Wireless Module

P-WFBT_AP6356SD Specification

Wi-Fi 802.11 a/b/g/n/ac & Bluetooth 4.1 M.2 Module

P-WFBT_AP6356SD V1.0

P-WFBT_AP6356SD

Wi-Fi 802.11 a/b/g/n/ac & Bluetooth 4.1 M.2 Module

DISCLAIMER
This user's manual is meant to assist users in installing and setting up the system. The information contained in this document is subject to change without any notice.

CE NOTICE
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

	**CAUTION:** Danger of explosion may occur when the battery is incorrectly replaced. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

	**WARNING:** Some internal parts of the system may have high electrical voltage. We strongly recommend that only qualified engineers are allowed to service and disassemble the system. If any damages should occur on the system and are caused by unauthorized servicing, it will not be covered by the product warranty.

Contents

Revision History

The revision history of P-WFBT_AP6356SD Specification is described below:

Version No.	Revision History	Date
V1.0	Initial Release	12/01/2020

1 Introduction

This chapter provides P-WFBT_AP6356SD introduction, features information as well as block diagram for the P-WFBT_AP6356SD M.2 E-Key module.

The following topics are included:

- Introduction
- Features
- Applications
- Block Diagram

1.1 Introduction

Protech **P-WFBT_AP6356SD** is an 802.11 ac/a/b/g/n Dual -Band Wi-Fi + Bluetooth M.2 (Key A, E) module based on Broadcom BCM4356 chipset. It supports Multiple drivers Windows / Linux platform. This module supports MU-MIMO two steams on dual band 2.4GHz or 5GHz operating and incorporates the latest Bluetooth 4.1, the data rate up to 867Mbps on ac mode. The manufacturer of solder down module is AMPAK which technology would like to announce a low-cost and low-power consumption module which has all of the WiFi and Bluetooth functionalities. P-WFBT_AP6356SD is designed by M.2 2230 slot type form factor.

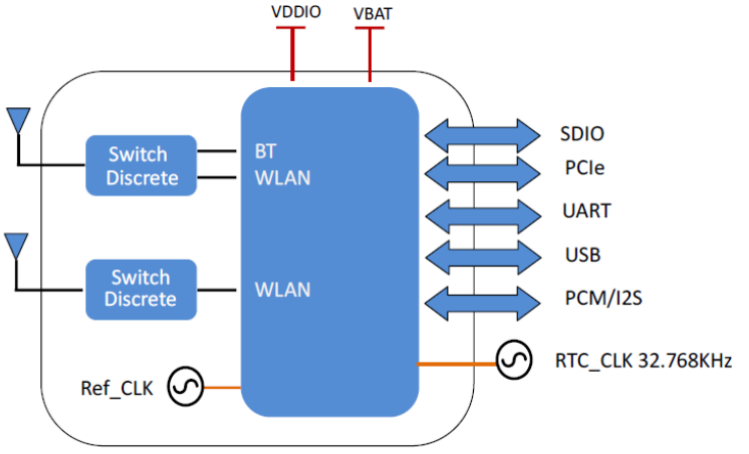
The P-WFBT_AP6356SD is using highly integrated single-chip MIMO (Multiple In, Multiple Out) wireless local area network (WLAN) BCM4356 solution to let users enjoy the high digital content through the latest wireless technology without using cables and cords.

