

Linkplay Wireless Smart Audio Module (A118)

User Manual

Rev 0.1

Nov. 19 2018

Doc Title	Linkplay Wireless Smart Audio Module-A118 Datasheet	Number	WMB20180903
		Version	0.1

HISTORY

Version	Date	Description
0.1	11/19/2018	Datasheet Release

Linkplay Confidential

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1. Overview

Linkplay Wireless Smart Audio module–A118, is our 4th generation smart audio modules developed to be used in the connected speaker, sound bar and other connected audio devices. It integrates MediaTek MT8516A application processor. MT8516A is a highly integrated connected audio platform incorporating application processing and connectivity subsystems designed to enable connected audio applications. MT8516A integrates a Quad-core ARM Cortex-A35 MPCore operating up to 1.3GHz, includes a NEON multimedia processing engine.

A118 includes two wireless connectivity function: WLAN and Bluetooth. MT8516A integrates 802.11 b/g/n and Bluetooth 4.2 + HS radios and passive devices (IPD) to provide a connected audio solution.

The audio processing engine (APE) is based on ARM® NEON™ general-purpose SIMD architecture which works seamlessly with main CPU to accelerate the multimedia processing algorithms, enhancing the user experience. It is able to decode all major highly resolution audio formats including MP3, AAC, WMA, RM, FLAC, Ogg, etc and with the flexibility to support future audio standards.

A118 module supports IEEE 802.11 b/g/n 2.4GHz. It also supports BT4.2 with EDR and BLE.

A118 module also provides USB, I2S, I2C, PDM, SPI, UART etc. interfaces.

The firmware is fully compatible with Apple AirPlay and digital living network alliance (DLNA) streaming standards. It supports Hi-Fi audio up to 192KHz, 24-bit with most popular audio formats. It supports multi-room and multi-channel audio streaming with perfect synchronization.

With this module, you can play the music on your speaker wirelessly from iPhone, iPad , iPod touch, Android devices or PC. More important, it enables the traditional speaker system to become the Internet enabled device through the wired or wireless connection provided by the module. Thus, you could freely playback any Internet audio contents such as music, podcast, radio or either the accompany audio in the movie directly from the Internet.

Features

- MediaTek MT8516A application processor
- 128MB DDR3L DRAM
- 128MB SLC NAND FLASH
- Support IEEE 802.11 b/g/n
- Support BT4.2 with EDR and BLE

Application

- Connected speaker, sound bar
- Connected audio devices

1.1. Key Components List

No.	Type	Description	Brand
1	Main SoC	MT8516A WBTFBGA 12.6mm x13.1 mm 406-ball 0.5 ball pitch RoHS	MediaTek
2	DRAM	DDR3L MT41K64M16TW-107 FBGA96 RoHS	Micron
3	FLASH	SLC NAND TC58NVG0S3HTA00 TSOP 48 RoHS	TOSHIBA

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4	PMU	MT6392, Buckx3, LDOx13, BC1.1, TFBGA98-P0M5-B0M27	MediaTek
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1.2. Parameter

Basic Hardware

Type	Items	Performance
Hardware	Work Voltage	3.4-4.35V
	Work Current	200 ~ 240mA (STA mode)
	Standby Current	TBC
	Operating ambient Temperature	0℃ ~ 40℃
	Storage Temperature	-5℃ ~ 45℃
	Wi-Fi Working Distance	2.4G 80 meters
	IO Extension	USB, I2S, I2C, PWM, SPI, UART
	Dimension	98-PIN DIP Headers

Table1-1 A118 Hardware Parameter

1.3. Wi-Fi Receiver Specification

Note:

The specification value is valid at room temperature (25℃).

Parameter	Description	Min.	Typ.	Max.	Unit
Frequency Range		2412		2484	MHz
RX Sensitivity	1 Mbps DSSS		-95		dBm
	2 Mbps DSSS		-93		dBm
	5.5 Mbps DSSS		-91		dBm
	11 Mbps DSSS		-88		dBm
RX Sensitivity	6 Mbps OFDM		-91.5		dBm
	9 Mbps OFDM		-90		dBm
	12 Mbps OFDM		-89		dBm
	18 Mbps OFDM		-86.5		dBm
	24 Mbps OFDM		-83.5		dBm
	36 Mbps OFDM		-80		dBm
	48 Mbps OFDM		-76		dBm
	54 Mbps OFDM		-74.5		dBm
RX Sensitivity	MCS0		-91.5		dBm
BW = 20MHz	MCS1		-88		dBm
Green Field	MCS2		-86		dBm
800nS Guard Interval	MCS3		-83		dBm

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Non-STBC	MCS4		-80		dBm
	MCS5		-75.5		dBm
	MCS6		-74		dBm
	MCS7		-72.5		dBm
RX Sensitivity	MCS0		-88.5		dBm
BW = 40MHz	MCS1		-85		dBm
Green Field	MCS2		-83		dBm
800nS Guard Interval	MCS3		-80		dBm
Non-STBC	MCS4		-77		dBm
	MCS5		-72.5		dBm
	MCS6		-71		dBm
	MCS7		-69		dBm
Maximum Receive Level	11 Mbps DSSS			-5	dBm
	6 Mbps OFDM			-10	dBm
	54 Mbps OFDM			-10	dBm
	MCS0			-10	dBm
	MCS7			-10	dBm
Adjacent Channel Rejection (30MHz offset)	1 Mbps DSSS			40	dB
Adjacent Channel Rejection (25MHz offset)	11 Mbps DSSS			40	dB
Adjacent Channel Rejection (25MHz offset)	6 Mbps OFDM			34	dB
	54 Mbps OFDM			22	dB
Adjacent Channel Rejection (25MHz offset), BW = 20MHz	MCS0			25	dB
	MCS7			5	dB
Adjacent Channel Rejection (40MHz offset), BW = 40MHz	MCS0			26	Db
	MCS7			1	Db
Blocking Level for 1 dB RX Sensitivity Degradation	776 - 794 MHz CDMA2000				dBm
	824 - 849 MHz GSM				dBm
	880 - 915 MHz GSM				dBm
	1710 - 1785 MHz GSM				dBm
	1850 - 1910 MHz GSM				dBm
	1850 - 1910 MHz WCDMA				dBm
	1920 - 1980 MHz WCDMA				dBm

Table1-2 2.4GHz Receiver Specification

1.4. Wi-Fi Transmitter Specification

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The specification value is valid at room temperature (25°C).

All specifications are measured at the RF port unless otherwise specified.

