1. General Description

Intelligent product focused on FCC CE and is a SDIO wireless module with smaller size high performance and high linearity output power consumption, specifically designed to support high throughput data rates for next generation WLAN products. It is designed to support IEEE 802.11a/b and 802.11n/ac/ax draft data rates. It provides the combined functions of SDIO and UDM interfaces, supporting 2.4GHz and 5GHz bands, and supports 20MHz, 40MHz, 80MHz channel as well as single integrated PA. Particularly, It supports 802.11i security standards through implementation of the AES-CCMP, WEP with TKIP, AES(CMAC), and WAPI security mechanisms. For video, voice, and multimedia applications, 802.11e QoS and 802.11i/WPI are supported. It is also equipped with a coexistence interface for external, co-located 2.4GHz radios, also supported a SDIO interface for connecting WLAN section to the host processor.

2. The range of applying

Digital products (Printer, Digital camera, Digital photo frame)
Home appliance
Consumer electronic device and intelligent applications such as TV, DVD player, media player, etc)
Tablet computer, notebook, E-book
Smart alone and other radio applications

3. Features

Feature	Implementation
Power supply	Vbat: 2.7V~4.8 V
Clock source	40MHz
Temperature range	Working temperature: -20℃ ~ 70℃ Storage temperature: 50℃ ~ +125℃
Package	SMT 68 pins
WLAN Features	
General features	● Single chip integration of 802.11 a/b/n/ac/ax radio baseband, MAC, FIFO, memory, host interface ● Integrated power management on chip ● 20,40,80 MHz channel with clock support with auto frequency detection if external clock source is available
Mode	● Low power operation supporting deep sleep and standby modes ● Power management with external sleep clock support for near zero-sleep sleep power ● Option to power directly from battery or to use 3.3V/1.8V/1.2V pre-regulated supplies ● Ultra low programmable CPU memory to eliminate need for external EEPROM
Host Interface	● Fully compatible with Marvell Power Management Device(s) SDIO device interface(PCLK SD SDIO)64 SDIO transfer modes at full clock range up to 50MHz
Standards Supported	● IEEE 802.11 data rates of 1 and 2 Mbps ● IEEE 802.11a data rates of 5.5 and 11 Mbps ● IEEE 802.11a/g data rates of 6,9,12,18,24,36,48 and54 Mbps for orthogonal frequency division multiplexing ● IEEE 802.11n performance enhancements ● 802.11n compliant, with maximum data rates up to 72Mbps (20MHz channel) and 150Mbps (40MHz channel) ● 802.11d international roaming ● 802.11h Dynamic channel selection (with support for 802.11h extensions) ● 802.11h transmit power control ● 802.11h DFS radar pulse detection ● 802.11h enhanced security ● 802.11h extended channel measurement ● 802.11i/WPI security implementation ● 802.11e protocol management frames ● Body supports clients (stations)implementing IEEE Power Save mode ● 802.11e block acknowledgment
WLAN MAC Features	● Host and infrastructure Modes ● PSMPO for operation under DEF ● Hardware filtering of 16 multicast addresses and duplicate frame detection for up to 32 unicast addresses ● Support for 802.11e Block acknowledgment ● Open System and Shared Key Authentication services ● A-MPDU Rx (de-aggregation) and Tx (aggregation) ● 802.WMM coexistence ● Reduced inter-frame Spacing (RIFS) burting
WLAN Radio	● Integrated information based counters ● Radio resource measurement counters ● Block acknowledgment (BA) 802.11n extension ● Dynamic frequency selection(DFS) ● Transmit power control ● Transmit power adaptation ● Transmit power control ● Dynamic frequency selection on a frame-by-frame basis for 802.11h frames ● Marvell Mobile Hotspot
WLAN Radio	● Integrated direct conversion radio ● 20/40/MHz channel bandwidths ● Integrated TR switch, PA, and Balun for 2.4GHz band ● Integrated PA and LNA for 5GHz band
WLAN Pa Features	● Direct connection architecture eliminates need for external SAW filter ● On-chip gain selectable LNA with optimized noise figure and power consumption ● High dynamic range ADC function in receive mode
WLAN Tx Path	● Integrated power amplifiers with power control ● Integrated low power control (0.5dB resolution) ● Optimized Tx gain distribution for linearity and noise performance
WLAN Encryption	● WAPI SMS4 and CBB encryption with hardware TKIP acceleration ● AES-CCMP hardware implementation as part of 802.11i security standardWAPI ● Enhanced AES engine performance ● AES-Cipher based Message Authentication Code (CMAC) as part of the 802.11e security standard ● WLAN Authentication and Privacy Infrastructure (WAPI)

