

AW-XH327-SUR

IEEE 802.11 a/b/g/n/ac/ax Wi-Fi

+ Bluetooth 5.2 Combo SIP Module

Datasheet

Rev.A

DF

(For Standard)

1



Features

WiFi

- 802.11a/b/g/n/ac/ax compliant, tri-band capable (2.4/5 GHz).
- 5 GHz: 20/40/80-MHz channels, 1024-QAM, 2x2 MIMO providing up to 1.2 Gbps PHY data rate.
- 2.4 GHz: 20/40-MHz channels, 1024-QAM, 2x2 MIMO providing up to 574 Mbps PHY date rate.
- 802.11ax STA mode and Soft AP mode with 11ax scheduled access.
- Supports 802.11d, h, k, r, v, w, ai.
- Zero-wait dynamic frequency selection (DFS): Background channel availability check (CAC) scan for immediate switch to candidate DFS channel.
- On-chip power amplifiers and low-noise amplifiers.
- Supports multipoint external coexistence interface to optimize bandwidth utilization with other co-located wireless technologies such as LTE.
- Fast VSDB (Virtual Simultaneous Dual Band)
- WPA, WAPI STA, WPA2 (Enterprise) and WPA3 (Enterprise) support for powerful encryption and authentication
- AES and TKIP in hardware for faster data encryption and IEEE 802.11i compatibility
- Reference WLAN subsystem provides Wi-Fi Protected Setup (WPS)
- Worldwide regulatory support: Global products supported with worldwide homologated design
- Integrated Arm® Cortex® R4 processor with

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tightly coupled memory for complete WLAN subsystem functionality. This architecture offloads the host processor completely from WLAN functionality.

- Transmission and reception of HE-SU and HE-ER-SU PPDU.
- Reception of HE-MU PPDU -OFDMA/MU-MIMO Frame.
- Transmission of HE-TB PPDU (Uplink MU OFDMA).

Bluetooth

- Bluetooth 5.2 (BDR + EDR + BLE).
- All Bluetooth 5.0/5.1/5.2 optional features supported including LE-Audio.
- Dedicated Bluetooth RF path for best WLAN-BT coexistence performance.
- Bluetooth Class 1 or Class 2 transmitter operation.
- Supports extended synchronous connections (eSCO), for enhanced voice quality by allowing for retransmission of dropped packets.
- Adaptive frequency hopping (AFH) for reducing radio frequency interference.
- Interface support, host controller interface (HCI) using a high-speed UART interface and PCM/I2S for audio data.
- Supports multiple simultaneous Advanced Audio Distribution.
- Profiles (A2DP) for stereo sound.
- On-chip memory includes 512 KB SRAM and 2 MB ROM.

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Revision History

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Version	Revision Date	DCN NO.		Description	Initials	Approved
Α	2023/04/24	DCN029131	•	Initial Version	Barry Tsai	N.C. Chen



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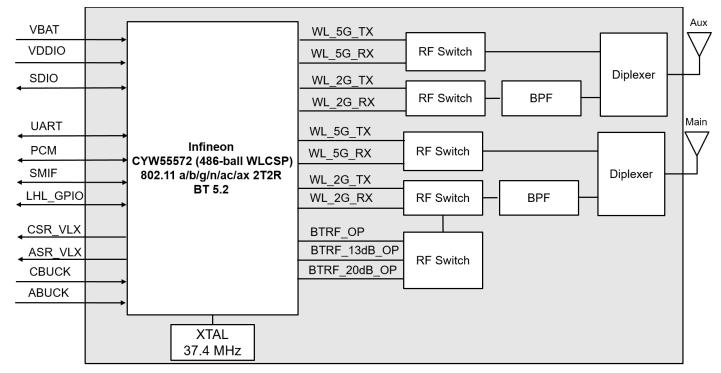
1. Introduction

1.1 Product Overview

The AW-XH327-SUR device provides the highest level of integration for Commercial and Consumer IoT wireless systems with integrated dual-band 2x2 MIMO IEEE 802.11ax WLAN MAC/baseband/radio, Bluetooth 5.2 MAC/baseband/radio, and integrated Power Management Unit. WLAN and Bluetooth radios also include on-chip power amplifiers and low-noise amplifiers to further reduce the need for external components.

