Single Band 5 GHz 3x3 MIMO 802.11ac Mini PCIe WiFi Module
Designed for High Power Enterprise Wireless Access Points

Model: WLE900V5-27ESD

KEY FEATURES

- Qualcomm Atheros QCA9880
- CUS223 (High Power) Reference Design
- 5 GHz max 27dBm output power (per chain) , 30dBm (aggregate)
- IEEE 802.11ac compliant & backward compatible with 802.11a/n
- 3x3 MIMO Technology, up to 1.3 Gbps
- Built-in ESD Protection with ESD/EMP Immunity Threshold: 15 KeV[1]
- Mini PCI Express edge connector
- Supports Spatial Multiplexing, Cyclic-Delay Diversity (CDD), Low-Density Parity Check (LDPC) Codes, Maximal Ratio Combining (MRC), Space Time Block Code (STBC)
- Supports IEEE 802.11d, e, h, i, k, r, v time stamp, and w standards
- Supports Dynamic Frequency Selection (DFS)
- Cards are individually calibrated for Quality Assurance

Specifications

Chipset	QCA9880
Host Interface	Mini PCI Express 1.2 Standard
Operating Voltage	DC 3.3 V, 5 V[2]
Antenna Connector	3x MMCX
Frequency Range	5.180 GHz ~ 5.825 GHz
Certification	RoHS Compliance
Power Consumption	10 W (Max)
Supported Operating System	Supported by CompexWRT with Qualcomm Atheros reference wireless drivers or OpenWRT/LEDE with ath10k wireless drivers, on WPJ344, WPJ558, WPJ563, WPJ564, ??? Phi checking ath10k: WPQ864, and WPQ865.
Modulation Techniques	BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM
Environmental Temperature	Operating: -40°C to 70°C with normal heatsink, -40°C to 80°C with large heatsink; Storage: -40°C to 90°C
Environmental Humidity, non-condensing	Operating: 5% to 95%; Storage: Max. 90%
Dimensions (W × H × D) in mm	50.0 × 51.0 × 12.5 with normal heatsink, 95.0 × 51.0 × 13.0 with large heatsink

