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BL-R8189RM2(ETV)

Product Specification

WLAN 11b/g/n SDIO Module

Version: 1.0

Customer			
Date			
Model Name	BL-R8189RM2(ETV)		
Part NO.			
Blink Approve Field			
ENGINEER	QC	SALES	
Customer Approve Field			
ENGINEER	QC	MANUFACTORY	PURCHASING

Contents

1. General Description

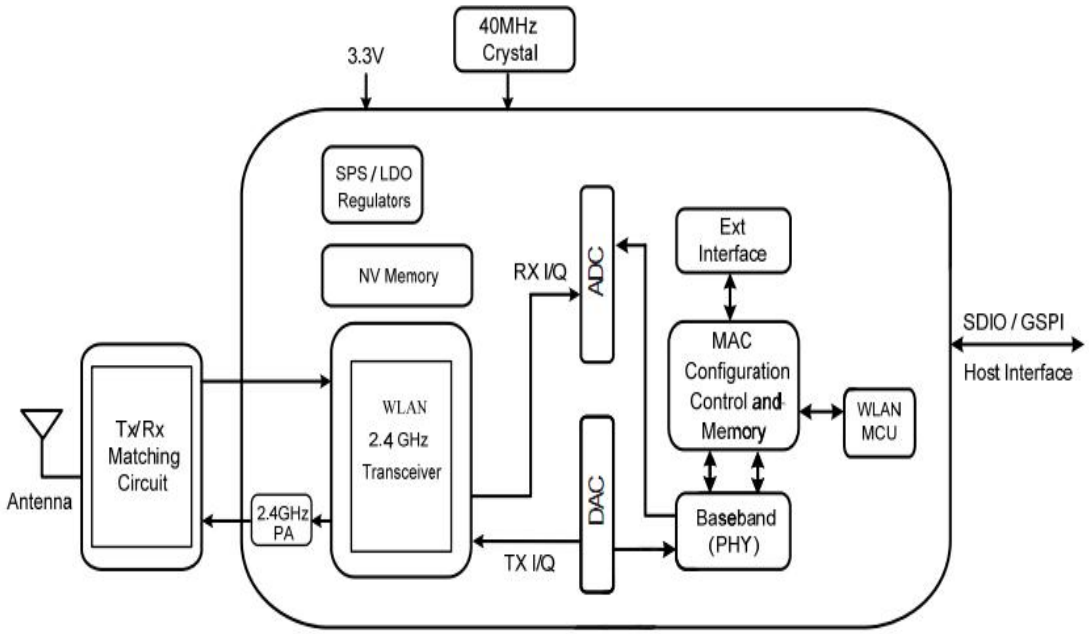
BL-R8189RM2 product Accord with FCC CE and is 150M wireless SDIO adapter which has lower power consumption, high linearity output power, accords with IEEE802.11B/G/N, and supports IEEE802.11i safety protocol, along with IEEE 802.11e standard service quality. It connects with other wireless device which accorded with these standards together, supports the new data encryption on 64/128 bit WEP and safety mechanism on WPA-PSK/WPA2-PSK, WPA/WPA2.IIt's easy and convenient to link to wireless network for the users using desktop, laptop and other device that needs connect to wireless network.

2. The range of applying

MID, networking camera, STB GPS, E-book, Hard disk player, Network Radios, PSP, etc, the device which need be supported by wireless networking.