WLAN interfaces to host processor through a SDIO 3.0 interface while Bluetooth host interface is provided through high-speed 4-wire UART interface. Additionally, the Bluetooth section supports PCM and I2S interfaces for audio applications.

AW-XH327-SUR is qualified to operate across Industrial (-40 °C to +85 °C) temperature range.



1.2 Block Diagram

AW-XH327-SUR Block Diagram



1.3 Specifications Table

1.3.1 General

Features	Description
Product Description	IEEE 802.11 a/b/g/n/ac/ax Wi-Fi + Bluetooth 5.2 Combo SIP Module
Major Chipset	Infineon CYW55572 (486-ball WLCSP)
Host Interface	WiFi + BT • SDIO + UART Note: Please refer to G10 pin of 2.3 Host configuration interface table for your interface choice
Dimension	10mm x 10mm x 1.26mm
Form factor	• Sip module,117 pins
Antenna	2T2R, external ANT1(Main) : WiFi/Bluetooth → TX/RX ANT2(Aux) : WiFi → TX/RX
Weight	TBD

1.3.2 WLAN

Features	Description
WLAN Standard	IEEE 802.11 a/b/g/n/ac/ax 2T2R
WLAN VID/PID	N/A
WLAN SVID/SPID	N/A
Frequency Rage	WLAN: 2.4 / 5 GHz Band
Modulation	DSSS DBPSK(1Mbps), DQPSK(2Mbps), CCK(11/5.5Mbps) OFDM BPSK(9/6Mbps/MCS0), QPSK(18/12Mbps/MCS1~2), 16-QAM(36/24Mbps/MCS3~4), 64-QAM(72.2/54/48Mbps/MCS5~7), 256-QAM(MCS8~9), 1024-QAM(MCS10~11)
Number of Channels	 2.4GHz USA, Canada and Taiwan – 1 ~ 11 China, Most European Countries – 1 ~ 13 Japan, 1 ~ 13

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	5GHz ● USA, EUROPE – 3	6, 40, 44, 4	48, 52, 56,	60, 64, 10	00, 104, 108,		
	112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165						
	2.4G						
		Min	Тур	Max	Unit		
	11b (11Mbps) @EVM<8%	18	19.5	21	dBm		
	11g (54Mbps) @EVM≦-25 dB	16.5	18	19.5	dBm		
	11n (HT20 MCS7) @EVM≦-27 dB	14.5	16	17.5	dBm		
	11ax (HE20 MCS11) @EVM≦-35 dB	13.5	15	16.5	dBm		
	5G						
		Min	Тур	Max	Unit		
	11a (54Mbps) @EVM<-25 dB	14.5	16.5	18.5	dBm		
Output Power ¹ (Board Level Limit) [*]	11n (HT20 MCS7) @EVM≦-27 dB	13.5	15.5	17.5	dBm		
	11n (HT40 MCS7) @EVM≦-27 dB	13.5	15.5	17.5	dBm		
	11ac (VHT20 MCS8) @EVM≦-30 dB	12	14	16	dBm		
	11ac (VHT40 MCS9) @EVM≦-32 dB	10.5	12.5	14.5	dBm		
	11ac (VHT80 MCS9) @EVM≦-32 dB	9.5	11.5	13.5	dBm		
	11ax (HE20 MCS11) @EVM≦-35 dB	11	13	15	dBm		
	11ax (HE40 MCS11) @EVM≦-35 dB	11	13	15	dBm		
	11ax (HE80 MCS11) @EVM≦-35 dB	10	12	14	dBm		

¹ Unless otherwise stated, limit values apply for an ambient temperature of +25 °C.

