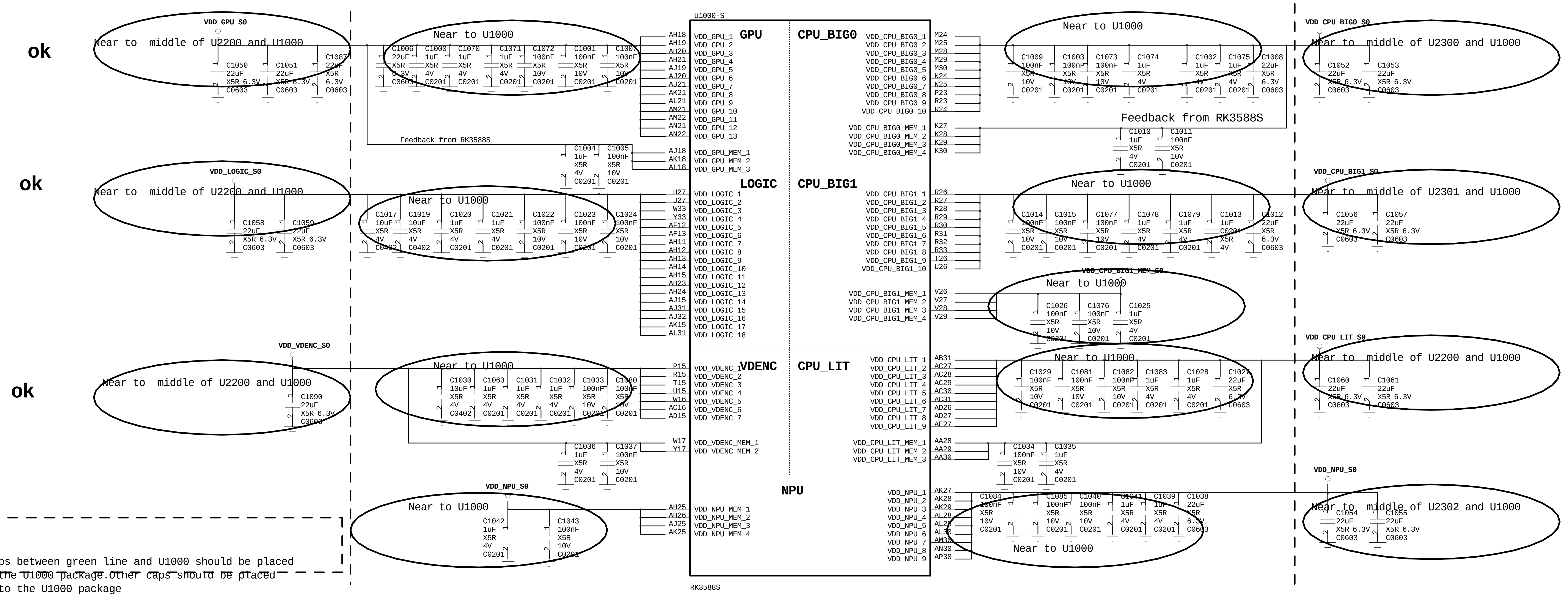
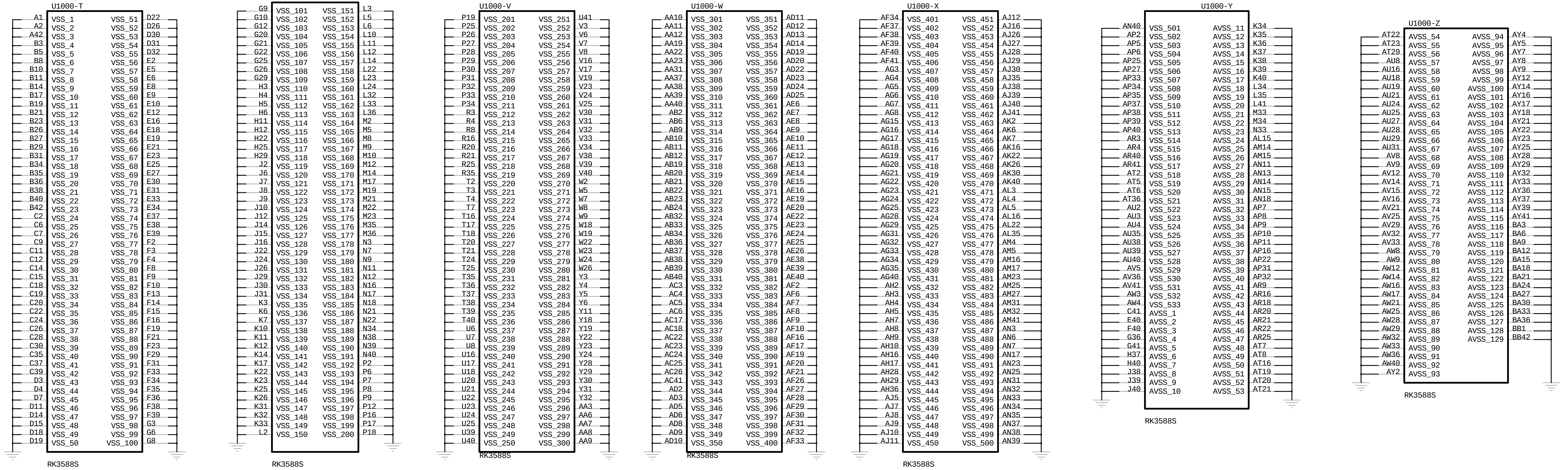
RK3588S(Power&Gnd)


VDD_GPU_S0
Near to middle of U2200 and U1000
ok
Near to U1000
Feedback from RK3588S
VDD_LOGIC_S0
VDD_VDENC_S0
VDD_NPU_S0
U1000-S
GPU
CPU_BIG0
LOGIC
CPU_BIG1
VDENC
CPU_LIT
NPU
RK3588S
VDD_CPU_BIG0_S0
Near to middle of U2300 and U1000
VDD_CPU_BIG1_S0
Near to middle of U2301 and U1000
VDD_CPU_BIG1_MEM_S0
VDD_CPU_LIT_S0
Near to middle of U2302 and U1000
Feedback from RK3588S

Note:

The Caps between green line and U1000 should be placed under the U1000 package.Other caps should be placed close to the U1000 package


U1000-T
U1000-U
U1000-V
U1000-W
U1000-X
U1000-Y
U1000-Z
RK3588S

	Indiedroid.com
Project:	RK3588S_Tablet_REF
File:	
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Designed by:	Joseph
Reviewed by:	<Checker>
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RK3588S(OSC/PLL/PMUIO1)

ok

Note:

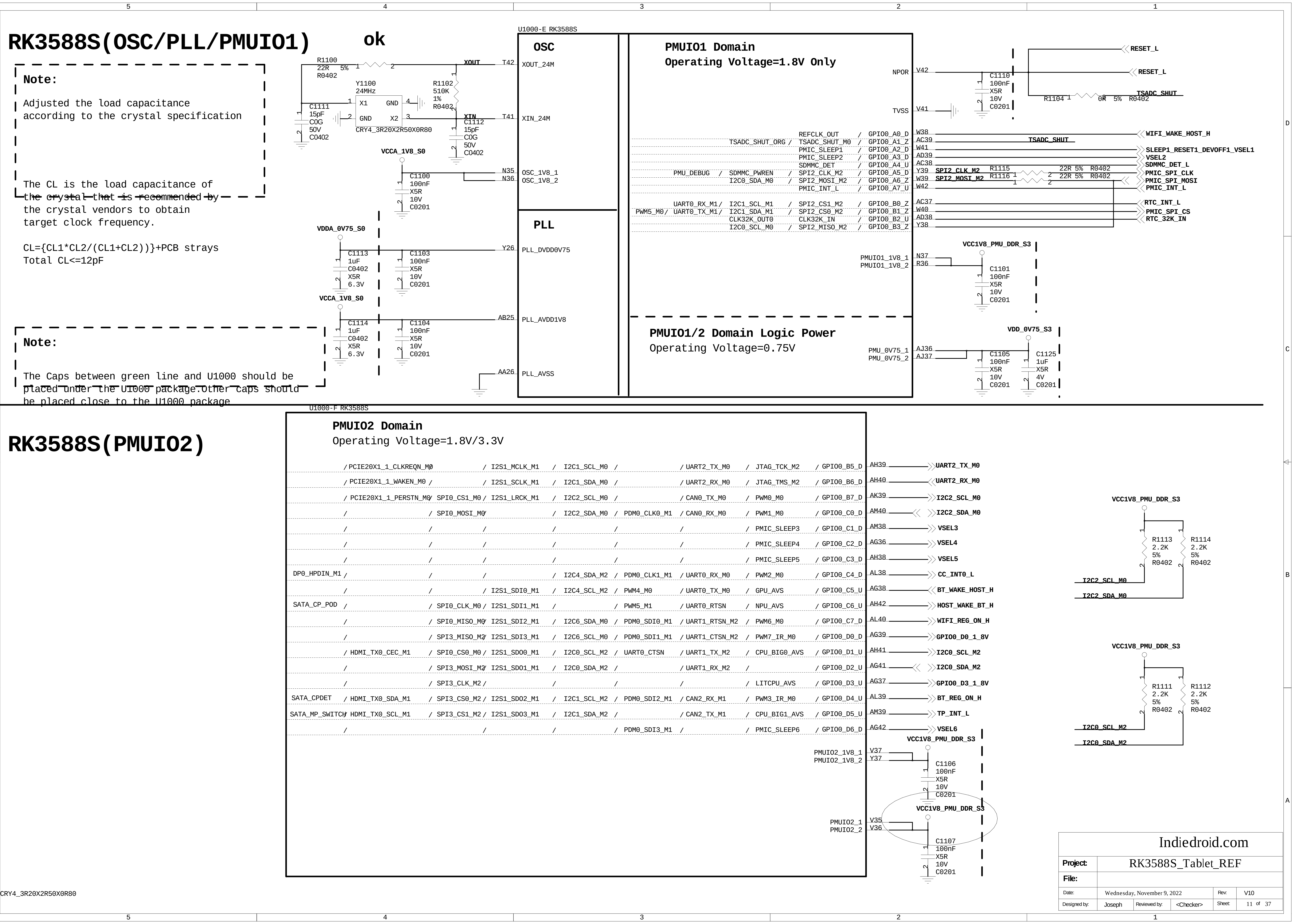
Adjusted the load capacitance according to the crystal specification

The CL is the load capacitance of the crystal that is recommended by the crystal vendors to obtain target clock frequency.

CL={CL1*CL2/(CL1+CL2))}+PCB strays
Total CL<=12pF

Note:

The Caps between green line and U1000 should be placed under the U1000 package.Other caps should be placed close to the U1000 package


5
4
3
2
1
D
C
B
A
U1000-E RK3588S
OSC
PLL
PMUIO1 Domain
Operating Voltage=1.8V Only
PMUIO1/2 Domain Logic Power
Operating Voltage=0.75V
R1100 22R 5% R0402
Y1100 24MHz
X1 GND GND X2
CRY4_3R20X2R50X0R80
R1102 510K 1% R0402
XOUT
XIN
C1111 15pF C0G 50V C0402
C1112 15pF C0G 50V C0402
T42 XOUT_24M
T41 XIN_24M
VCCA_1V8_S0
C1100 100nF X5R 10V C0201
N35 OSC_1V8_1
N36 OSC_1V8_2
VDDA_0V75_S0
C1113 1uF C0402 X5R 6.3V
C1103 100nF X5R 10V C0201
Y26 PLL_DVDD0V75
VCCA_1V8_S0
C1114 1uF C0402 X5R 6.3V
C1104 100nF X5R 10V C0201
AB25 PLL_AVDD1V8
AA26 PLL_AVSS
NPOR V42
TVSS V41
C1110 100nF X5R 10V C0201
RESET_L
RESET_L
TSADC_SHUT
R1104 0R 5% R0402
REFCLK_OUT / GPIO0_A0_D W38 WIFI_WAKE_HOST_H
TSADC_SHUT_ORG / TSADC_SHUT_M0 / GPIO0_A1_Z AC39 TSADC_SHUT
PMIC_SLEEP1 / GPIO0_A2_D W41 SLEEP1_RESET1_DEVOFF1_VSEL1
PMIC_SLEEP2 / GPIO0_A3_D AD39 VSEL2
SDMMC_DET / GPIO0_A4_U AC38 SDMMC_DET_L
PMU_DEBUG / SDMMC_PWREN / SPI2_CLK_M2 / GPIO0_A5_D Y39 SPI2_CLK_M2 R1115 22R 5% R0402 PMIC_SPI_CLK
I2C0_SDA_M0 / SPI2_MOSI_M2 / GPIO0_A6_Z W39 SPI2_MOSI_M2 R1116 22R 5% R0402 PMIC_SPI_MOSI
PMIC_INT_L / GPIO0_A7_U W42 PMIC_INT_L
UART0_RX_M1/ I2C1_SCL_M1 / SPI2_CS1_M2 / GPIO0_B0_Z AC37 RTC_INT_L
PWM5_M0/ UART0_TX_M1/ I2C1_SDA_M1 / SPI2_CS0_M2 / GPIO0_B1_Z W40 PMIC_SPI_CS
CLK32K_OUT0 CLK32K_IN / GPIO0_B2_U AD38 RTC_32K_IN
I2C0_SCL_M0 / SPI2_MISO_M2 / GPIO0_B3_Z Y38
VCC1V8_PMU_DDR_S3
PMUIO1_1V8_1 N37
PMUIO1_1V8_2 R36
C1101 100nF X5R 10V C0201
VDD_0V75_S3
PMU_0V75_1 AJ36
PMU_0V75_2 AJ37
C1105 100nF X5R 10V C0201
C1125 1uF X5R 4V C0201
U1000-F RK3588S
PMUIO2 Domain
Operating Voltage=1.8V/3.3V
/ PCIE20X1_1_CLKREQN_M0 / / I2S1_MCLK_M1 / I2C1_SCL_M0 / / UART2_TX_M0 / JTAG_TCK_M2 / GPIO0_B5_D AH39 UART2_TX_M0
/ PCIE20X1_1_WAKEN_M0 / / I2S1_SCLK_M1 / I2C1_SDA_M0 / / UART2_RX_M0 / JTAG_TMS_M2 / GPIO0_B6_D AH40 UART2_RX_M0
/ PCIE20X1_1_PERSTN_M0 / SPI0_CS1_M0 / I2S1_LRCK_M1 / I2C2_SCL_M0 / / CAN0_TX_M0 / PWM0_M0 / GPIO0_B7_D AK39 I2C2_SCL_M0
/ / SPI0_MOSI_M0 / / I2C2_SDA_M0 / PDM0_CLK0_M1 / CAN0_RX_M0 / PWM1_M0 / GPIO0_C0_D AM40 I2C2_SDA_M0
/ / / / / / / PMIC_SLEEP3 / GPIO0_C1_D AM38 VSEL3
/ / / / / / / PMIC_SLEEP4 / GPIO0_C2_D AG36 VSEL4
/ / / / / / / PMIC_SLEEP5 / GPIO0_C3_D AH38 VSEL5
DP0_HPDIN_M1 / / / / I2C4_SDA_M2 / PDM0_CLK1_M1 / UART0_RX_M0 / PWM2_M0 / GPIO0_C4_D AL38 CC_INT0_L
/ / / I2S1_SDI0_M1 / I2C4_SCL_M2 / PWM4_M0 / UART0_TX_M0 / GPU_AVS / GPIO0_C5_U AG38 BT_WAKE_HOST_H
SATA_CP_POD / / SPI0_CLK_M0 / I2S1_SDI1_M1 / / PWM5_M1 / UART0_RTSN / NPU_AVS / GPIO0_C6_U AH42 HOST_WAKE_BT_H
/ / SPI0_MISO_M0 / I2S1_SDI2_M1 / I2C6_SDA_M0 / PDM0_SDI0_M1 / UART1_RTSN_M2 / PWM6_M0 / GPIO0_C7_D AL40 WIFI_REG_ON_H
/ / SPI3_MISO_M2 / I2S1_SDI3_M1 / I2C6_SCL_M0 / PDM0_SDI1_M1 / UART1_CTSN_M2 / PWM7_IR_M0 / GPIO0_D0_D AG39 GPIO0_D0_1_8V
/ HDMI_TX0_CEC_M1 / SPI0_CS0_M0 / I2S1_SDO0_M1 / I2C0_SCL_M2 / UART0_CTSN / UART1_TX_M2 / CPU_BIG0_AVS / GPIO0_D1_U AH41 I2C0_SCL_M2
/ / SPI3_MOSI_M2 / I2S1_SDO1_M1 / I2C0_SDA_M2 / / UART1_RX_M2 / / GPIO0_D2_U AG41 I2C0_SDA_M2
/ / SPI3_CLK_M2 / / / / / LITCPU_AVS / GPIO0_D3_U AG37 GPIO0_D3_1_8V
SATA_CPDET / HDMI_TX0_SDA_M1 / SPI3_CS0_M2 / I2S1_SDO2_M1 / I2C1_SCL_M2 / PDM0_SDI2_M1 / CAN2_RX_M1 / PWM3_IR_M0 / GPIO0_D4_U AL39 BT_REG_ON_H
SATA_MP_SWITCH / HDMI_TX0_SCL_M1 / SPI3_CS1_M2 / I2S1_SDO3_M1 / I2C1_SDA_M2 / / CAN2_TX_M1 / CPU_BIG1_AVS / GPIO0_D5_U AM39 TP_INT_L
/ / / / PDM0_SDI3_M1 / / PMIC_SLEEP6 / GPIO0_D6_D AG42 VSEL6
VCC1V8_PMU_DDR_S3
PMUIO2_1V8_1 V37
PMUIO2_1V8_2 Y37
C1106 100nF X5R 10V C0201
VCC1V8_PMU_DDR_S3
PMUIO2_1 V35
PMUIO2_2 V36
C1107 100nF X5R 10V C0201
VCC1V8_PMU_DDR_S3
R1113 2.2K 5% R0402
R1114 2.2K 5% R0402
I2C2_SCL_M0
I2C2_SDA_M0
VCC1V8_PMU_DDR_S3
R1111 2.2K 5% R0402
R1112 2.2K 5% R0402
I2C0_SCL_M2
I2C0_SDA_M2
CRY4_3R20X2R50X0R80