Typical output power degradation around 3dB at FCC band edge channels

Parameter	Description	Min.	Typ.	Max.	Unit
Frequency Range		2412		2484	MHz
Output Power	802.11b, 1 - 11Mbps DSSS		19		dBm
VCN35=3.5V	802.11g, 6 - 36Mbps OFDM		16.5		dBm
	802.11g, 48 - 54Mbps OFDM		16		dBm
	802.11n, HT20 MCS0 - 4		16.5		dBm
	802.11n, HT20 MCS5 - 7		15.5		dBm
	802.11n, HT40 MCS0 - 4		15.5		dBm
	802.11n, HT40 MCS5 - 7		14		dBm
EVM	802.11b, 1 - 11Mbps DSSS @Pout=19dBm		25		%
	802.11g, 6 - 36Mbps OFDM @Pout=16.5dBm			-19	dB
	802.11g, 48-54Mbps OFDM @Pout=16dBm		-28		dB
	802.11n, HT20 MCS0-4@Pout=16.5dBm			-19	dB
	802.11n, HT20 MCS5-7@Pout=15.5dBm		-28		dB
	802.11n, H40 MCS0-4@Pout=15.5dBm			-19	dB
	802.11n, H40 MCS5-7@Pout=14dBm		-30		dB
TX Power Accuracy	-20 - 65°C, 5-22dBm			±1.5	dB
Load Pull Variation at VSWR=2:1	Output Power Variation			±1.5	dB
	EVM Degradation		4		dB
Transmitted Power(Data Rate=6M, Pout=17dBm)	76-108MHz		-142		dBm/Hz
	776-794MHz		-142		dBm/Hz
	869-960MHz		-142		dBm/Hz
	925-960MHz		-142		dBm/Hz
	1570-1580MHz		-140		dBm/Hz
	1805-1880MHz		-131		dBm/Hz
	1930-1990MHz		-126		dBm/Hz
	2110-2170MHz		-125		dBm/Hz
Harmonic Output Power(Data Rate=1M, Pout = 19dBm)	2 nd Harmonic			-43	dBm/Hz
	3 rd Harmonic			-43	dBm/Hz

Table1-3 2.4GHz Transmitter Specification

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1.5. Bluetooth Basic Data Rate Receiver Specification

Parameter	Description	Min.	Typ.	Max.	Unit
Frequency Range		2402		2480	MHz
Receiver Sensitivity	BER < 0.1%		-92		dBm
Max. Usable Signal	BER < 0.1%	-20	-5		dBm
C/I Co-channel	Co-channel Selectivity (BER<0.1%)	-	6	11	dB
C/I 1MHz	Adjacent Channel Selectivity (BER<0.1%)	-	-7	0	dB
C/I 2MHz	2 nd Adjacent Channel Selectivity (BER<0.1%)	-	-39	-30	dB
C/I ≥3MHz	3 rd Adjacent Channel Selectivity (BER<0.1%)	-	-43	-40	dB
C/I Image Channel	Image Channel Selectivity (BER<0.1%)	-	-20	-9	dB
C/I Image 1MHz	1MHz Adjacent to Image Channel Selectivity (BER<0.1%)	-	-35	-20	dB
Out-of-band Blocking	30MHz to 2000MHz	-10			dBm
	2001MHz to 2339MHz	-27			dBm
	2501MHz to 3000MHz	-27			dBm
	3001MHz to 12.75GHz	-10			dBm
Intermodulation	Max. Interference Level to Maintain 0.1% BER	-39			dBm

Table1-4 Basic Data Rate Receiver Specification

1.6. Bluetooth Basic Data Rate Transmitter Specification

Parameter	Description	Min.	Typ.	Max.	Unit
Frequency Range		2402		2480	MHz
Output Power	At Max. Power Output Level		6		dBm
Power Control Step		2	4	8	dB
ICFT	Initial Carrier Frequency Drift	-75	±18	75	KHz
Carrier Frequency Drift	One Slot Packet (DH1)	-25	±15	25	KHz
	Three Slot Packet (DH3)	-40	±15	40	KHz
	Five Slot Packet (DH5)	-40	±15	40	KHz
	Max. Drift Rate	-20	10	20	KHz/50uS
Modulation Characteristic	Δf1avg	140	157	175	KHz
	Δf2max (for at least 99% of all	115	145	-	KHz

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		Δf_{2max}			
		$\Delta f_{2max}/\Delta f_{1avg}$	0.8	0.98	-
20-dB Bandwidth			-	922	1000 KHz
In-band Emission	Spurious	± 2 MHz Offset		-38	-20 dBm
		± 3 MHz Offset		-43	-40 dBm
		$> \pm 3$ MHz Offset		-43	dBm
Out-of-band Emission	Spurious	30 MHz to 1 GHz			-36 dBm
		1 GHz to 12.75 GHz			-30 dBm
		1.8 MHz to 1.9 GHz			-47 dBm
		5.15 MHz to 5.3 GHz			-47 dBm

Table1-5 Basic Data Rate Transmitter Specification

1.7. Enhanced Data Rate Receiver Specification

Parameter	Description	Min.	Typ.	Max.	Unit
Frequency Range		2402		2480	MHz
Receiver Sensitivity	$\pi/4$ DQPSK (BER < 0.01%)	-	-91	-70	dBm
	8 PSK (BER < 0.01%)	-	-85.5	-70	dBm
Max. Usable Signal	$\pi/4$ DQPSK (BER < 0.1%)	-20	-5	-	dBm
	8 PSK (BER < 0.1%)	-20	-5	-	dBm
C/I Co-channel	$\pi/4$ DQPSK (BER < 0.1%)	-	9	13	dB
	8 PSK (BER < 0.1%)	-	16	21	dB
C/I 1MHz	$\pi/4$ DQPSK (BER < 0.1%)	-	-12	0	dB
	8 PSK (BER < 0.1%)	-	-6	5	dB
C/I 2MHz	$\pi/4$ DQPSK (BER < 0.1%)	-	-36	-30	dB
	8 PSK (BER < 0.1%)	-	-33	-25	dB
C/I ≥ 3 MHz	$\pi/4$ DQPSK (BER < 0.1%)	-	-43	-40	dB
	8 PSK (BER < 0.1%)	-	-40	-33	dB
C/I Image Channel	$\pi/4$ DQPSK (BER < 0.1%)	-	-20	-7	dB
	8 PSK (BER < 0.1%)	-	-15	0	dB
C/I Image 1MHz	$\pi/4$ DQPSK (BER < 0.1%)	-	-40	-20	dB
	8 PSK (BER < 0.1%)	-	-30	-13	dB

Table1-5 Enhanced Data Rate Receiver Specification

1.8. Enhanced Data Rate Transmitter Specification

Parameter	Description	Min.	Typ.	Max.	Unit
Frequency Range		2402		2480	MHz
Output Power	$\pi/4$ DQPSK		3		dBm