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	2.4G					
		Min	Тур	Max	Unit	
	11b (11Mbps)		-89	-85	dBm	
	11g (54Mbps)		-77	-74	dBm	
	11n (HT20 MCS7)		-75	-72	dBm	
	11ax (HE20 MCS11)		-64	-61	dBm	
	5G(n/ac packets with I	LDPC)				
Receiver Sensitivity**		Min	Тур	Max	Unit	
	11a (54Mbps)		-74	-71	dBm	
	11n (HT20 MCS7)		-72	-69	dBm	
	11n (HT40 MCS7)		-69	-66	dBm	
	11ac (VHT20 MCS8)		-67	-64	dBm	
	11ac (VHT40 MCS9)		-63	-60	dBm	
	11ac (VHT80 MCS9)		-60	-57	dBm	
	11ax (HE20 MCS11)		-61	-58	dBm	
	11ax (HE40 MCS11)		-56	-53	dBm	
	11ax (HE80 MCS11)		-55	-52	dBm	
Data Rate	802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0~7 HT20/HT40 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11ac: MCS0~8 VHT20 802.11ac: MCS0~9 VHT40/VHT80 802.11ax: MCS10~11 HE20/HE40/HE80					
Security	 WEP WPA/WPA2/WPA3 Enterprise with 192-bit encryption WMM, WMM-PS (U-APSD), WMM-SA AES (hardware accelerator), TKIP (hardware accelerator) CKIP (software support) 					

* If you have any certification questions about output power please contact FAE directly ** Project is in engineering stage, RF performance is still being verified.

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1.3.3 Bluetooth

Features	Description				
Bluetooth Standard	Bluetooth 5.2				
Bluetooth VID/PID	N/A				
Frequency Rage	2400~2483.5MHz				
Modulation	GFSK (1Mbps), Π/4DQPSK (2Mbps) and 8DPSK (3Mbps)				
Output Power*	BDR Low Energy (2MHz)	Min 4 4	Тур 7 7	Max 10 10	Unit dBm dBm
Receiver Sensitivity**	BDR EDR Low Energy (2MHz)	Min	Typ -90 -86 -92	Max -87 -83 -89	Unit dBm dBm dBm

* If you have any certification questions about output power please contact FAE directly ** Project is in engineering stage, RF performance is still being verified.

1.3.4 Operating Conditions

Features	Description					
	Operating Conditions					
Voltage	3.3V					
Operating Temperature	-40°C to 85°C					
Operating Humidity	less than 85% R.H.					
Storage Temperature	-40°C to 125°C					
Storage Humidity	less than 60% R.H.					
ESD Protection						
Human Body Model	TBD					
Changed Device Model	TBD					



2. Pin Definition

2.1 Pin Map

(Al)	A2	A3	(44)	A5	A6	(A7)	A 8	(A9	A10	A1)
B1)	B2	B3	B 4)	B 5	B 6	B7		B9	®10	®11)
©1)	(2)		C 4	C5	6	07	(C8)		C10	C1)
(D1)	02	D 3	D 4	05	16	07	D 8	09	010	
E1)	E2		E 4	E5	E6	Ð	E 8	E9	€10	€1)
(F1)	F2	F 3	F4	F5	F6	Ð	F 8	F9	(1)	£1)
G1	62	63	G 4	65	66	67	68	69	610	(11)
H1	H2	H3	(H4)	(H5)	(H6)	(H)	(H8)	(H9)	(11)	(H1)
(L)	B	J3	J4)	J5	J6	J7)	J8	J9		
(K1)	K2)	K3	K4)	K5	K6	K7)	K8	K9	(10	K1)
(1)	0	3	\mathbb{Q}	(5	6	Ø	(8)	0		

AW-XH327-SUR Pin Map (Top View)