RK3588S(PMUIO2)

Indiedroid.com			
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File:			
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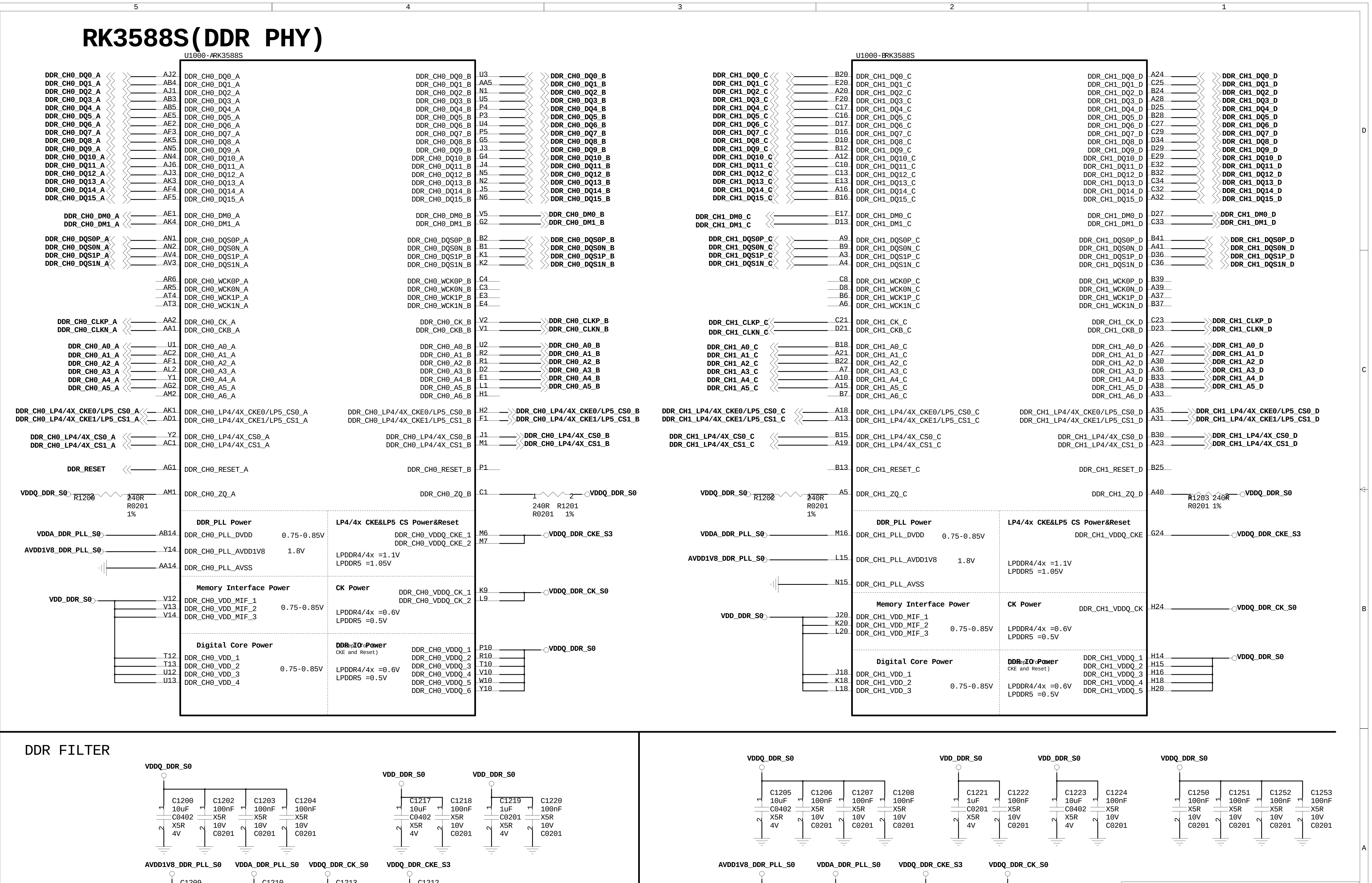

RK3588S(DDR PHY)
U1000-A RK3588S
U1000-B RK3588S
DDR_CH0_DQ0_A … DDR_CH0_DQ15_A
DDR_CH0_DM0_A
DDR_CH0_DM1_A
DDR_CH0_DQS0P_A
DDR_CH0_DQS0N_A
DDR_CH0_DQS1P_A
DDR_CH0_DQS1N_A
DDR_CH0_CLKP_A
DDR_CH0_CLKN_A
DDR_CH0_A0_A … DDR_CH0_A5_A
DDR_CH0_LP4/4X_CKE0/LP5_CS0_A
DDR_CH0_LP4/4X_CKE1/LP5_CS1_A
DDR_CH0_LP4/4X_CS0_A
DDR_CH0_LP4/4X_CS1_A
DDR_RESET
DDR_CH0_DQ0_B … DDR_CH0_DQ15_B
DDR_CH0_DM0_B
DDR_CH0_DM1_B
DDR_CH0_DQS0P_B
DDR_CH0_DQS0N_B
DDR_CH0_DQS1P_B
DDR_CH0_DQS1N_B
DDR_CH0_CLKP_B
DDR_CH0_CLKN_B
DDR_CH0_A0_B … DDR_CH0_A5_B
DDR_CH0_LP4/4X_CKE0/LP5_CS0_B
DDR_CH0_LP4/4X_CKE1/LP5_CS1_B
DDR_CH0_LP4/4X_CS0_B
DDR_CH0_LP4/4X_CS1_B
DDR_CH1_DQ0_C … DDR_CH1_DQ15_C
DDR_CH1_DM0_C
DDR_CH1_DM1_C
DDR_CH1_DQS0P_C
DDR_CH1_DQS0N_C
DDR_CH1_DQS1P_C
DDR_CH1_DQS1N_C
DDR_CH1_CLKP_C
DDR_CH1_CLKN_C
DDR_CH1_A0_C … DDR_CH1_A5_C
DDR_CH1_LP4/4X_CKE0/LP5_CS0_C
DDR_CH1_LP4/4X_CKE1/LP5_CS1_C
DDR_CH1_LP4/4X_CS0_C
DDR_CH1_LP4/4X_CS1_C
DDR_CH1_DQ0_D … DDR_CH1_DQ15_D
DDR_CH1_DM0_D
DDR_CH1_DM1_D
DDR_CH1_DQS0P_D
DDR_CH1_DQS0N_D
DDR_CH1_DQS1P_D
DDR_CH1_DQS1N_D
DDR_CH1_CLKP_D
DDR_CH1_CLKN_D
DDR_CH1_A0_D … DDR_CH1_A5_D
DDR_CH1_LP4/4X_CKE0/LP5_CS0_D
DDR_CH1_LP4/4X_CKE1/LP5_CS1_D
DDR_CH1_LP4/4X_CS0_D
DDR_CH1_LP4/4X_CS1_D
VDDQ_DDR_S0
R1200 240R R0201 1%
R1201 240R R0201 1%
R1202 240R R0201 1%
R1203 240R R0201 1%
VDDA_DDR_PLL_S0
AVDD1V8_DDR_PLL_S0
VDD_DDR_S0
VDDQ_DDR_CKE_S3
VDDQ_DDR_CK_S0
DDR_PLL Power
0.75-0.85V
1.8V
Memory Interface Power
Digital Core Power
LP4/4x CKE&LP5 CS Power&Reset
LPDDR4/4x =1.1V
LPDDR5 =1.05V
CK Power
LPDDR4/4x =0.6V
LPDDR5 =0.5V
DDR IO Power
DDR FILTER
C1200 10uF C0402 X5R 4V
C1202 100nF X5R 10V C0201
C1203 100nF X5R 10V C0201
C1204 100nF X5R 10V C0201
C1217 10uF C0402 X5R 4V
C1218 100nF X5R 10V C0201
C1219 1uF C0201 X5R 4V
C1220 100nF X5R 10V C0201
C1209 1uF C0201 X5R 4V
C1210 1uF C0201 X5R 4V
C1213 1uF C0201 X5R 4V
C1212 1uF C0201 X5R 4V
C1205 10uF C0402 X5R 4V
C1206 100nF X5R 10V C0201
C1207 100nF X5R 10V C0201
C1208 100nF X5R 10V C0201
C1221 1uF C0201 X5R 4V
C1222 100nF X5R 10V C0201
C1223 10uF C0402 X5R 4V
C1224 100nF X5R 10V C0201
C1250 100nF X5R 10V C0201
C1251 100nF X5R 10V C0201
C1252 100nF X5R 10V C0201
C1253 100nF X5R 10V C0201
C1214 1uF C0201 X5R 4V
C1215 1uF C0201 X5R 4V
C1211 1uF C0201 X5R 4V
C1216 1uF C0201 X5R 4V
5
4
3
2
1
D
C
B
A

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File:			
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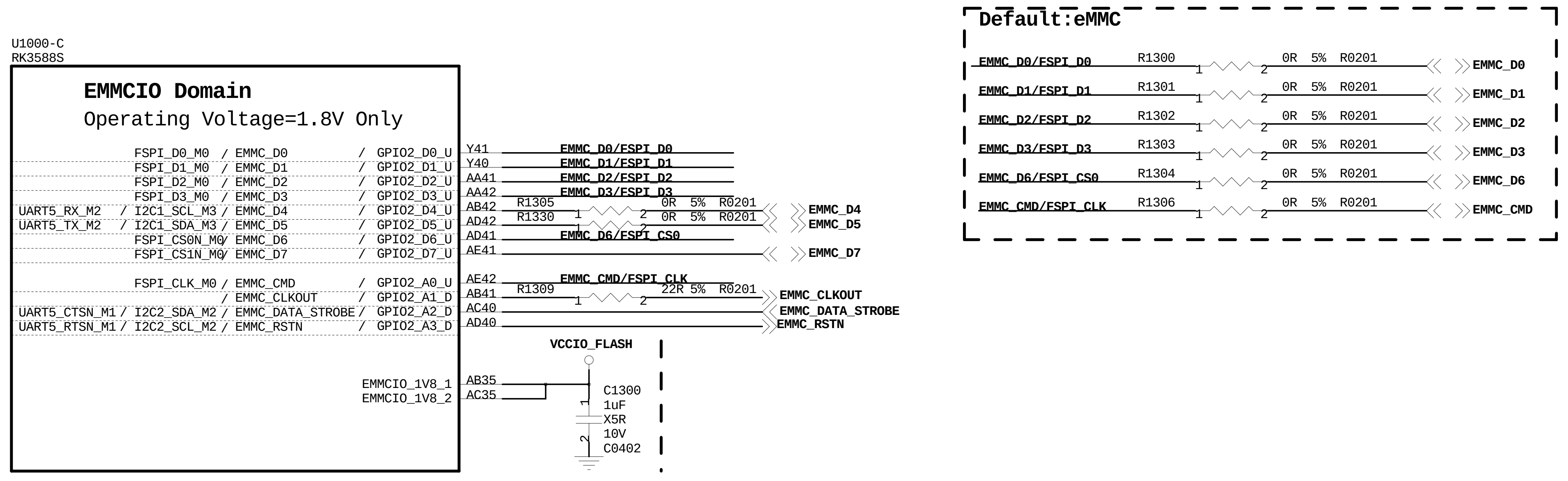
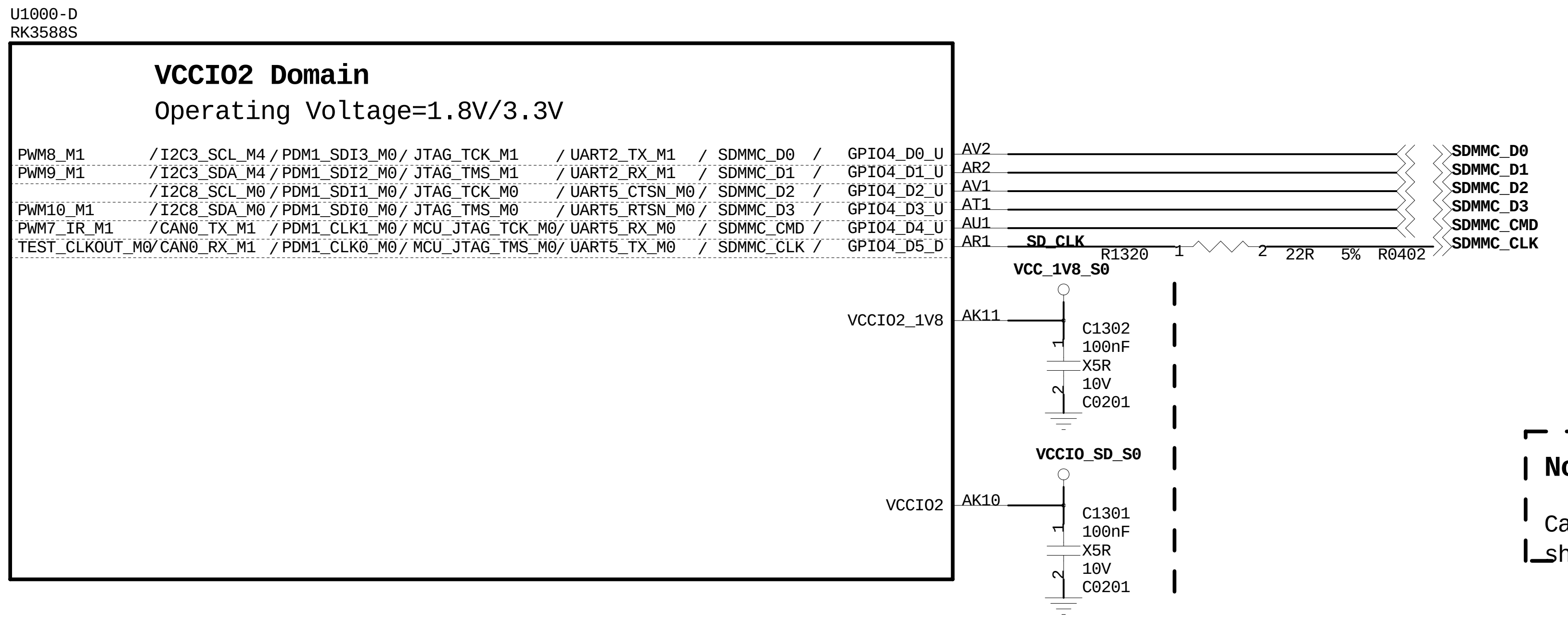
RK3588S(EMMCIO Domain)