1.2 Features

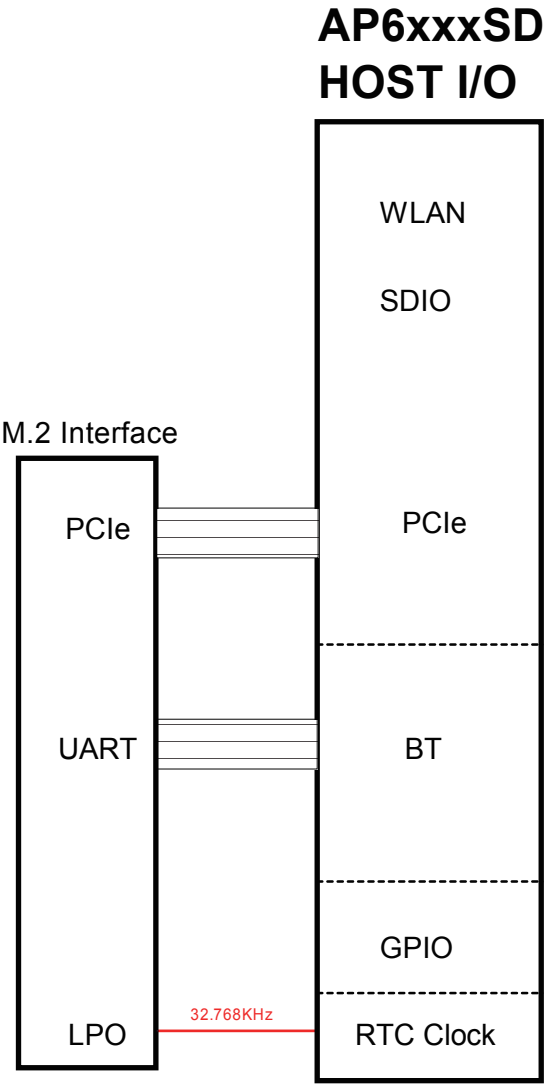
- Single-stream and dual-stream IEEE 802.11ac solution with data rates up to 433.3 and 866.7 Mb/s
- Full IEEE 802.11a/b/g/n dual-band Not Recommended for New Design compatibility with enhanced performance
- Full IEEE 802.11a/b/g/n dual-band Not Recommended for New Design compatibility with enhanced performance

1.3 Applications

- Tablets
- 802.11 Wireless LAN Solutions
- Smart Devices
- Full IEEE 802.11a/b/g/n dual-band Not Recommended for New Design compatibility with enhanced performance



1.4 Block Diagram



2 Deliverables

This chapter provides the package information for P-WFBT_AP6356SD.

The following topic is included:

- Deliverables

2.1 Deliverables

If you discover any of the items listed below are damaged or lost, please contact your local distributor immediately.

Item	Q'ty
M.2 E-Key Module	1

3 General Specification

This chapter provides the general specification and voltages information for P-WFBT_AP6356SD.

The following topics are included:

- General Specification
- Voltages

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3.1 General Specification

Model Name	➢ P-WFBT_AD6356SD
Product Description	➢ Support Wi-Fi/Bluetooth functionalities
Dimensions	➢ L x W x H: 16 x 12 x 1.6 (typical) mm
Wi-Fi Interface	➢ Support PCIe
BT Interface	➢ UART / USB / PCM
Wi-Fi RF Specification	➢ 2.4GHz RF Specification: Conditions: VBAT=3.3V ; VDDIO=3.3V ; Temp.:25°C
Package	➢ M.2
Total Pins	➢ 75 pins
Operating Temperature	➢ -10°C to 65°C
Storage Temperature	➢ -40°C to 85°C
Humidity	➢ Operating Humidity 10% to 95% Non-Condensing ➢ Storage Humidity 5% to 95% Non-Condensing

3.2 Voltages

3.2.1 Absolute Maximum Ratings

Symbol	Description	Min.	Max.	Unit
VBAT	Input supply Voltage	-0.5	5.5	V
VDDIO	Digital/Bluetooth/SDIO/ I/O Voltage	-0.5	3.8	V

3.2.2 Recommended Operating Rating

The module requires two power supplies: VBAT and VDDIO.

Description	Min.	Typ.	Max.	Unit
Operating Temperature	-10	25	65	°C
VBAT	3.0	3.3	3.8	V
VDDIO	1.7	-	3.6	V

4 Wi-Fi RF Specification

This chapter contains helpful information about 2.4GHz Wi-Fi RF specification, 5GHz RF Specification, 5GHz (20MHz) Channel table information and Bluetooth Specification.