2.2 Pin Table

Pin No	Definition	Basic Description	Voltage	Туре
A1	GND	Ground.		GND
A2	RESERVED	Please don't connect to this pin.		N/A
A3	RESERVED	Please don't connect to this pin.		N/A
A4	RESERVED	Please don't connect to this pin.		N/A
A5	RESERVED	Please don't connect to this pin.		N/A
A6	RESERVED	Please don't connect to this pin.		N/A
A7	RESERVED	Please don't connect to this pin.		N/A
A8	GND	Ground.		GND
A9	CSR_VLX	CSR Power Stage Output to Inductor	0.9V	0
A10	ASR_VLX	ASR Power Stage Output to Inductor	1.12V	0
A11	GND	Ground.		GND
B1	GND	Ground.		GND
B2	GND	Ground.		GND
B3	GND	Ground.		GND
B4	GND	Ground.		GND
B5	GND	Ground.		GND
B6	GND	Ground.		GND
B7	GND	Ground.		GND
B9	CSR_VLX	CSR Power Stage Output to Inductor	0.9V	0
B10	ASR_VLX	ASR Power Stage Output to Inductor	1.12V	0
B11	GND	Ground.		GND
C1	WL_REG_ON	Used by the PMU to power up the WLAN section. It is also OR-gated with the BT_REG_ON input to control the internal CYW55572 regulators. When this pin is high, the regulators are enabled and the WLAN section is out of reset. When this pin is low	VDDIO	I



-	AzureWave I	echnologies, Inc.	r	
		the WLAN section is in reset. If both the BT_REG_ON and WL_REG_ON pins are low, the regulators are disabled.		
C2	BT_PCM_SYNC	PCM sync; can be master (output) or slave (input), or SLIMbus data.	VDDIO	I/O
C4	RESERVED	Please don't connect to this pin.		N/A
C5	GND	Ground.		GND
C6	LHL_GPIO5	Miscellaneous General Purpose I/O	VDDIO	I/O
C7	BT_REG_ON	Used by the PMU (OR-gated with WL_REG_ON) to power up the internal CYW55572 regulators. If both the BT_REG_ON and WL_REG_ON pins are low, the regulators are disabled. When this pin is low and WL_REG_ON is high, the BT section is in reset.	VDDIO	I
C8	GND	Ground.		GND
C10	VBAT	3.3V power pin	3.3V	VCC
C11	VBAT	3.3V power pin	3.3V	VCC
D1	RESERVED	Please don't connect to this pin.		N/A
D2	BT_PCM_IN	PCM data input.	VDDIO	Ι
D3	BT_PCM_OUT	PCM data output.	VDDIO	0
D4	BT_PCM_CLK	PCM clock; can be master (output) or slave (input).	VDDIO	I/O
D5	RESERVED	Please don't connect to this pin.		N/A
D6	LHL_GPIO3	Miscellaneous General Purpose I/O	VDDIO	I/O
D7	LHL_GPIO2	Miscellaneous General Purpose I/O	VDDIO	I/O
D8	GND	Ground.		GND
D9	CBUCK_0P9	Internal Buck 0.9V voltage generation pin.	1.12V	Ι
D10	CBUCK_0P9	Internal Buck 0.9V voltage generation pin.	1.12V	Ι
D11	ABUCK_1P12	Internal Buck 1.12V voltage generation pin.	1.12V	Ι
E1	GND	Ground.		GND
E2	GPIO_0_WL_HOS T_WAKE	WL Host Wake.	VDDIO	0



	BT_DEV_WAKE			
		Bluetooth DEVICE WAKE	VDDIO	I/O
E5 (GND	Ground.		GND
E6 L	LHL_GPIO4	Miscellaneous General Purpose I/O	VDDIO	I/O
E /	GPIO_11_WL_UA RT_TX	Debug UART Serial Output.	VDDIO	0
E8 (GND	Ground.		GND
	GPIO_10_WL_UA RT_RX	Debug UART Serial Input.	VDDIO	Ι
E10	GND	Ground.		GND
E11 /	ABUCK_1P12	Internal Buck 1.12V voltage generation pin.	1.12V	I
F1 E	BT_UART_RTS_N	UART request-to-send. Active-low request-to-send signal for the HCI UART interface. BT LED control pin.	VDDIO	0
F2	BT_UART_CTS_N	UART clear-to-send. Active-low clear-to-send signal for the HCI UART interface.	VDDIO	Ι
F3 E	BT_HOST_WAKE	Bluetooth HOST_WAKE.	VDDIO	I/O
F4 E	BT_CLK_REQ	A Bluetooth clock request.	VDDIO	I/O
F5	GND	Ground.		GND
F6	LHL_GPIO0	Miscellaneous General Purpose I/O	VDDIO	I/O
F7 L	LPO_IN	External Sleep Clock Input (32.768 kHz)		I
F8 (GND	Ground.		GND
F9	GND	Ground.		GND
F10	GND	Ground.		GND
F11	VDDIO	1.8 V IO Supply for WLAN GPIOs	VDDIO	VCC
G1 E	BT_UART_TXD	UART Serial Output. Serial data output for the HCI UART interface.	VDDIO	0
G2 E	BT_UART_RXD	UART serial input. Serial data input for the HCI UART interface.	VDDIO	I
G3 (GND	Ground.		GND
G4 (GND	Ground.		GND
G5 (GND	Ground.		GND