U1000-C
RK3588S
EMMCIO Domain
Operating Voltage=1.8V Only
FSPI_D0_M0 / EMMC_D0 / GPIO2_D0_U
FSPI_D1_M0 / EMMC_D1 / GPIO2_D1_U
FSPI_D2_M0 / EMMC_D2 / GPIO2_D2_U
FSPI_D3_M0 / EMMC_D3 / GPIO2_D3_U
UART5_RX_M2 / I2C1_SCL_M3 / EMMC_D4 / GPIO2_D4_U
UART5_TX_M2 / I2C1_SDA_M3 / EMMC_D5 / GPIO2_D5_U
FSPI_CS0N_M0/ EMMC_D6 / GPIO2_D6_U
FSPI_CS1N_M0/ EMMC_D7 / GPIO2_D7_U
FSPI_CLK_M0 / EMMC_CMD / GPIO2_A0_U
/ EMMC_CLKOUT / GPIO2_A1_D
UART5_CTSN_M1 / I2C2_SDA_M2 / EMMC_DATA_STROBE / GPIO2_A2_D
UART5_RTSN_M1 / I2C2_SCL_M2 / EMMC_RSTN / GPIO2_A3_D
Y41
Y40
AA41
AA42
AB42
AD42
AD41
AE41
AE42
AB41
AC40
AD40
EMMC_D0/FSPI_D0
EMMC_D1/FSPI_D1
EMMC_D2/FSPI_D2
EMMC_D3/FSPI_D3
R1305 1 2 0R 5% R0201
R1330 1 2 0R 5% R0201
EMMC_D4
EMMC_D5
EMMC_D6/FSPI_CS0
EMMC_D7
EMMC_CMD/FSPI_CLK
R1309 1 2 22R 5% R0201
EMMC_CLKOUT
EMMC_DATA_STROBE
EMMC_RSTN
VCCIO_FLASH
EMMCIO_1V8_1
EMMCIO_1V8_2
AB35
AC35
C1300
1uF
X5R
10V
C0402
1
2
Default:eMMC
EMMC_D0/FSPI_D0 R1300 1 2 0R 5% R0201 EMMC_D0
EMMC_D1/FSPI_D1 R1301 1 2 0R 5% R0201 EMMC_D1
EMMC_D2/FSPI_D2 R1302 1 2 0R 5% R0201 EMMC_D2
EMMC_D3/FSPI_D3 R1303 1 2 0R 5% R0201 EMMC_D3
EMMC_D6/FSPI_CS0 R1304 1 2 0R 5% R0201 EMMC_D6
EMMC_CMD/FSPI_CLK R1306 1 2 0R 5% R0201 EMMC_CMD

RK3588S(VCCIO2 Domain)


U1000-D
RK3588S
VCCIO2 Domain
Operating Voltage=1.8V/3.3V
PWM8_M1 /I2C3_SCL_M4 / PDM1_SDI3_M0/ JTAG_TCK_M1 / UART2_TX_M1 / SDMMC_D0 / GPIO4_D0_U
PWM9_M1 /I2C3_SDA_M4 / PDM1_SDI2_M0/ JTAG_TMS_M1 / UART2_RX_M1 / SDMMC_D1 / GPIO4_D1_U
/I2C8_SCL_M0 / PDM1_SDI1_M0/ JTAG_TCK_M0 / UART5_CTSN_M0/ SDMMC_D2 / GPIO4_D2_U
PWM10_M1 /I2C8_SDA_M0 / PDM1_SDI0_M0/ JTAG_TMS_M0 / UART5_RTSN_M0/ SDMMC_D3 / GPIO4_D3_U
PWM7_IR_M1 /CAN0_TX_M1 / PDM1_CLK1_M0/ MCU_JTAG_TCK_M0/ UART5_RX_M0 / SDMMC_CMD / GPIO4_D4_U
TEST_CLKOUT_M0/CAN0_RX_M1 / PDM1_CLK0_M0/ MCU_JTAG_TMS_M0/ UART5_TX_M0 / SDMMC_CLK / GPIO4_D5_D
AV2
AR2
AV1
AT1
AU1
AR1
SDMMC_D0
SDMMC_D1
SDMMC_D2
SDMMC_D3
SDMMC_CMD
SDMMC_CLK
SD_CLK
R1320 1 2 22R 5% R0402
VCC_1V8_S0
VCCIO2_1V8
AK11
C1302
100nF
X5R
10V
C0201
VCCIO_SD_S0
VCCIO2
AK10
C1301
100nF
X5R
10V
C0201
1
2

Note:

Caps of between dashed green lines and U1000 should be placed under the U1000 package

Indiedroid.com				
Project:	RK3588S_Tablet_REF			
File:				
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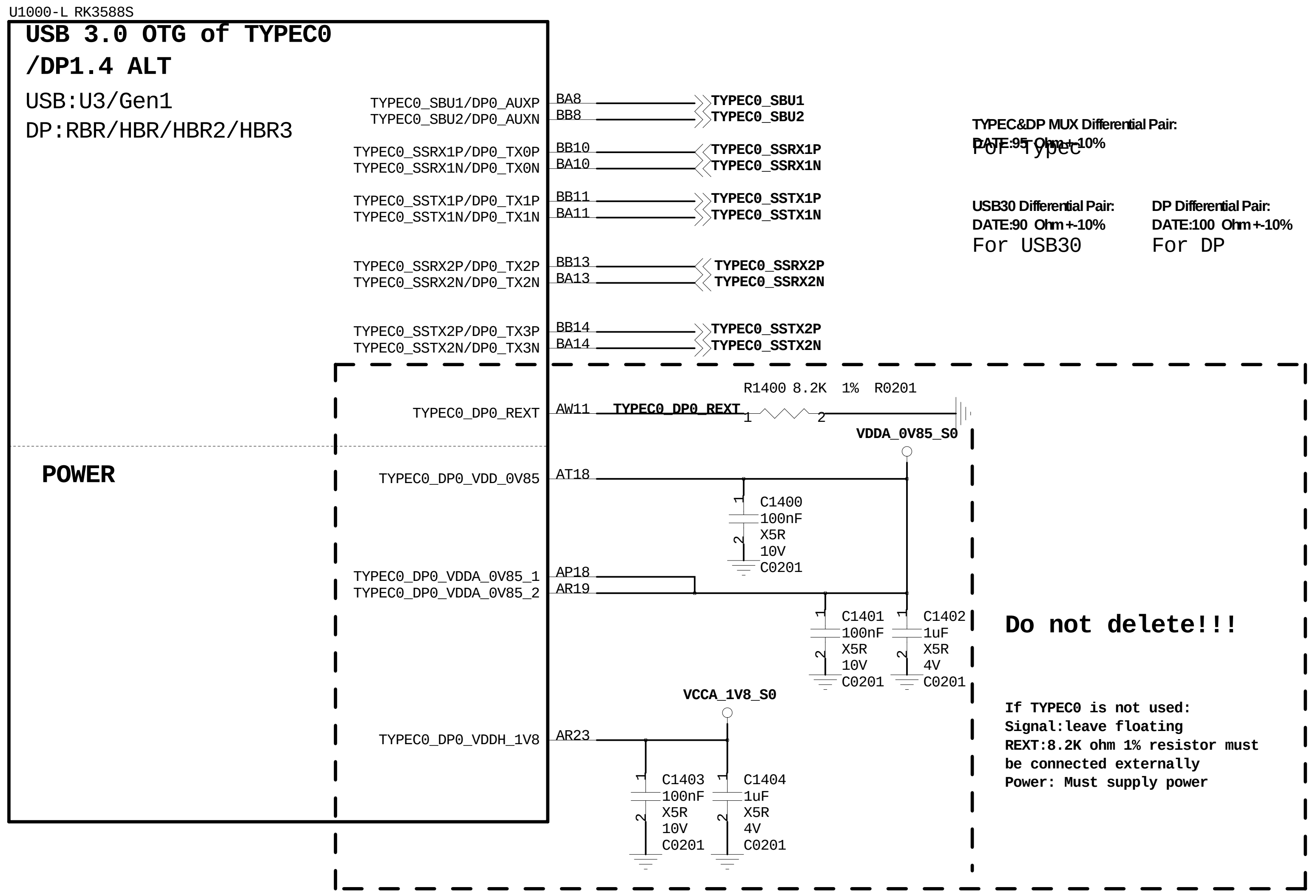
RK3588S(USB3.0/DP1.4)

ok


U1000-L RK3588S
USB 3.0 OTG of TYPEC0
/DP1.4 ALT
USB:U3/Gen1
DP:RBR/HBR/HBR2/HBR3
TYPEC0_SBU1/DP0_AUXP BA8 TYPEC0_SBU1
TYPEC0_SBU2/DP0_AUXN BB8 TYPEC0_SBU2
TYPEC0_SSRX1P/DP0_TX0P BB10 TYPEC0_SSRX1P
TYPEC0_SSRX1N/DP0_TX0N BA10 TYPEC0_SSRX1N
TYPEC0_SSTX1P/DP0_TX1P BB11 TYPEC0_SSTX1P
TYPEC0_SSTX1N/DP0_TX1N BA11 TYPEC0_SSTX1N
TYPEC0_SSRX2P/DP0_TX2P BB13 TYPEC0_SSRX2P
TYPEC0_SSRX2N/DP0_TX2N BA13 TYPEC0_SSRX2N
TYPEC0_SSTX2P/DP0_TX3P BB14 TYPEC0_SSTX2P
TYPEC0_SSTX2N/DP0_TX3N BA14 TYPEC0_SSTX2N
TYPEC&DP MUX Differential Pair:
DATE:95 Ohm+-10%
For TypeC
USB30 Differential Pair:
DATE:90 Ohm+-10%
For USB30
DP Differential Pair:
DATE:100 Ohm+-10%
For DP
POWER
TYPEC0_DP0_REXT AW11 TYPEC0_DP0_REXT
R1400 8.2K 1% R0201
VDDA_0V85_S0
TYPEC0_DP0_VDD_0V85 AT18
C1400 100nF X5R 10V C0201
TYPEC0_DP0_VDDA_0V85_1 AP18
TYPEC0_DP0_VDDA_0V85_2 AR19
C1401 100nF X5R 10V C0201
C1402 1uF X5R 4V C0201
VCCA_1V8_S0
TYPEC0_DP0_VDDH_1V8 AR23
C1403 100nF X5R 10V C0201
C1404 1uF X5R 4V C0201

Do not delete!!!

If TYPEC0 is not used:
Signal:leave floating
REXT:8.2K ohm 1% resistor must be connected externally
Power: Must supply power

