

WM825B00 Module

Single-Band (2.4 GHz) Wi-Fi IEEE 802.11 b/g/n module with integrated antenna

Description

WM825B00 is a 1x1 SISO, single-band hosted Wi-Fi module from Wi2Wi's maximum performance series. This module is integrated with a chip antenna and an MHF4 IPEX connector and supports antenna diversity. It is a highly integrated wireless LAN (WLAN) subsystem with MAC, baseband, RF front-end, PA, crystal, switch, filter and OTP memory for calibration data and MAC address storage. This 802.11 b/g/n Wi-Fi module offers SDIO 2.0 and USB 2.0 host interfaces for easy connection to all leading 32-bit processors running Linux operating systems. The ultra-small Wi-Fi module, WM825B00 gives Industry's best in class performance for high throughput, high transmit power (TXPWR), excellent receive sensitivity (RSSI) and supports deep sleep and standby modes for low power operation. The highly integrated WM825B00 provides all necessary circuitry for a complete 2.4 GHz, IEEE 802.11 b/g/n Wi-Fi connectivity solutions requiring no other external components other than power supply. WM825B00 is FCC, CE and IC certified and comes in various operating temperatures.



QFN Footprint: 12.5 mm x 16 mm x 1.76 mm

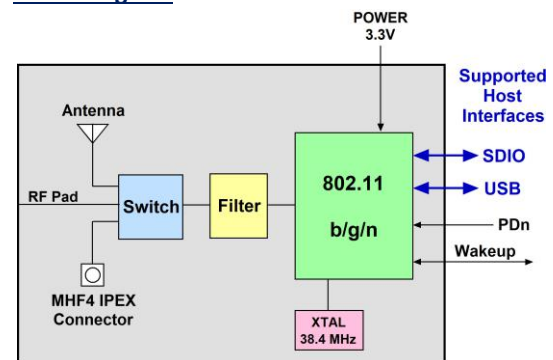
Features

- ✦ Small footprint: 12.5 mm x 16 mm x 1.76 mm
- ✦ IEEE 802.11b/g/n Wi-Fi, 1x1 SISO
- ✦ 20 MHz channel bandwidth
- ✦ High throughput up to 50 Mbps
- ✦ Support for Station/Client mode and Access point mode
- ✦ Onboard chip antenna + MHF4 IPEX connector
- ✦ Support for Antenna diversity
- ✦ Maximum average transmit power up to 18 dBm
- ✦ Single power supply operation, 3.3V DC – input voltage regulated internally by SoC
- ✦ Drivers available for Linux
- ✦ Support for SDIO and USB host interfaces
- ✦ RF calibration data and MAC addresses are stored in onboard OTP memory
- ✦ Optimized RF and electrical design for excellent performance
- ✦ Global certifications: FCC, IC, CE
- ✦ Available in industrial, extended and commercial operating temperature variants

Applications

- ✦ IoT (Internet of Things)
- ✦ M2M (Machine-to-Machine)
- ✦ Imaging platforms (printer, digital camera)
- ✦ Internet enabled consumer devices
- ✦ Video streaming (DTV, DVD/Blu-ray players)
- ✦ Video conferencing, Vo-Fi (Voice over Wi-Fi)
- ✦ Wi-Fi enabled security cameras
- ✦ Home audio/video system
- ✦ Automotive aftermarket
- ✦ Warehousing and logistics handhelds
- ✦ Medical imaging and monitoring equipment
- ✦ Gaming platforms
- ✦ Mobile routers (Mi-Fi)
- ✦ Smart homes
- ✦ Smart energy

Block Diagram



Specification

Wi-Fi IEEE 802.11:	b/g/n, single-band (2.4GHz)
Channel bandwidth:	20 MHz
Available channels:	Channels 1-13; only Channels 1-11 available for use in USA/Canada
802.11b Data Rates:	DSSS modulation: 1 and 2 Mbps CCK modulation: 5.5 and 11 Mbps
802.11g Data Rates:	OFDM modulation: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps
802.11n Data Rates:	MCS0-MCS7 (up to 72.2 Mbps)
Other 802.11 Features:	802.11 d/e/h/i/k/r/w
Maximum Transmit Power:	
Average:	17.64 dBm
Peak:	24.93 dBm
Receive Sensitivity:	
1 Mbps:	-97 dBm (PER < 8%)
54 Mbps:	-74 dBm (PER < 10%)
MCS7:	-70 dBm (PER < 10%)

Software Features

Support for Antenna Diversity

Modes of Operation:
 Station/Client mode
 Access point mode (up to 8 clients)

Security Algorithms:
 WEP (64-bit, 128-bit)
 WPA (TKIP, AES)
 WPA2 (CCMP, AES)
 WAPI

IEEE Power-save mode
Deep-sleep mode

Drivers available for:
 Linux: Kernel version 3.10 to 4.14.1

Interfaces

SDIO 2.0:	1-bit mode, 4-bit mode Full clock range up to 50 MHz
USB 2.0:	With LPM support

Electrical Data

Power supply:	3.0V DC – 3.6V DC
Peripheral GPIOs:	1.8V - 3.3V operation

Certifications

FCC:	15C
IC:	RSS-247
CE:	EN 300 328 v1.9.1, EN 301 489-1 v1.9.2 EN 301 489-17 v2.2.1, EN 60950-1

Note: Above certifications apply to the onboard chip antenna only. Customers using any external antenna via the onboard MHF4 IPEX connector or the RF Pad must get their antenna certified themselves.

Part Ordering

WM825B00-I3QT:	Industrial (-40°C to +85°C), on Trays
WM825B00-E3QT:	Extended (-30°C to +85°C), on Trays
WM825B00-C3QT:	Commercial (0°C to +70°C), on Trays
WM825B00-I3QR:	Industrial (-40°C to +85°C), on Reel
WM825B00-E3QR:	Extended (-30°C to +85°C), on Reel
WM825B00-C3QR:	Commercial (0°C to +70°C), on Reel

Evaluation/Development Kits

WM825B00-EVK3:	WM825B00-I3 Module on Evaluation Board, 2.4 GHz Rubber-Duck antenna, MHF4 IPEX connector cable, USB-A/Micro-AB Cable
WM825B00-DVK3:	WM825B00-EVK3 and i.MX6 development platform with all needed software for application development

Additional Information:

For the latest collaterals, please visit the Wi2Wi extranet portal at: <http://www.wi2wi.com/mgr/>