G6	GND	Ground.		GND
G7	GND	Ground.		GND
G8	GND	Ground.		GND
G9	GND	Ground.		GND
G10	GPIO_1	Strap option	VDDIO	I/O
G11	GND	Ground.		GND
H1	SDIO_CMD	SDIO Command Line	VDDIO	I/O
H2	SDIO_DATA_0	SDIO Data Line 0	VDDIO	I/O
H3	SDIO_DATA_3	SDIO Data Line 3	VDDIO	I/O
H4	SDIO_DATA_2	SDIO Data Line 2	VDDIO	I/O
H5	GND	Ground.		GND
H6	WL_DEV_WAKE	WL DEV_WAKE.	VDDIO	I/O
H7	GND	Ground.		GND
H8	GND	Ground.		GND
H9	RESERVED	Please don't connect to this pin.		N/A
H10	RESERVED	Please don't connect to this pin.		N/A
H11	RESERVED	Please don't connect to this pin.		N/A
J1	SDIO_CLK	SDIO Clock Input	VDDIO	Ι
J2	SDIO_DATA_1	SDIO Data Line 1	VDDIO	I/O
J3	GND	Ground.		GND
J4	GND	Ground.		GND
J5	GND	Ground.		GND
J6	GND	Ground.		GND
J7	GND	Ground.		GND
J8	GND	Ground.		GND
J9	RESERVED	Please don't connect to this pin.		N/A
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J10	RESERVED	Please don't connect to this pin.		N/A
J11	RESERVED	Please don't connect to this pin.		N/A
K 1	GND	Ground.		GND
K2	GND	Ground.		GND
K3	GND	Ground.		GND
K4	GND	Ground.		GND
K5	GND	Ground.		GND
K6	BT_GPIO_11	BT General Purpose I/O	VDDIO	I/O
K7	GND	Ground.		GND
K8	GND	Ground.		GND
K9	GND	Ground.		GND
K10	GND	Ground.		GND
K11	GND	Ground.		GND
L1	GND	Ground.		GND
L2	RESERVED	Please don't connect to this pin.		N/A
L3	GND	Ground.		GND
L4	GND	Ground.		GND
L5	C0_ANT	WLAN/BT Main RF TX/RX path.		RF
L6	GND	Ground.		GND
L7	GND	Ground.		GND
L8	GND	Ground.		GND
L9	GND	Ground.		GND
L10	C1_ANT	WLAN Aux RF TX/RX path.		RF
L11	GND	Ground.		GND



2.3 Host Configuration Interface Table

Pin No	Definition	Interface	Strap	
G10	GPIO_1	SDIO	0	



3. Electrical Characteristics

3.1 Absolute Maximum Ratings

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VBAT	DC supply for the VBAT and PA driver supply	-0.5	-	6.0	V
VDDIO	DC supply voltage for digital I/O	-0.5	-	2.2	V
Тј	Maximum junction temperature	-	-	125	°C

3.2 Recommended Operating Conditions

Symbol	Parameter	Minimum	Typical	Maximum	Unit
VBAT	Power supply for Internal Regulator	3.135	3.3	3.465	V
VDDIO	DC supply voltage for digital I/O	1.71	1.8	1.89	V

