



ST17H68T

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)
- 3 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)
- 3-channel PWM
- I2C
- 2-channel SPI (a master and a slave)
- 2-channel UART
- 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: SOP8

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1 Introduction

ST17H68T 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, ST17H68T 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 SOP8.

2.1 Pin Assignment(SOP8)

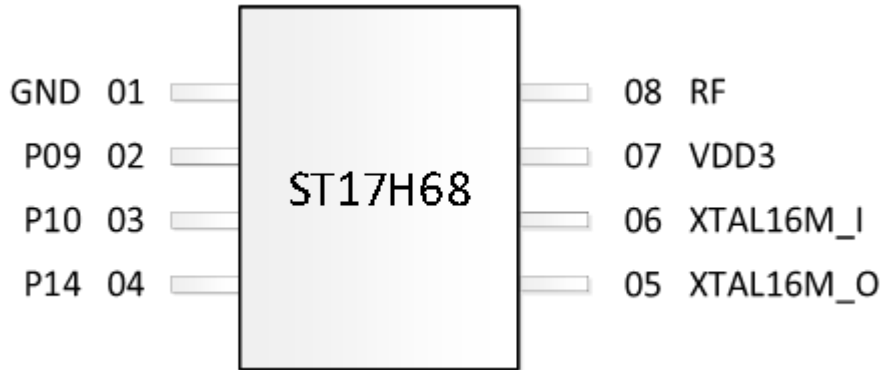


Figure 1: Pin Assignment – ST17H68T SOP8 package

2.2 Pin Functions

Pin	Pin name	Description
1	GND	GND
2	P09	GPIO 09
3	P10/SWS	GPIO 10/SWS
4	P14/AIO_3	GPIO 14/ADC input 3
5	XTAL16M_O	16MHz crystal output
6	XTAL16M_I	16MHz crystal input
7	VDD3	3.3V power supply
8	RF	RF antenna

Table 1: Pin Functions of ST17H68T SOP8 package

3 Package dimensions

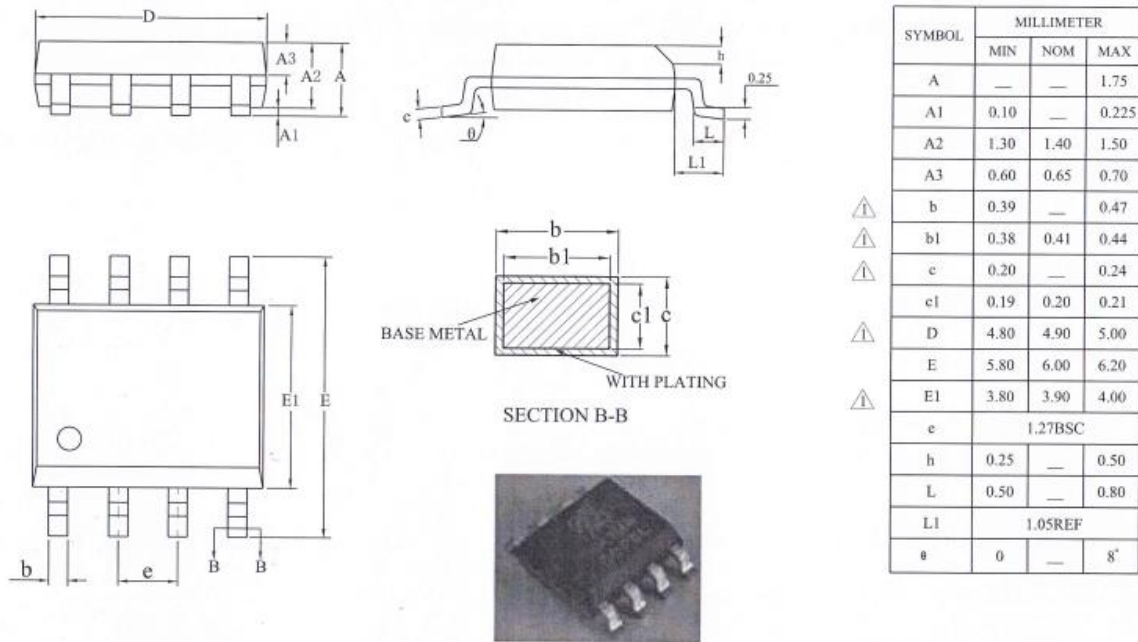


Figure 2: SOP8 package dimensions