3. Product Specification

3.1 Function Block diagram



3.2 Electrical and Performance Specification

Item	Description
Product Name	BL-R8189RM2
Major Chipset	RTL8189ETV
Host Interface	SDIO 1.1/ 2.0/ 3.0
Standard	IEEE 802.11b, IEEE 802.11g,IEEE 802.11n
Frequency Range	2.4GHz~2.4835GHz
Modulation Type	802.11b: CCK, DQPSK, DBPSK 802.11g: 64-QAM,16-QAM, QPSK, BPSK 802.11n: 64-QAM,16-QAM, QPSK, BPSK
Working Mode	Infrastructure, Ad-Hoc
Data Transfer Rate	802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: 150Mbps(MAX)
Spread Spectrum	IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum) IEEE 802.11g/n:OFDM (Orthogonal Frequency Division Multiplexing)
Sensitivity @PER	135M:-65dBm@10%PER 54M:-72dBm@10%PER； 11M:-86dBm@10%PER ； 6M: -88dBm@10%PER ； 1M: -92dBm@10%PER；
RF Power(Typical)	135M:13dBm；54M:14dBm；11M:17dBm；
Antenna type	Connect to the external antenna through the half hole
The transmit distance	Indoor 100M, Outdoor 300M, according the local environment
Dimension(L*W*H)	12.0*12.0*1.4mm (LxWxH) ， Tolerance: +/-0.15mm
Power supply	3.3V +/-0.2V
Power Consumption	standby mode 140mA@3.3V , TX mode 340mA@3.3V
Clock source	40MHz
Working Temperature	-10°C to +70°C
Storage temperature	-40°C to +85°C

3.3 DC Characteristic

Terms	Contents			
Specification : IEEE802.11b				
Mode	DSSS / CCK			
Frequency	2412 – 2484MHz			
Data rate	1, 2, 5.5, 11Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	315	320	340	mA
Rx mode	170	174	177	mA
Standby mode	138	139	142	mA
Specification : IEEE802.11g				
Mode	OFDM			
Frequency	2412 - 2484MHz			
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	230	245	305	mA
Rx mode	178	181	184	mA
Standby mode	136	140	142	mA
Specification : IEEE802.11n				
Mode	OFDM			
Frequency	2412 - 2484MHz			
Data rate	6.5, 13, 19.5, 26, 39, 52, 58.5, 65Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	220	242	295	mA
Rx mode	182	187	190	mA
Standby mode	137	141	148	mA

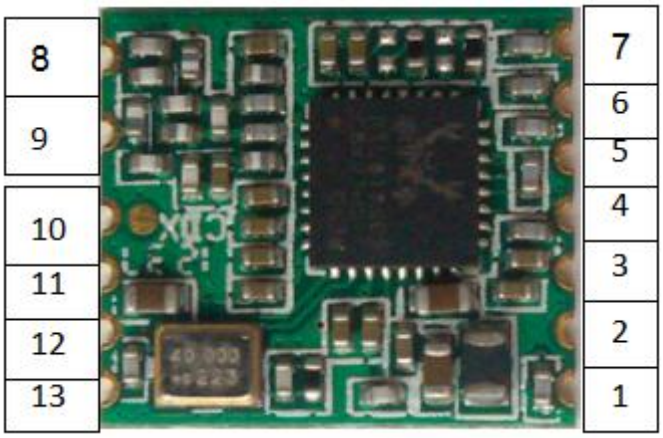
3.4 RF Characteristic

Mode	Rate(Mbps)	Power(dBm)			EVM(dB)			Sensitivity(dBm)		
		CH1	CH7	CH13	CH1	CH7	CH13	CH1	CH7	CH13
11b	1	17.18	17.83	17.56	-32.24	-30.42	-30.17	-92	-92	-92
	11	17.89	17.52	17.32	-25.25	-25.25	-25.45	-87	-87	-87
11g	6	14.12	14.20	14.55	-32.30	-32.03	-31.98	-88	-88	-88
	54	14.23	14.65	14.88	-31.65	-31.02	-31.00	-72	-72	-72
11n HT20	MCS0	13.89	13.66	13.69	-30.10	-30.11	-30.52	-88	-88	-88
	MCS7	14.66	13.89	13.99	-30.93	-31.06	-32.00	-70	-70	-70

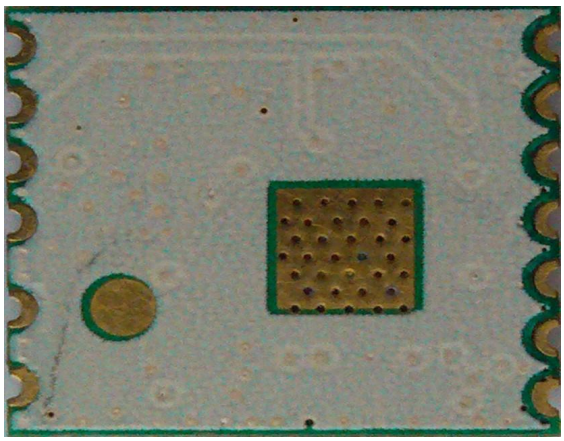
11n HT40	MCS0	13.68	13.47	13.82	-31.06	-31.80	-32.31	-86	-86	-86
	MCS7	13.23	13.56	14.60	-32.70	-31.87	-32.19	-68	-68	-68