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		8 PSK		3		dBm
Relative Transmit Power		$\pi/4$ DQPSK	-4	-1.7	1	dB
		8 PSK	-4	-1.7	1	dB
Frequency Stability	ω_0	$\pi/4$ DQPSK	-10	± 4	10	KHz
		8 PSK	-10	± 4	10	KHz
	ω_i	$\pi/4$ DQPSK	-75	± 20	75	KHz
		8 PSK	-75	± 20	75	KHz
	$ \omega_0 + \omega_i $	$\pi/4$ DQPSK	-75	± 20	75	KHz
		8 PSK	-75	± 20	75	KHz
Modulation Accuracy	RMS	$\pi/4$ DQPSK	-	8	20	%
		8 PSK	-	8	13	%
	99% DEVM	$\pi/4$ DQPSK	-	12	30	%
		8 PSK	-	12	20	%
	Peak DEVM	$\pi/4$ DQPSK	-	17	35	%
		8 PSK	-	17	25	%
In-band Emission	± 1 MHz Offset	$\pi/4$ DQPSK		-29	-26	dB
		8 PSK		-29	-26	dB
	± 2 MHz Offset	$\pi/4$ DQPSK		-23	75	dBm
		8 PSK		-23	75	dBm
	± 3 MHz Offset	$\pi/4$ DQPSK		-42	75	dBm
		8 PSK		-42	75	dBm

Table1-6 Enhanced Data Rate Transmitter Specification

1.9. Bluetooth LE Receiver Specification

*The measurement does not include exceptions in these bands. Exceptions can pass Bluetooth SIG spec.

Parameter	Description	Min.	Typ.	Max.	Unit
Frequency Range		2402		2480	MHz
Receiver Sensitivity (*)	PER < 30.8%)		-95	-70	dBm
Max. Usable Signal	PER < 30.8%)	-20	-5		dBm
C/I Co-channel	Co-channel Selectivity (PER < 30.8%)		6	21	dB
C/I 1MHz	Adjacent Channel Selectivity (PER < 30.8%)		-7	15	dB
C/I 2MHz	2 nd Adjacent Channel Selectivity (PER < 30.8%)		-30	-17	dB
C/I ≥ 3 MHz	3 rd Adjacent Channel Selectivity (PER < 30.8%)		-33	-27	dB
C/I Image Channel	Image Channel Selectivity (PER < 30.8%)		-20	-9	dB
C/I Image 1MHz	1MHz Adjacent to Image Channel		-30	-15	dB

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	Selectivity (PER < 30.8%)				
Out-of-band Blocking	30MHz to 2000MHz	-30			dBm
	2001MHz to 2339MHz	-35			dBm
	2501MHz to 3000MHz	-35			dBm
	3001MHz to 12.75GHz	-30			dBm

Table1-7 Bluetooth LE Receiver Specification

1.10. Bluetooth LE Transmitter Specification

(*)The measurement is at chip output.

Parameter	Description	Min.	Typ.	Max.	Unit
Frequency Range		2402		2480	MHz
Output Power (*)	At Max. Power Output Level	-20	6	10	dBm
Carrier Frequency Offset and Drift	Frequency Offset	-150	±10	150	KHz
	Frequency Drift	-50	±10	50	KHz
	Max. Drift Rate	-20	±10	20	KHz/50uS
Modulation Characteristic	Δf_{1avg}	225	251	275	KHz
	Δf_{2max} (for at least 99% of all Δf_{2max})	185	215		KHz
	$\Delta f_{2max}/\Delta f_{1avg}$	0.8	0.88		
In-band Spurious Emission	±2MHz Offset		-35	-20	dBm
	±3MHz Offset		-40	-30	dBm

Table1-8 Bluetooth LE Transmitter Specification

2. Hardware Description

2.1. Description of Hardware Interface

A118 provides the option to connect with customer board through its 98-pin headers. The detail is as follows.

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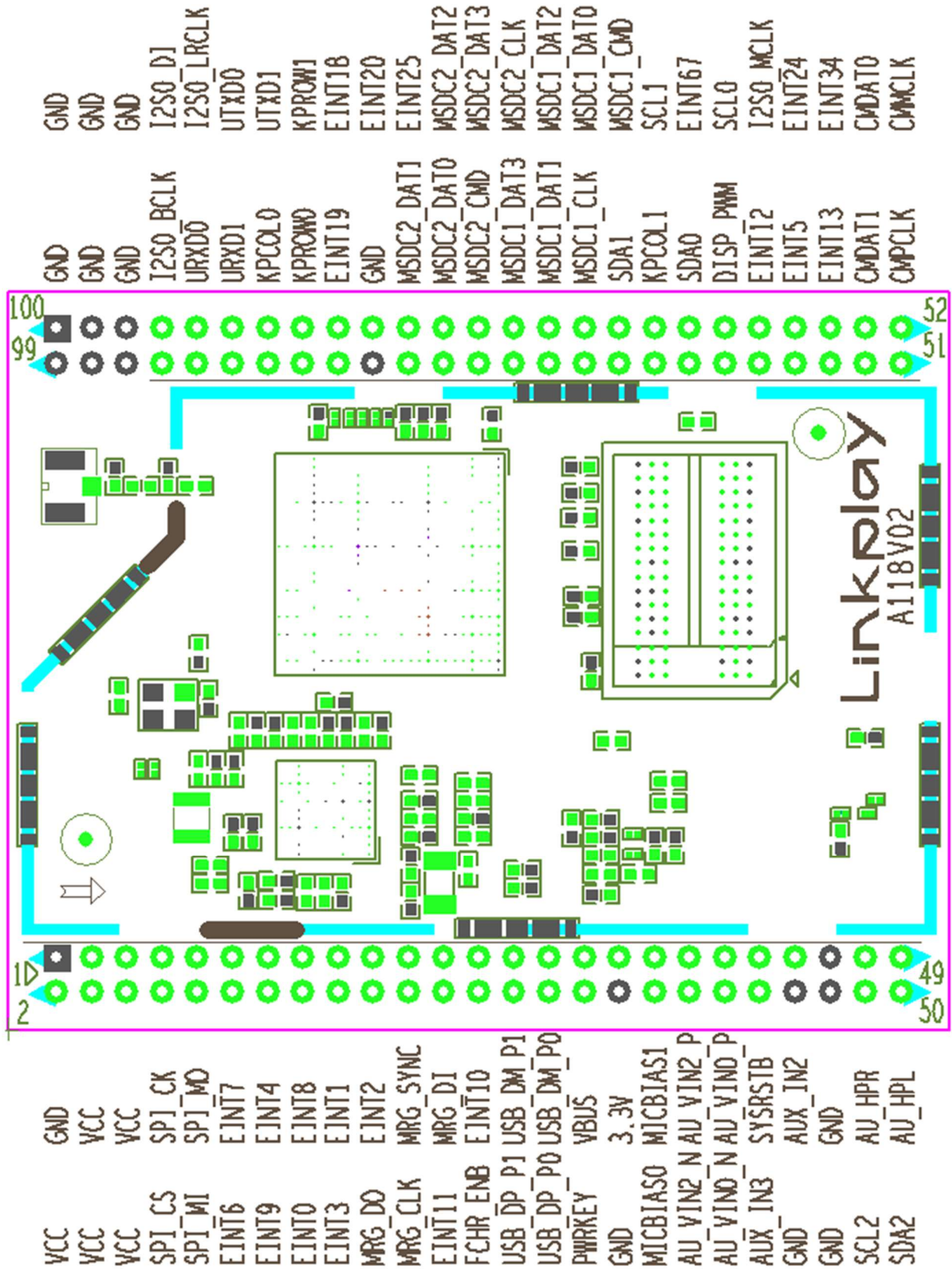