The following topics are included:

- 2.4GHz Wi-Fi RF Specification
- 5GHz RF Specification
- 5GHz (20MHz) Channel Table
- Bluetooth Specification

4.1 2.4GHz Wi-Fi RF Specification

Conditions: VBAT=3.3V; VDDIO=3.3V; Temp.: 25°C

Feature	Description
WLAN Standard	IEEE 802.11a/b/g/n/ac Wi-Fi compliant
Frequency Range	2.400 GHz ~ 2.483 GHz (2.4 GHz ISM Band)
Number of Channels	2.4GHz：Ch1 ~ Ch13
Modulation	802.11b : DQPSK, DBPSK, CCK 802.11 g/n : OFDM /64-QAM,16-QAM, QPSK, BPSK
Output Power	➢ 802.11b /11Mbps : 16 dBm ± 1.5 dB @ EVM ≤ -9dB ➢ 802.11g /54Mbps : 15 dBm ± 1.5 dB @ EVM ≤ -25dB ➢ 802.11n@20MHz /MCS7: 14 dBm ± 1.5 dB @ EVM ≤ -27dB
SISO Receive Sensitivity (11b, 20MHz) @8% PER	➢ 1Mbps PER @ -93 dBm, +/-2dB ➢ 2Mbps PER @ -91 dBm, +/-2dB ➢ 5.5Mbps PER @ -88 dBm, +/-2dB ➢ 11Mbps PER @ -86 dBm, +/-2dB
SISO Receive Sensitivity (11g, 20MHz) @10% PER	➢ 6Mbps PER @ -90 dBm, +/-2dB ➢ 9Mbps PER @ -89 dBm, +/-2dB ➢ 12Mbps PER @ -88 dBm, +/-2dB ➢ 18Mbps PER @ -85 dBm, +/-2dB ➢ 24Mbps PER @ -82 dBm, +/-2dB ➢ 36Mbps PER @ -79 dBm, +/-2dB ➢ 48Mbps PER @ -74 dBm, +/-2dB ➢ 54Mbps PER @ -72 dBm, +/-2dB
MIMO Receive Sensitivity (11g, 20MHz) @10% PER	➢ 6Mbps PER @ -91 dBm, +/-2dB ➢ 9Mbps PER @ -91 dBm, +/-2dB ➢ 12Mbps PER @ -90 dBm, +/-2dB ➢ 18Mbps PER @ -88 dBm, +/-2dB ➢ 24Mbps PER @ -85 dBm, +/-2dB ➢ 36Mbps PER @ -82 dBm, +/-2dB ➢ 48Mbps PER @ -77 dBm, +/-2dB ➢ 54Mbps PER @ -75 dBm, +/-2dB
SISO Receive Sensitivity	➢ MCS=0 PER @ -90 dBm, +/-2dB

Feature	Description
(11n, 20MHz) @10% PER	➢ MCS=1 PER @ -87 dBm, +/-2dB ➢ MCS=2 PER @ -85 dBm, +/-2dB ➢ MCS=3 PER @ -81 dBm, +/-2dB ➢ MCS=4 PER @ -78 dBm, +/-2dB ➢ MCS=5 PER @ -73 dBm, +/-2dB ➢ MCS=6 PER @ -72 dBm, +/-2dB ➢ MCS=7 PER @ -70 dBm, +/-2dB
MIMO Receive Sensitivity (11n, 20MHz) @10% PER	➢ MCS=0 PER @ -91 dBm, +/-2dB ➢ MCS=1 PER @ -90 dBm, +/-2dB ➢ MCS=2 PER @ -88 dBm, +/-2dB ➢ MCS=3 PER @ -85 dBm, +/-2dB ➢ MCS=4 PER @ -81 dBm, +/-2dB ➢ MCS=5 PER @ -76 dBm, +/-2dB ➢ MCS=6 PER @ -74 dBm, +/-2dB ➢ MCS=7 PER @ -71 dBm, +/-2dB ➢ MCS=8 PER @ -88 dBm, +/-2dB ➢ MCS=15 PER @ -69 dBm, +/-2dB
Maximum Input Level	➢ 802.11b : -10 dBm
	➢ 802.11g/n : -20 dBm
Antenna Reference	➢ Small antennas with 2.5 dBi Max peak gain

