

EWM-W158F01E

Datasheet

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Revision History

Rev.	Date	History
1.0	2014/4/28	1. 1 st release
1.1	2015/5/9	1. Add module picture
1.2	2019/03/01	1. Update new lable for REVB

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1. Overview



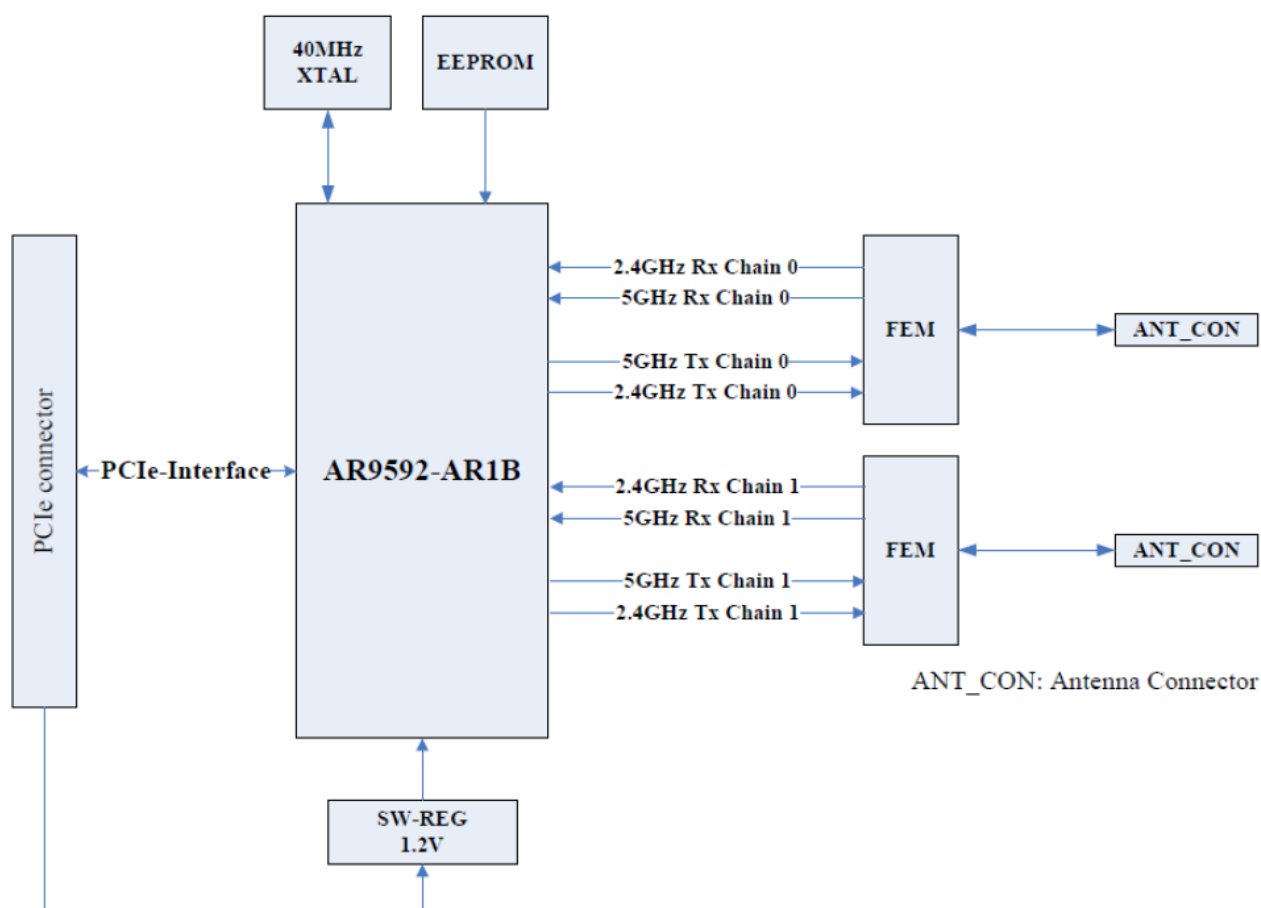
EWM-W158F01E is an Industrial-Grade 802.11a/b/g/n 2.4GHz + 5GHz Mini Card based on Qualcomm Atheros AR9592-AR1B chipset. It supports 2T2R (2x2) MIMO spatial multiplexing technology, which runs up to 300Mbps and delivers superior WiFi output power up to 19dBm.

