TB-RK2206C0-A

20210915

CPU: ARM Cortex-M4F+DSP HIFI3
RAM: Embedder SRAM（256KB）+ Embedder pSRAM（2/4/8 MB Option）
ROM: Embedder SPI Nor Flash（2/4/8 MByte Option）
PMIC: RK812
Interface: UART/SPI/I2C/I2S/PDM/CIF/LCD

Rockchip Confidential

Lockzhiner Electroic Technology Co., Ltd.					
Project:	TB-RK2206C0-A				
File:	00.Cover Page				
Date:	Thursday, September 16, 2021			Rev:	V0.1
Designed by:	Louis.weng	Reviewed by:	<Checker>	Sheet:	1 of 24

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Note

NOTE 1:
Component parameter description

1. DNP stands for component not mounted temporarily
2. If Value or option is DNP, which means the area is reserved without being mounted
3. If Flash is compatible, please notice when eMMC is used, the option is that @eMMC is mounted, @Nand is not mounted when Nand is used, the option is that @Nand is mounted, @eMMC is not mounted

NOTE 2:
Please use our recommended components to avoid too many changes.For more informations about the second source,please refer to our AVL.

Note

Option

Description

Bill of Materials

Header:

Item\tPart\tDescription\tPCB Footprint\tReference\tQuantity\tOption

Combined property string:

{Item}\t{Value}\t{Description}\t{PCB Footprint}\t{Reference}\t{Quantity}\t{Option}

Lockzhiner Electroic Technology Co., Ltd.					
Project:	TB-RK2206C0-A				
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Revision History

Version	Date	Author	Change Notes
V10	20210693	DJ	First edition
V11	20210825	DJ	Delete MIC1_INP/N,MIC2_INP/N; Delete SPK_P/N,LOOP_P/N; Delete OTG_VBUS; Delete VCC2V5_Efuse; Delete PMIC_INT_M0 Add 4 Codec IO, GPIO0_D0/1/2/3; Add VCC_3V3 power port Change pin number 40 Change VCCIO2 from 1V8 to 3V3 Change C2034 DNP, install R1006
	20210827		Recover MIC1_INP/N,MIC2_INP/N; Delete PMIC_INT_M0 Recover deleteing 3 Codec IO, GPIO0_D0/1/2; recover VCCIO2 1V8;

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Project:	**TB-RK2206C0-A**				
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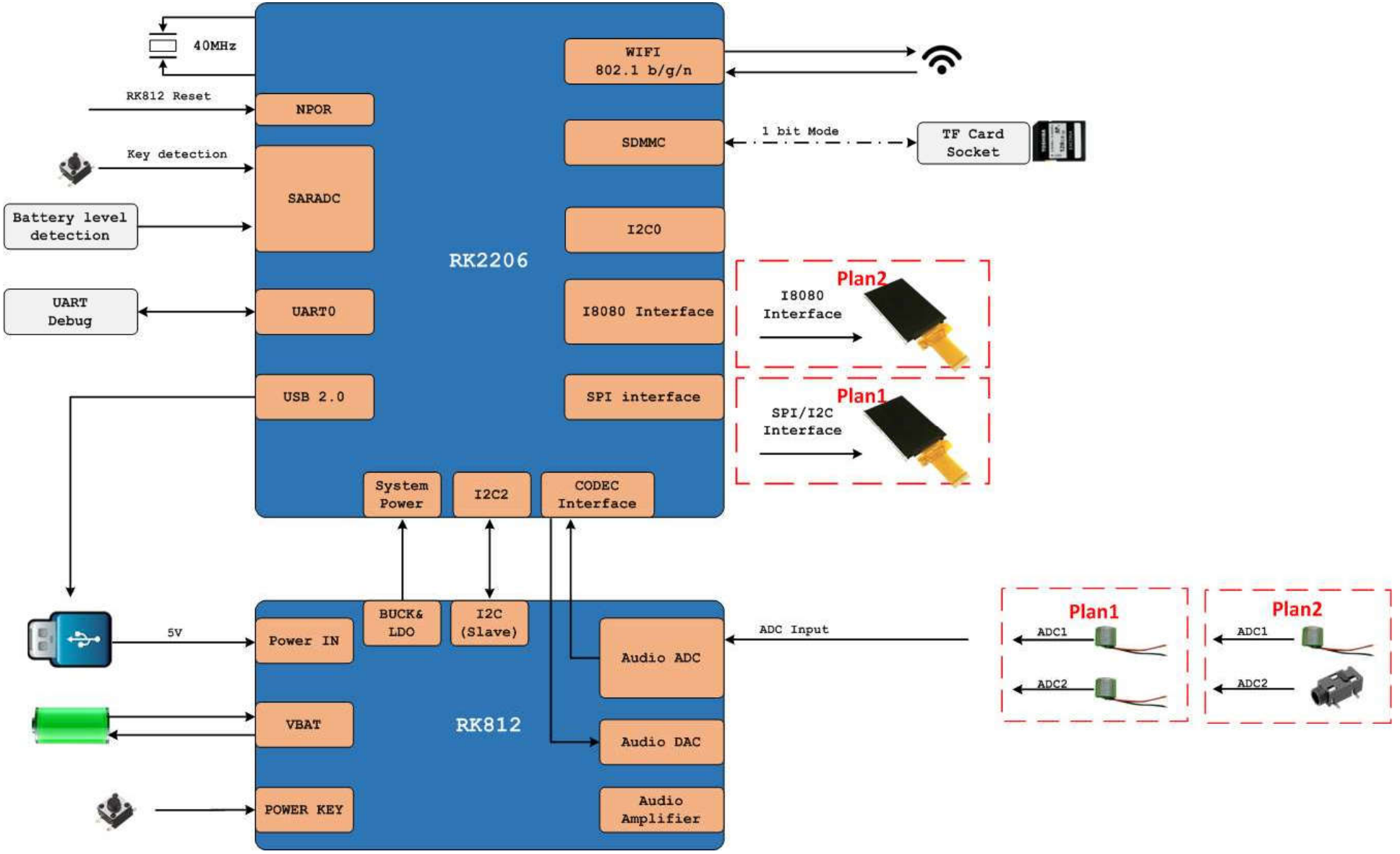
Block Diagram



