Bk7238 datasheet - Bk7238 specifications

BK7238 focuses on low power consumption of Wi-Fi-RF, and the power consumption of TDM10 can reach 150ua, replacing HI3861, MTK7286, XR806, XR871-it has been tuned with Junzheng T31 software. BK7238 WIFI and Bluetooth combo chip supports matter certification.

BK7238 is a highly integrated single-chip Wi-Fi802.11n and low-power Bluetooth (BLE) 5.2 combination solution designed for low-power and small space applications. BK7238 integrates a powerful 32-bit MCU and a full set of peripherals and interfaces, making it an ideal choice for advanced Internet of Things (IoT) applications.

BK7238 uses advanced design technology and process technology to provide high integration and lowest power consumption in a very small package, suitable for smart lighting, smart home, indoor positioning and other complex IoT applications.

BK7238 Specifications

Wi-Fi

- IEEE 802.11 b/g/n 1x1 compliant
- 20 MHz channel support
- Set-top box support
- Operating modes STA, AP, Direct
- Concurrent AP + STA
- Optical transmitter output power up to +19 dBm
- Receiver sensitivity -99 dBm

Bluetooth Low Energy

- Bluetooth 5.2
- Bluetooth Low Energy (LE), 1 Mbps, 2 Mbps, and Long Range (125 kbps and 500 kbps)
- Advertising Extensions
- Bluetooth Direction Finding: Angle of Arrival (AoA) and Angle of Departure (AoD)

- Supports antenna arrays with up to 16 antennas for precise indoor positioning
- Integrated Bluetooth LE/WLAN Coexistence (PTA)

Core and Memory

- 32-bit MCU with up to 160 MHz frequency
- SiP Flash options: 1 MB, 2 MB or None (depending on package)
- 288 KB RAM
- 4 Byte eFuse
- UART/JTAG for download and debug

Clock Management

- External Oscillator: 26 MHz Crystal Oscillator (X26M)
- Internal Oscillator: 26 ~ 160 MHz Digitally Controlled Oscillator (DCO)
32 kHz Ring Oscillator (ROSC)
- 480 MHz Dual Phase-Locked Loop

Energy Management

- 2.7 to 3.6 V VBAT Supply
- On-Chip Power-On Reset (POR) and Brown-Out Detector (BOD)
- Embedded LDO Regulator
- Low Power Consumption:
- Active Mode RX: 30 mA
- Normal Standby Mode: 300 μA
- Low Voltage Standby Mode: 75 μA
- Shutdown Mode: 0.5 μA

Peripherals

- GPIO: QFN32 19 in (BK7238 QN40)
19 in QFN32 (BK7238 QN32)
9 in QFN20 (BK7238 QN20)
- 1 SPI
- 2 UARTs: 1 supports flash download
- 1 I2C
- 1 General Purpose DMA Controller (GDMA) with 6 channels
- 6 32-bit PWMs
- 10-bit SARADC, up to 6 channels

- 6 General Purpose 32-bit Timers/Counters
- 1 Watchdog Timer
- 1 Real-Time Counter (RTC)
- 1 Temperature Sensor
- 1 True Random Number Generator (TRNG)

Packaging

- QFN40 package, 5 x 5 mm
- QFN32 package, 4 x 4 mm
- QFN20 package, 3 x 3 mm
- Operating temperature range: -40 to +105° C

About IOT Cloud Platform

IOT cloud platform (**blog.iotcloudplatform.com**) focuses on IOT solutions, low-altitude economic IoT, **WiFi modules**, sensors, smart home sensors, smart cities, RFID, lora devices, Internet of Things systems, **IOT modules**, **embedded development**, photovoltaic solar energy, lithium batteries, chips, IOT circuit boards, Raspberry Pi development and design, Arduino programming, new energy, semiconductors and other scientific and technological knowledge and technology products.