ZB2530SA-A Module Datasheet V1.0

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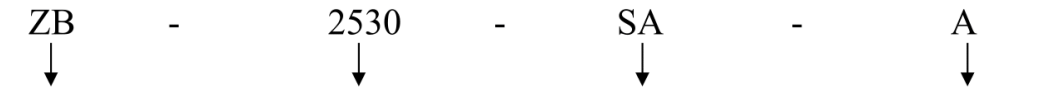
Module Name Information



Description

ZB2530SA-A Module is designed based on CC2530 System-on-Chip. The CC2530 is a true system-on-chip (SoC) solution for IEEE 802.15.4, ZigBee and RF4CE applications. It enables robust network nodes to be built with very low total bill-of-material costs. The CC2530 combines the excellent performance of a leading RF transceiver with an industry-standard enhanced 8051 MCU, in-system programmable flash memory, 8-KB RAM, and many other powerful features. The CC2530 comes in four different flash versions: CC2530F32/64/128/256, with 32/64/128/256 KB of flash memory, respectively. The CC2530 has various operating modes, making it highly suited for systems where ultralow power consumption is required. Short transition times between operating modes further ensure low energy consumption. Combined with the industry-leading and golden-unit-status ZigBee protocol stack (Z-Stack™) from Texas Instruments, the CC2530F256 provides a robust and complete ZigBee solution. Combined with the golden-unit-status RemoTI stack from Texas Instruments, the CC2530F64 and higher provide
a robust and complete ZigBee RF4CE remote-control solution.

Applications

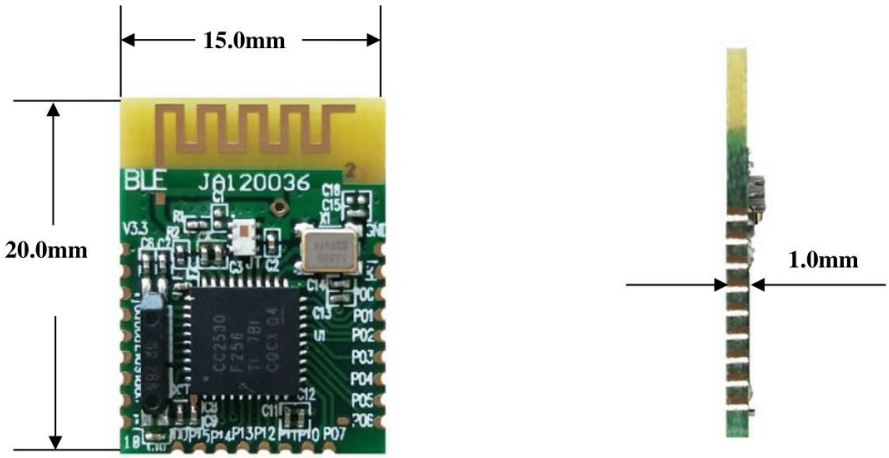
- 2.4-GHz IEEE 802.15.4 Systems
- RF4CE Remote Control Systems (64-KB Flash and Higher)
- ZigBee Systems (256-KB Flash)
- Home/Building Automation
- Lighting Systems
- Industrial Control and Monitoring
- Low-Power Wireless Sensor Networks
- Consumer Electronics
- Health Care