EWM-W158F01E is able to function under severe weather condition (-40 ~ 85°C), which is ideal for manufacturers to integrate with their devices that are designed for wide-temperature range. Incorporated with advanced security encryption, such as 64/128-bits WEP, WPA, and WPA2, it helps prevent users' devices from malicious attacks.

2. Key Features

- Standard: 802.11a/b/g/n
- Interface: Mini PCI Express
- Chipset: Qualcomm Atheros AR9592-AR1B
- Industrial-Grade Temperature: -40 ~ 85°C
- Antenna: 2 x U.FL connectors
- Data rate up to 300Mbps
- Enhanced wireless security: 64/128-bits WEP, WPA, WPA2, 802.1x

3. Block Diagram



4. Pin Definitions

#	Pin Name	Description	#	Pin Name	Description
1	WAKE_L (NA)	Output and Open Drain active Low signal. This signal is used to request that the system return from a sleep/suspended state to service a function initiated wake event.	2	+3.3V	+3.3V
3	GPIO 12 (OPT)	This pin is reserved for definition with future revisions of this specification.	4	GND	GND
5	No Connection	-	6	No Connection	-
7	CLKREQ_L	Output for reference clock request signal	8	No Connection	-
9	GND	GND	10	No Connection	-
11	REFCLK-	Input signal for PCI Express differential reference clock (100 MHz)	12	No Connection	-
13	REFCLK+	Input signal for PCI Express differential reference clock (100 MHz)	14	No Connection	-
15	GND	GND	16	No Connection	-
17	No Connection	-	18	GND	GND
19	No Connection	-	20	W_DISABLE_L (OPT)	NA
21	GND	GND	22	PERST_L	Input signal for unctional reset to the card
23	PERn0	PCI Express x1 data interface: one differential receive pair	24	No Connection	-
25	PERp0	PCI Express x1 data interface: one differential receive pair	26	GND	GND
27	GND	GND	28	No Connection	-
29	GND	GND	30	No Connection	-
31	PETn0	PCI Express x1 data interface: one differential receive pair	32	No Connection	-
33	PETp0	PCI Express x1 data interface: one differential receive pair	34	GND	GND
35	GND	GND	36	No Connection	-
37	No Connection	-	38	No Connection	-
39	3.3V	+3.3V	40	No Connection	-
41	3.3V	+3.3V	42	No Connection	-

#	Pin Name	Description	#	Pin Name	Description
43	GND	GND	44	LED_WLAN_L (OPT)	Output and open drain active low signal. This signal is used to allow the PCI Express Mini Card add-in card to provide status indicators via LED devices that will be provided by the system
45	No Connection	-	46	No Connection	-
47	GPIO 13 (OPT)	These pins are reserved for definition with future revisions of this specification	48	No Connection	-
49	GPIO 14 (OPT)	These pins are reserved for definition with future revisions of this specification	50	GND	GND
51	GPIO 15 (OPT)	These pins are reserved for definition with future revisions of this specification	52	+3.3V	+3.3V