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Project:	TB-RK2206C0-A				
File:	03.Block Diagram				
Date:	Friday, September 17, 2021			Rev:	V0.1
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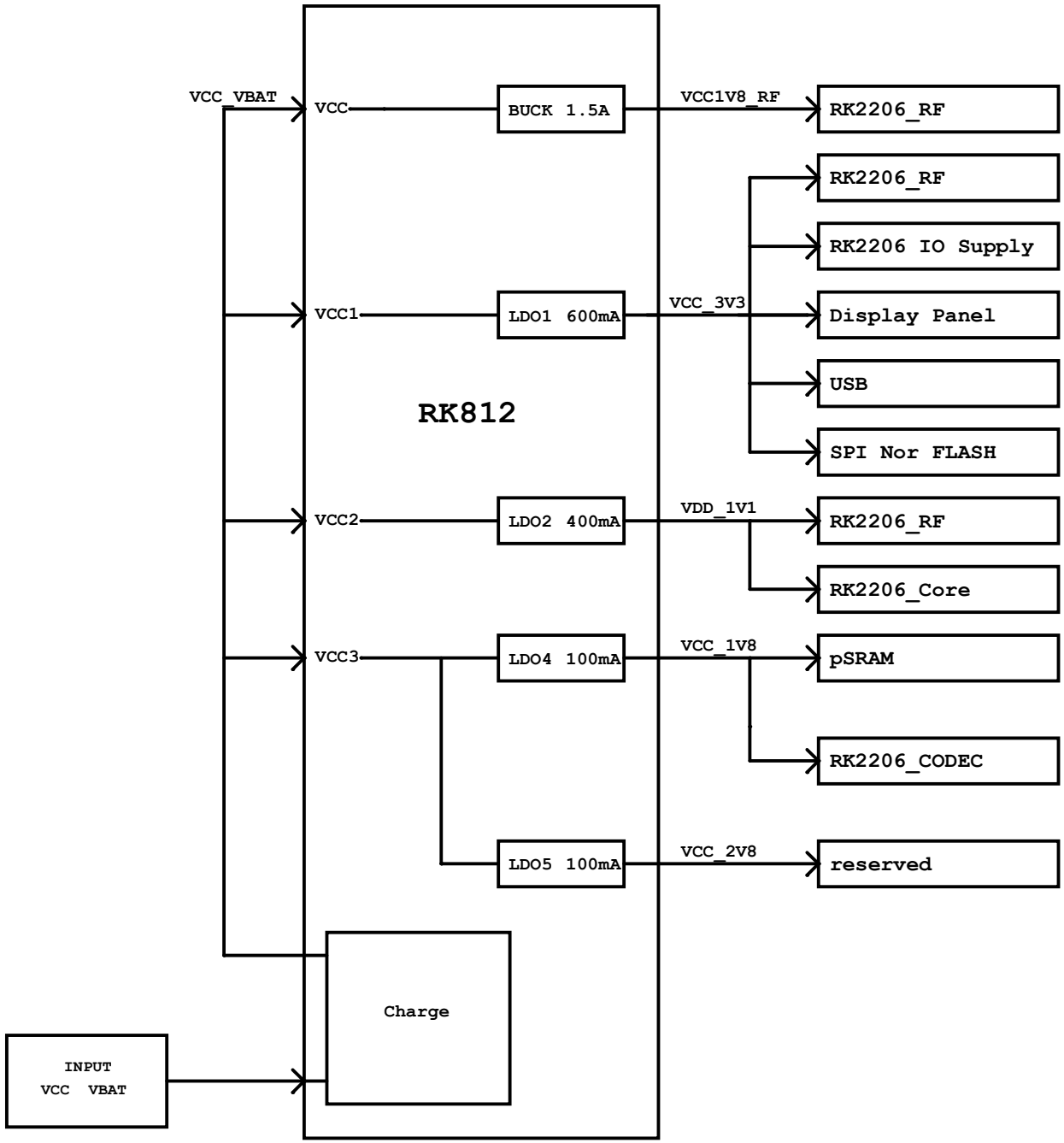
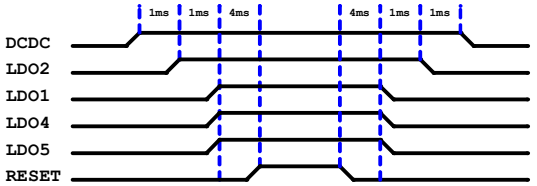
Power Diagram and Sequence