4.2 5GHz RF Specification

Conditions: VBAT= 3.3V; VDDIO= 3.3V; Temp.: 25°C

Feature	Description
WLAN Standard	➢ IEEE 802.11a/n 2x2, Wi-Fi compliant
Frequency Range	➢ 4.900 GHz ~ 5.845 GHz (5.0 GHz ISM Band)
Number of Channels	➢ 5.0GHz: Please see the Table1.
Modulation	➢ 802.11a: OFDM /64-QAM,16-QAM, QPSK, BPSK ➢ 802.11n: OFDM /64-QAM,16-QAM, QPSK, BPSK ➢ 802.11ac: OFDM /256-QAM
Output Power	➢ 802.11a /54Mbps: 13 dBm ± 1.5 dB @ EVM ≤ -25dB ➢ 802.11n /MCS7: 12 dBm ± 1.5 dB @ EVM ≤ -27dB ➢ 802.11ac /MCS9: 10 dBm ± 1.5 dB @ EVM ≤ -32dB
SISO Receive Sensitivity (11a, 20MHz) @10% PER	➢ 6Mbps PER @ -90 dBm, +/-2dB ➢ 9Mbps PER @ -88 dBm, +/-2dB ➢ 12Mbps PER @ -87 dBm, +/-2dB ➢ 18Mbps PER @ -84 dBm, +/-2dB ➢ 24Mbps PER @ -81 dBm, +/-2dB ➢ 36Mbps PER @ -78 dBm, +/-2dB ➢ 48Mbps PER @ -73 dBm, +/-2dB ➢ 54Mbps PER @ -71 dBm, +/-2dB
MIMO Receive Sensitivity (11a, 20MHz) @10% PER	➢ 6Mbps PER @ -90 dBm, +/-2dB ➢ 9Mbps PER @ -90 dBm, +/-2dB ➢ 12Mbps PER @ -89 dBm, +/-2dB ➢ 18Mbps PER @ -87 dBm, +/-2dB ➢ 24Mbps PER @ -84 dBm, +/-2dB ➢ 36Mbps PER @ -81 dBm, +/-2dB ➢ 48Mbps PER @ -76 dBm, +/-2dB ➢ 54Mbps PER @ -72 dBm, +/-2dB
SISO Receive Sensitivity (11n, 20MHz) @10% PER	➢ MCS=0 PER @ -89 dBm, +/-2dB ➢ MCS=1 PER @ -86 dBm, +/-2dB ➢ MCS=2 PER @ -84 dBm, +/-2dB ➢ MCS=3 PER @ -81 dBm, +/-2dB ➢ MCS=4 PER @ -77 dBm, +/-2dB