3.3 Digital IO Pin DC Characteristics

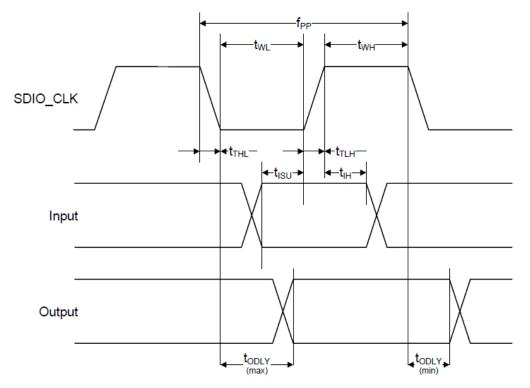
Symbol	Parameter	Minimum	Typical	Maximum	Unit		
Digital I/O pins, VDDIO=1.8V							
Vін	Input high voltage	0.65 × VDDIO	-	-	V		
VIL	Input low voltage	-	-	0.35 × VDDIO	V		
Vон	Output high voltage	VDDIO – 0.45	-	-	V		
Vol	Output Low Voltage	-	-	0.45	V		



3.4 Host Interface

3.4.1 SDIO Interface

SDIO Bus Timing (Default Mode)



SDIO Bus Timing Parameters (Default Mode)

Parameter	Symbol	Minimum	Typical	Maximum	Unit			
SDIO CLK (All values are referred to minimum VIH and maximum VIL)								
Frequency – Data Transfer mode	fрр	0	_	25	MHz			
Frequency – Identification mode	fod	0	_	400	kHz			
Clock low time	tw∟	10	_	-	ns			
Clock high time	twн	10	_	-	ns			
Clock rise time	tт∟н	_	_	10	ns			
Clock low time	tтн∟	_	_	10	ns			
Inputs: CMD, DAT (referenced to CLK)								
Input setup time	tisu	5	_	-	ns			
Input hold time	tıн	5	_	-	ns			
	18							

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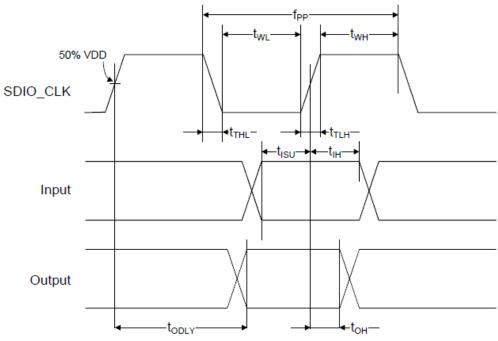
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Outputs: CMD, DAT (referenced to CLK)						
Output delay time – Data Transfer mode	todly	0	-	14	ns	
Output delay time – Identification mode	todly	0	_	50	ns	

SDIO Bus Timing (High-Speed Mode)



SDIO Bus Timing Parameters (High-Speed Mode)

Parameter	Symbol	Minimum	Typical	Maximum	Unit			
SDIO CLK (all values are referred to minimum VIH and maximum VIL ^b)								
Frequency – Data Transfer Mode	f _{PP}	0	_	50	MHz			
Frequency – Identification Mode	fod	0	_	400	kHz			
Clock low time	tw∟	7	_	_	ns			
Clock high time	twн	7	_	_	ns			
Clock rise time	tт∟н	_	_	3	ns			
Clock low time	tтн∟	_	_	3	ns			
Inputs: CMD, DAT (referenced to CLK)				·				
Input setup Time	tisu	6	_	-	ns			
Input hold Time	tıн	2	_	-	ns			
	19	1		•				

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Outputs: CMD, DAT (referenced to CLK)							
Output delay time - Data Transfertoply14nsMode							
Output hold time	tон	2.5	-	-	ns		
Total system capacitance (each line)	CL	—	_	40	pF		

3.4.2 UART Interface

The AW-XH327-SUR UART is a standard 4-wire interface (RX, TX, RTS, and CTS) with adjustable baud rates from 9600 bps to 4.0 Mbps. The baud rate may be selected through a vendor-specific UART HCI command.