PMU Channel	TIMER	Default ON/OFF	Default Voltage	POWER NAME
DCDC	SOLT:1	ON	1.8V	VCC1V8_RF
LDO1	SOLT:3	ON	3.3V	VCC_3V3
LDO2	SOLT:2	ON	1.1V	VDD_1V1
LDO4	SOLT:3	ON	1.8V	VCC_1V8
LDO5	SOLT:3	ON	1.8V	VCC1V8



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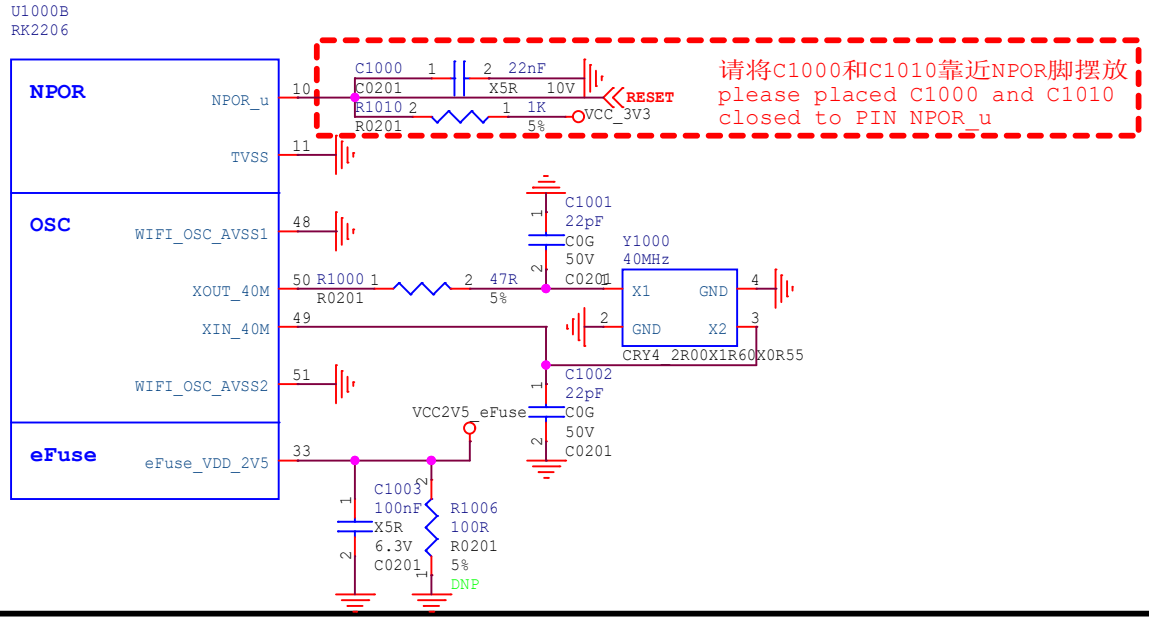
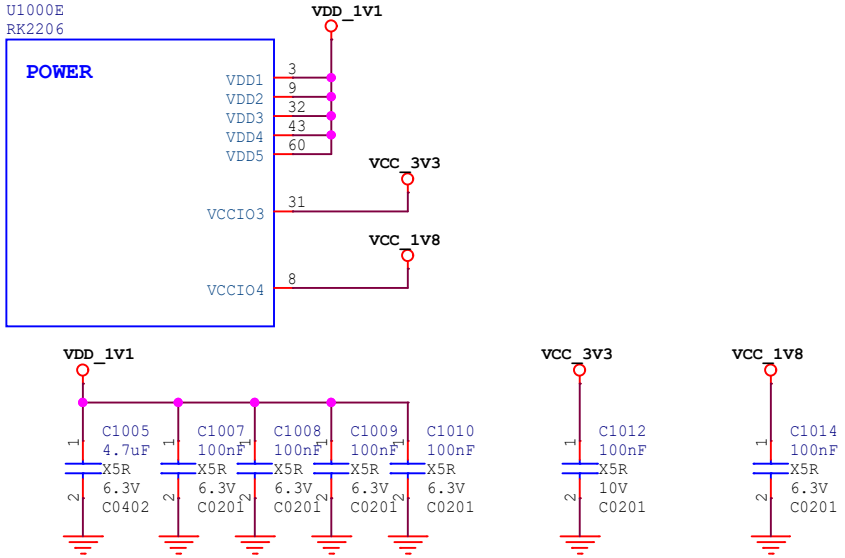
Project:	TB-RK2206C0-A				
File:	04.Power Diagram and Sequence				
Date:	Thursday, September 16, 2021			Rev:	V0.1
Designed by:	Louis.weng	Reviewed by:	<Checker>	Sheet:	5 of 24

