MWBT01 Datasheet

🔵 MWBT01 Features

✒ CPU

1. 32-bit DSP supports hardware Float Point Unit (FPU)
2. Up to 240MHz programmable processor
3. 64Vectored interrupts
4. 4 Levels interrupt priority

✒ DSP Audio Processing

1. SBC, AAC Audio decodes supported for BT audio
2. mSBC voice codecs supported for BT phone
3. Supports MP2, MP3, WMA, APE, FLAC, AAC, MP4, M4A, WAV, AIF, AIFC audio decoding
4. Packet Loss Concealment (PLC) for voice processing
5. Acoustic echo cancellation/suppression (AEC,AES)
6. Single/Dual MIC Environmental Noise Cancellation (ENC)
7. Multi-band DRC limiter
8. 30-band EQ configuration for voice Effects

/-Audio Codec

1. Two channels 16-bit DAC, SNR >= 95dB
2. Three channels 16-bit ADC , SNR >= 90dB
3. Sampling rates of 8KHz/11.025KHz/16KHz/22.05KHz/24KHz/ 32KHz/44.1KHz/48KHz are supported
4. One analog MIC amplifier, build-in MIC bias generator
5. Supports two PDM digital MIC inputs
6. three channels Stereo analog MUX
7. Supports cap-less, single-ended, and differential mode at the DAC path
8. Supports 16ohm and 32ohm Speaker loading

/-Bluetooth

1. Compliant with BLE 1M specification
2. Meet class1 class2 and class3 transmitting power requirement
3. Support GFSK

4. Provides -2.58dBm transmitting power

5. receiver with -90dBm sensitivity
6. Fast AGC for enhanced dynamic range
7. Supports a2dp\avctp\avdtp\avrcp\hfp\spp\smp\att\gap\gatt\rfcomm\sdp \l2cap profile

/-Peripherals

1. One full speed USB 2.0 OTG controller
2. Two PCM/IIS for external digital Audio code, supports host and device mode
3. Four multi-function 16-bit timers, support capture and PWM mode
4. Three 16-bit PWM generator for motor driving
5. Three full-duplex basic UART, UART0 and UART1 supports DMA mode
6. Three SPI interface supports host and device mode
7. Two SD Card Host controller
8. One hardware IIC interface supports host and device mode
9. Four SPDIF receiving interface without analog amplify
10. Supports HDMI ARC (Audio Return Channel) receiving
11. Segment LCD panels

12. Digital matrix LED panels
13. Built-in Cap Sense Key controller
14. 10-bit ADC for analog sampling
15. External wake up/interrupt on all GPIOs

/ -PMU

1. Low voltage LDO for internal digital and analog circuit supply
2. 3uA current consumption in the soft-off mode
3. Built-in LDO for the core, I/O, Bluetooth and flash

----VBAT is 2.2V to 5.5V
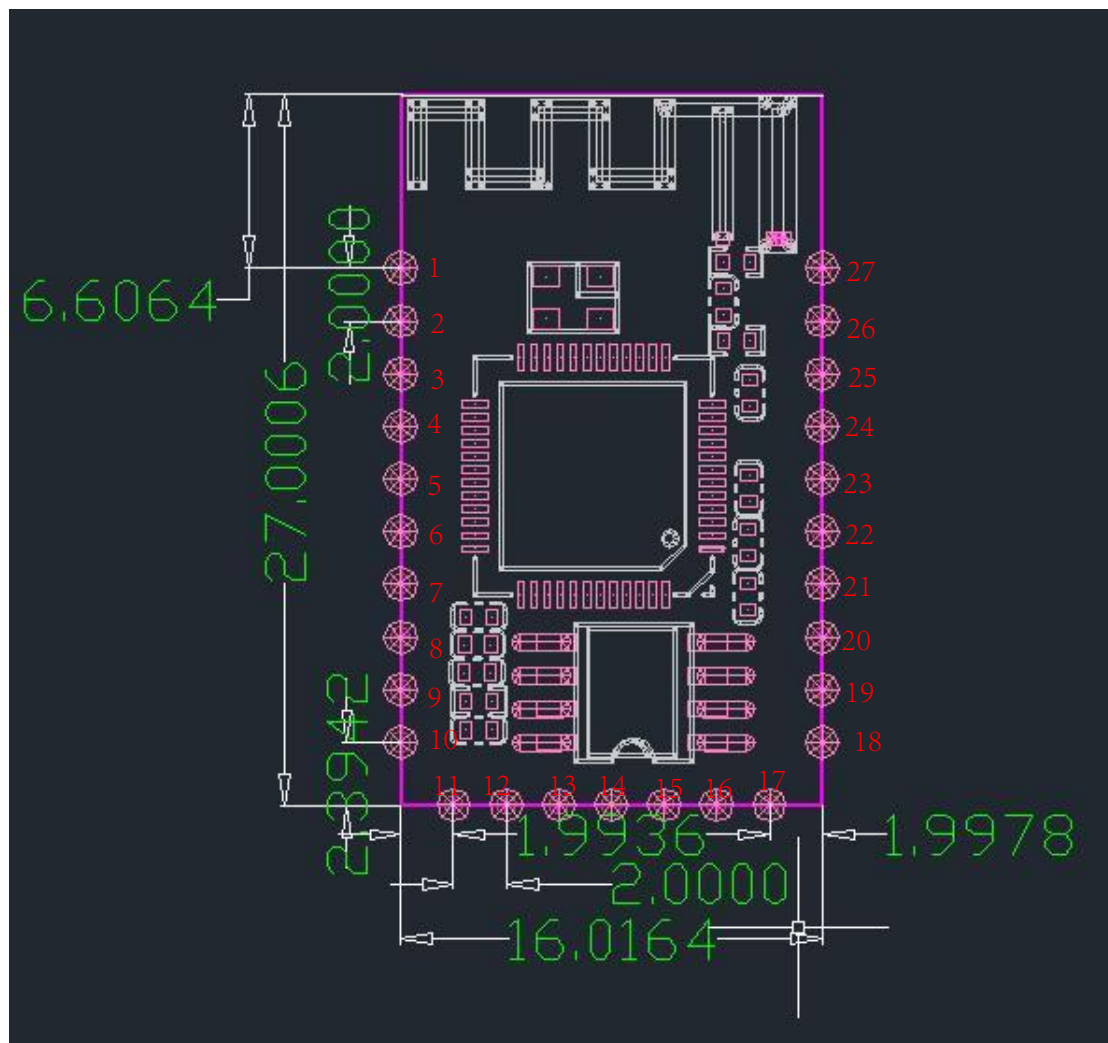
----VDDIO is 2.2V to 3.6V