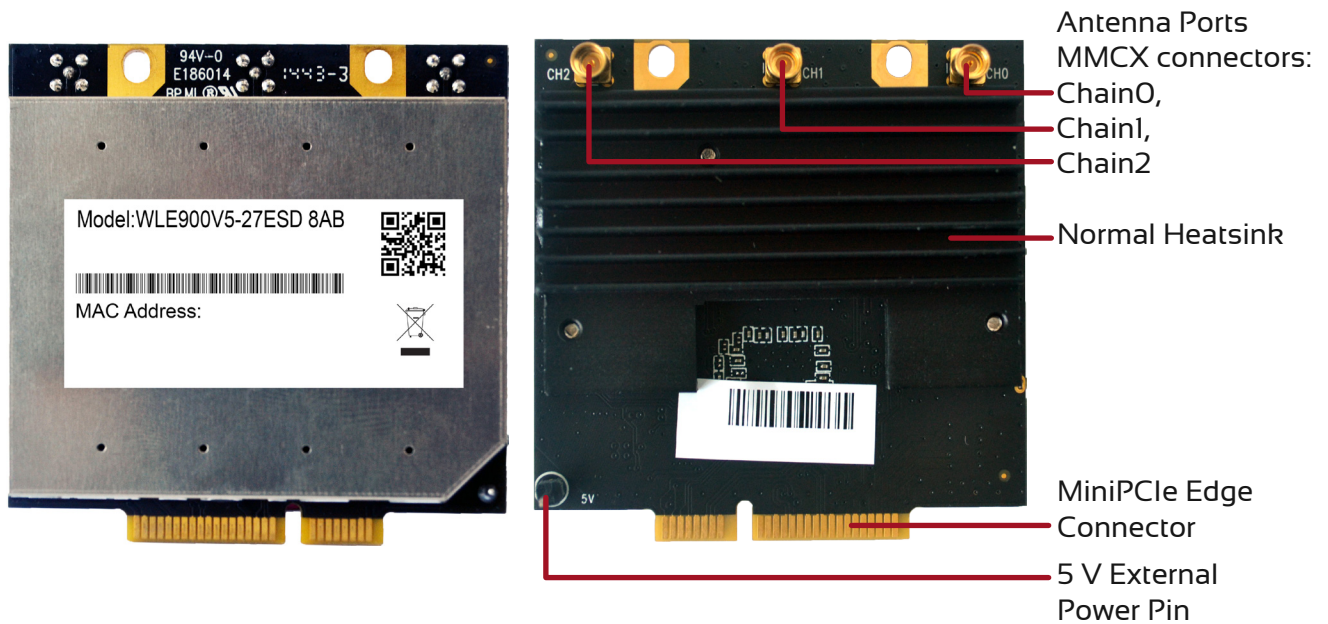1. Module grounding cable included.
2. 5 V supply is compulsory. Enable this by placing jumper on pin pair J5 on the WPJ344 / WPJ558 board. Otherwise supply to the 5 V external power pin.
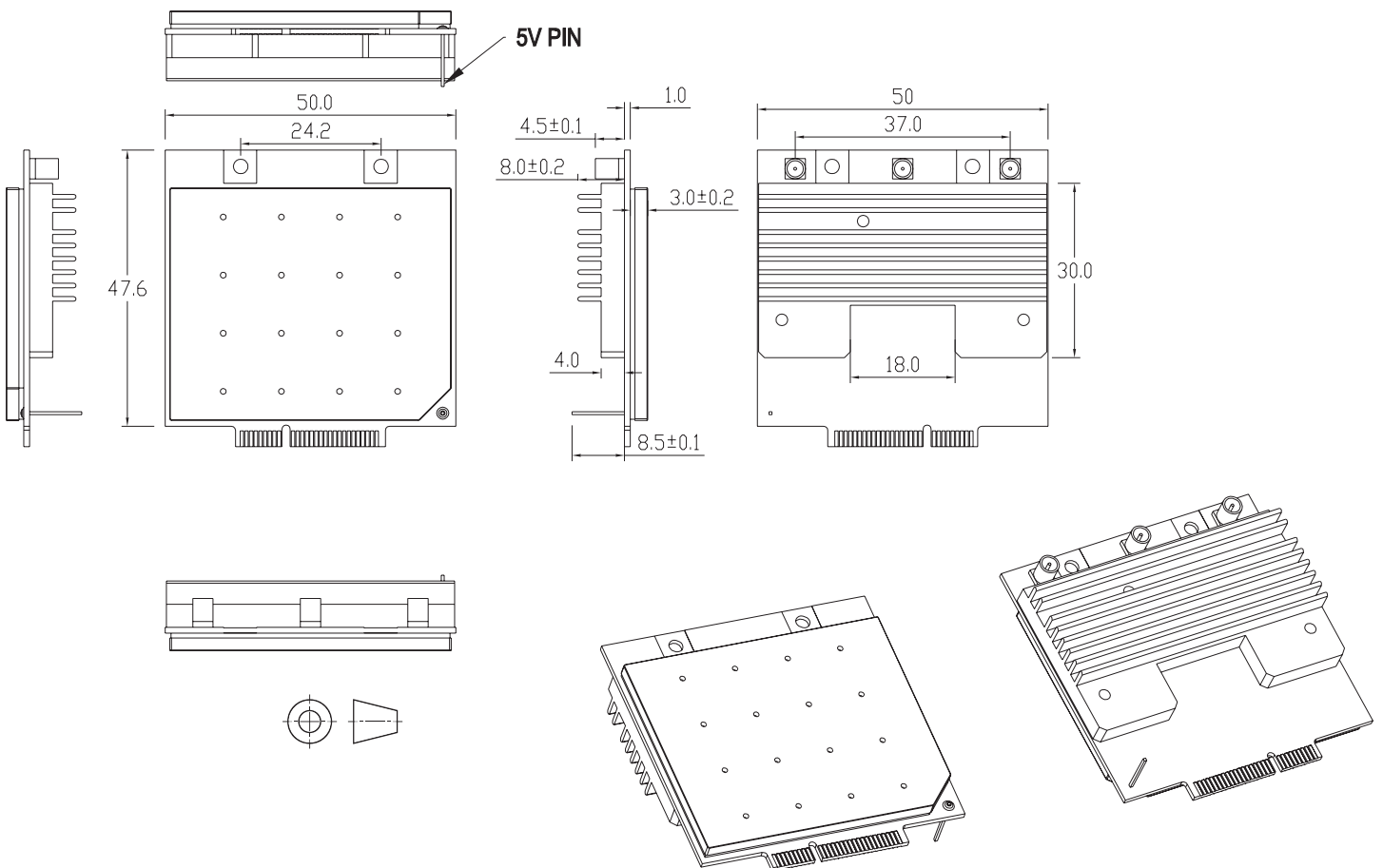
RF Performance Table