RK2206 PART-B

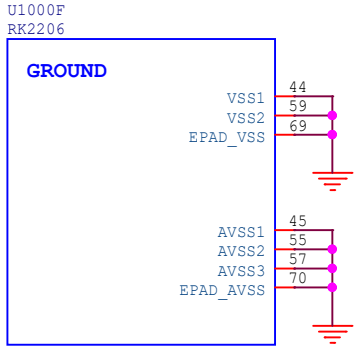


RK2206 PART-E



注意：所有的滤波电容必须靠近R2206摆放
Note:All the Power filter capacitors should be placed close to the power pins of RK2206

RK2206 PART-F



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Project:	TB-RK2206C0-A				
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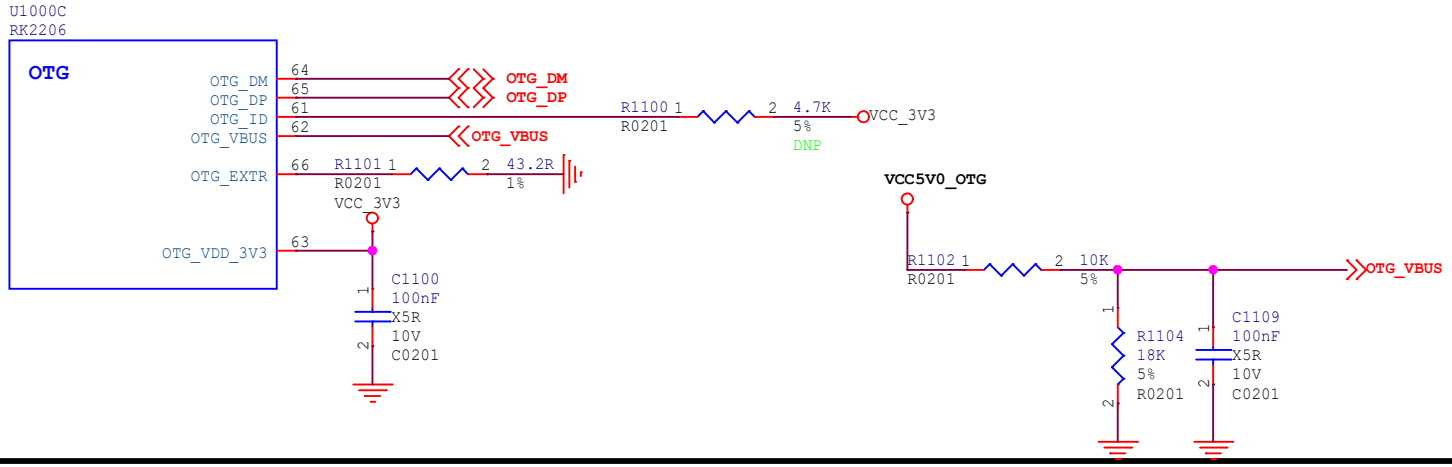
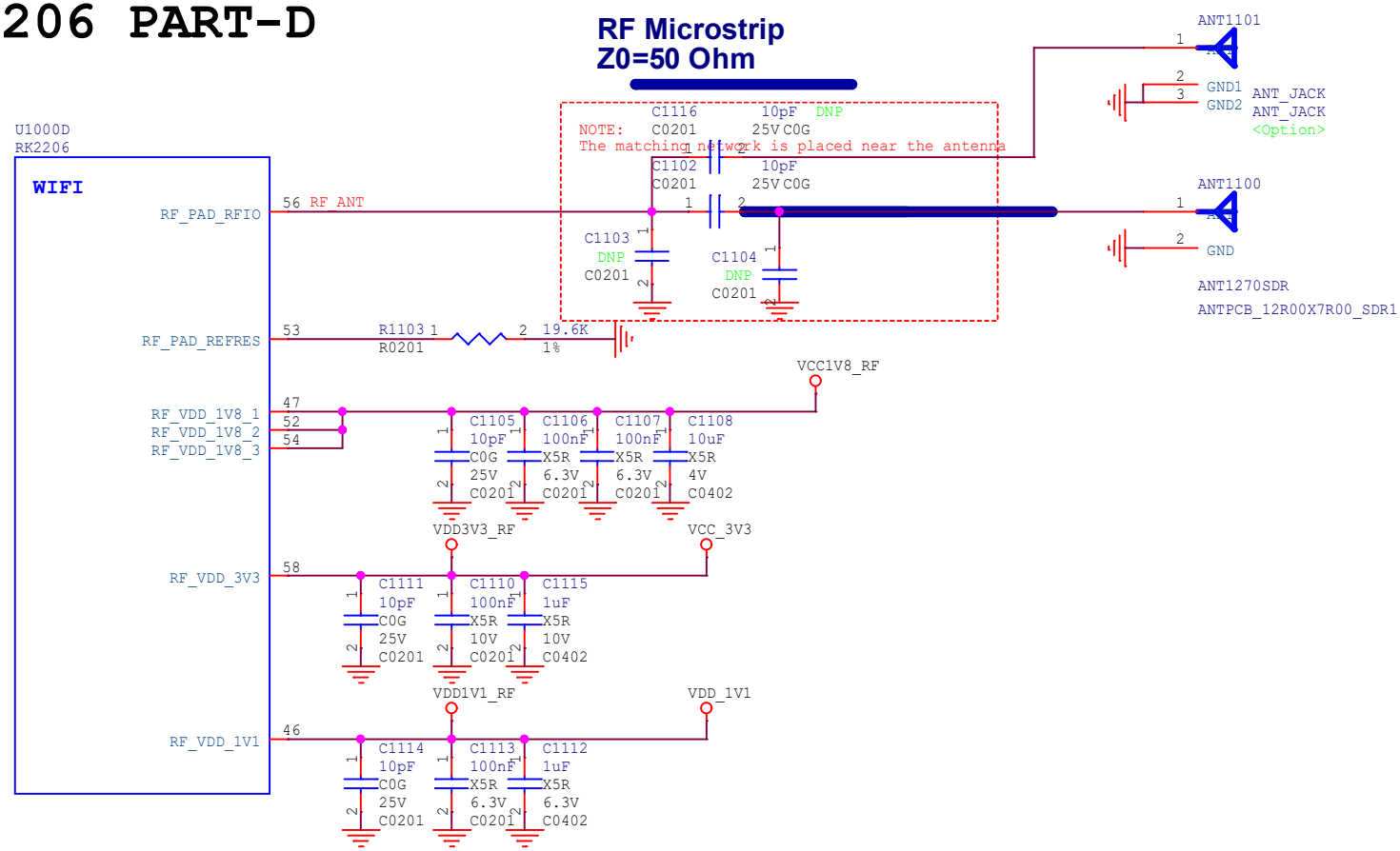
RK2206 PART-C