3.5 Product Photo

TOP

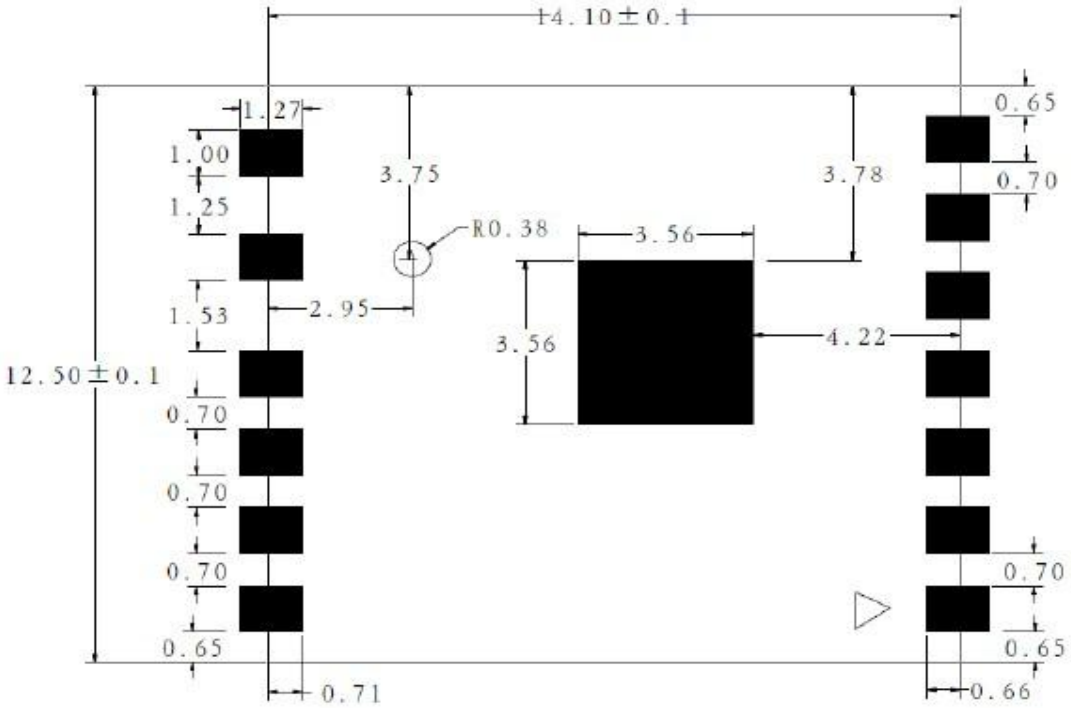


Bottom



Pin name	Pin number	I/O	Description	Comment
Power supply				
VCC_3V3	12	I	Power supply	3.3V TYP
VIO	11	I	Power supply for I/O	1.62 -3.3V
GND	7 8 14		Ground	
Power on/down				
CS	13	I	Power down select	
WAKE	10	I	WLAN wake.	
SDIO interface				
SDIO_CLK	6	I/O	SDIO clock / GSPI clock	
SDIO_CMD	1	I/O	SDIO command / GSPI data input	
SDIO_D0	5	I/O	SDIO data 0 / GSPI data output	
SDIO_D1	4	I/O	SDIO data 1 / GSPI Data Out	
SDIO_D2	3	I/O	SDIO data 2	
SDIO_D3	2	I/O	SDIO data 3 / GSPI chip select	
RF interface				
WL_ANT	9	I/O	WLAN radio antenna pad	Impedance must be controlled to 50Ω.