	Data Rate	TX Power (per chain)	TX Power (3 chains)	Tolerance
5 GHz 802.11a	6Mbps	27dBm	32dBm	±2dB
	9Mbps	27dBm	32dBm	±2dB
	12Mbps	27dBm	32dBm	±2dB
	18Mbps	27dBm	32dBm	±2dB
	24Mbps	27dBm	32dBm	±2dB
	36Mbps	25dBm	30dBm	±2dB
	48Mbps	24dBm	29dBm	±2dB
	54Mbps	23dBm	28dBm	±2dB
5 GHz 802.11n/ac HT20	MCS 0	26dBm	31dBm	±2dB
	MCS 1	25dBm	30dBm	±2dB
	MCS 2	25dBm	30dBm	±2dB
	MCS 3	24dBm	29dBm	±2dB
	MCS 4	24dBm	29dBm	±2dB
	MCS 5	23dBm	28dBm	±2dB
	MCS 6	22dBm	27dBm	±2dB
	MCS 7	21dBm	26dBm	±2dB
	MCS 8	20dBm	25dBm	±2dB
5 GHz 802.11n/ac HT40	MCS 0	26dBm	31dBm	±2dB
	MCS 1	25dBm	30dBm	±2dB
	MCS 2	25dBm	30dBm	±2dB
	MCS 3	24dBm	29dBm	±2dB
	MCS 4	24dBm	29dBm	±2dB
	MCS 5	23dBm	28dBm	±2dB
	MCS 6	22dBm	27dBm	±2dB
	MCS 7	21dBm	26dBm	±2dB
	MCS 8	20dBm	25dBm	±2dB
	MCS 9	19dBm	24dBm	±2dB
5 GHz 802.11ac HT80	MCS 0	26dBm	31dBm	±2dB
	MCS 1	25dBm	30dBm	±2dB
	MCS 2	25dBm	30dBm	±2dB
	MCS 3	24dBm	29dBm	±2dB
	MCS 4	24dBm	29dBm	±2dB
	MCS 5	23dBm	28dBm	±2dB
	MCS 6	22dBm	27dBm	±2dB
	MCS 7	21dBm	26dBm	±2dB
	MCS 8	20dBm	25dBm	±2dB
	MCS 9	19dBm	24dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
5 GHz 802.11a	6Mbps	-94dBm	±2dB
	9Mbps	-94dBm	±2dB
	12Mbps	-94dBm	±2dB
	18Mbps	-92dBm	±2dB
	24Mbps	-89dBm	±2dB
	36Mbps	-86dBm	±2dB
	48Mbps	-82dBm	±2dB
	54Mbps	-80dBm	±2dB
5 GHz 802.11n/ac HT20	MCS 0	-94dBm	±2dB
	MCS 1	-94dBm	±2dB
	MCS 2	-92dBm	±2dB
	MCS 3	-88dBm	±2dB
	MCS 4	-84dBm	±2dB
	MCS 5	-81dBm	±2dB
	MCS 6	-78dBm	±2dB
	MCS 7	-77dBm	±2dB
	MCS 8	-74dBm	±2dB
5 GHz 802.11n/ac HT40	MCS 0	-94dBm	±2dB
	MCS 1	-94dBm	±2dB
	MCS 2	-92dBm	±2dB
	MCS 3	-88dBm	±2dB
	MCS 4	-84dBm	±2dB
	MCS 5	-81dBm	±2dB
	MCS 6	-78dBm	±2dB
	MCS 7	-77dBm	±2dB
	MCS 8	-73dBm	±2dB
	MCS 9	-71dBm	±2dB
5 GHz 802.11ac HT80	MCS 0	-89dBm	±2dB
	MCS 1	-88dBm	±2dB
	MCS 2	-85dBm	±2dB
	MCS 3	-81dBm	±2dB
	MCS 4	-79dBm	±2dB
	MCS 5	-75dBm	±2dB
	MCS 6	-74dBm	±2dB
	MCS 7	-72dBm	±2dB
	MCS 8	-70dBm	±2dB
	MCS 9	-68dBm	±2dB