RK2206 PART-D



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Project:	TB-RK2206C0-A				
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RK2206 PART-A

U1000A

QFN70_28R0X28R0X41R3_S

TKEY_DRIVE	I2C/JTAG	CIF	LCD/PWM_AUDIO	SPI/PMIC_CODEC	I2C	PWM/PDM/SPI	TOUCH_KEY	UART	GPIO
------	JTAG_TCK	CIF_D0	LCD_D0	------	I2C0_SDA_M2	------	TKEY12	------	GPIO0_A0_u
------	JTAG_TMS	CIF_D1	LCD_D1	------	I2C0_SCL_M2	------	TKEY13	------	GPIO0_A1_u
TKEY_DRIVE_M3	JTAG_TDI	CIF_HREF	LCD_RS	------	I2C1_SDA_M2	------	TKEY14	------	GPIO0_A2_u
------	JTAG_TDO	CIF_VSYNC	LCD_CSn	------	I2C1_SCL_M2	------	TKEY15	------	GPIO0_A3_u
------	JTAG_MASTN	CIF_CLKOUT	LCD_RDn	CODEC_CLK_M1	------	------	TKEY16	UART1_CTSn_M1	GPIO0_A4_u
------	------	CIF_CLKIN	LCD_WRn	CODEC_SYNC_M1	------	PDM_CLK_M0	TKEY17	UART1_RTSn_M1	GPIO0_A5_d
------	------	CIF_D2	LCD_D2	CODEC_ADC_D_M1	------	PDM_SDI_M0	TKEY18	UART1_RX_M1	GPIO0_A6_d
------	------	CIF_D3	LCD_D3	CODEC_DAC_DL_M1	------	PDM_CLK_S_M0	TKEY19	UART1_TX_M1	GPIO0_A7_d
------	------	CIF_D4	LCD_D4	SPI1_CSOn_M1	------	SPI_SLV_CSn	------	UART2_CTSn_M1	GPIO0_B0_u
------	------	CIF_D5	LCD_D5	SPI1_CLK_M1	------	SPI_SLV_CLK	------	UART2_RTSn_M1	GPIO0_B1_u
------	------	CIF_D6	LCD_D6	SPI1_MOSI_M1	------	SPI_SLV_MOSI	------	UART2_RX_M1	GPIO0_B2_u
------	------	CIF_D7	LCD_D7	SPI1_MISO_M1	------	SPI_SLV_MISO	------	UART2_TX_M1	GPIO0_B3_u
TKEY_DRIVE_M0	I2C0_SDA_M0	------	PWM_AUDIO_L_M0	SPI0_CSOn_M0	I2C2_SDA_M1	PWM0_M1	TKEY0_M0	UART0_CTSn_M0	GPIO0_B4_d
------	I2C0_SCL_M0	------	PWM_AUDIO_R_M0	SPI0_CLK_M0	I2C2_SCL_M1	PWM1_M1	TKEY1_M0	UART0_RTSn_M0	GPIO0_B5_d
------	------	------	------	SPI0_MOSI_M0	I2C1_SDA_M0	PWM2_M1	TKEY2_M0	UART0_RX_M0	GPIO0_B6_d
TKEY_DRIVE_M2	------	------	------	SPI0_MISO_M0	I2C1_SCL_M0	PWM3_M1	TKEY3_M0	UART0_TX_M0	GPIO0_B7_d
------	------	------	------	SPI0_CSIn	SPI1_CSIn	PWM7_M1	------	------	GPIO1_D0_u