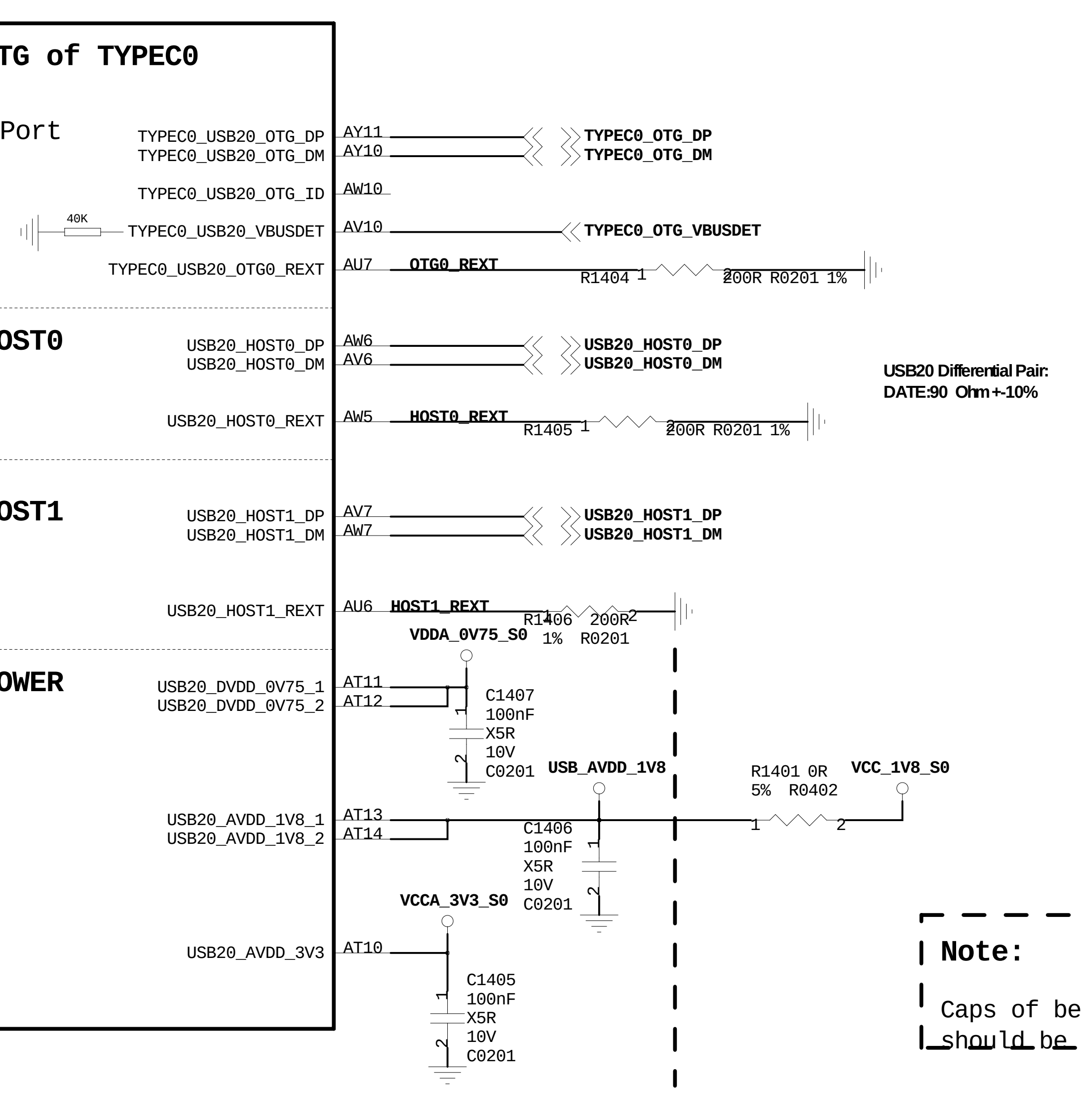
USB30/DP1.4 Alt Mode Configuration

Option1	*DP x4Lane*	*DP_TX_Lane0-3*
Option2	*TYPEC x4Lane*	*SSTX 1P/1N SSTX 2P/2N* *SSRX 1P/1N SSRX 2P/2N*
Option3	*USB30X2Lane+DPX2Lane*	*USB30:SSTX 1P/1N SSRX 1P/1N* *DP:Lane2 Lane3*
Option4	*USB30X2Lane+DPX2Lane*	*USB30:SSTX 2P/2N SSRX 2P/2N* *DP:Lane0 Lane1*

DP Lane
Swap Off:
Lane0/1/2/3_TXdata mapping to Lane0/1/2/3_TXDP/N
Swap On:
Lane0/1/2/3_TXdata mapping to Lane2/3/0/1_TXDP/N

RK3588S(USB2.0)

ok


U1000-K RK3588S
USB2.0 OTG of TYPEC0
HS/FS/LS
Download Port
TYPEC0_USB20_OTG_DP AY11 TYPEC0_OTG_DP
TYPEC0_USB20_OTG_DM AY10 TYPEC0_OTG_DM
TYPEC0_USB20_OTG_ID AW10
40K
TYPEC0_USB20_VBUSDET AV10 TYPEC0_OTG_VBUSDET
TYPEC0_USB20_OTG0_REXT AU7 OTG0_REXT
R1404 200R R0201 1%
USB2.0 HOST0
HS/FS/LS
USB20_HOST0_DP AW6 USB20_HOST0_DP
USB20_HOST0_DM AV6 USB20_HOST0_DM
USB20_HOST0_REXT AW5 HOST0_REXT
R1405 200R R0201 1%
USB20 Differential Pair:
DATE:90 Ohm+-10%
USB2.0 HOST1
HS/FS/LS
USB20_HOST1_DP AV7 USB20_HOST1_DP
USB20_HOST1_DM AW7 USB20_HOST1_DM
USB20_HOST1_REXT AU6 HOST1_REXT
R1406 200R 1% R0201
USB2.0 POWER
VDDA_0V75_S0
USB20_DVDD_0V75_1 AT11
USB20_DVDD_0V75_2 AT12
C1407 100nF X5R 10V C0201
USB_AVDD_1V8
R1401 0R 5% R0402
VCC_1V8_S0
USB20_AVDD_1V8_1 AT13
USB20_AVDD_1V8_2 AT14
C1406 100nF X5R 10V C0201
VCCA_3V3_S0
USB20_AVDD_3V3 AT10
C1405 100nF X5R 10V C0201

Note:

The USB20_VBUSDET pin internal has a pull-down resistance(40K ohm) to ground,The resistance creates a voltage with the external series 24K ohm resistor.The VBUSDETpin voltage range <=3.3V.

Note:

TYPEC0_USB20_OTG:

DP/DM:Must used for download
ID:According to demand,if not used,Leave floating
VBUSDET:Must provide
REXT:200ohm 1% resistor must be connected externally
Power: Must supply power

USB20_HOST0/USB20_HOST1:

If not used:
DP/DM:Leave floating
REXT:Leave floating

Note:

Caps of between dashed green lines and U1000 should be placed under the U1000 package

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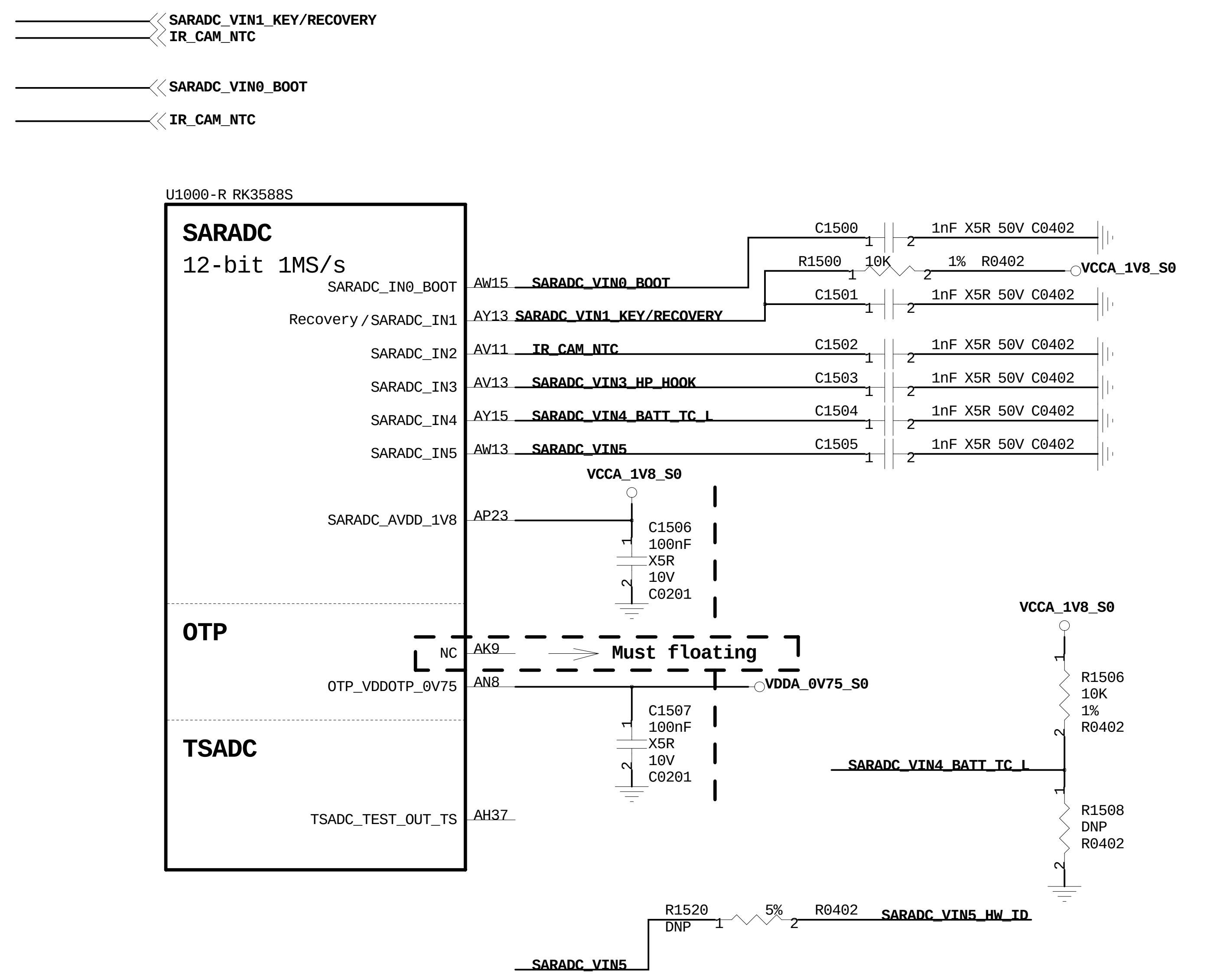
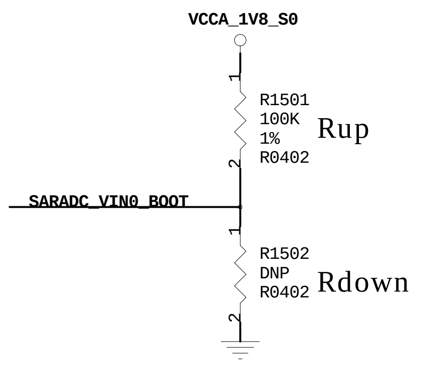
RK3588S(SARADC/OTP/TSADC)

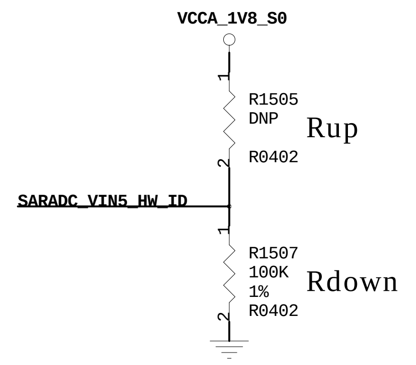

SARADC_VIN1_KEY/RECOVERY
IR_CAM_NTC
SARADC_VIN0_BOOT
IR_CAM_NTC
U1000-R RK3588S
SARADC
12-bit 1MS/s
SARADC_IN0_BOOT AW15 SARADC_VIN0_BOOT
Recovery / SARADC_IN1 AY13 SARADC_VIN1_KEY/RECOVERY
SARADC_IN2 AV11 IR_CAM_NTC
SARADC_IN3 AV13 SARADC_VIN3_HP_HOOK
SARADC_IN4 AY15 SARADC_VIN4_BATT_TC_L
SARADC_IN5 AW13 SARADC_VIN5
C1500 1nF X5R 50V C0402
R1500 10K 1% R0402
VCCA_1V8_S0
C1501 1nF X5R 50V C0402
C1502 1nF X5R 50V C0402
C1503 1nF X5R 50V C0402
C1504 1nF X5R 50V C0402
C1505 1nF X5R 50V C0402
VCCA_1V8_S0
SARADC_AVDD_1V8 AP23
C1506 100nF X5R 10V C0201
OTP
NC AK9
Must floating
OTP_VDDOTP_0V75 AN8
VDDA_0V75_S0
C1507 100nF X5R 10V C0201
TSADC
TSADC_TEST_OUT_TS AH37
VCCA_1V8_S0
R1506 10K 1% R0402
SARADC_VIN4_BATT_TC_L
R1508 DNP R0402
R1520 DNP 5% R0402
SARADC_VIN5_HW_ID
SARADC_VIN5

BOOT MODE CONFIG


VCCA_1V8_S0
R1501 100K 1% R0402
Rup
SARADC_VIN0_BOOT
R1502 DNP R0402
Rdown

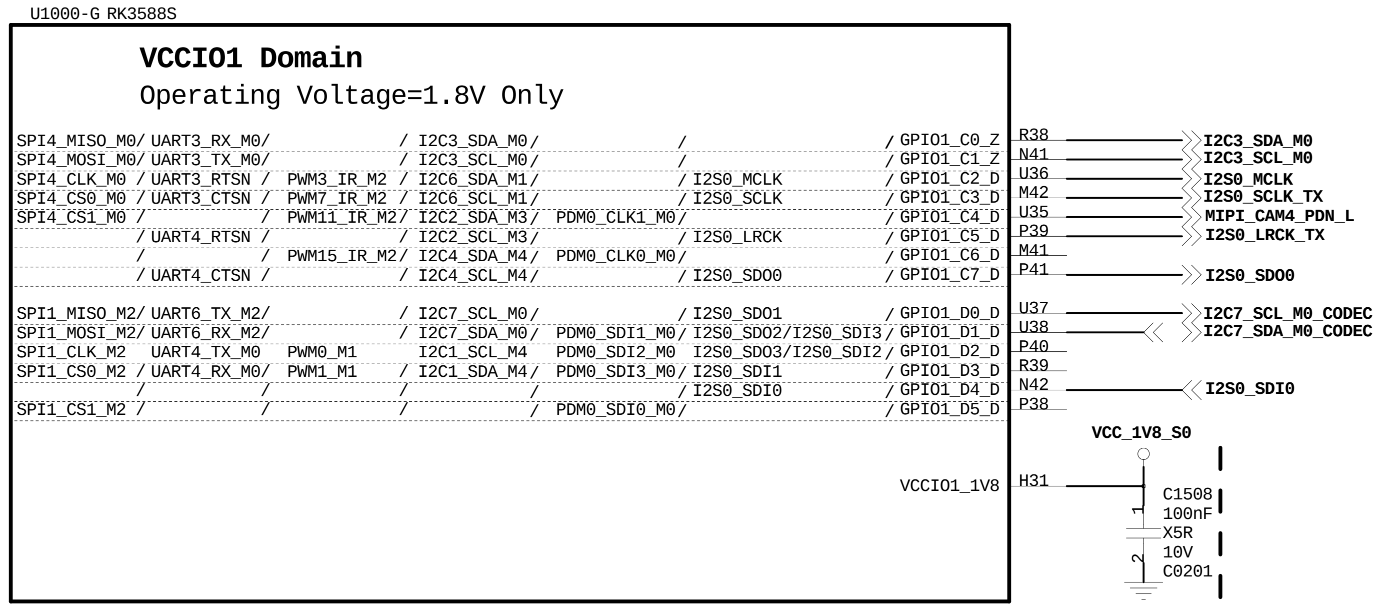
Item	Rup	Rdown	ADC	BOOT MODE(saradc_in5)
LEVEL1	DNP	100K	0	USB **(Maskrom mode)**
LEVEL2	100K	20K	682	SD Card-USB
LEVEL3	100K	51K	1365	EMMC-USB
LEVEL4	100K	100K	2047	FSPI M0-USB
LEVEL5	100K	200K	2730	FSPI M1-USB
LEVEL6	100K	499K	3412	FSPI M2-USB
LEVEL7	100K	DNP	4095	FSPI_M2-FSPI_M0-EMMC -SD Card-USB