4. DC Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
VDD33	1.2V digital power supply	--	1.14	1.2	1.32	V
VIO	1.8V/3.3V/1.2V digital power supply	--	1.62	1.8	3.6	V
		--	2.9	3.6	3.7	V
		--	2.97	3.3	3.63	V
VDD50	5.0V digital power supply	--	2.7	5.0	5.5V	V
AVDD33	3.3V analog power supply	--	2.97	3.3	3.63	V
AVDD18	1.8V analog power supply	--	1.71	1.8	1.89	V
AVDD12	1.2V analog power supply	--	1.14	1.2	1.26	V
AVDD33_USB	3.3V USB 2.0 power supply	--	2.97	3.3	3.63	V
VDD33_PA	3.3V LDO PA power supply	--	2.97	3.3	3.63	V
VBUS1_PA	3.3V VBAT LDO input voltage supply	--	3.2	3.3	4.8	V
VBUS2_PA	3.3V VBAT LDO input voltage supply	--	3.2	3.3	4.8	V
T_A	ambient operating temperature	Commercial	0	--	70	℃
T_J	Maximum junction temperature	--	--	--	125	℃

5.The main performance of product

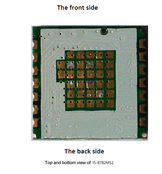
Item	Description
Wireless supported protocol and standard	IEEE 802.11a, IEEE 802.11g,IEEE 802.11b
Interface type	SDIO
The range of frequency	2.4-2.484GHZ
The amount of working channel	1-11 (America, Canada) / 1-13 (Europe) / 1-14 (Japan)
Data transmission	OFDM/DSSS/CCK
Working Mode	Infrastructure、Ad-Hoc
The transmitting power	11dB(MAX)(802.11b) (for ref amplifier)
Spread spectrum	DSSS
Sensitivity @PER	11Mbps: -76dBm@8%PER; 11Mbps: -85dBm@8%PER; 54M: -68dBm@10%PER ; 54M: -68dBm@10%PER ;

6. DC/RF characteristics

Name	Current
Specification: IEEE802.11b	
Mode	DSSS,CCK
Frequency	2412 ~ 2484MHz
Data rate	1, 2, 5.5, 11Mbps
Tx mode	180
Rx mode	90
standby mode	18
Specification: IEEE802.11g	
Mode	OFDM
Frequency	2412 ~ 2484MHz
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps
DC Characteristics	
Tx mode	180
Rx mode	90
standby mode	18
Specification: IEEE802.11n	
Mode	OFDM
Frequency	2412 ~ 2484MHz
Data rate	MCS, MCS1, MCS2, MCS3, MCS4,MCS5,MCS6
DC Characteristics	
Tx mode	180
Rx mode	90
standby mode	18

Item	Current		
	Typical	Peak	Unit
Mode	OFDM		
Frequency	2412 ~ 2484MHz		
Data rate	MCS7		
DC Characteristics			
Tx mode	180	245	MA
Rx mode	90	105	MA
standby mode	18	180	UA

7.The block diagram of product pinfoder


SDIO/UDM
Host Interface
Control Logic
Memory Controller
Tx Data Path
Rx Data Path
Tx Control Path
Rx Control Path
Tx Data Buffer
Rx Data Buffer
Tx Control Buffer
Rx Control Buffer