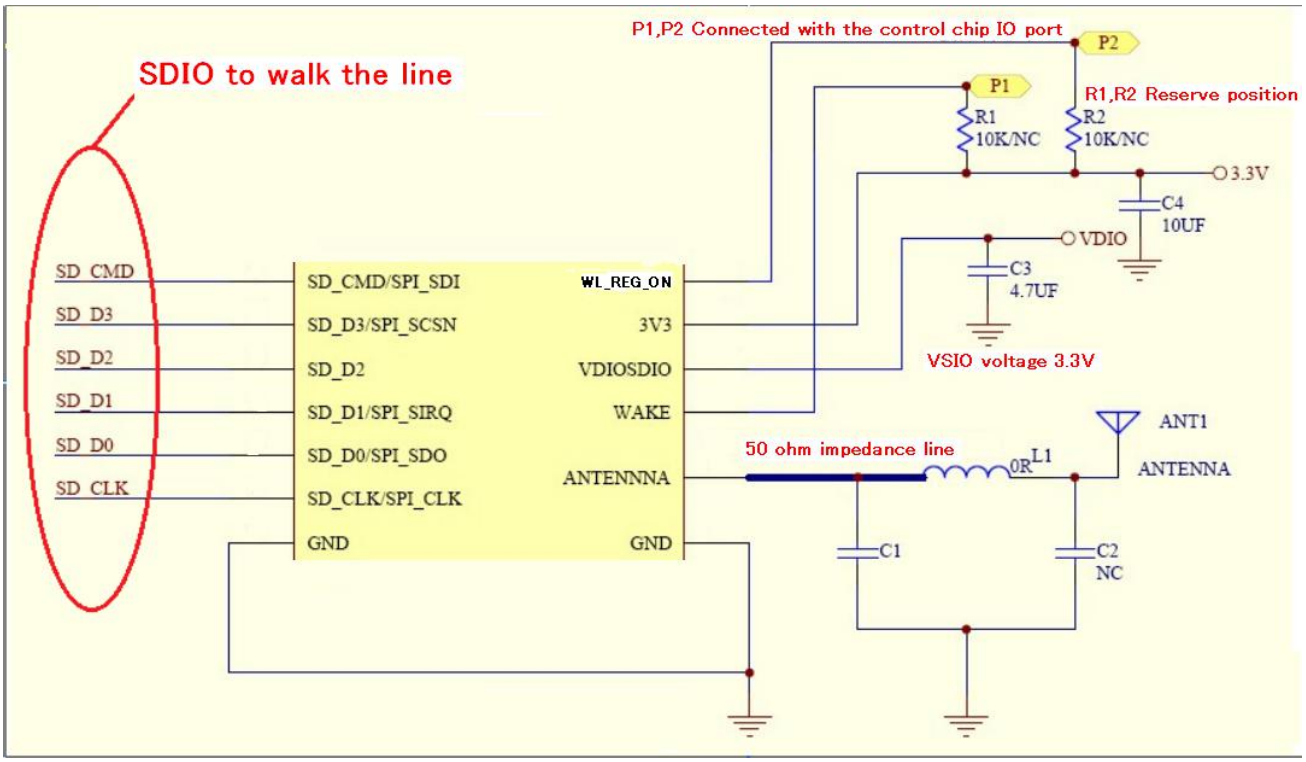
3.6 Mechanical Specification



4. Supported platform

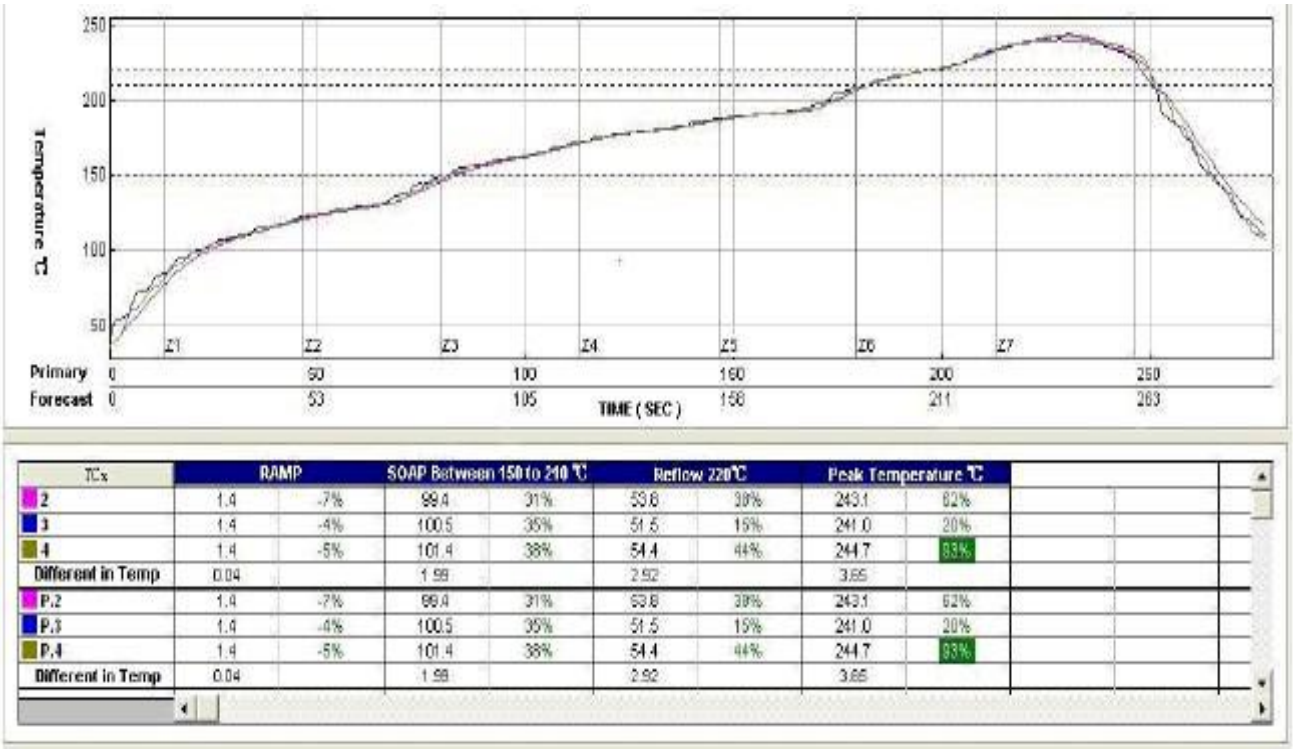
Operating System	CPU Framework	Driver
WIN2000/XP/VISTA/WIN7	X86 Platform	Enable
LINUX2.4/2.6	ARM, MIPSII	Enable
WINCE5.0/6.0	ARM ,MIPSII	Enable

5. Peripheral Schematic Reference Design



6. Package Information

7. Typical Solder Reflow Profile



TCs	RAMP		SOAP Between 150 to 240 ℃		Reflow 220℃		Peak Temperature ℃	
2	1.4	-7%	99.4	31%	53.8	38%	243.1	82%
3	1.4	-4%	100.5	35%	51.5	15%	241.0	20%
4	1.4	-5%	101.4	38%	54.4	44%	244.7	93%
Different in Temp	0.04		1.98		2.92		3.65	
P.2	1.4	-7%	99.4	31%	53.8	38%	243.1	82%
P.3	1.4	-4%	100.5	35%	51.5	15%	241.0	20%
P.4	1.4	-5%	101.4	38%	54.4	44%	244.7	93%
Different in Temp	0.04		1.98		2.92		3.65	

8. Precautions for use

1. Pls handle the module under ESD protection.
2. Reflow soldering shall be done according to the solder reflow profile. Peak temperature 245℃.
3. Products require baking before mounting if humidity indicator cards reads >30% temp <30 degree C, humidity < 70% RH, over 96 hours.
   Baking condition: 125 degree C, 12 hours
   Baking times: 1 time
4. Storage Condition: Moisture barrier bag must be stored under 30 degree C, humidity under 85% RH. The calculated shelf life for the dry packed product shall be a 12 months from the bag seal date. Humidity indicator cards must be blue, <30%.