Figure 2-1 A118 interface pins

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Pin Description:

Pin No.	Pin Name	Type	Function0	Function1
2,3,4,5, 6	VBAT	Power	3.4V-4.35V Input > 500mA	
33	3.3V	Power	Power Supply Output < 200mA	
1, 34, 44,45, 46, 81,95, 96,97, 98, 99, 100	GND	Power	Digital Ground	
7	SPI_CK	I/O	SPI Clock	
8	SPI_CS	I/O	SPI Chip Select	
9	SPI_MO	I/O	SPI Data Out	
10	SPI_MI	I/O	SPI Data In	
11	EINT7	I/O	External Interrupt 7	
12	EINT6	I/O	External Interrupt 6	
13	EINT4	I/O	External Interrupt 4	
14	EINT9	I/O	External Interrupt 9	
15	EINT8	I/O	External Interrupt 8	
16	EINT0	I/O	External Interrupt 0	
17	EINT1	I/O	External Interrupt 1	
18	EINT3	I/O	External Interrupt 3	
19	EINT2	I/O	External Interrupt 2	
20	MRG_DO	I/O	MTK Audio Interface	
21	MRG_SYNC	I/O	MTK Audio Interface	
22	MRG_CLK	I/O	MTK Audio Interface	
23	MRG_DI	I/O	MTK Audio Interface	
24	EINT10	I/O	External Interrupt 10	
25	EINT11	I/O	External Interrupt 11	
26	FCHR_ENB	I	Fast Charging Disable	
27	USB_DM_P1	I/O	USB Port1 D- Differential Data	
28	USB_DP_P1	I/O	USB Port1 D+ Differential Data	
29	USB_DM_P0	I/O	USB Port0 D- Differential Data	
30	USB_DP_P0	I/O	USB Port0 D+ Differential Data	
31	VBUS	I	VBUS Voltage Input	
32	PWRKEY	I	Power Key Button	

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35	MICBIAS1	O	Microphone Bias for Earphone	
36	MICBIAS0	O	Microphone Bias for Main and 2 nd Microphone	
37	AU_VIN2_P	I/O	Audio Analog Input 2 Positive	
38	AU_VIN2_N	I/O	Audio Analog Input 2 Negative	
39	AU_VIN0_P	I/O	Audio Analog Input 0 Positive	
40	AU_VIN0_N	I/O	Audio Analog Input 0 Negative	
41	SYSRSTB	I	System Reset Input	
42	AUX_IN3	I/O	Aux ADC External Input CH3	
43	AUX_IN2	I/O	Aux ADC External Input CH2	
47	AU_HPR	I/O	R-CH Headphone Output	
48	SCL2	I/O	I2C2 Clock	
49	AU_HPL	I/O	L-CH Headphone Output	
50	SDA2	I/O	I2C2 Data	
51	CMPCCLK	I/O	Pixel Clock from Sensor	
52	CMMCLK	I/O	Master Clock to Sensor	
53	CMDAT1	I/O	CAM Sensor Data0	
54	CMDAT0	I/O	CAM Sensor Data1	
55	EINT13	I/O	External Interrupt 13	
56	EINT34	I/O	External Interrupt 34	
57	EINT5	I/O	External Interrupt 5	
58	EINT24	I/O	External Interrupt 24	
59	EINT12	I/O	External Interrupt 12	
60	I2S0_MCLK	I/O	I2S0 Main Clock Output	
61	DISP_PWM	I/O	Display PWM Output	
62	SCL0	I/O	I2C0 Clock	
63	SDA0	I/O	I2C0 Data	
64	EINT67	I/O	External Interrupt 67	
65	KPCOL1	I/O	Key Pad Column 1	
66	SCL1	I/O	I2C0 Clock	
67	SDA1	I/O	I2C0 Data	
68	MSDC1_CMD	I/O	MSDC1 Command	
69	MSDC1_CLK	I/O	MSDC1 Clock Output	
70	MSDC1_DAT0	I/O	MSDC1 Data0	
71	MSDC1_DAT1	I/O	MSDC1 Data1	
72	MSDC1_DAT2	I/O	MSDC1 Data2	
73	MSDC1_DAT3	I/O	MSDC1 Data3	
74	MSDC2_CLK	I/O	MSDC2 Clock Output	
75	MSDC2_CMD	I/O	MSDC2 Command	
76	MSDC2_DAT3	I/O	MSDC2 Data3	
77	MSDC2_DAT0	I/O	MSDC2 Data0	

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78	MSDC2_DAT2	I/O	MSDC2 Data2	
79	MSDC2_DAT1	I/O	MSDC2 Data1	
80	EINT25	I/O	External Interrupt 25	
82	EINT20	I/O	External Interrupt 20	
83	EINT19	I/O	External Interrupt 19	
84	EINT18	I/O	External Interrupt 18	
85	KPROW0	I/O	Key Pad Row 0	
86	KPROW1	I/O	Key Pad Row 1	
87	KPCOL0	I/O	Key Pad Column 0	
88	UTXD1	I/O	UART1 TX	
89	URXD1	I/O	UART1 RX	
90	UTXD0	I/O	UART0 TX	
91	URXD0	I/O	UART0 RX	
92	I2S0_LRCK	I/O	I2S0 Word Select	
93	I2S0_BCK	I/O	I2S0 Clock	
94	I2S0_DI	I/O	I2S0 Data Input	

Table 2-1 Linkplay A118 module pin description

Notes:

1. I: Input
2. O: Output
3. P: Power
4. PU: Internal Pull Up
5. PD: Internal Pull Down

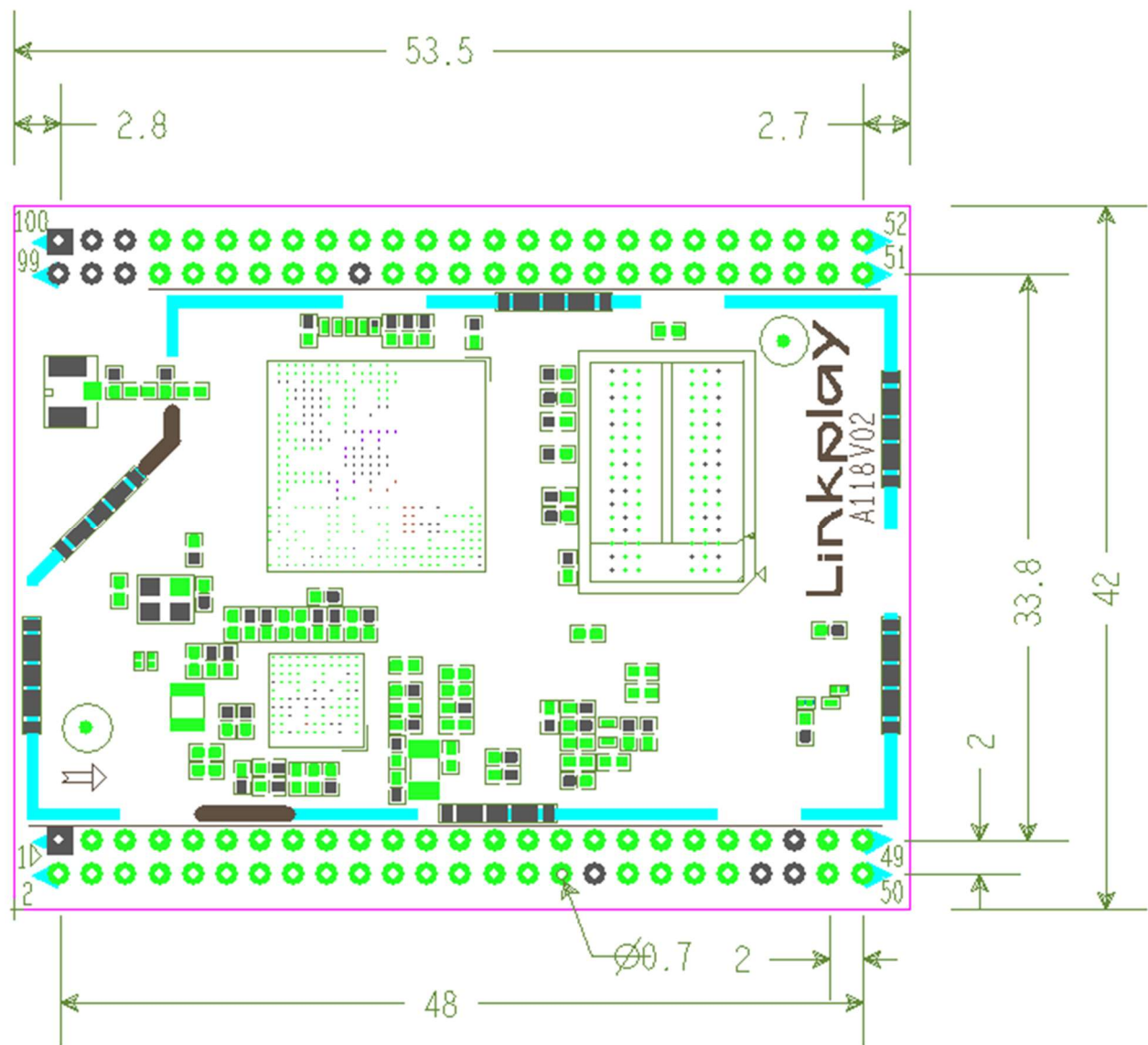
2.2. Mechanical Dimension

Linkplay A118 module has the dimension of 53.5mm x 42mm. The detailed layout will be given shortly below.

Unit: mm

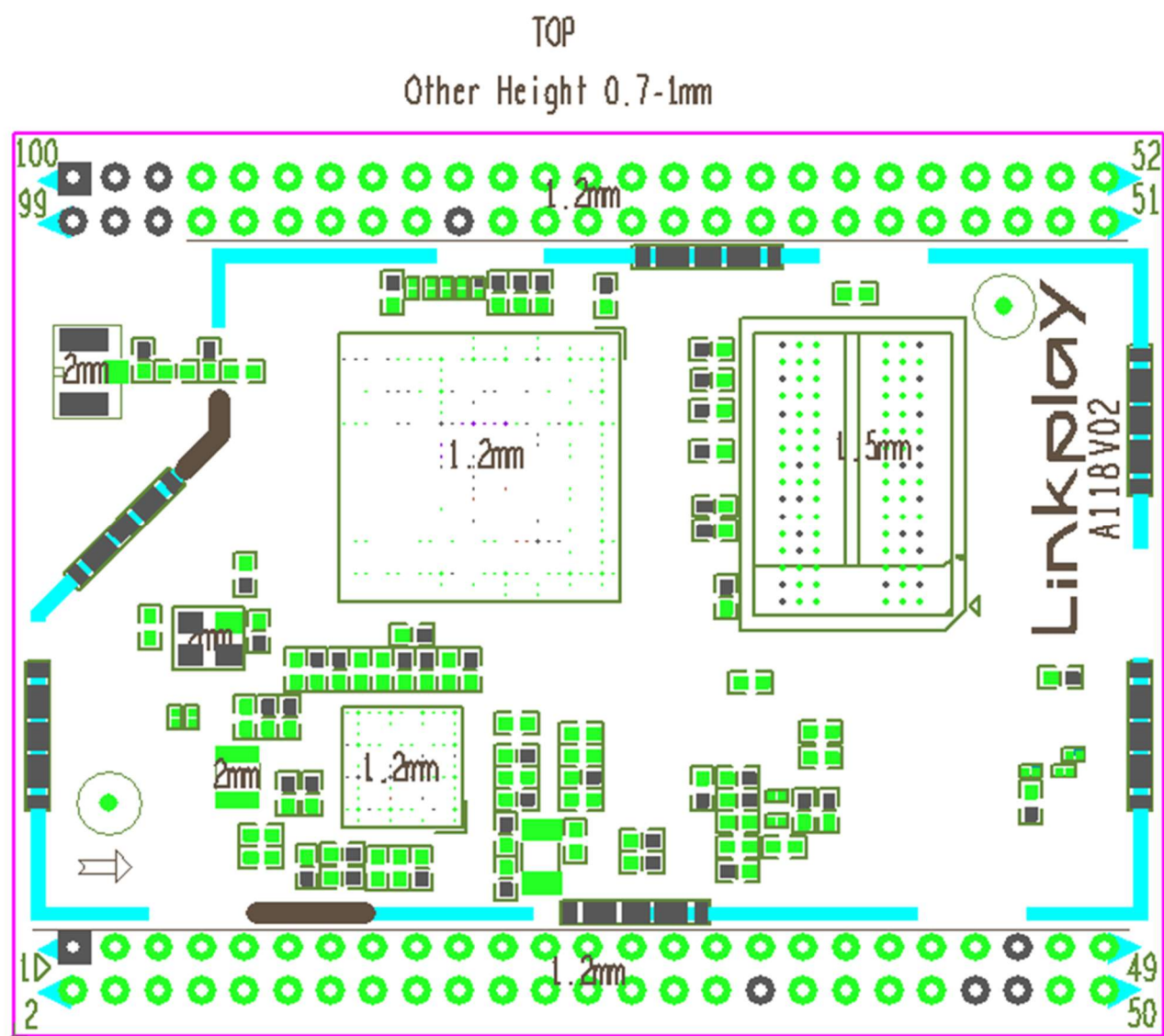
Top View

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TOP Components High Limit

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Bottom Components High Limit