Features

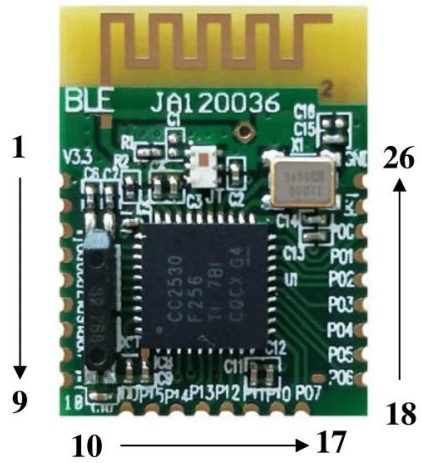
- RF/Layout
  - 2.4-GHz IEEE 802.15.4 Compliant RF Transceiver
  - Excellent Receiver Sensitivity and Robustness to Interference
  - Programmable Output Power Up to 4.5 dBm
  - Very Few External Components
  - Only a Single Crystal Needed for Asynchronous Networks
  - Suitable for Systems Targeting Compliance With Worldwide Radio-Frequency Regulations: ETSI EN 300 328 and EN 300 440 (Europe), FCC CFR47 Part 15 (US) and ARIB STD-T-66 (Japan)
- Low Power
  - Active-Mode RX (CPU Idle): 24 mA
  - Active Mode TX at 1 dBm (CPU Idle): 29 mA
  - Power Mode 1 (4 µs Wake-Up): 0.2 mA
  - Power Mode 2 (Sleep Timer Running): 1 µA
  - Power Mode 3 (External Interrupts): 0.4 µA
  - Wide Supply-Voltage Range (2 V–3.6 V)
- Microcontroller
  - High-Performance and Low-Power 8051 Microcontroller Core With Code Prefetch
  - 32-, 64-, 128-, or 256-KB In-System-Programmable Flash
  - 8-KB RAM With Retention in All Power Modes
  - Hardware Debug Support
- Peripherals
  - Powerful Five-Channel DMA
  - Integrated High-Performance Op-Amp and Ultralow-Power Comparator
  - IEEE 802.15.4 MAC Timer, General-Purpose Timers (One 16-Bit, Two 8-Bit)
  - IR Generation Circuitry
  - 32-kHz Sleep Timer With Capture
  - CSMA/CA Hardware Support
  - Accurate Digital RSSI/LQI Support
  - Battery Monitor and Temperature Sensor
  - 12-Bit ADC With Eight Channels and Configurable Resolution
  - AES Security Coprocessor
  - Two Powerful USARTs With Support for Several Serial Protocols
  - 21 General-Purpose I/O Pins (19 × 4 mA, 2 × 20 mA)
  - Watchdog Timer
- Development Tools
  - CC2530 Development Kit
  - CC2530 ZigBee® Development Kit
  - CC2530 RemoTI™ Development Kit for RF4CE
  - SmartRF™ Software
  - Packet Sniffer
  - IAR Embedded Workbench™ Available