Feature	Description
	➢ MCS=5 PER @ -72 dBm, +/-2dB ➢ MCS=6 PER @ -71 dBm, +/-2dB ➢ MCS=7 PER @ -69 dBm, +/-2dB
MIMO Receive Sensitivity (11n, 20MHz) @10% PER	➢ MCS=0 PER @ -90 dBm, +/-2dB ➢ MCS=1 PER @ -89 dBm, +/-2dB ➢ MCS=2 PER @ -87 dBm, +/-2dB ➢ MCS=3 PER @ -84 dBm, +/-2dB ➢ MCS=4 PER @ -80 dBm, +/-2dB ➢ MCS=5 PER @ -75 dBm, +/-2dB ➢ MCS=6 PER @ -74 dBm, +/-2dB ➢ MCS=7 PER @ -72 dBm, +/-2dB ➢ MCS=8 PER @ -89 dBm, +/-2dB ➢ MCS=15 PER @ -69 dBm, +/-2dB
SISO Receive Sensitivity (11n, 40MHz) @10% PER	➢ MCS=0 PER @ -86 dBm, +/-2dB ➢ MCS=1 PER @ -83 dBm, +/-2dB ➢ MCS=2 PER @ -81 dBm, +/-2dB ➢ MCS=3 PER @ -78 dBm, +/-2dB ➢ MCS=4 PER @ -74 dBm, +/-2dB ➢ MCS=5 PER @ -70 dBm, +/-2dB ➢ MCS=6 PER @ -68 dBm, +/-2dB ➢ MCS=7 PER @ -67 dBm, +/-2dB
MIMO Receive Sensitivity (11n, 40MHz) @10% PER	➢ MCS=0 PER @ -88 dBm, +/-2dB ➢ MCS=1 PER @ -86 dBm, +/-2dB ➢ MCS=2 PER @ -84 dBm, +/-2dB ➢ MCS=3 PER @ -81 dBm, +/-2dB ➢ MCS=4 PER @ -77 dBm, +/-2dB ➢ MCS=5 PER @ -73 dBm, +/-2dB ➢ MCS=6 PER @ -71 dBm, +/-2dB ➢ MCS=7 PER @ -70 dBm, +/-2dB ➢ MCS=8 PER @ -86 dBm, +/-2dB ➢ MCS=15 PER @ -67 dBm, +/-2dB
SISO Receive Sensitivity (11ac, 20MHz) @10% PER	➢ MCS=0, NSS1 PER @ -87 dBm, +/-2dB ➢ MCS=1, NSS1 PER @ -85 dBm, +/-2dB ➢ MCS=2, NSS1 PER @ -83 dBm, +/-2dB

Feature	Description
	➢ MCS=3, NSS1 PER @ -80 dBm, +/-2dB ➢ MCS=4, NSS1 PER @ -76 dBm, +/-2dB ➢ MCS=5, NSS1 PER @ -71 dBm, +/-2dB ➢ MCS=6, NSS1 PER @ -70 dBm, +/-2dB ➢ MCS=7, NSS1 PER @ -69 dBm, +/-2dB ➢ MCS=8, NSS1 PER @ -65 dBm, +/-2dB
MIMO Receive Sensitivity (11ac, 20MHz) @10% PER	➢ MCS=0, NSS1 PER @ -89 dBm, +/-2dB ➢ MCS=1, NSS1 PER @ -88 dBm, +/-2dB ➢ MCS=2, NSS1 PER @ -86 dBm, +/-2dB ➢ MCS=3, NSS1 PER @ -83 dBm, +/-2dB ➢ MCS=4, NSS1 PER @ -79 dBm, +/-2dB ➢ MCS=5, NSS1 PER @ -74 dBm, +/-2dB ➢ MCS=6, NSS1 PER @ -73 dBm, +/-2dB ➢ MCS=7, NSS1 PER @ -72 dBm, +/-2dB ➢ MCS=8, NSS1 PER @ -68 dBm, +/-2dB ➢ MCS=0, NSS2 PER @ -88 dBm, +/-2dB ➢ MCS=8, NSS2 PER @ -64 dBm, +/-2dB
SISO Receive Sensitivity (11ac, 40MHz) @10% PER	➢ MCS=0, NSS1 PER @ -85 dBm, +/-2dB ➢ MCS=1, NSS1 PER @ -82 dBm, +/-2dB ➢ MCS=2, NSS1 PER @ -80 dBm, +/-2dB ➢ MCS=3, NSS1 PER @ -77 dBm, +/-2dB ➢ MCS=4, NSS1 PER @ -74 dBm, +/-2dB ➢ MCS=5, NSS1 PER @ -69 dBm, +/-2dB ➢ MCS=6, NSS1 PER @ -68 dBm, +/-2dB ➢ MCS=7, NSS1 PER @ -67 dBm, +/-2dB ➢ MCS=8, NSS1 PER @ -62 dBm, +/-2dB ➢ MCS=9, NSS1 PER @ -61 dBm, +/-2dB
MIMO Receive Sensitivity (11ac, 40MHz) @10% PER	➢ MCS=0, NSS1 PER @ -87 dBm, +/-2dB ➢ MCS=1, NSS1 PER @ -85 dBm, +/-2dB ➢ MCS=2, NSS1 PER @ -83 dBm, +/-2dB ➢ MCS=3, NSS1 PER @ -80 dBm, +/-2dB ➢ MCS=4, NSS1 PER @ -77 dBm, +/-2dB ➢ MCS=5, NSS1 PER @ -72 dBm, +/-2dB ➢ MCS=6, NSS1 PER @ -71 dBm, +/-2dB