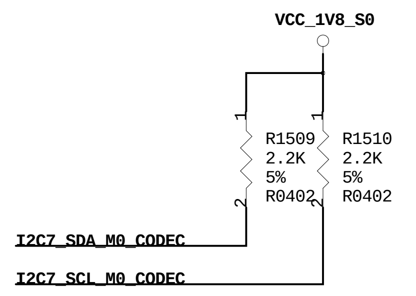
BOARD ID CONFIG


VCCA_1V8_S0
R1505 DNP R0402
Rup
SARADC_VIN5_HW_ID
R1507 100K 1% R0402
Rdown

Item	Rup	Rdown	ADC	VERSION
LEVEL1	DNP	100K	0	V1.0
LEVEL2	100K	20K	682	V2.0
LEVEL3	100K	51K	1365	V3.0
LEVEL4	100K	100K	2047	V4.0
LEVEL5	100K	200K	2730	V5.0
LEVEL6	100K	499K	3412	V6.0
LEVEL7	100K	DNP	4095	V7.0

RK3588S(VCCIO1 Domain)


U1000-G RK3588S
VCCIO1 Domain
Operating Voltage=1.8V Only
SPI4_MISO_M0/ UART3_RX_M0/ / I2C3_SDA_M0/ / / GPIO1_C0_Z R38 I2C3_SDA_M0
SPI4_MOSI_M0/ UART3_TX_M0/ / I2C3_SCL_M0/ / / GPIO1_C1_Z N41 I2C3_SCL_M0
SPI4_CLK_M0 / UART3_RTSN / PWM3_IR_M2 / I2C6_SDA_M1/ / I2S0_MCLK / GPIO1_C2_D U36 I2S0_MCLK
SPI4_CS0_M0 / UART3_CTSN / PWM7_IR_M2 / I2C6_SCL_M1/ / I2S0_SCLK / GPIO1_C3_D M42 I2S0_SCLK_TX
SPI4_CS1_M0 / / PWM11_IR_M2/ I2C2_SDA_M3/ PDM0_CLK1_M0/ / GPIO1_C4_D U35 MIPI_CAM4_PDN_L
/ UART4_RTSN / / I2C2_SCL_M3/ / I2S0_LRCK / GPIO1_C5_D P39 I2S0_LRCK_TX
/ / PWM15_IR_M2/ I2C4_SDA_M4/ PDM0_CLK0_M0/ / GPIO1_C6_D M41
/ UART4_CTSN / / I2C4_SCL_M4/ / I2S0_SDO0 / GPIO1_C7_D P41 I2S0_SDO0
SPI1_MISO_M2/ UART6_TX_M2/ / I2C7_SCL_M0/ / I2S0_SDO1 / GPIO1_D0_D U37 I2C7_SCL_M0_CODEC
SPI1_MOSI_M2/ UART6_RX_M2/ / I2C7_SDA_M0/ PDM0_SDI1_M0/ I2S0_SDO2/I2S0_SDI3 / GPIO1_D1_D U38 I2C7_SDA_M0_CODEC
SPI1_CLK_M2 UART4_TX_M0 PWM0_M1 I2C1_SCL_M4 PDM0_SDI2_M0 I2S0_SDO3/I2S0_SDI2 / GPIO1_D2_D P40
SPI1_CS0_M2 / UART4_RX_M0/ PWM1_M1 / I2C1_SDA_M4/ PDM0_SDI3_M0/ I2S0_SDI1 / GPIO1_D3_D R39
/ / / / / I2S0_SDI0 / GPIO1_D4_D N42 I2S0_SDI0
SPI1_CS1_M2 / / / / PDM0_SDI0_M0/ / GPIO1_D5_D P38
VCC_1V8_S0
VCCIO1_1V8 H31
C1508 100nF X5R 10V C0201


VCC_1V8_S0
R1509 2.2K 5% R0402
R1510 2.2K 5% R0402
I2C7_SDA_M0_CODEC
I2C7_SCL_M0_CODEC

Note:

Caps of between dashed green lines and U1000 should be placed under the U1000 package

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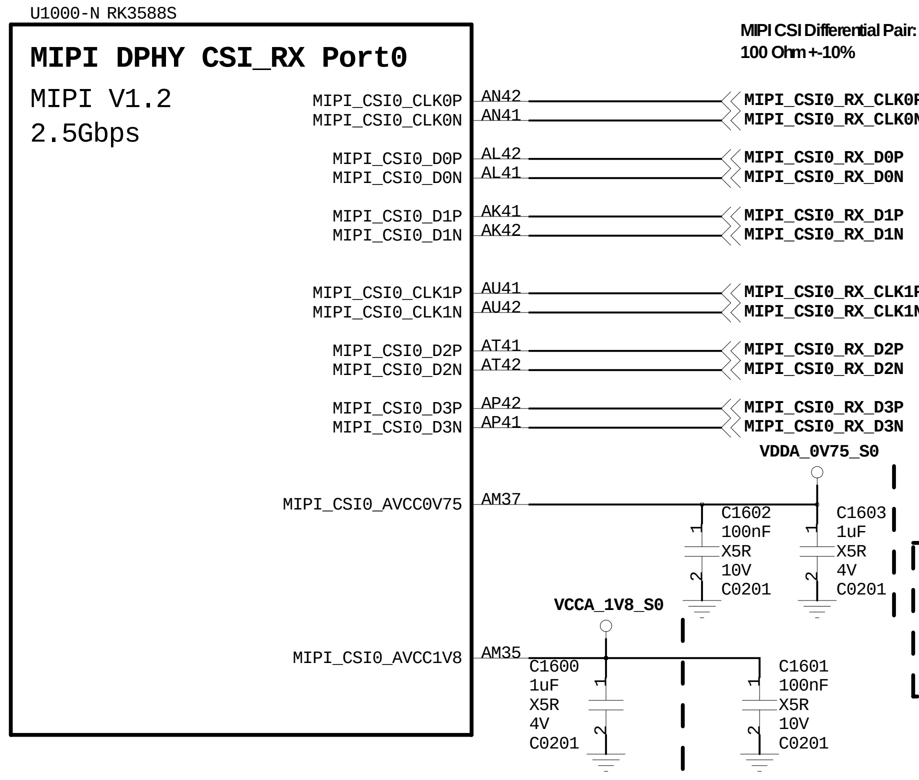
RK3588S(MIPI_DPHY CSI0 RX)


U1000-N RK3588S
MIPI DPHY CSI_RX Port0
MIPI V1.2
2.5Gbps
MIPI CSI Differential Pair:
100 Ohm +-10%
MIPI_CSI0_CLK0P AN42 MIPI_CSI0_RX_CLK0P
MIPI_CSI0_CLK0N AN41 MIPI_CSI0_RX_CLK0N
MIPI_CSI0_D0P AL42 MIPI_CSI0_RX_D0P
MIPI_CSI0_D0N AL41 MIPI_CSI0_RX_D0N
MIPI_CSI0_D1P AK41 MIPI_CSI0_RX_D1P
MIPI_CSI0_D1N AK42 MIPI_CSI0_RX_D1N
MIPI_CSI0_CLK1P AU41 MIPI_CSI0_RX_CLK1P
MIPI_CSI0_CLK1N AU42 MIPI_CSI0_RX_CLK1N
MIPI_CSI0_D2P AT41 MIPI_CSI0_RX_D2P
MIPI_CSI0_D2N AT42 MIPI_CSI0_RX_D2N
MIPI_CSI0_D3P AP42 MIPI_CSI0_RX_D3P
MIPI_CSI0_D3N AP41 MIPI_CSI0_RX_D3N
VDDA_0V75_S0
MIPI_CSI0_AVCC0V75 AM37
C1602 100nF X5R 10V C0201
C1603 1uF X5R 4V C0201
VCCA_1V8_S0
MIPI_CSI0_AVCC1V8 AM35
C1600 1uF X5R 4V C0201
C1601 100nF X5R 10V C0201

Note:

If not used:
Signal:leave floating
Power: Floating

Option1	*Sensor1 x4Lane*	*MIPI_CSI_RX_D0-3* *MIPI_CSI_RX_CLK0*
Option2	*Sensor1 x2Lane* *+*	*MIPI_CSI_RX_D0-1* *MIPI_CSI_RX_CLK0*
	Sensor2 x2Lane	*MIPI_CSI_RX_D2-3* *MIPI_CSI_RX_CLK1*

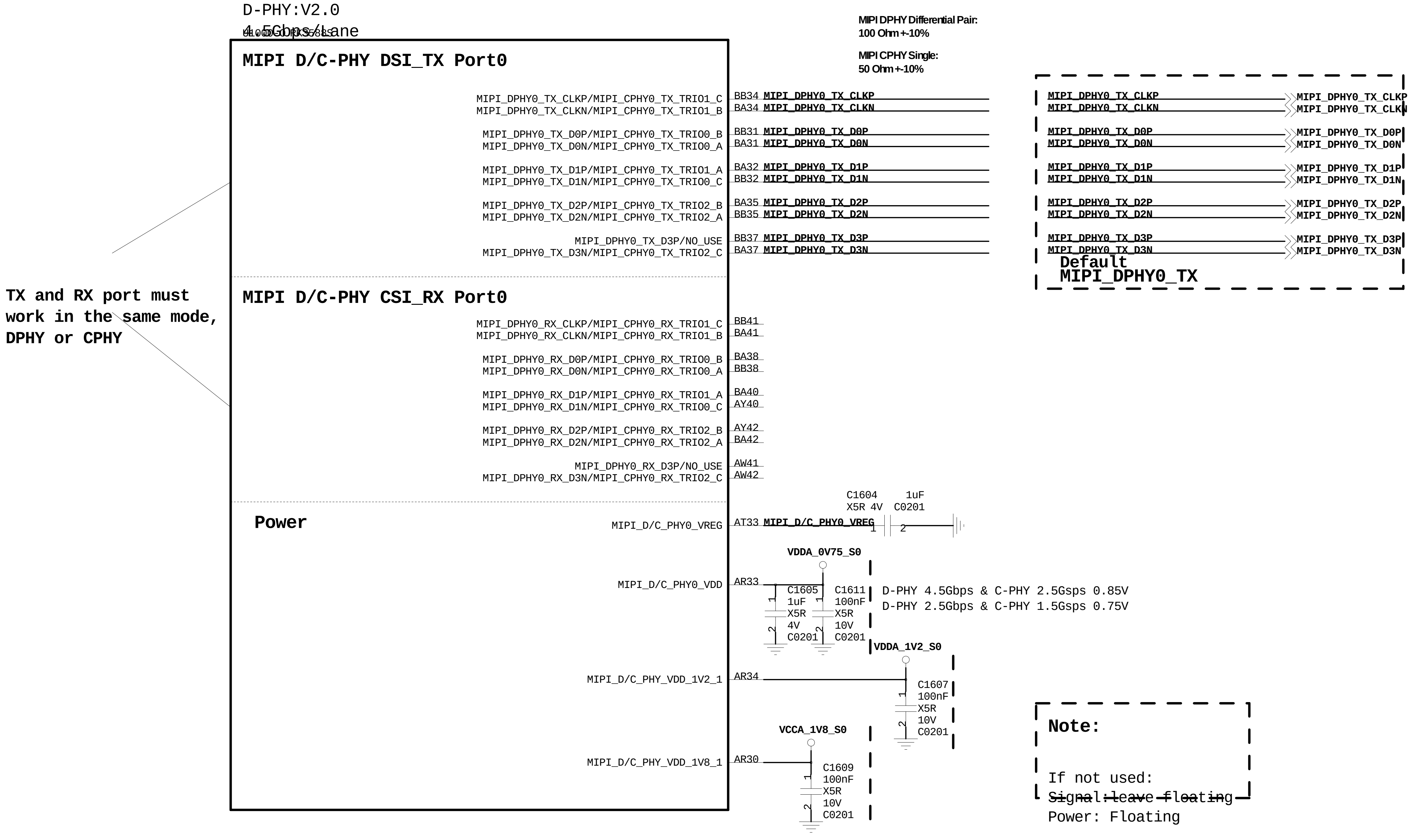
Note:

When in single clock lane mode, CLK0P/0N is the clock lane from Data lane0 to Data lane3,but clock lane1 is invalid; In dual clock lanes mode,CLK0P/0N is the clock lane of Data lane0 and Data lane1,while CLK1P/1N is the clock lane of Data lane2 and Data lane3.

Note:

Caps of between dashed green lines and U1000 should be placed under the U1000 package

RK3588S(MIPI_D/C PHY0)


D-PHY:V2.0
4.5Gbps/Lane
U1000-O RK3588S
MIPI D/C-PHY DSI_TX Port0
MIPI_DPHY0_TX_CLKP/MIPI_CPHY0_TX_TRIO1_C BB34 MIPI_DPHY0_TX_CLKP
MIPI_DPHY0_TX_CLKN/MIPI_CPHY0_TX_TRIO1_B BA34 MIPI_DPHY0_TX_CLKN
MIPI_DPHY0_TX_D0P/MIPI_CPHY0_TX_TRIO0_B BB31 MIPI_DPHY0_TX_D0P
MIPI_DPHY0_TX_D0N/MIPI_CPHY0_TX_TRIO0_A BA31 MIPI_DPHY0_TX_D0N
MIPI_DPHY0_TX_D1P/MIPI_CPHY0_TX_TRIO1_A BA32 MIPI_DPHY0_TX_D1P
MIPI_DPHY0_TX_D1N/MIPI_CPHY0_TX_TRIO0_C BB32 MIPI_DPHY0_TX_D1N
MIPI_DPHY0_TX_D2P/MIPI_CPHY0_TX_TRIO2_B BA35 MIPI_DPHY0_TX_D2P
MIPI_DPHY0_TX_D2N/MIPI_CPHY0_TX_TRIO2_A BB35 MIPI_DPHY0_TX_D2N
MIPI_DPHY0_TX_D3P/NO_USE BB37 MIPI_DPHY0_TX_D3P
MIPI_DPHY0_TX_D3N/MIPI_CPHY0_TX_TRIO2_C BA37 MIPI_DPHY0_TX_D3N
MIPI DPHY Differential Pair:
100 Ohm +-10%
MIPI CPHY Single:
50 Ohm +-10%
MIPI_DPHY0_TX_CLKP
MIPI_DPHY0_TX_CLKN
MIPI_DPHY0_TX_D0P
MIPI_DPHY0_TX_D0N
MIPI_DPHY0_TX_D1P
MIPI_DPHY0_TX_D1N
MIPI_DPHY0_TX_D2P
MIPI_DPHY0_TX_D2N
MIPI_DPHY0_TX_D3P
MIPI_DPHY0_TX_D3N
Default
MIPI_DPHY0_TX
MIPI D/C-PHY CSI_RX Port0
MIPI_DPHY0_RX_CLKP/MIPI_CPHY0_RX_TRIO1_C BB41
MIPI_DPHY0_RX_CLKN/MIPI_CPHY0_RX_TRIO1_B BA41
MIPI_DPHY0_RX_D0P/MIPI_CPHY0_RX_TRIO0_B BA38
MIPI_DPHY0_RX_D0N/MIPI_CPHY0_RX_TRIO0_A BB38
MIPI_DPHY0_RX_D1P/MIPI_CPHY0_RX_TRIO1_A BA40
MIPI_DPHY0_RX_D1N/MIPI_CPHY0_RX_TRIO0_C AY40
MIPI_DPHY0_RX_D2P/MIPI_CPHY0_RX_TRIO2_B AY42
MIPI_DPHY0_RX_D2N/MIPI_CPHY0_RX_TRIO2_A BA42
MIPI_DPHY0_RX_D3P/NO_USE AW41
MIPI_DPHY0_RX_D3N/MIPI_CPHY0_RX_TRIO2_C AW42
Power
MIPI_D/C_PHY0_VREG AT33 MIPI_D/C_PHY0_VREG
C1604 1uF X5R 4V C0201
VDDA_0V75_S0
MIPI_D/C_PHY0_VDD AR33
C1605 1uF X5R 4V C0201
C1611 100nF X5R 10V C0201
VDDA_1V2_S0
MIPI_D/C_PHY_VDD_1V2_1 AR34
C1607 100nF X5R 10V C0201
VCCA_1V8_S0
MIPI_D/C_PHY_VDD_1V8_1 AR30
C1609 100nF X5R 10V C0201