VCCIO0_1
VCCIO0_2

PWM_AUDIO/T_DRIVE	SDMMC/PMIC	I2S	SRADC	SPI	I2C/PDM	PWM	TOUCH_KEY	UART	GPIO
------	SDMMC_CLK	I2S_SDO1_M0	SRADC0	SPI0_CSOn_M1	------	PWM0_M0	TKEY9	UART1_CTSn_M0	GPIO0_C0_u
------	SDMMC_CMD	I2S_SCLK_RX_M0	SRADC1	SPI0_CLK_M1	I2C1_SDA_M1	PWM1_M0	TKEY10	UART1_RTSn_M0	GPIO0_C1_u
------	SDMMC_D0	I2S_LRCK_RX_M0	SRADC2	SPI0_MOSI_M1	I2C1_SCL_M1	PWM2_M0	TKEY11	UART1_RX_M0	GPIO0_C2_u
TKEY_DRIVE_M1	------	I2S_MCLK_M0	SRADC3	SPI0_MISO_M1	PDM_CLK_S	PWM3_M0	TKEY4_M0	UART1_TX_M0	GPIO0_C3_d
------	------	I2S_SCLK_TX_M0	SRADC4	SPI1_CSOn_M0	PDM_CLK	PWM4_M0	TKEY5_M0	UART0_CTSn_M1	GPIO0_C4_u
------	------	I2S_LRCK_TX_M0	SRADC5	SPI1_CLK_M0	PDM_SDI	PWM5_M0	TKEY6_M0	UART0_RTSn_M1	GPIO0_C5_u
PWM_AUDIO_L_M1	------	I2S_SDO0_M0	SRADC6	SPI1_MOSI_M0	I2C0_SDA_M1	PWM6_M0	TKEY7	UART0_RX_M1	GPIO0_C6_u
PWM_AUDIO_R_M1	PMIC_INT_M1	I2S_SDI_M0	SRADC7	SPI1_MISO_M0	I2C0_SCL_M1	PWM7_M0	TKEY8	UART0_TX_M1	GPIO0_C7_d

ADC_AVDD_3V3

PWM_AUDIO	I2S/PWM_AUDIO	PMIC_CODEC/I2C	SPI/TKEY_DRIVE	I2C	PWM	TOUCH_KEY	UART	GPIO
------	PWM_AUDIO_L_M2	CODEC_CLK_M0	TKEY_DRIVE_M4	I2C0_SDA_M3	PWM4_M1	TKEY0_M1	UART1_RX_M2	GPIO0_D0_u
------	PWM_AUDIO_R_M2	CODEC_SYNC_M0	SPI_CSOn_M2	I2C0_SCL_M3	PWM5_M1	TKEY1_M1	UART1_TX_M2	GPIO0_D1_u
------	I2S_MCLK_M1	CODEC_ADC_D_M0	SPI1_CLK_M2	------	PWM6_M1	TKEY2_M1	UART2_CTSn_M0	GPIO0_D2_u
------	I2S_SCLK_TX_M1	CODEC_DAC_DL_M0	SPI1_MOSI_M2	------	PWM8	TKEY3_M1	UART2_RTSn_M0	GPIO0_D3_u
------	I2S_LRCK_TX_M1	PMIC_INT_M0	SPI1_MISO_M2	------	PWM9	TKEY4_M1	UART2_RX_M0	GPIO0_D4_u
PWM_AUDIO_L_M3	I2S_SDO0_M1	I2C1_SDA_M3	------	I2C2_SDA_M0	PWM10	TKEY5_M1	UART2_TX_M0	GPIO0_D5_u
PWM_AUDIO_R_M3	I2S_SDI_M1	I2C1_SCL_M3	TKEY_DRIVE_M5	I2C2_SCL_M0	PWM11	TKEY6_M1	------	GPIO0_D6_u

VCCIO2

LCD_D0/CIF_D0/LCD_DC
LCD_D1/CIF_D1
LCD_RS/CIF_HREF
LCD_CSn/CIF_VSYNC
LCD_RDN/CIF_CLKOUT
LCD_WRn/CIF_CLKIN
LCD_D2/CIF_D2
LCD_D3/CIF_D3
LCD_D4/CIF_D4
LCD_D5/CIF_D5
LCD_D6/CIF_D6
LCD_D7/CIF_D7
I2C0_SDA_M0
I2C0_SCL_M0
UART0_RX_M0
UART0_TX_M0
LCD_PWREN

