FEATURE

- **System**

  - Chipset: STM32WLE5(single core)
  - High performance ARM® Cortex®-M4 32-bit RISC core operating up to 48 MHz frequency
  - Embedded memories (256 Kbytes of Flash memory and 64 Kbytes of RAM)
  - Hardware encryption AES 256-bit
  - True random number generator (RNG)
  - CRC calculation unit
  - Unique device identifier (64-bit UID compliant with IEEE 802-2001 standard)
  - 96-bit unique die identifier
  - Hardware public key accelerator (PKA)
  - 1.8 V to 3.6 V power supply

- **Clock Source**

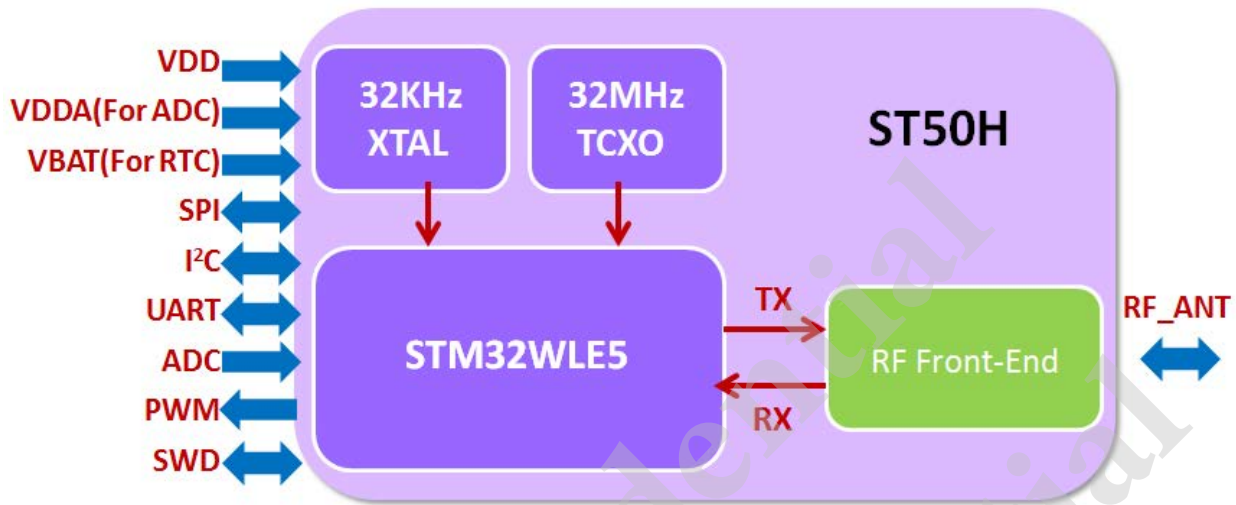 - 32 MHz TCXO & 32 KHz XTAL

- **System Peripherals**

  - 2 DMA, 2 USART, 1 LPUART, 2 SPI, 3 I2C
  - RTC wakeup counter, SysTick, Watchdog
  - Channel Timer

- **Radio**

  - LoRa Modem: FSK, GFSK, MSK, GMSK, BPSK, LoRa modulation
  - +22 dBm Max. RF output vs. V supply@BW125kHz、SF12
  - Programmable bit rate up to 300 kbps
  - High sensitivity: down to -136 dBm for LoRa @125kHz, SF12
    and -122dBm for 2-FSK @1.2kbps
  - Excellent blocking immunity
  - Automatic RF Sense and CAD with ultra-fast AFC
  - Epoxy molding finished module in LGA type
  - Small footprint：12 mm x 12 mm x 1.3 mm(Typ.)

A wireless communication SiP Solution Provider

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ST50H Ver.02
Product Brief

Block Diagram

Technical Specification	
Model Name	ST50H
Product Description	LoRa Wireless Communication Module
Package	LGA type
Host Interface	UART
Dimension	12 mm x 12 mm x 1.3 mm(Typ.)
Recommended Operation Conditions	
Operating Voltage	■ 3.3V
Temperature	■ Storage：-50℃ ～ +125℃ ■ Operating：-40℃ ～ +85℃ ■ Low Power Dissipation : -40℃ ～ +95℃ (*Note)
Humidity	■ Operating：10 ~ 95% (Non-Condensing) ■ Storage：5 ~ 95% (Non-Condensing)
Electrical Specifications	
Frequency	779-928 MHz
Band Width	7.8 - 500 KHz
Bit rate	LoRa BR : 0.013 – 17.4 kb/s (G)FSK BR : 0.6 - 300 kb/s
SF	SF5 - SF12
Tx Power	+22dBm Max.
Sensitivity	< -136dBm @125kHz, SF12

*Note: Low Power Dissipation : means low TX duty cycle and low GPIO driving and sinking current.
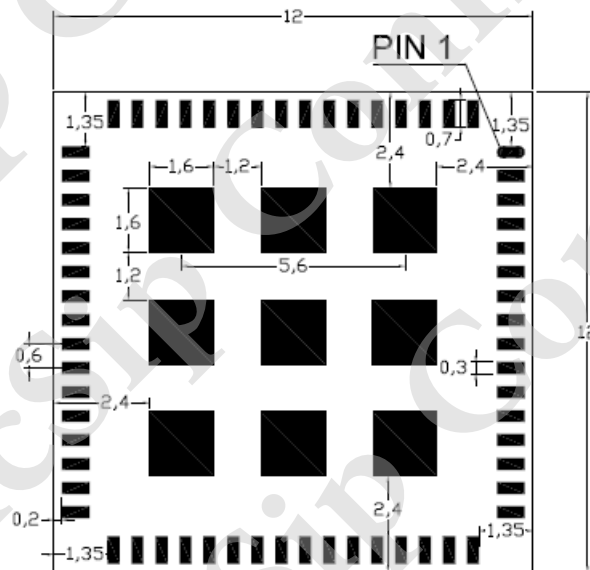
PIN Definition

Pin No.	Pin Name	Pin No.	Pin Name
1	PA13_SWDIO	34	PA7
2	PA14_SWCLK	35	GND
3	VDD	36	GND
4	VBAT	37	RF_ANT
5	PC13	38	GND
6	VREF+	39	GND
7	VDDA	40	NC
8	PA15	41	NC
9	PB15	42	NC
10	VFBSMPS	43	Boot 0
11	VDDSMPS	44	NRST
12	GND	45	NC
13	VLXSMPS	46	GND
14	PB3	47	GND
15	PB4	48	PB11
16	PB5	49	PB10
17	PB6	50	PA9
18	PB7	51	PA8
19	PB8	52	GND
20	PB9	53	VDDPA
21	PC0	54	VDDRF
22	PC1	55	VDD
23	PC2	56	GND
24	PC3	57	PB1
25	PC4	58	PB2
26	PC5	59	PB12
27	PC6	60	PB13
28	GND	61	PB14
29	PA2	62	PA10
30	PA3	63	PA11
31	PA4	64	PA12
32	PA5	65-73	GND
33	PA6		

Mechanical Dimension

Unit: mm(Typ.)

Top View

Bottom View

Side View