UART has a 1040-byte receive FIFO and a 1040-byte transmit FIFO to support EDR. Access to the FIFOs is conducted through the AHB interface through either DMA/CPU. The UART supports the Bluetooth 5.0 UART HCI specification. The default baud rate is 115.2 Kbaud.

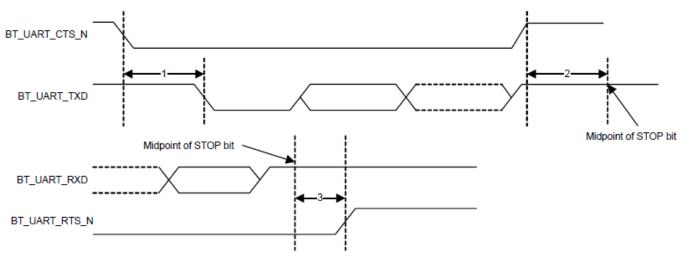
The AW-XH327-SUR UART can perform XON/XOFF flow control and includes hardware support for the Serial Line Input Protocol (SLIP). It can also perform wake-on activity. For example, activity on the RX or CTS inputs can wake the chip from a sleep state.

Normally, the UART baud rate is set by a configuration record downloaded after device reset and the host does not need to adjust the baud rate. Support for changing the baud rate during normal HCI UART operation is included through a vendor-specific command that allows the host to adjust the contents of the baud rate registers. The AW-XH327-SUR UARTs operate correctly with the host UART as long as the combined baud rate error of the two devices is within $\pm 2\%$.

PIN No.	Name	Description	Туре			
F1	BT_UART_RTS_N	UART request-to-send. Active-low request-to-send signal for the HCI UART interface. BT LED control pin.	0			
F2	BT_UART_CTS_N	UART clear-to-send. Active-low clear-to-send signal for the HCI UART interface.	Ι			
G1	BT_UART_TXD	UART Serial Output. Serial data output for the HCI UART interface.	0			
G2	BT_UART_RXD	UART serial input. Serial data input for the HCI UART interface.	I			

UART Interface Signals





UART Timing

	Reference Characteristics	Minimum	Typical	Maximum	Unit
1	Delay time, BT_UART_CTS_N low to BT_UART_TXD valid	_	_	1.5	Bit periods
2	Setup time, BT_UART_CTS_N high before midpoint of stop bit	-	-	0.5	Bit periods
3	Delay time, midpoint of stop bit to BT_UART_RTS_N high	_	_	0.5	Bit periods



3.5 Power up Timing Sequence

AW-XH327-SUR has two signals that allow the host to control power consumption by enabling or disabling the Bluetooth, WLAN, and internal regulator blocks. These signals are described below. Additionally, diagrams are provided to indicate proper sequencing of the signals for various operational states. The timing values indicated are minimum required values; longer delays are also acceptable.

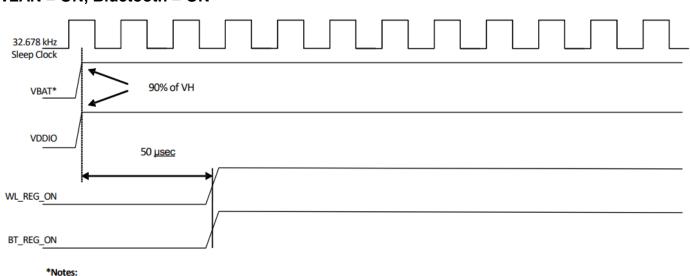
Description of Control Signals

■ WL_REG_ON: Used by the PMU to power up the WLAN section. It is also OR-gated with the BT_REG_ON input to control the internal AW-XH327-SUR regulators. When this pin is high, the regulators are enabled and the WLAN section is out of reset. When this pin is low the WLAN section is in reset. If both the BT_REG_ON and WL_REG_ON pins are low, the regulators are disabled.

■ **BT_REG_ON**: Used by the PMU (OR-gated with WL_REG_ON) to power up the internal AW-XH327-SUR regulators. If both the BT_REG_ON and WL_REG_ON pins are low, the regulators are disabled. When this pin is low and WL_REG_ON is high, the BT section is in reset.

