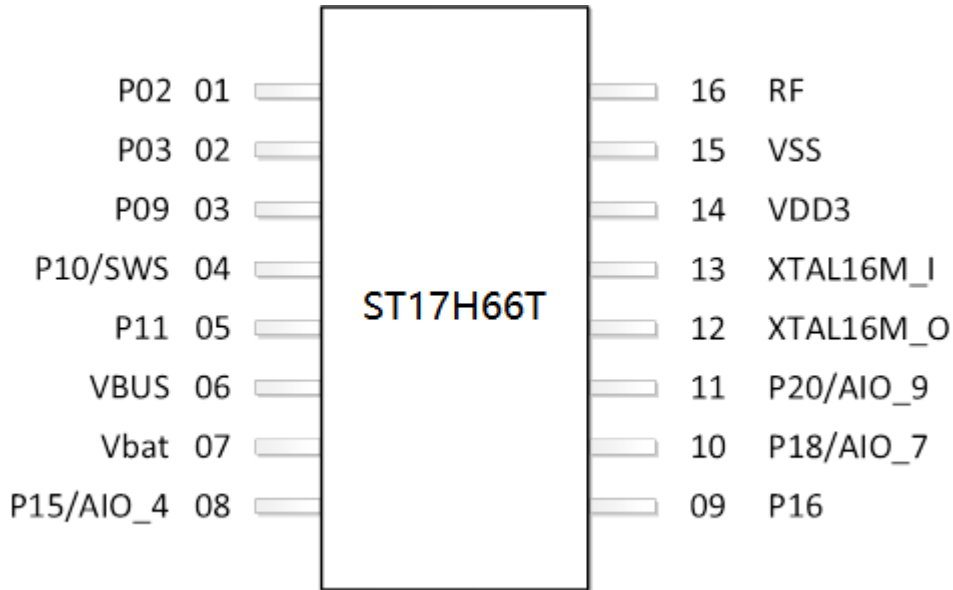


Figure 1: Pin Assignment – ST17H66T TSSOP16 package

2.2 Pin Functions

Pin	Pin name	Description
1	P02	GPIO 02
2	P03	GPIO 03
3	P09	GPIO 09
4	P10/SWS	GPIO 10/SWS
5	P11	GPIO 11
6	VBUS	VBUS
7	Vbat	Vbat
8	P15/AIO_4	GPIO 15/ADC input 4
9	P16/XTAL32K_I	GPIO 16/ADC input 5/32.768KHz crystal input
10	P18/AIO_7/XTAL32K_O	GPIO 18/ADC input 7/32.768KHz crystal output
11	P20/AIO_9	GPIO 20/ADC input 9
12	XTAL16M_O	16MHz crystal output
13	XTAL16M_I	16MHz crystal input
14	VDD3	3.3V power supply
15	VSS	GND
16	RF	RF antenna

Table 1: Pin Functions of ST17H66T TSSOP16 package

3 Package dimensions

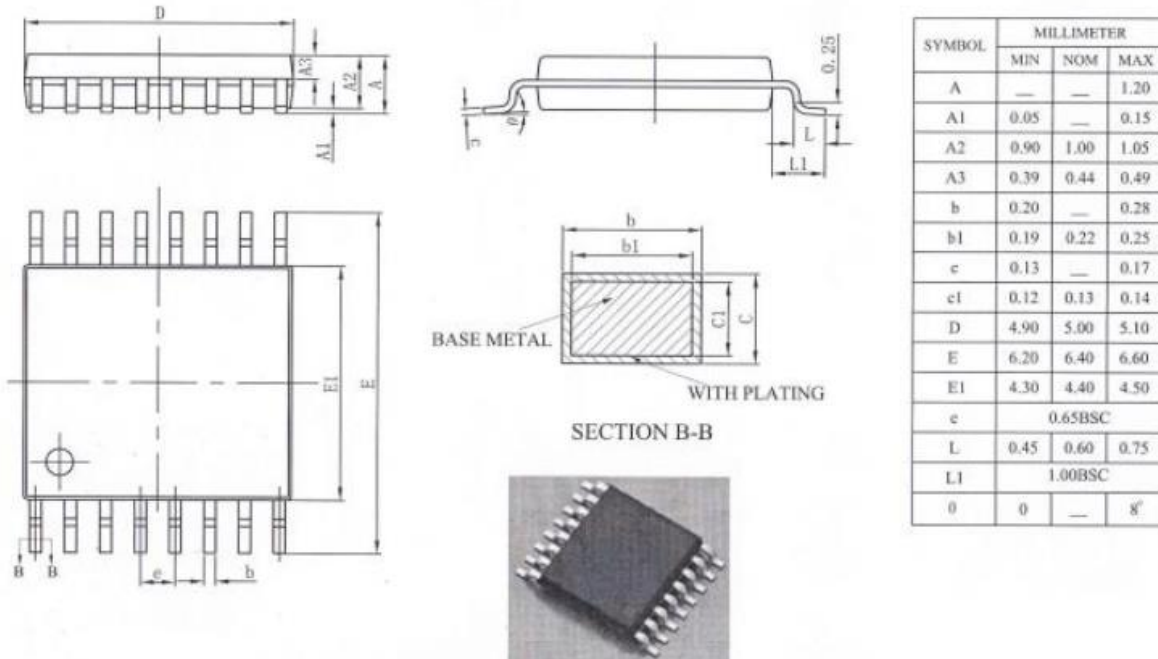


Figure 2: TSSOP16 package dimensions