Feature	Description
	➢ MCS=7, NSS1 PER @ -70 dBm, +/-2dB ➢ MCS=8, NSS1 PER @ -65 dBm, +/-2dB ➢ MCS=9, NSS1 PER @ -64 dBm, +/-2dB ➢ MCS=0, NSS2 PER @ -85 dBm, +/-2dB ➢ MCS=9, NSS2 PER @ -60 dBm, +/-2dB
SISO Receive Sensitivity (11ac, 80MHz) @10% PER	➢ MCS=0, NSS1 PER @ -82 dBm, +/-2dB ➢ MCS=1, NSS1 PER @ -79 dBm, +/-2dB ➢ MCS=2, NSS1 PER @ -77 dBm, +/-2dB ➢ MCS=3, NSS1 PER @ -73 dBm, +/-2dB ➢ MCS=4, NSS1 PER @ -70 dBm, +/-2dB ➢ MCS=5, NSS1 PER @ -67 dBm, +/-2dB ➢ MCS=6, NSS1 PER @ -65 dBm, +/-2dB ➢ MCS=7, NSS1 PER @ -63 dBm, +/-2dB ➢ MCS=9, NSS1 PER @ -59 dBm, +/-2dB ➢ MCS=9, NSS1 PER @ -57 dBm, +/-2dB
MIMO Receive Sensitivity (11ac, 80MHz) @10% PER	➢ MCS=0, NSS1 PER @ -83 dBm, +/-2dB ➢ MCS=1, NSS1 PER @ -82 dBm, +/-2dB ➢ MCS=2, NSS1 PER @ -80 dBm, +/-2dB ➢ MCS=3, NSS1 PER @ -76 dBm, +/-2dB ➢ MCS=4, NSS1 PER @ -73 dBm, +/-2dB ➢ MCS=5, NSS1 PER @ -70 dBm, +/-2dB ➢ MCS=6, NSS1 PER @ -68 dBm, +/-2dB ➢ MCS=7, NSS1 PER @ -66 dBm, +/-2dB ➢ MCS=8, NSS1 PER @ -62 dBm, +/-2dB ➢ MCS=9, NSS1 PER @ -60 dBm, +/-2dB ➢ MCS=0, NSS2 PER @ -81 dBm, +/-2dB ➢ MCS=9, NSS2 PER @ -56 dBm, +/-2dB
Maximum Input Level	➢ 802.11a/n : -30 dBm
Antenna Reference	➢ Small antennas with 2.5 dBi Max peak gain

4.3 5GHz (20MHz) Channel Table

Conditions: VBAT= 3.3V; VDDIO= 3.3V; Temp.: 25°C

Band (GHz)	Operating Channel Numbers	Channel Center Frequencies(MHz)
5.15GHz ~ 5.25GHz	36	5180
	40	5200
	44	5220
	48	5240
5.25GHz ~ 5.35GHz	52	5260
	56	5280
	60	5300
	64	5320
5.5GHz ~ 5.7GHz	100	5500
	104	5520
	108	5540
	112	5560
	116	5580
	120	5600
	124	5620
	128	5640
	132	5660
	136	5680
	140	5700
5.725GHz ~ 5.825GHz	149	5745
	153	5765
	157	5785
	161	5805