Connector Map with Normal Heatsink

Model:WLE900V5-27ESD 8AB

MAC Address:

Antenna Ports
MMCX connectors:
Chain0,
Chain1,
Chain2

Normal Heatsink

MiniPCIe Edge
Connector

5 V External
Power Pin

Mechanical Dimensions with Normal Heatsink

5V PIN

50.0
24.2
47.6

4.5±0.1
8.0±0.2
3.0±0.2
1.0
4.0
8.5±0.1

50
37.0
30.0
18.0

Connector Map with Large Heatsink Option

Model:WLE900V5-27ESD 8AB

MAC Address:

Antenna Ports
MMCX connectors:
Chain2,
Chain1,
Chain0

Large Heatsink

MiniPCIe Edge
Connector
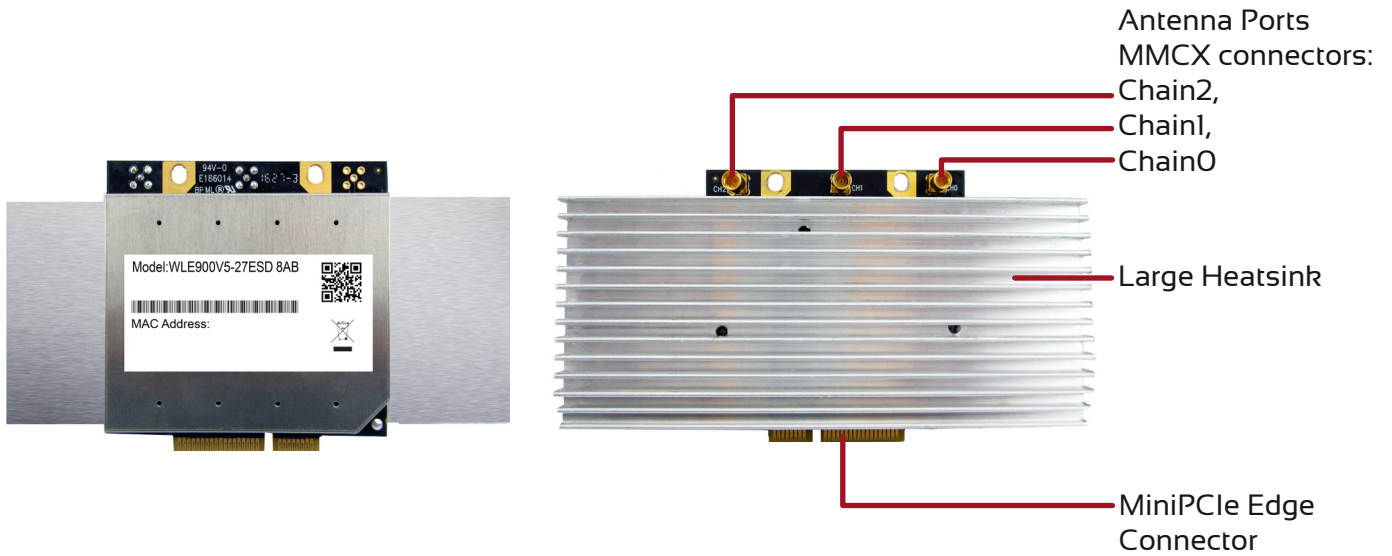
Mechanical Dimensions with Large Heatsink Option