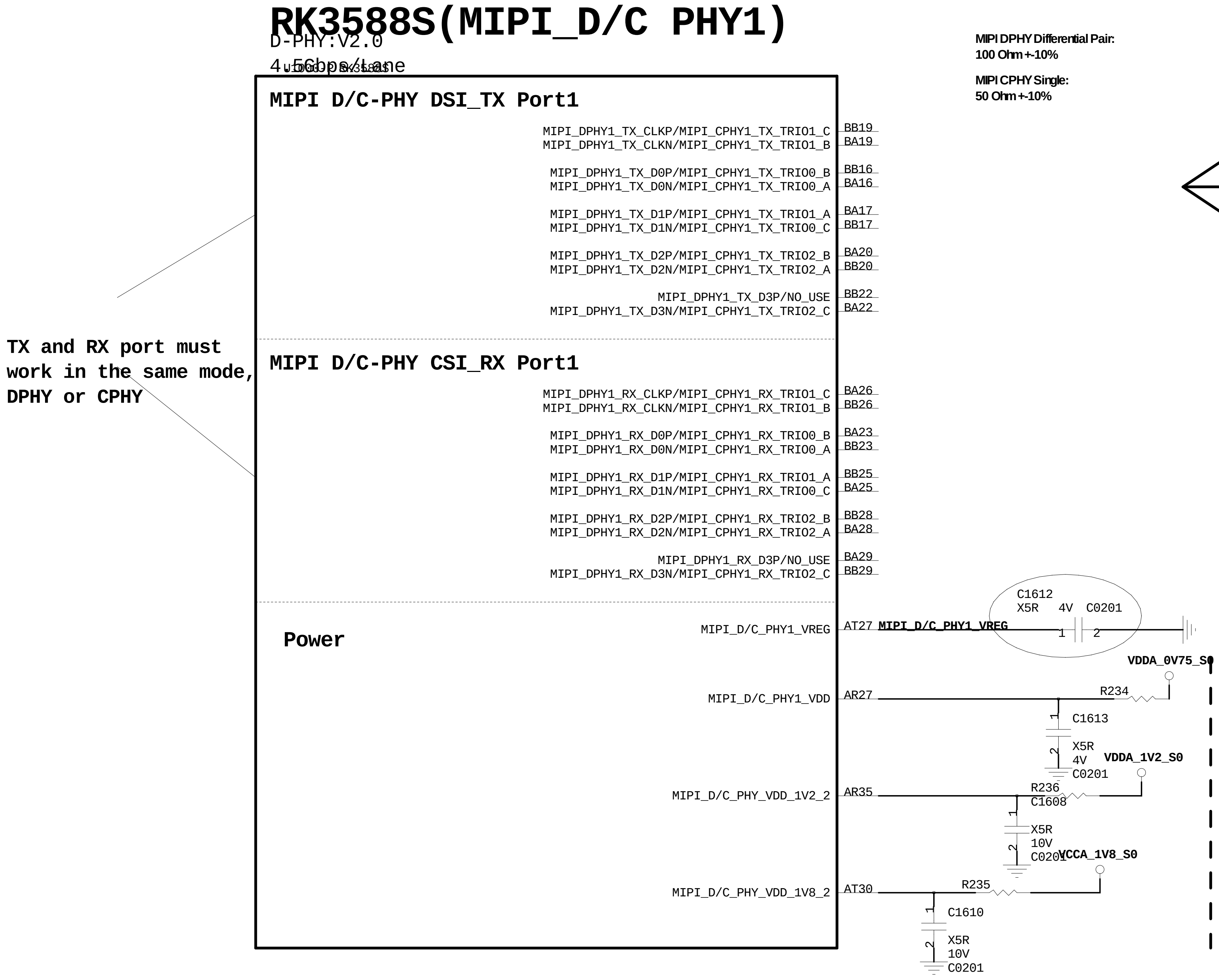
TX and RX port must work in the same mode, DPHY or CPHY

D-PHY 4.5Gbps & C-PHY 2.5Gsps 0.85V
D-PHY 2.5Gbps & C-PHY 1.5Gsps 0.75V

Note:

If not used:
Signal:leave floating
Power: Floating

RK3588S(MIPI_D/C PHY1)


D-PHY:V2.0
4.5Gbps/Lane
U1000-P RK3588S
MIPI D/C-PHY DSI_TX Port1
MIPI_DPHY1_TX_CLKP/MIPI_CPHY1_TX_TRIO1_C BB19
MIPI_DPHY1_TX_CLKN/MIPI_CPHY1_TX_TRIO1_B BA19
MIPI_DPHY1_TX_D0P/MIPI_CPHY1_TX_TRIO0_B BB16
MIPI_DPHY1_TX_D0N/MIPI_CPHY1_TX_TRIO0_A BA16
MIPI_DPHY1_TX_D1P/MIPI_CPHY1_TX_TRIO1_A BA17
MIPI_DPHY1_TX_D1N/MIPI_CPHY1_TX_TRIO0_C BB17
MIPI_DPHY1_TX_D2P/MIPI_CPHY1_TX_TRIO2_B BA20
MIPI_DPHY1_TX_D2N/MIPI_CPHY1_TX_TRIO2_A BB20
MIPI_DPHY1_TX_D3P/NO_USE BB22
MIPI_DPHY1_TX_D3N/MIPI_CPHY1_TX_TRIO2_C BA22
MIPI D/C-PHY CSI_RX Port1
MIPI_DPHY1_RX_CLKP/MIPI_CPHY1_RX_TRIO1_C BA26
MIPI_DPHY1_RX_CLKN/MIPI_CPHY1_RX_TRIO1_B BB26
MIPI_DPHY1_RX_D0P/MIPI_CPHY1_RX_TRIO0_B BA23
MIPI_DPHY1_RX_D0N/MIPI_CPHY1_RX_TRIO0_A BB23
MIPI_DPHY1_RX_D1P/MIPI_CPHY1_RX_TRIO1_A BB25
MIPI_DPHY1_RX_D1N/MIPI_CPHY1_RX_TRIO0_C BA25
MIPI_DPHY1_RX_D2P/MIPI_CPHY1_RX_TRIO2_B BB28
MIPI_DPHY1_RX_D2N/MIPI_CPHY1_RX_TRIO2_A BA28
MIPI_DPHY1_RX_D3P/NO_USE BA29
MIPI_DPHY1_RX_D3N/MIPI_CPHY1_RX_TRIO2_C BB29
Power
MIPI_D/C_PHY1_VREG AT27 MIPI_D/C_PHY1_VREG
C1612 X5R 4V C0201
VDDA_0V75_S0
MIPI_D/C_PHY1_VDD AR27
R234
C1613 X5R 4V C0201
VDDA_1V2_S0
MIPI_D/C_PHY_VDD_1V2_2 AR35
R236
C1608 X5R 10V C0201
VCCA_1V8_S0
MIPI_D/C_PHY_VDD_1V8_2 AT30
R235
C1610 X5R 10V C0201
MIPI DPHY Differential Pair:
100 Ohm +-10%
MIPI CPHY Single:
50 Ohm +-10%

TX and RX port must work in the same mode, DPHY or CPHY

Note:

The Port also support MIPI_CPHY1_TX,if need please Refer to the circuit of MIPI_CPHY0_TX

D-PHY 4.5Gbps & C-PHY 2.5Gsps 0.85V
D-PHY 2.5Gbps & C-PHY 1.5Gsps 0.75V

Note:

If not used:
Signal:leave floating
Power: Floating

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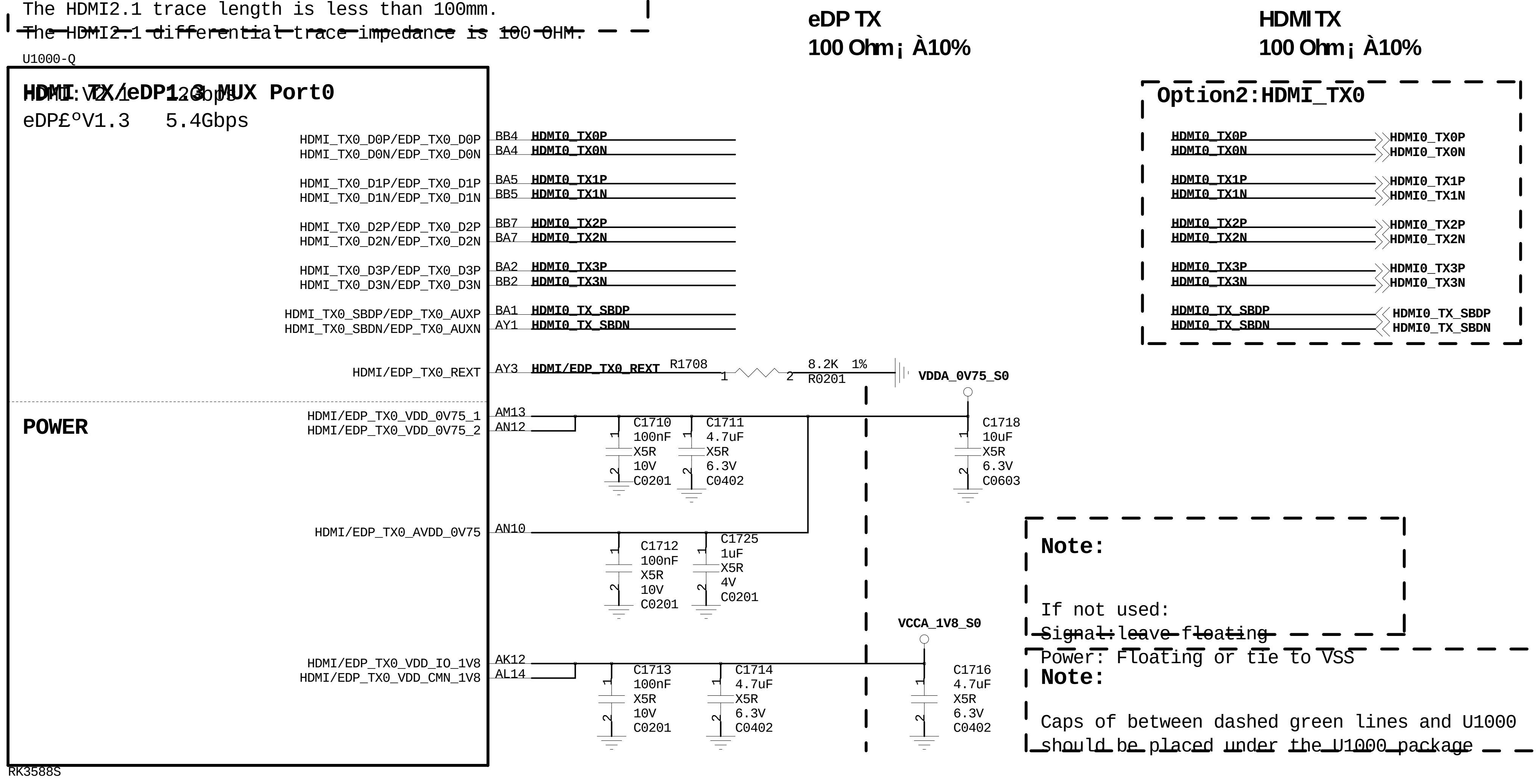
RK3588S(HDMI2.1 TX/eDP1.3 TX)

Note:

The HDMI2.1 trace length is less than 100mm.
The HDMI2.1 differential trace impedance is 100 OHM.


eDP TX
100 Ohm¡À10%
HDMI TX
100 Ohm¡À10%
U1000-Q
HDMI TX/eDP1.3 MUX Port0
HDMI:V2.1 12Gbps
eDP£ºV1.3 5.4Gbps
HDMI_TX0_D0P/EDP_TX0_D0P
HDMI_TX0_D0N/EDP_TX0_D0N
HDMI_TX0_D1P/EDP_TX0_D1P
HDMI_TX0_D1N/EDP_TX0_D1N
HDMI_TX0_D2P/EDP_TX0_D2P
HDMI_TX0_D2N/EDP_TX0_D2N
HDMI_TX0_D3P/EDP_TX0_D3P
HDMI_TX0_D3N/EDP_TX0_D3N
HDMI_TX0_SBDP/EDP_TX0_AUXP
HDMI_TX0_SBDN/EDP_TX0_AUXN
HDMI/EDP_TX0_REXT
POWER
HDMI/EDP_TX0_VDD_0V75_1
HDMI/EDP_TX0_VDD_0V75_2
HDMI/EDP_TX0_AVDD_0V75
HDMI/EDP_TX0_VDD_IO_1V8
HDMI/EDP_TX0_VDD_CMN_1V8
RK3588S
BB4 HDMI0_TX0P
BA4 HDMI0_TX0N
BA5 HDMI0_TX1P
BB5 HDMI0_TX1N
BB7 HDMI0_TX2P
BA7 HDMI0_TX2N
BA2 HDMI0_TX3P
BB2 HDMI0_TX3N
BA1 HDMI0_TX_SBDP
AY1 HDMI0_TX_SBDN
AY3 HDMI/EDP_TX0_REXT
R1708
1
2
8.2K 1%
R0201
VDDA_0V75_S0
AM13
AN12
AN10
AK12
AL14
C1710 100nF X5R 10V C0201
C1711 4.7uF X5R 6.3V C0402
C1718 10uF X5R 6.3V C0603
C1712 100nF X5R 10V C0201
C1725 1uF X5R 4V C0201
VCCA_1V8_S0
C1713 100nF X5R 10V C0201
C1714 4.7uF X5R 6.3V C0402
C1716 4.7uF X5R 6.3V C0402
Option2:HDMI_TX0
HDMI0_TX0P
HDMI0_TX0N
HDMI0_TX1P
HDMI0_TX1N
HDMI0_TX2P
HDMI0_TX2N
HDMI0_TX3P
HDMI0_TX3N
HDMI0_TX_SBDP
HDMI0_TX_SBDN

Note:

If not used:
Signal:leave floating
Power: Floating or tie to VSS

Note:

Caps of between dashed green lines and U1000
should be placed under the U1000 package