C1200 100nF X5R 10V C0201

R1201 20R R0402 5% DNP
R1202 20R R0402 5%

VCC_3V3
VCC_2V8

SDMMC_CLK
SDMMC_CMD
SDMMC_D0
ADC_KEY
SPI1_CSOn
SPI1_CLK
SPI1_MOSI
SPI1_MISO

C1202 100nF X5R 10V C0201

VCC_3V3

CODEC_CLK_M0
CODEC_SYNC_M0
CODEC_ADC_D_M0
CODEC_DAC_DL_M0/MASKROM
PMIC_INT_M0
I2C2_SDA_M0
I2C2_SCL_M0

C1203 100nF X5R 6.3V C0201

VCC_1V8

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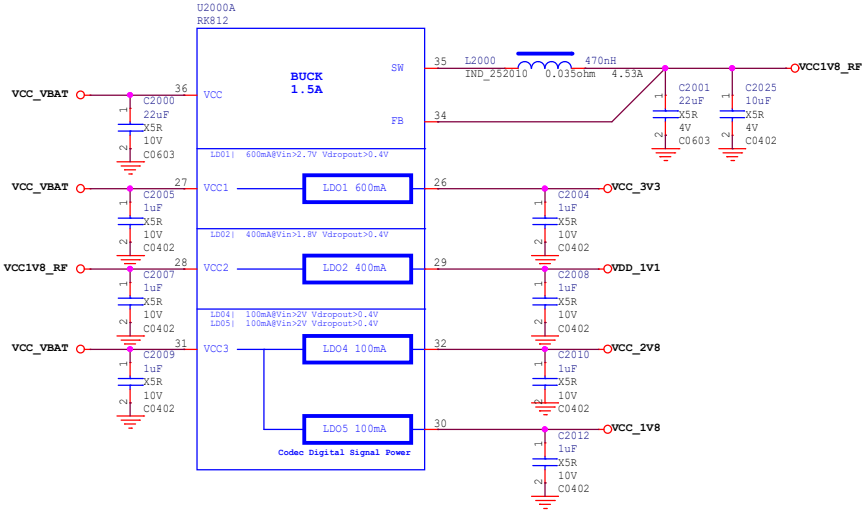
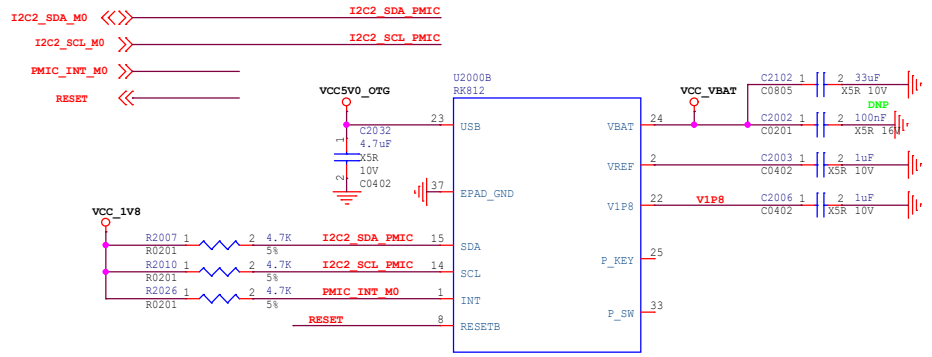
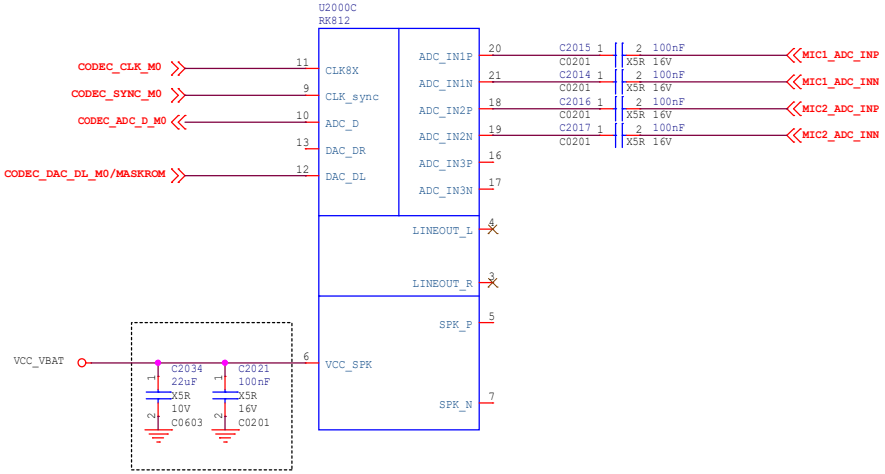
RK812 PART-A