Note

■ VBAT and VDDIO should not rise 10%–90% faster than 40 microseconds.



WLAN = ON, Bluetooth = ON

1. VBAT and VDDIO should not rise 10%-90% faster than 40 microseconds.

2. VBAT should be up before or at the same time as VDDIO. VDDIO should NOT be present first or be held high before VBAT is high.

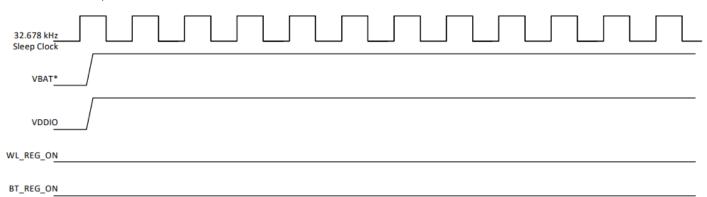
FORM NO.: FR2-015_A

22 Responsible Department : WBU

Expiry Date: Forever



WLAN = OFF, Bluetooth = OFF



*Notes:

1. VBAT and VDDIO should not rise 10%–90% faster than 40 microseconds.

2. VBAT should be up before or at the same time as VDDIO. VDDIO should NOT be present first or be held high before VBAT is high.

WLAN = ON, Bluetooth = OFF

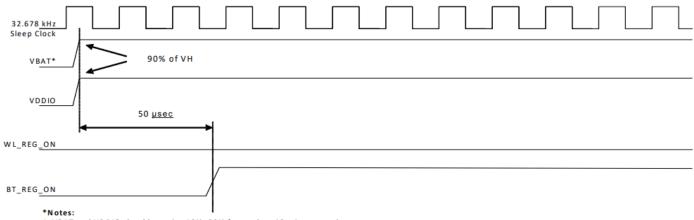
*Notes:

1. VBAT and VDDIO should not rise 10%-90% faster than 40 microseconds.

2. VBAT should be up before or at the same time as VDDIO. VDDIO should NOT be present first or be held high before VBAT is high.



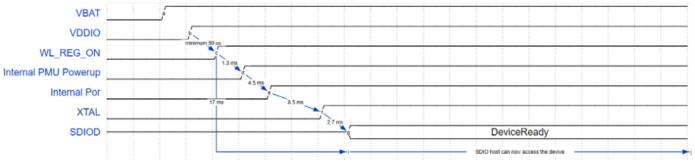
WLAN = OFF, Bluetooth = ON



1. VBAT and VDDIO should not rise 10%-90% faster than 40 microseconds.

2. VBAT should be up before or at the same time as VDDIO. VDDIO should NOT be present first or be held high before VBAT is high.

WLAN Boot-Up Sequence for SDIO Host



SDIO host can access device after 17ms from assertion WL_REG_ON



3.6 Power Consumption^{*}

3.6.1 WLAN

TBD

* The power consumption is based on Azurewave test environment, these data for reference only.

3.6.2 Bluetooth

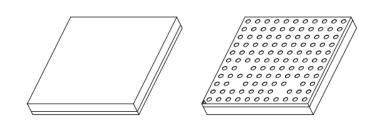
TBD

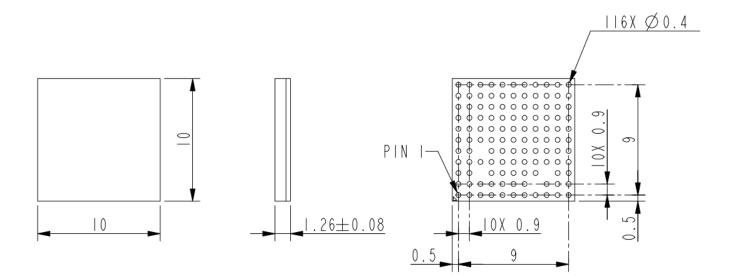
* The power consumption is based on Azurewave test environment, these data for reference only.



4. Mechanical Information

4.1 Mechanical Drawing







5. Packaging Information

TBD