
Operation description

一、 **Product name:** Moto Watch 100

二、 **Model:** MOSWZ100

三、 **Basic hardware specifications and functional features**

- ◆Screen parameters: 1.3 inch, 360*360 Resolution
- ◆size (including battery): 46.37*42.87*12.04mm
- ◆Weight (including batteries): 45.8g
- ◆antenna: Ceramic antenna, 0 dBi
- ◆Nominal battery capacity: 355mAh
- ◆hardware version:V1.2
- ◆Radio chipset: NRF5340

Technical Specification of Bluetooth Low Energy	
Operating Frequency	2402 – 2480 MHz
Bluetooth Core Version	Bluetooth 5.2, single mode
Data rate	1Mbps
Channel Number	40 channels
Channel separation	2MHz
Modulation	GFSK
Number of Antenna	1

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
00	2402.00	10	2422.00	20	2442.00	30	2462.00
01	2404.00	11	2424.00	21	2444.00	31	2464.00
02	2406.00	12	2426.00	22	2446.00	32	2466.00
03	2408.00	13	2428.00	23	2448.00	33	2468.00
04	2410.00	14	2430.00	24	2450.00	34	2470.00
05	2412.00	15	2432.00	25	2452.00	35	2472.00
06	2414.00	16	2434.00	26	2454.00	36	2474.00
07	2416.00	17	2436.00	27	2456.00	37	2476.00
08	2418.00	18	2438.00	28	2458.00	38	2478.00
09	2420.00	19	2440.00	29	2460.00	39	2480.00

nRF5340 features

Features:

- 1.7 V to 5.5 V supply voltage range
- Single 32 MHz crystal operation
- Package variants
 - aQFN94™ package, 7 x 7 mm
- 1.8 V to 3.3 V regulated supply for external components
- Operating temperature from -40 to +105°C
- 48 general purpose I/O pins

Application core

- Arm® Cortex® -M33 with TrustZone® technology
 - 128 MHz or 64 MHz operation
 - 514 EEMBC CoreMark score running from flash memory, 4.0 CoreMark per MHz
 - Single-precision floating-point unit (FPU)
 - Digital signal processing (DSP) instructions
 - Data watchpoint and trace (DWT), embedded trace macrocell (ETM), instrumentation trace macrocell (ITM), and cross trigger interface (CTI)
 - Serial wire debug (SWD)
 - Trace port interface unit (TPIU)
 - 4-bit parallel trace of ITM and ETM trace data
 - Serial wire output (SWO) trace of ITM data
- 1 MB flash and 512 kB low leakage RAM
- Arm TrustZone CryptoCell™ -312 security subsystem
 - NIST 800-90B, AIS-31, and FIPS 140-2 compliant random number generator
 - AES-128 and 256: ECB, CBC, CMAC/CBC-MAC, CTR, CCM/CCM*, GCM
 - SHA-1, SHA-2 up to 256 bits
 - Keyed-hash message authentication code (HMAC)
 - RSA public key cryptography with up to 3072-bit key size
 - ECC support for most used curves
 - Application key management using derived key model
- Two-way set associative cache towards flash and QSPI XIP code regions
- QSPI peripheral for communicating with an external flash memory device
 - Execute in place with optional on the fly encryption and decryption
- Near field communication (NFC-A) tag with wake-on field
 - Touch-to-pair support
- Up to 5x SPI master/slave with EasyDMA
- Up to 4x I²C compatible two-wire master/slave with EasyDMA
- Up to 4x UART (CTS/RTS) with EasyDMA
 - Optional, built-in, flow control (CTS, RTS)
- Audio peripherals: I²S, digital microphone interface (PDM)
- Up to 4x pulse width modulator (PWM) units with EasyDMA
- 12-bit, 200 ksp/s ADC with EasyDMA - eight configurable channels with programmable gain
- Up to 3x 32-bit timer with counter mode
- Up to 2x 24-bit real-time counter (RTC)
- Up to 2x Quadrature decoder (QDEC)

Network core

- Arm Cortex-M33
 - 64 MHz operation
 - 244 EEMBC CoreMark score running from flash memory, 101 CoreMark per mA
 - Cross trigger interface (CTI)
 - Serial wire debug (SWD)
 - SWO trace port
- 256 kB flash
- 64 kB low leakage RAM
- Bluetooth® 5.2, IEEE 802.15.4-2006, 2.4 GHz transceiver
 - -98 dBm sensitivity in 1 Mbps Bluetooth Low Energy mode
 - -104 dBm sensitivity in 125 kbps Bluetooth Low Energy mode (long range)
 - -101 dBm sensitivity in IEEE 802.15.4
 - -20 to +3 dBm configurable TX power
 - On-air compatible with nRF52, nRF51, nRF24L, and nRF24AP Series
 - Supported data rates:
 - Bluetooth 5.2 - 2 Mbps, 1 Mbps, 500 kbps, and 125 kbps
 - IEEE 802.15.4-2006 - 250 kbps
 - Proprietary 2.4 GHz - 2 Mbps, 1 Mbps
 - Angle of Arrival (AoA) and Angle of Departure (AoD) direction finding using Bluetooth Low Energy
 - Single-ended antenna output (on-chip balun)
 - 128-bit AES/ECB/CCM/AAR co-processor (on-the-fly packet encryption)
 - 3.2 mA run current in TX (0 dBm)
 - 2.6 mA run current in RX
 - RSSI (1 dB resolution)
- SPI master/slave with EasyDMA
- I²C compatible two-wire master/slave with EasyDMA
- UART (CTS/RTS) with EasyDMA
- Up to 3x 32-bit timer with counter mode
- Up to 2x real-time counter (RTC)
- Temperature sensor
- Distributed programmable peripheral interconnect (DPPI)
- Inter-processor communication (IPC)
- Mutually exclusive peripheral (MUTEX)

Features:

- Distributed programmable peripheral interconnect (DPPI)
- Inter-processor communication (IPC)
- Mutually exclusive peripheral (MUTEX)

Applications:

- Advanced computer peripherals and I/O devices
 - Multi-touch trackpad
- Advanced wearables
 - Health/fitness sensor and monitor devices
 - Wireless payment enabled devices
- Wireless audio devices
 - Bluetooth Low Energy Audio
 - True wireless earbuds
 - Headphones, microphones, and speakers
- Internet of things (IoT)
 - Smart home sensors and controllers
 - Industrial IoT sensors and controllers
- Interactive entertainment devices
 - Remote controls
 - Gaming controllers
- Professional lighting
 - Wireless connected luminaire