NA → No active , OPT → Optional

5. Specifications

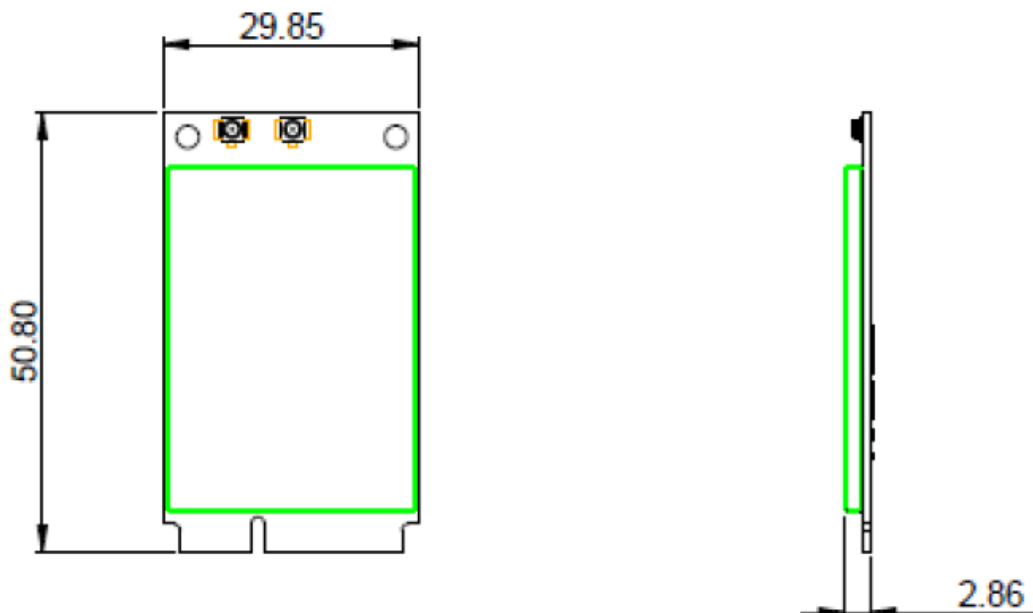
Standard	IEEE 802.11 a/b/g/n
Chipset solution	AR9592-AR1B
Radio stream	2T2R
Antenna Type/ connector	2 U.FL connectors
Bus Interface	PCI Express
Form Factor	Mini-PCIe
Data Rate	802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11 n: MCS 0 to 15 for HT20MHz MCS 0 to 15 for HT40MHz
Spreading/ Modulation Techniques	802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
Frequency Range	2.4GHz: 11b/g/n: 2.400GHz ~ 2.4835GHz 5GHz: 11a/n: 5.150GHz ~ 5.825GHz
Transmit Output Power (Tolerance: +/-2dBm)	802.11a: 14dBm@54Mbps 802.11b: 19dBm@11Mbps 802.11g: 16dBm@54Mbps 802.11gn HT20: 15dBm@MCS7 802.11gn HT40: 14dBm@MCS7 802.11an HT20: 12dBm@MCS7 802.11an HT40: 11dBm@MCS7
Receiver Sensitivity	802.11a: ≤-77dBm@54Mbps 802.11b: ≤-85dBm@11Mbps 802.11g: ≤-77dBm@54Mbps 802.11gn HT20: ≤-74dBm@MCS7 802.11gn HT40: ≤-71dBm@MCS7 802.11an HT20: ≤-73dBm@MCS7

	802.11an HT40: ≤-70dBm@MCS7
Operating Voltage	3.3 V
Power Consumption	TX Mode: 700mA RX Mode: 300mA
Temperature Range	-40~+85°C (Operating), -50~+95°C (Storing)
Humidity (non-condensing)	10~85 % (Operating), 5~90 % (Storing)
Security	WEP / WPA / WPA2, 802.1x

- For Radio stream with diversity or MIMO design, all RF connectors on the module must be fitting antennas in order to guarantee the module performance.
- The frequency range is subject to local regulations.
- The storing condition is only for product functionality, no included for parts appearance.

6. Hardward Dimension:

Dimension (L x W x H): 29.85 x 50.8 x 2.86mm (±0.5mm)



Appendix: Part Number Table



Product	Advantech PN
802.11 a/b/g/n, Atheros AR9592-AR1B, 2T2R, wide temperature, Full-size Mini-PCIe card	EWM-W158F01E


Model No.: EWM-W158F01E
FCC ID: M82-EWM-W158F01E
IC:9404A-EWMW158F01E


MAC: 000E8E690AFC

SN: 15636A2101701
RoHS **FC** **CE**  

Label for REVB

Model No: EWM-W158F01E
FCC ID:RYK-WPEA252NIRB
IC:6158A-WPEA252NIRB

MAC:000E8EXXXXXX

SN:YYM36B20XXXXX

FC **CE**
RoHS 

 **® 020-180168**
W52 and W53 is for indoor use only

Rev.B

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