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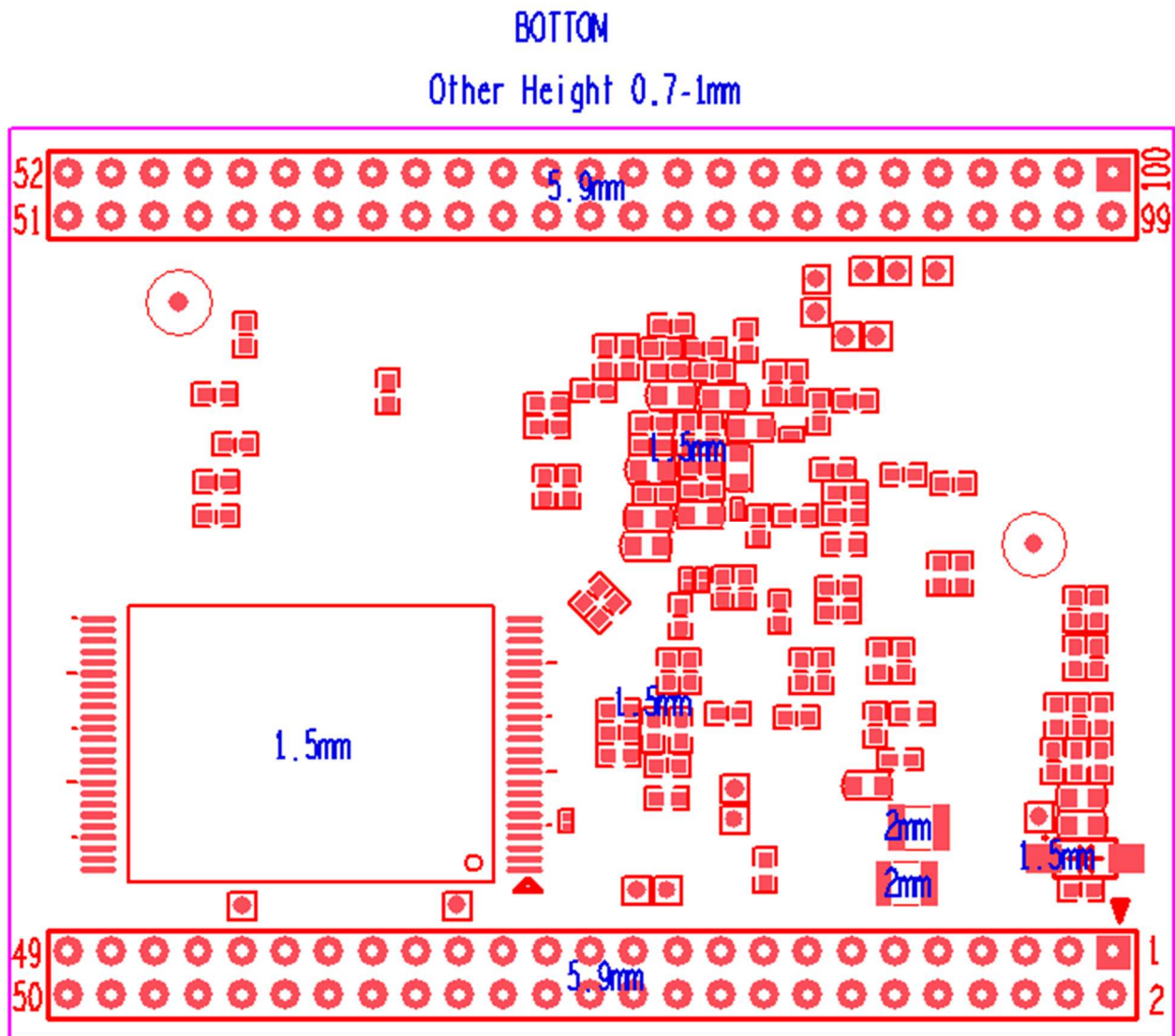


Figure 2-2: Linkplay A118 physical dimension

2.3. External Antenna

A118 uses the external antenna for the best Wi-Fi performance. To use external antenna, please choose the antenna type that meets the requirement of IEEE 802.11 b/g/n Wi-Fi standard. The detailed parameters are shown in the table below.

Item	Parameter
Frequency range	2.4 ~ 2.5GHz
Impedance	50 Ohm
VSWR	2 (Max.)
Reflection loss	-10dB (Max.)
Connector	I-PEX or populate directly

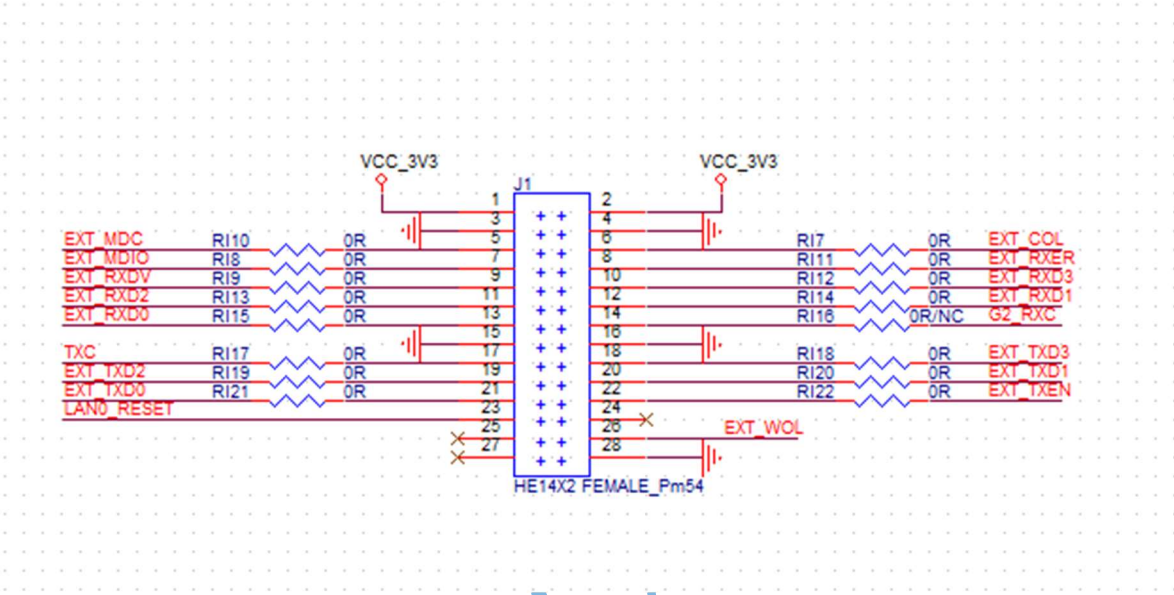
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Table 2-5 External antenna parameters for A118