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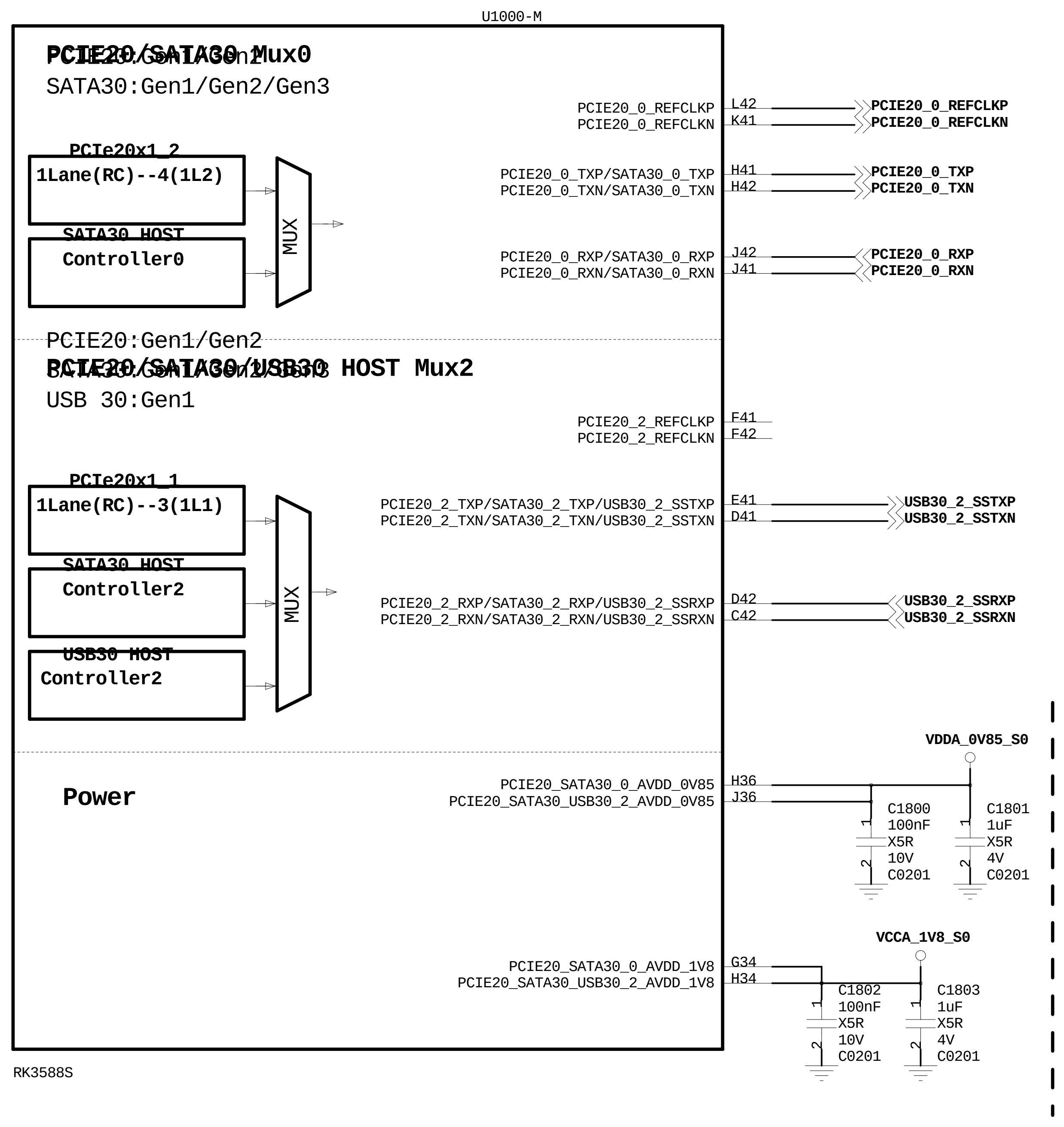
RK3588S(PCIE20/SATA30/USB30)


U1000-M
PCIE20/SATA30 Mux0
PCIE20:Gen1/Gen2
SATA30:Gen1/Gen2/Gen3
PCIe20x1_2
1Lane(RC)--4(1L2)
SATA30 HOST
Controller0
MUX
PCIE20_0_REFCLKP L42 PCIE20_0_REFCLKP
PCIE20_0_REFCLKN K41 PCIE20_0_REFCLKN
PCIE20_0_TXP/SATA30_0_TXP H41 PCIE20_0_TXP
PCIE20_0_TXN/SATA30_0_TXN H42 PCIE20_0_TXN
PCIE20_0_RXP/SATA30_0_RXP J42 PCIE20_0_RXP
PCIE20_0_RXN/SATA30_0_RXN J41 PCIE20_0_RXN
PCIE20/SATA30/USB30 HOST Mux2
PCIE20:Gen1/Gen2
SATA30:Gen1/Gen2/Gen3
USB 30:Gen1
PCIE20_2_REFCLKP F41
PCIE20_2_REFCLKN F42
PCIe20x1_1
1Lane(RC)--3(1L1)
SATA30 HOST
Controller2
USB30 HOST
Controller2
MUX
PCIE20_2_TXP/SATA30_2_TXP/USB30_2_SSTXP E41 USB30_2_SSTXP
PCIE20_2_TXN/SATA30_2_TXN/USB30_2_SSTXN D41 USB30_2_SSTXN
PCIE20_2_RXP/SATA30_2_RXP/USB30_2_SSRXP D42 USB30_2_SSRXP
PCIE20_2_RXN/SATA30_2_RXN/USB30_2_SSRXN C42 USB30_2_SSRXN
Power
PCIE20_SATA30_0_AVDD_0V85 H36
PCIE20_SATA30_USB30_2_AVDD_0V85 J36
VDDA_0V85_S0
C1800 100nF X5R 10V C0201
C1801 1uF X5R 4V C0201
PCIE20_SATA30_0_AVDD_1V8 G34
PCIE20_SATA30_USB30_2_AVDD_1V8 H34
VCCA_1V8_S0
C1802 100nF X5R 10V C0201
C1803 1uF X5R 4V C0201
1
2
RK3588S

CLK Differential Pair:
100 Ohm¡ À10%

DATA Differential Pair:
PCIE20: 85 Ohm ¡ À10%
SATA30: 100 Ohm ¡ À10%
USB30: 90ohm ¡ À10%

Note:

If not used:
Signal: leave floating
Power: Tie to VSS

Note:

Caps of between dashed green lines and U1000 should be placed under the U1000 package

PCIe2.0 PHY

Controller Name	*Data & Clk Lane Configure*		*Control GPIO*
	CLK LANE	**DATA LANE**	
PCIE20X1_1 RC	***PCIE20_2_REFCLKP*** ***PCIE20_2_REFCLKN***	***PCIE20_2_TX*** ***PCIE20_2_RX***	***PCIE20X1_1_CLKREQ_M**** ***PCIE20X1_1_WAKEN_M**** ***PCIE20X1_1_PERSTN_M**** ***PCIE20X1_1_BUTTON_RSTN***
PCIE20X1_2 RC	***PCIE20_0_REFCLKP*** ***PCIE20_0_REFCLKN***	***PCIE20_0_TX*** ***PCIE20_0_RX***	***PCIE20X1_2_CLKREQ_M**** ***PCIE20X1_2_WAKEN_M**** ***PCIE20X1_2_PERSTN_M**** ***PCIE20X1_2_BUTTON_RSTN***

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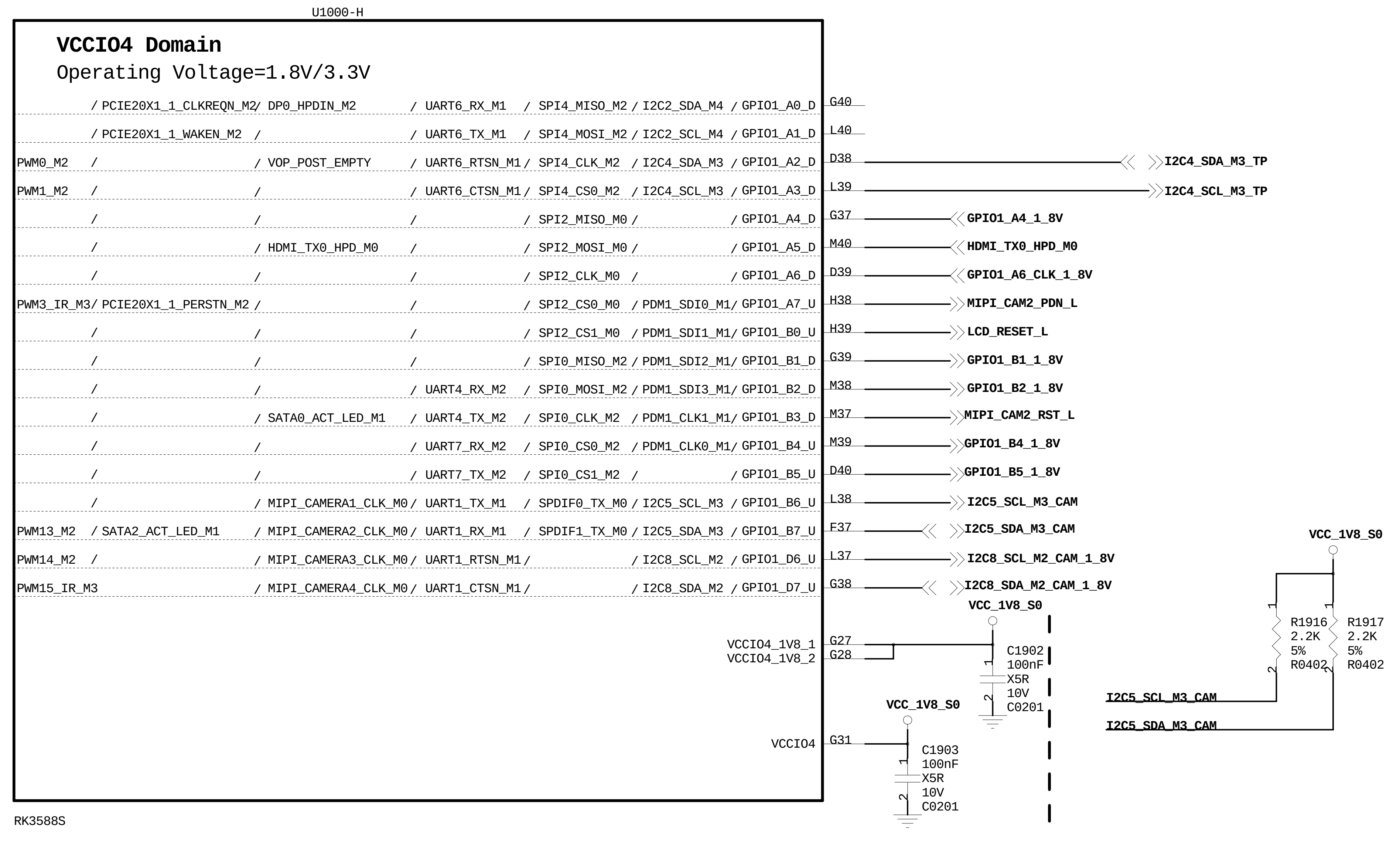
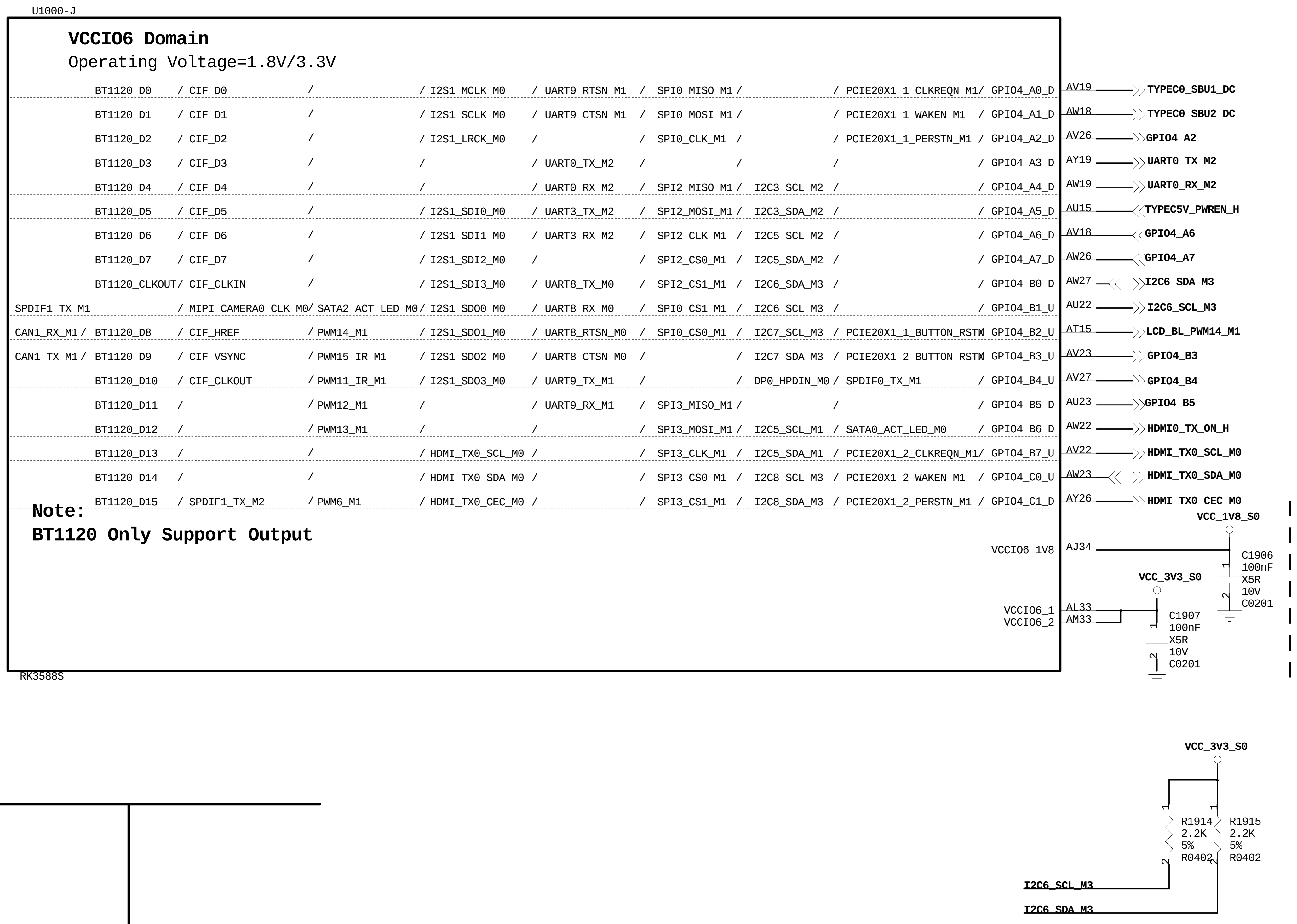
RK3588S(VCCIO4 Domain)