4.4 Bluetooth Specification

Conditions: VBAT= 3.6V; VDDIO= 3.3V; Temp.: 25°C

Feature	Description		
General Specification			
Bluetooth Standard	Bluetooth V4.1 of 1, 2 and 3 Mbps.		
Antenna Reference	Small antennas with 2.5 dBi Max peak gain		
Frequency Band	2402 MHz ~ 2480 MHz		
Number of Channels	79 channels		
Modulation	FHSS, GFSK, DPSK, DQPSK		
RF Specification			
	Min.	**Typical.**	**Max.**
Output Power[1]	0	-	10
Sensitivity @ BER=0.1% for GFSK (1Mbps)		-86 dBm	
Sensitivity @ BER=0.01% for π/4-DQPSK (2Mbps)		-88 dBm	
Sensitivity @ BER=0.01% for 8DPSK (3Mbps)		-80 dBm	
Maximum Input Level	GFSK (1Mbps): -20dBm		
	π/4-DQPSK (2Mbps): -20dBm		
	8DPSK (3Mbps): -20dBm		

Note[1]: Output power can be configured by HCD firmware.

5 Pin Assignments

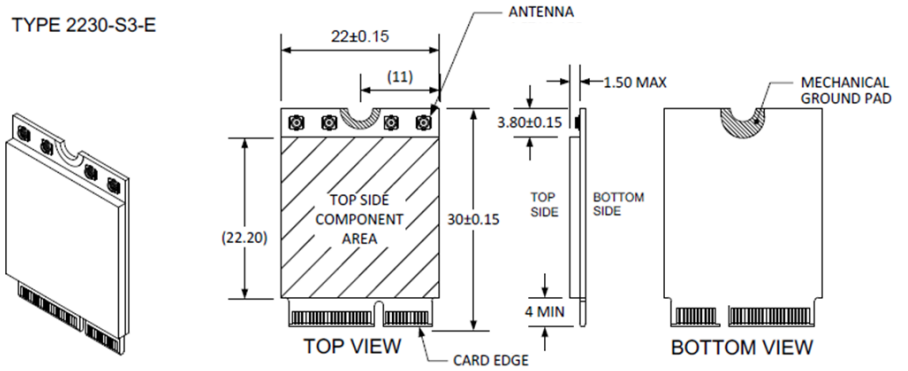
This chapter provides the pin assignments for M.2 E-Key connector, M.2 E-Key module connector schematics:

The following topics are included:

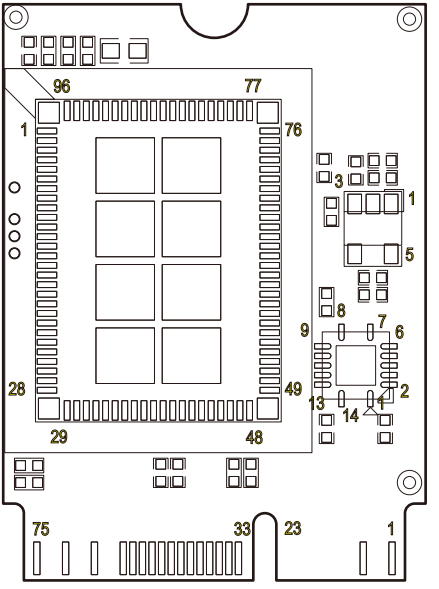
- M.2 2230 E-key Pinout
- Pin Map
- M.2 2230 E-key Pinout
- Pin Assignments
- M.2 E-Key Schematics