RK812 PART-B



RK812 PART-C



P_KEY

P_SW

BATTERY

Lockzhiner Electroic Technology					
Project:	TB-RK2206C0-A				
File:	20.POWER PMIC RK812				
Date:	Friday, September 10, 2021			Rev:	V0.1
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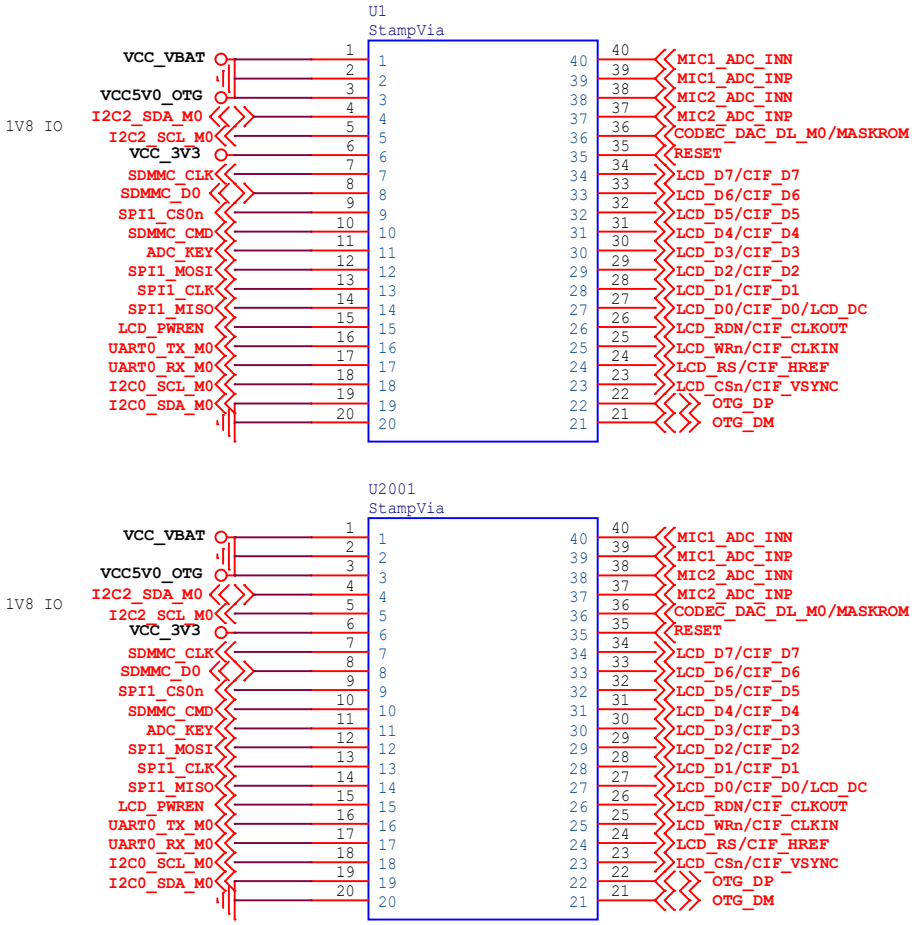
interface

Net Name	silk name
VCC_VBAT	VBAT(In)
GND	GND
VCC5V0_OTG	5V0(In)
I2C2_SDA_M0	I2C2_SDA_M0(1V8)
I2C2_SCL_M0	I2C2_SCL_M0(1V8)
VCC_3V3	3V3(out)
SDMMC_CLK	GPIO0_C0
SDMMC_D0	GPIO0_C2
SPI1_CS0n	ADC4
SDMMC_CMD	GPIO0_C1
ADC_KEY	PWM3
SPI1_MOSI	GPIO0_C6
SPI1_CLK	ADC5
SPI1_MISO	PWM7_M0
LCD_PWREN	GPIO1_D0
UART0_TX_M0	Debug_TX
UART0_RX_M0	Debug_RX
I2C0_SCL_M0	I2C0_SCL_M0
I2C0_SDA_M0	I2C0_SDA_M0
GND	GND



Net Name	silk name
MIC1_ADC_INN	MIC1_ADC_INN
MIC1_ADC_INP	MIC1_ADC_INP
MIC2_ADC_INN	MIC2_ADC_INN
MIC2_ADC_INP	MIC2_ADC_INP
CODEC_DAC_DL_M0 /MASKROM	Maskrom
RESET	RESET
LCD_D7/CIF_D7	SPI1_MISO_M1
LCD_D6/CIF_D6	SPI1_MOSI_M1
LCD_D5/CIF_D5	SPI1_CLK_M1
LCD_D4/CIF_D4	SPI1_CS0N_M1
LCD_D3/CIF_D3	LCD_D3
LCD_D2/CIF_D2	LCD_D2
LCD_D1/CIF_D1	LCD_D1
LCD_D0/CIF_D0 /LCD_DC	SPI_DC
LCD_RDN/ CIF_CLKOUT	LCD_RDN
LCD_WRn/ CIF_CLKIN	LCD_WRN
LCD_RS/ CIF_HREF	I2C1_SDA_M2
LCD_CSn/ CIF_VSYNC	I2C1_SCL_M2
OTG_DP	OTG_DP
OTG_DM	OTG_DM

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Project:	**TB-RK2206C0-A**				
File:	**99.Inteface**				
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Designed by:	Louis.weng	Reviewed by:	<Checker>	Sheet:	24 of 24