----RTCVDD33 is 2.2V to 3.6V

----Temperature

1. Operating temperature: -20℃ to +70℃
2. Storage temperature: -65℃ to +150℃

⬤ MWBT01

Pin Definition

PIN NO.	Name	I/O Type	Drive (mA)	Function	Other Function
1	PC5	I/O	24/8	GPIO	/
2	PC4	I/O	24/8	GPIO	/
3	PC3	I/O	24/8	GPIO	/
4	PB4	I/O	24/8	GPIO	/
5	USBDM	I/O	4	USB Negative Data (pull down)	/
6	USBDP	I/O	4	USB Positive Data (pull down)	/
7	PA10	I/O	24/8	GPIO	/

8	PA9	I/O	24/8	GPIO	/
9	PA1	I/O	24/8	GPIO	/
10	PA0	I/O	24/8	GPIO	/
11	PB7	I/O	24/8	GPIO	/
12	PB6	I/O	24/8	GPIO	/
13	VDDIO	P	/	/	/
14	AGND	P	/	/	/
15	DACL	O	/	/	/
16	DACR	O	/	/	/
17	GND	P	/	/	/

18	VBAT	P	/	/	/
19	RTC_VDD	P	/	/	/
20	PB11	I/O	24/8	GPIO	/
21	32KO	I/O	24/8	GPIO	/
22	32KI	I/O	24/8	GPIO	/
23	PB8	I/O	24/8	GPIO	/
24	PB5	I/O	24/8	GPIO	/
25	PB1	I/O	24/8	GPIO	/
26	PB0	I/O	24/8	GPIO	/
27	GND	P	/	/	/

● MWBT01

Electrical Characteristics

1.Absolute Maximum Ratings

Symbol	Parameter	Min	Max	Unit
Tamb	Ambient Temperature	−20	+70	° C
Tstg	Storage temperature	−65	+150	° C
VBAT	Supply	2.2	5.5	V

	Voltage			
LDO_IN	Charger Voltage	4.5	5.5	V
VDDIO	3.3V IO Input Voltage	−0.3	VDDIO+0.3	V

3. PMU Characteristics

Symbol	Parameter	Min	Typ	Max	Unit	Test Conditions
VBAT	Voltage Input	2.2	3.7	5.5	V	
LDO_IN	Charger Voltage	4.5	5.0	5.5	V	
V3.3	Voltage output	/	3.3	/	V	VBAT = 5V, 100mA loading
VBT_AVDD	Voltage output	/	1.3	/	V	VBAT=5V, 100mA loading
VDACVDD	DAC Voltage	/	2.7	/	V	VBAT = 5V, 10mA

						loading
IL3.3	Loading current	/	/	150	mA	VBAT = 5V

FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Regulatory Module Integration Instructions

2.2 List of applicable FCC rules

CFR 47 FCC PART 15 SUBPART C has been investigated. It is applicable to the modular.

2.3 Specific operational use conditions

This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.

The module is limited to OEM installation ONLY.The OEM integrators are responsible for ensuring that the end-use has no manual or instructions to remove or install module.

2.4 Limited module procedures : Not applicable

2.5 Trace antenna designs : Not applicable

2.6 RF exposure considerations

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .

2.7 Antennas

This radio transmitter FCC ID:2AWPY-MWBT01 has been approved by Federal Communications Commission to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Antenna type:PCB Antenna

Maximum Antenna gain: -0.58dBi

2.8 Label and compliance information

The final end product must be labeled in a visible area with the following " Contains FCC ID: 2AWPY-MWBT01

2.9 Information on test modes and additional testing requirements

Host manufacturer is strongly recommended to confirm compliance with FCC requirements for the transmitter when the module is installed in the host.

2.10 Additional testing, Part 15 Subpart B disclaimer

Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B.