5.1 M.2 2230 E-key Pinout

75-Pin Pinout



5.2 Pin Map

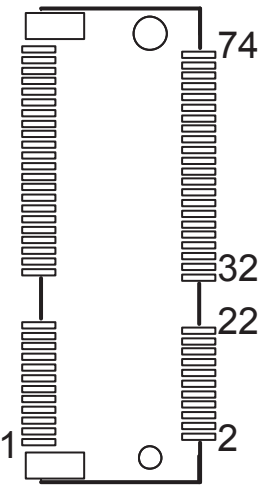


Top View

5.3 Pin Assignments

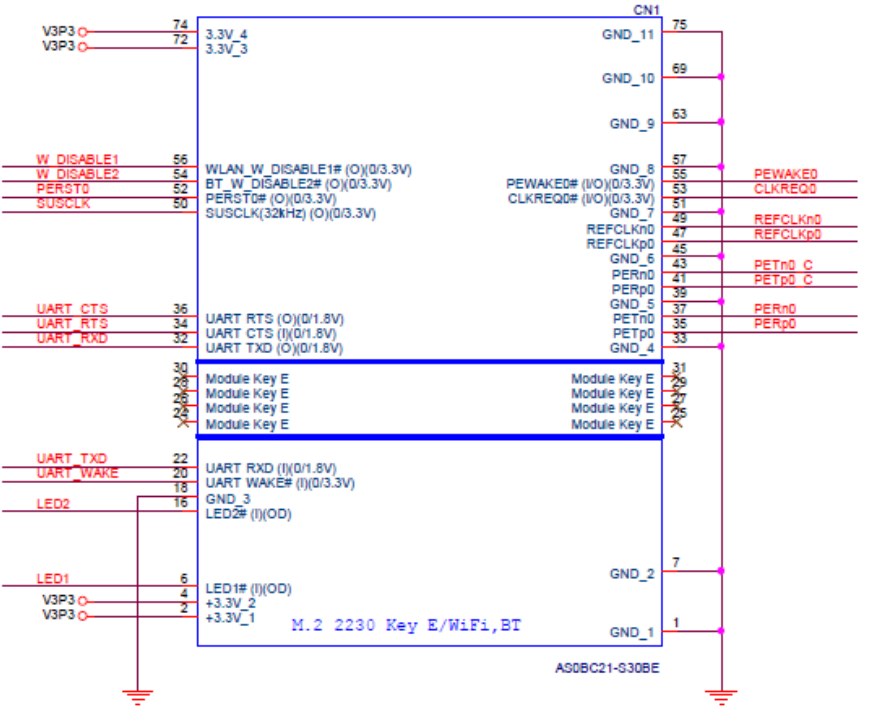
M.2 E_Key Connector signals:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	V3P3A_WI-FI
3	NC	4	V3P3A_WI-FI
5	NC	6	LED1
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	LED2
17	NC	18	GND
19	NC	20	BT_HOST_WAKE_R
21	NC	22	UART1_RXD
23	NC	24	NC
25	NC	26	NC
27	NC	28	NC
29	NC	30	NC
31	NC	32	UART1_TXD
33	NC	34	UART1_CTS
35	PCIE_RXP0	36	UART1_RTS
37	PCIE_RXN0	38	NC
39	GND	40	NC
41	PCIE_TXP0	42	NC
43	PCIE_TXN0	44	NC
45	GND	46	NC
47	PCIE_REFCLK0_P	48	NC
49	PCIE_REFCLK0_N	50	2IFI_SUSCLK
51	GND	52	PERSTO
53	PCIE_CLKREQ0	54	DISABLE
55	PCIE_WAKEJ	56	W_DISABLE
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	NC
71	NC	72	V3P3A_WI-FI
73	NC	74	V3P3A_WI-FI
75	GND	-	-



M.2 Key-E

5.4 M.2 E-Key Schematics



Appendix A FCC Statement

This appendix includes the information for FCC Statement for the system.

- FCC Statement

FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and a human body.

If the identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module, Contains **FCC ID: P-WFBT-AP6356**.

Co-location of this module with other transmitters that operate simultaneously is required to be evaluated using the multi-transmitter procedures. The host integrator must follow the integration instructions provided in this document and ensure that the composite-system end product complies with the requirements by a technical assessment or evaluation to the rules and to KDB Publication 996369.

The host integrator installing this module into their product must ensure that the final composite product complies with the requirements by a technical assessment or evaluation to the rules, including the transmitter operation and should refer to guidance in KDB 996369.