Mechanical Drawing

Tolerance: ±0.2mm



Terminal Description

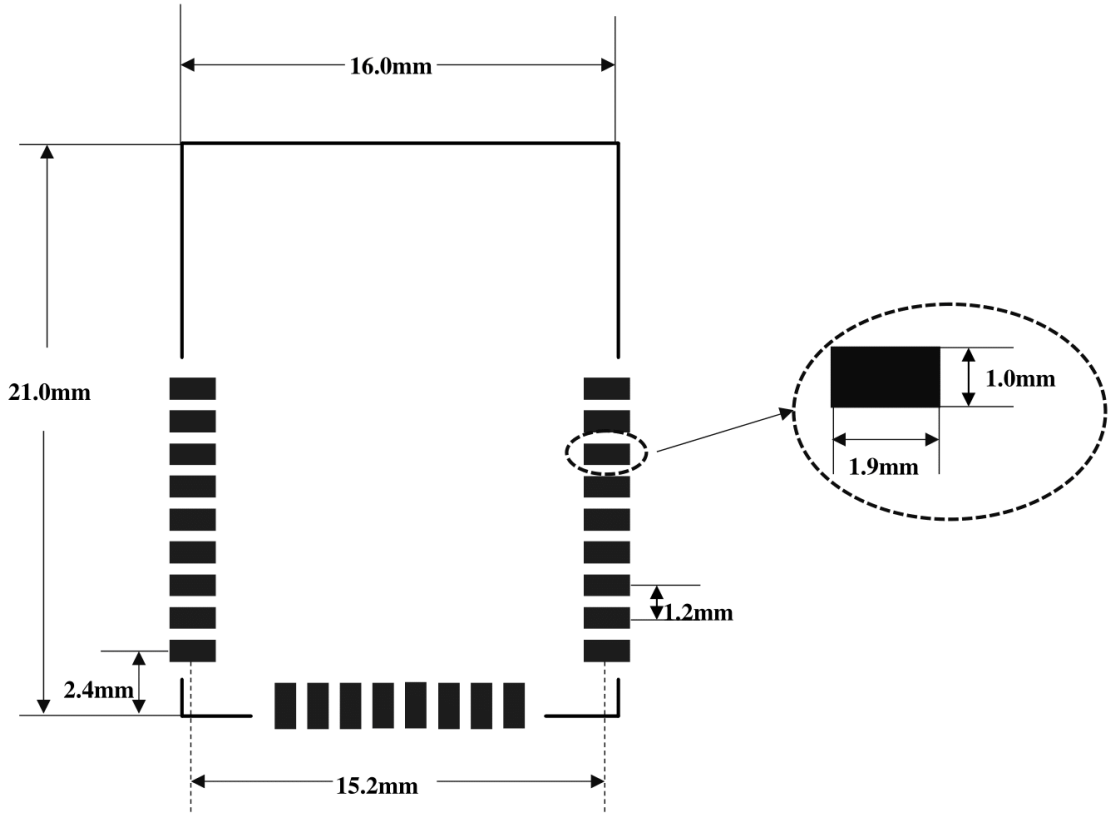


Pad Number	Name	Description	Pin Type
1	VDD	2-V–3.6-V analog power-supply connection	Power
2	GND	The ground pad must be connected to a solid ground plane.	Ground
3	P2_2	Port 2.2	Digital I/O
4	P2_1	Port 2.1	Digital I/O
5	P2_0	Port 2.0	Digital I/O
6	P1_7	Port 1.7	Digital I/O
7	P1_6	Port 1.6	Digital I/O
8	GND	Connect to GND	Unused pins
9	GND	Connect to GND	Unused pins
10	GND	Connect to GND	Unused pins
11	P1_5	Port 1.5	Digital I/O
12	P1_4	Port 1.4	Digital I/O
13	P1_3	Port 1.3	Digital I/O
14	P1_2	Port 1.2	Digital I/O
15	P1_1	Port 1.1	Digital I/O
16	P1_0	Port 1.0	Digital I/O
17	P0_7	Port 0.7	Digital I/O
18	P0_6	Port 0.6	Digital I/O
19	P0_5	Port 0.5	Digital I/O
20	P0_4	Port 0.4	Digital I/O
21	P0_3	Port 0.3	Digital I/O
22	P0_2	Port 0.2	Digital input
23	P0_1	Port 0.1	Power
24	P0_0	Port 0.0	Power
25	RESET_N	Reset, active-low	Digital input
26	GND	The ground pad must be connected to a solid ground plane.	Ground

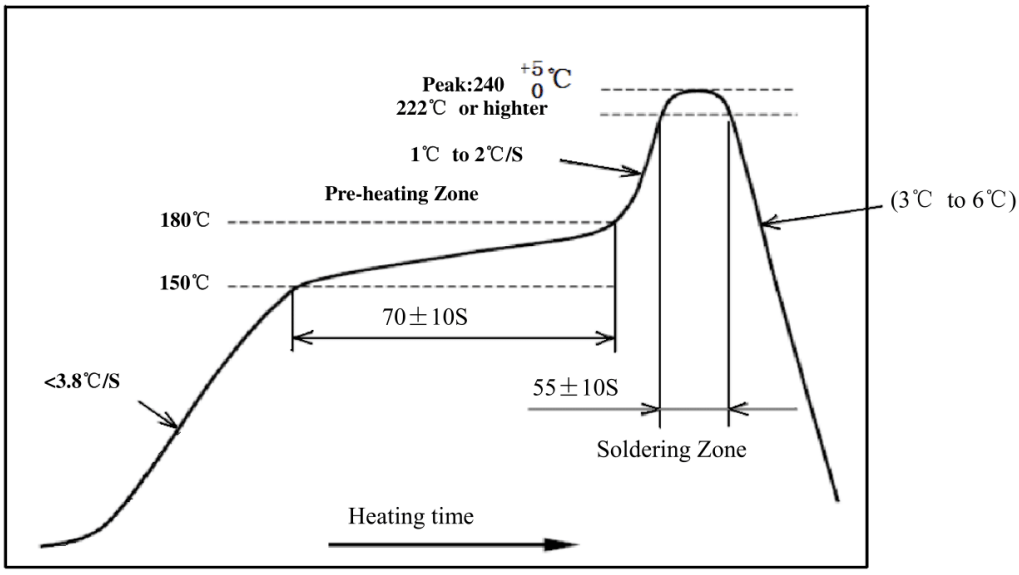
Specifications

Parameter	Min	Max	Unit
Operating Voltage	2	3.6	V
Operating Temperature	-30	85	℃
TX Power		4	dBm
RX Sensitivity		-97	dBm
Standby Current		0.4	uA

Recommended PCB Layout for Package



Soldering Recommendations



Contact details

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