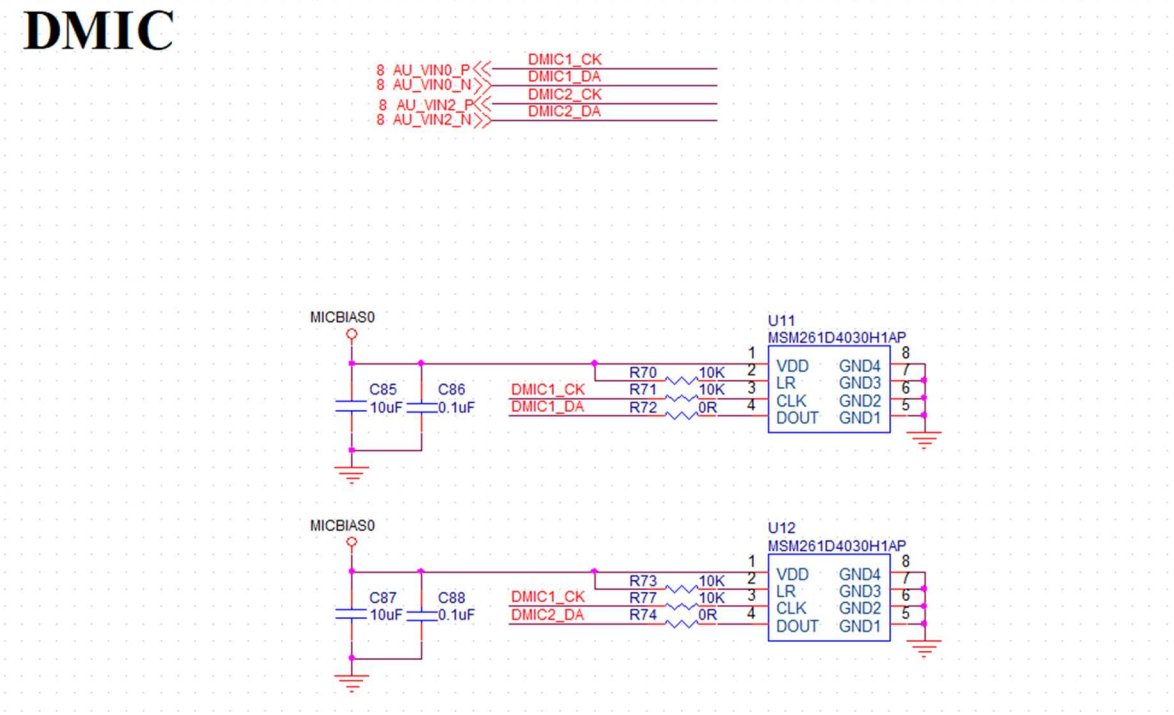
2.4. Typical Application

Wireless Smart Audio-A118’s typical reference design:

ETH



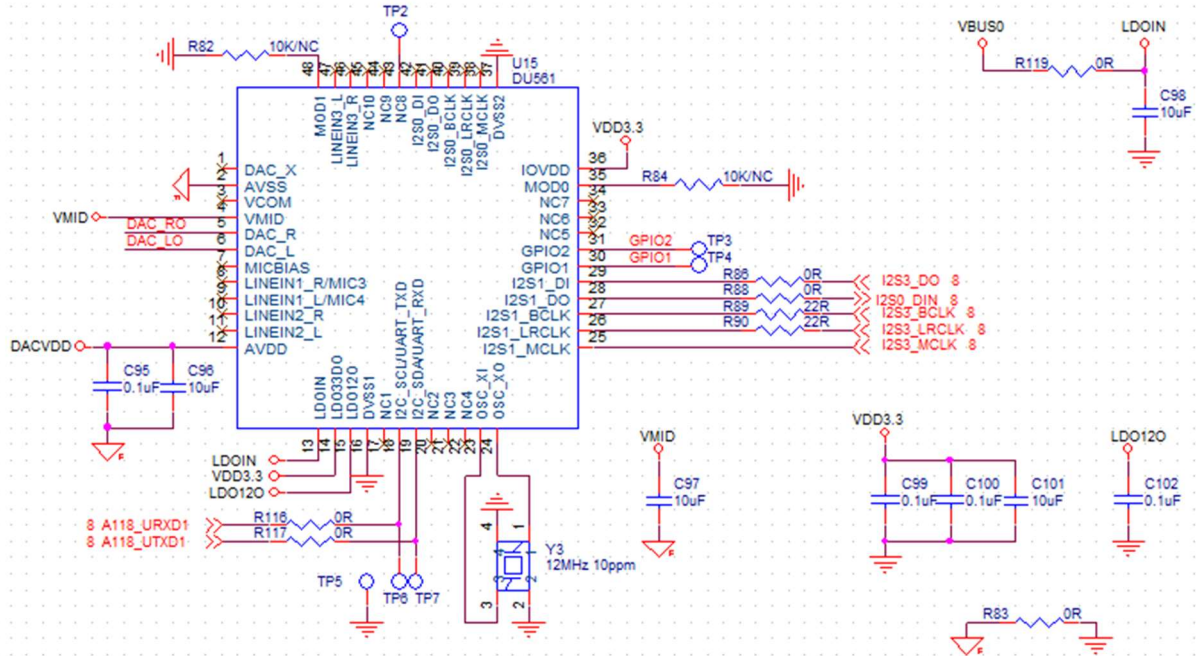
DMIC



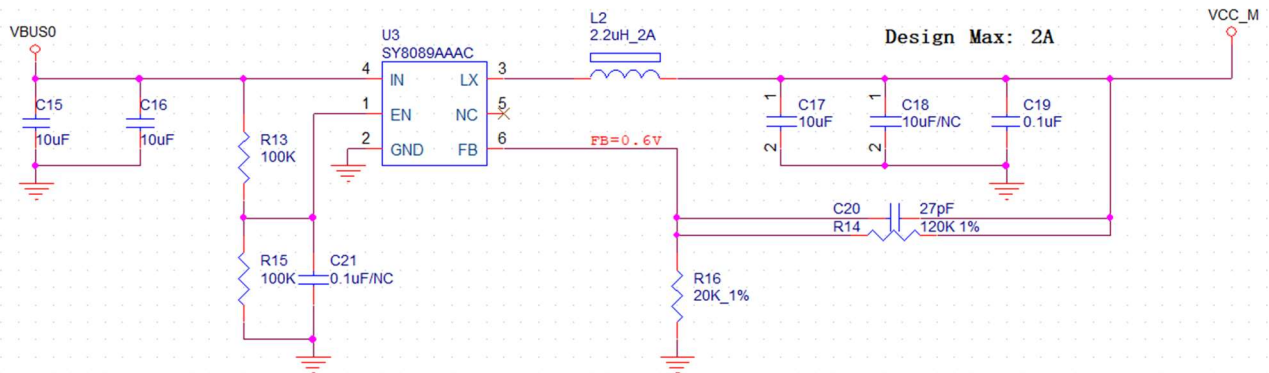
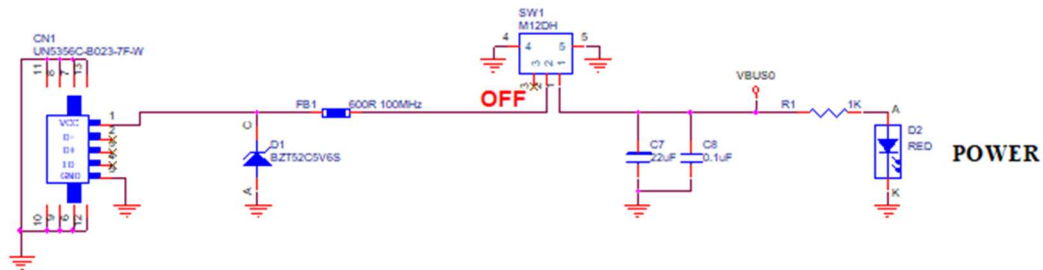
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CODEC

CODEC

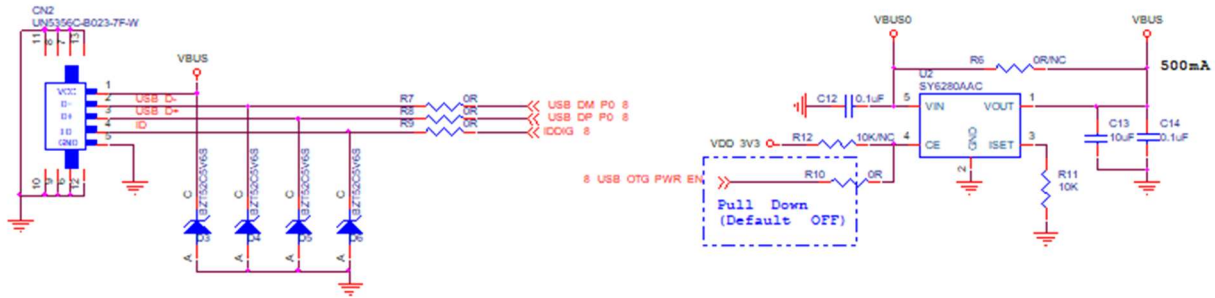


Power



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OTG



USB Host



2.5. USB OTG Port

Please follow the design rule below to populate the USB host interface:

Item	Parameter
Signal Group	USB
Topology	Differential Pair Point-to-Point
Reference Plane	Ground Referenced
Characteristic Trace Impedance (Z_0)	$90 \Omega \pm 10\%$
Trace Width	4 mils
Serpentine Spacing (center to center)	8.5 mils
Minimum Isolation Spacing to Clock Signals	50 mils
Minimum Isolation Spacing to Low-Speed Signals	20 mils
Minimum Isolation Spacing to other USB Pair	20 mils
Total Length (with package length)	< 8000 mils
Maximum Recommended Via Count	2 (per side)
DM to DP Length Matching (with package length)	Match total length to within ± 10 mils

Table 2-2 A118 USB design rule

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3. Software Introduction

3.1. Feature list

- “Easy Setup” to setup your network, with the help of one button of your device, you can connect the device to your home router quickly.
- Music stream protocol
Support Spotify Connect, Airplay, DLNA and QPlay protocol
- Music content
Support iHeartRadio, Napster/Rhapsody, Tidal, Deezer, vTune, Qobuz, Audible, Radio.de, NPR, Ximalaya, Qingting FM, QQ FM, Douban FM inside, with the help of App, you can search, stream, playback and preset the musics of the above music services.
- Multiroom
Support multiroom.
Support Airplay, Spotify, Bluetooth, Aux-in multiroom playback.
- Music format
HTTP/HTTPS/RTSP/MMS/TS protocol
HLS/ASX/M3U playlist format
MP3/AAC/FLAC/ALAC/WMA/APE/OGG codec
- Bluetooth
Support 4.2: A2DP, AVRCP, HFP, HID profiles
Support BLE
Support EDR
- Preset
With the help of App, you can store the music account token and playlist in the A118. Then the end user can play the playlist by the button/voice or timer even without the App.

3.2. APP support

- iOS App
≥ iOS6.1, suggest iOS10 and above
- Android APP
≥ Android 4.3.3
- Quick Customization
With the help of the Linkplay compile server, you can change the brand and some strings, change the logo and some pictures to get a customization App.

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3.3. Certifications

Linkplay can help you to finish follow certifications:

- Wi-Fi Logo
- BQB
- MFi
- Spotify Connect
- DLNA
- QPlay

Linkplay Confidential

FCC Statement

Federal Communication Commission Interference Statement

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 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.

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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the device is small or for such use that it is not practicable to place the statement on the product, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains FCC ID: MBBA118". If the device is small or for such use that it is not practicable to place the statement on the product, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of 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.

IC Statement

This Class B digital apparatus complies with Canadian ICES-003.

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

Pour les produits disponibles aux États-Unis / Canada du marché, seul le canal 1 à 11 peuvent être exploités. Sélection d'autres canaux n'est pas possible.

This radio transmitter (identify the device by certification number or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

The device could automatically discontinue transmission in case of absence of information to transmit, or operational failure. Note that this is not intended to prohibit transmission of control or signaling information or the use of repetitive codes where required by the technology.

IMPORTANT NOTE:**IC Radiation Exposure Statement**

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20cm de distance entre la source de rayonnement et votre corps.

This module is intended for OEM integrator. The OEM integrator is still responsible for the IC compliance requirement of the end product, which integrates this module.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the IC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the device is small or for such use that it is not practicable to place the statement on the product, then following IC statement is required to be available in the users manual: IC statement is required to be available in the users manual: This device complies with Industry Canada license-exempt RSS standard(s). This Class B digital apparatus complies with Canadian ICES-003. 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.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following
" Contains IC : 11657A-A118"

Transmit Antenna Notice

This radio transmitter [IC: XXXXX-YYYYYYYYYYY] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Antenna list (type, maximum gain(dBi))

Model	Type	Maximum gain (dBi)
W619-1B235B-A	PIFA	5.60
W619-1B110B-A2	PIFA	4.87
W619-1B170B-A	PIFA	5.60
W548-1G240B-A	PIFA	5.42