5V PIN

50
18.5   18.5   6.5
40.0
95.0

1.0
3.0±0.2
9.0±0.2
1±0.1

50.0
24.2
51.0   47.6
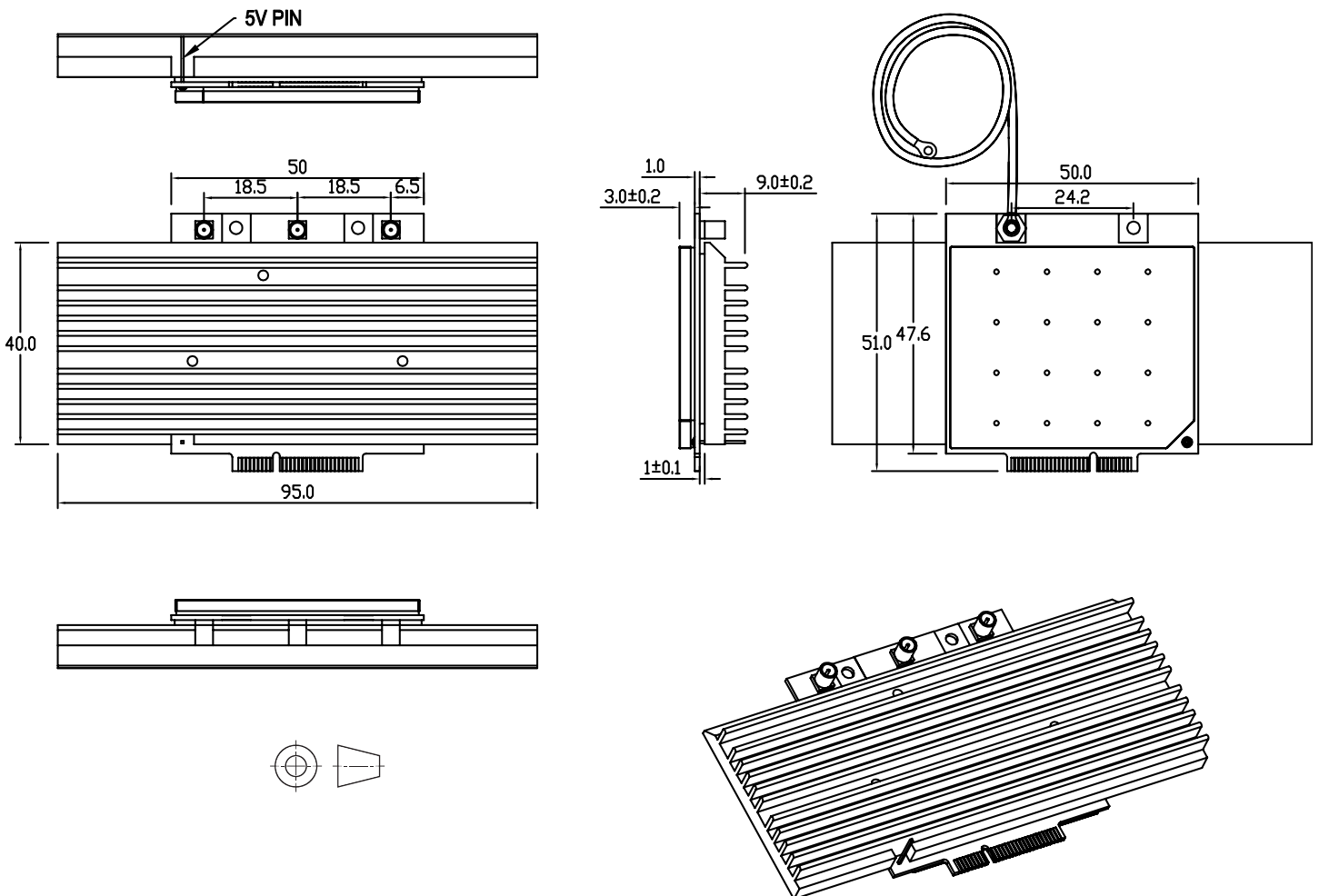
Ordering Configuration

Item Code	Model	Description
WLE900V5-27 8AB000ESD	WLE900V5-27ESD	3x3 802.11a/n/ac 5 GHz High Power with Normal Heatsink
WLE900V5-27 8AB000ESD-LH	WLE900V5-27ESD	3x3 802.11a/n/ac 5 GHz High Power with Large Heatsink