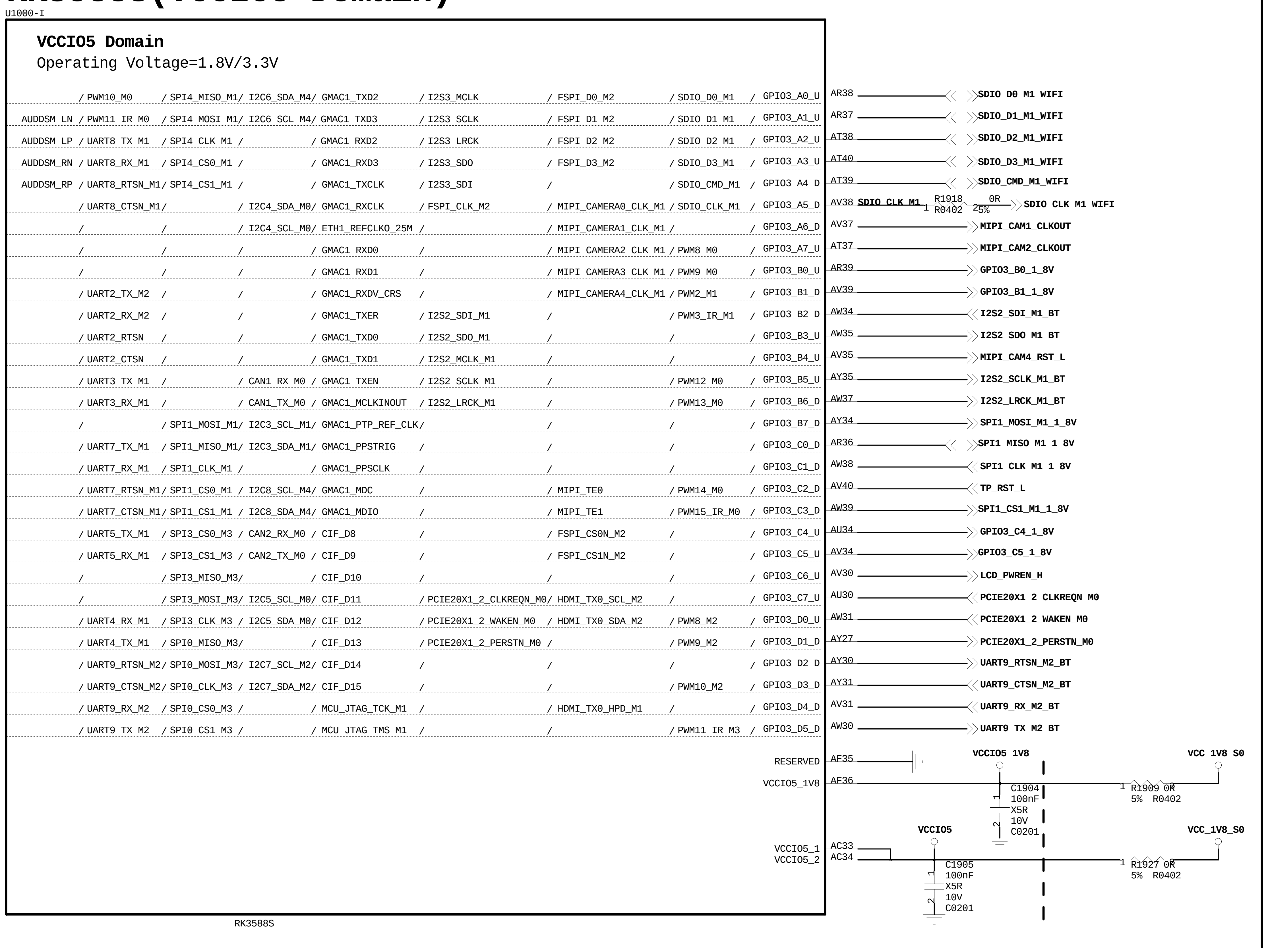
U1000-H
VCCIO4 Domain
Operating Voltage=1.8V/3.3V
/ PCIE20X1_1_CLKREQN_M2 / DP0_HPDIN_M2 / UART6_RX_M1 / SPI4_MISO_M2 / I2C2_SDA_M4 / GPIO1_A0_D G40
/ PCIE20X1_1_WAKEN_M2 / / UART6_TX_M1 / SPI4_MOSI_M2 / I2C2_SCL_M4 / GPIO1_A1_D L40
PWM0_M2 / / VOP_POST_EMPTY / UART6_RTSN_M1 / SPI4_CLK_M2 / I2C4_SDA_M3 / GPIO1_A2_D D38 I2C4_SDA_M3_TP
PWM1_M2 / / / UART6_CTSN_M1 / SPI4_CS0_M2 / I2C4_SCL_M3 / GPIO1_A3_D L39 I2C4_SCL_M3_TP
/ / / SPI2_MISO_M0 / / GPIO1_A4_D G37 GPIO1_A4_1_8V
/ / HDMI_TX0_HPD_M0 / / SPI2_MOSI_M0 / / GPIO1_A5_D M40 HDMI_TX0_HPD_M0
/ / / SPI2_CLK_M0 / / GPIO1_A6_D D39 GPIO1_A6_CLK_1_8V
PWM3_IR_M3 / PCIE20X1_1_PERSTN_M2 / / / SPI2_CS0_M0 / PDM1_SDI0_M1 / GPIO1_A7_U H38 MIPI_CAM2_PDN_L
/ / / SPI2_CS1_M0 / PDM1_SDI1_M1 / GPIO1_B0_U H39 LCD_RESET_L
/ / / SPI0_MISO_M2 / PDM1_SDI2_M1 / GPIO1_B1_D G39 GPIO1_B1_1_8V
/ / / UART4_RX_M2 / SPI0_MOSI_M2 / PDM1_SDI3_M1 / GPIO1_B2_D M38 GPIO1_B2_1_8V
/ / SATA0_ACT_LED_M1 / UART4_TX_M2 / SPI0_CLK_M2 / PDM1_CLK1_M1 / GPIO1_B3_D M37 MIPI_CAM2_RST_L
/ / / UART7_RX_M2 / SPI0_CS0_M2 / PDM1_CLK0_M1 / GPIO1_B4_U M39 GPIO1_B4_1_8V
/ / / UART7_TX_M2 / SPI0_CS1_M2 / / GPIO1_B5_U D40 GPIO1_B5_1_8V
/ / MIPI_CAMERA1_CLK_M0 / UART1_TX_M1 / SPDIF0_TX_M0 / I2C5_SCL_M3 / GPIO1_B6_U L38 I2C5_SCL_M3_CAM
PWM13_M2 / SATA0_ACT_LED_M1 / MIPI_CAMERA2_CLK_M0 / UART1_RX_M1 / SPDIF1_TX_M0 / I2C5_SDA_M3 / GPIO1_B7_U F37 I2C5_SDA_M3_CAM
PWM14_M2 / / MIPI_CAMERA3_CLK_M0 / UART1_RTSN_M1 / / I2C8_SCL_M2 / GPIO1_D6_U L37 I2C8_SCL_M2_CAM_1_8V
PWM15_IR_M3 / / MIPI_CAMERA4_CLK_M0 / UART1_CTSN_M1 / / I2C8_SDA_M2 / GPIO1_D7_U G38 I2C8_SDA_M2_CAM_1_8V
VCCIO4_1V8_1 G27
VCCIO4_1V8_2 G28
VCCIO4 G31
VCC_1V8_S0
C1902 100nF X5R 10V C0201
C1903 100nF X5R 10V C0201
R1916 2.2K 5% R0402
R1917 2.2K 5% R0402
I2C5_SCL_M3_CAM
I2C5_SDA_M3_CAM
RK3588S

RK3588S(VCCIO6 Domain)



U1000-J
VCCIO6 Domain
Operating Voltage=1.8V/3.3V
BT1120_D0 / CIF_D0 / / I2S1_MCLK_M0 / UART9_RTSN_M1 / SPI0_MISO_M1 / / PCIE20X1_1_CLKREQN_M1 / GPIO4_A0_D AV19 TYPEC0_SBU1_DC
BT1120_D1 / CIF_D1 / / I2S1_SCLK_M0 / UART9_CTSN_M1 / SPI0_MOSI_M1 / / PCIE20X1_1_WAKEN_M1 / GPIO4_A1_D AW18 TYPEC0_SBU2_DC
BT1120_D2 / CIF_D2 / / I2S1_LRCK_M0 / / SPI0_CLK_M1 / / PCIE20X1_1_PERSTN_M1 / GPIO4_A2_D AV26 GPIO4_A2
BT1120_D3 / CIF_D3 / / / UART0_TX_M2 / / / / GPIO4_A3_D AY19 UART0_TX_M2
BT1120_D4 / CIF_D4 / / / UART0_RX_M2 / SPI2_MISO_M1 / I2C3_SCL_M2 / / GPIO4_A4_D AW19 UART0_RX_M2
BT1120_D5 / CIF_D5 / / I2S1_SDI0_M0 / UART3_TX_M2 / SPI2_MOSI_M1 / I2C3_SDA_M2 / / GPIO4_A5_D AU15 TYPEC5V_PWREN_H
BT1120_D6 / CIF_D6 / / I2S1_SDI1_M0 / UART3_RX_M2 / SPI2_CLK_M1 / I2C5_SCL_M2 / / GPIO4_A6_D AV18 GPIO4_A6
BT1120_D7 / CIF_D7 / / I2S1_SDI2_M0 / / SPI2_CS0_M1 / I2C5_SDA_M2 / / GPIO4_A7_D AW26 GPIO4_A7
BT1120_CLKOUT / CIF_CLKIN / / I2S1_SDI3_M0 / UART8_TX_M0 / SPI2_CS1_M0 / I2C6_SDA_M3 / / GPIO4_B0_D AW27 I2C6_SDA_M3
SPDIF1_TX_M1 / MIPI_CAMERA0_CLK_M0 / SATA2_ACT_LED_M0 / I2S1_SDO0_M0 / UART8_RX_M0 / SPI0_CS1_M1 / I2C6_SCL_M3 / / GPIO4_B1_U AU22 I2C6_SCL_M3
CAN1_RX_M1 / BT1120_D8 / CIF_HREF / PWM14_M1 / I2S1_SDO1_M0 / UART8_RTSN_M0 / SPI0_CS0_M1 / I2C7_SCL_M3 / PCIE20X1_1_BUTTON_RSTN / GPIO4_B2_U AT15 LCD_BL_PWM14_M1
CAN1_TX_M1 / BT1120_D9 / CIF_VSYNC / PWM15_IR_M1 / I2S1_SDO2_M0 / UART8_CTSN_M0 / / I2C7_SDA_M3 / PCIE20X1_2_BUTTON_RSTN / GPIO4_B3_U AV23 GPIO4_B3
BT1120_D10 / CIF_CLKOUT / PWM11_IR_M1 / I2S1_SDO3_M0 / UART9_TX_M1 / / DP0_HPDIN_M0 / SPDIF0_TX_M1 / GPIO4_B4_U AV27 GPIO4_B4
BT1120_D11 / / PWM12_M1 / / UART9_RX_M1 / SPI3_MISO_M1 / / / GPIO4_B5_U AU23 GPIO4_B5
BT1120_D12 / / PWM13_M1 / / / SPI3_MOSI_M1 / I2C5_SCL_M1 / SATA0_ACT_LED_M0 / GPIO4_B6_D AW22 HDMI0_TX_ON_H
BT1120_D13 / / / HDMI_TX0_SCL_M0 / / SPI3_CLK_M1 / I2C5_SDA_M1 / PCIE20X1_2_CLKREQN_M1 / GPIO4_B7_U AV22 HDMI_TX0_SCL_M0
BT1120_D14 / / / HDMI_TX0_SDA_M0 / / SPI3_CS0_M1 / I2C8_SCL_M3 / PCIE20X1_2_WAKEN_M1 / GPIO4_C0_U AW23 HDMI_TX0_SDA_M0
BT1120_D15 / SPDIF1_TX_M2 / PWM6_M1 / HDMI_TX0_CEC_M0 / / SPI3_CS1_M1 / I2C8_SDA_M3 / PCIE20X1_2_PERSTN_M1 / GPIO4_C1_D AY26 HDMI_TX0_CEC_M0
Note:
BT1120 Only Support Output
VCCIO6_1V8 AJ34
VCCIO6_1 AL33
VCCIO6_2 AM33
VCC_1V8_S0
VCC_3V3_S0
C1906 100nF X5R 10V C0201
C1907 100nF X5R 10V C0201
RK3588S
VCC_3V3_S0
R1914 2.2K 5% R0402
R1915 2.2K 5% R0402
I2C6_SCL_M3
I2C6_SDA_M3

RK3588S(VCCIO5 Domain)



U1000-I
VCCIO5 Domain
Operating Voltage=1.8V/3.3V
/ PWM10_M0 / SPI4_MISO_M1 / I2C6_SDA_M4 / GMAC1_TXD2 / I2S3_MCLK / FSPI_D0_M2 / SDIO_D0_M1 / GPIO3_A0_U AR38 SDIO_D0_M1_WIFI
AUDDSM_LN / PWM11_IR_M0 / SPI4_MOSI_M1 / I2C6_SCL_M4 / GMAC1_TXD3 / I2S3_SCLK / FSPI_D1_M2 / SDIO_D1_M1 / GPIO3_A1_U AR37 SDIO_D1_M1_WIFI
AUDDSM_LP / UART8_TX_M1 / SPI4_CLK_M1 / / GMAC1_RXD2 / I2S3_LRCK / FSPI_D2_M2 / SDIO_D2_M1 / GPIO3_A2_U AT38 SDIO_D2_M1_WIFI
AUDDSM_RN / UART8_RX_M1 / SPI4_CS0_M1 / / GMAC1_RXD3 / I2S3_SDO / FSPI_D3_M2 / SDIO_D3_M1 / GPIO3_A3_U AT40 SDIO_D3_M1_WIFI
AUDDSM_RP / UART8_RTSN_M1 / SPI4_CS1_M1 / / GMAC1_TXCLK / I2S3_SDI / / SDIO_CMD_M1 / GPIO3_A4_D AT39 SDIO_CMD_M1_WIFI
/ UART8_CTSN_M1 / / I2C4_SDA_M0 / GMAC1_RXCLK / FSPI_CLK_M2 / MIPI_CAMERA0_CLK_M1 / SDIO_CLK_M1 / GPIO3_A5_D AV38 SDIO_CLK_M1 R1918 0R R0402 5% SDIO_CLK_M1_WIFI
/ / / I2C4_SCL_M0 / ETH1_REFCLKO_25M / / MIPI_CAMERA1_CLK_M1 / / GPIO3_A6_D AV37 MIPI_CAM1_CLKOUT
/ / / / GMAC1_RXD0 / / MIPI_CAMERA2_CLK_M1 / PWM8_M0 / GPIO3_A7_U AT37 MIPI_CAM2_CLKOUT
/ / / / GMAC1_RXD1 / / MIPI_CAMERA3_CLK_M1 / PWM9_M0 / GPIO3_B0_U AR39 GPIO3_B0_1_8V
/ UART2_TX_M2 / / / GMAC1_RXDV_CRS / / MIPI_CAMERA4_CLK_M1 / PWM2_M1 / GPIO3_B1_D AV39 GPIO3_B1_1_8V
/ UART2_RX_M2 / / / GMAC1_TXER / I2S2_SDI_M1 / / PWM3_IR_M1 / GPIO3_B2_D AW34 I2S2_SDI_M1_BT
/ UART2_RTSN / / / GMAC1_TXD0 / I2S2_SDO_M1 / / / GPIO3_B3_U AW35 I2S2_SDO_M1_BT
/ UART2_CTSN / / / GMAC1_TXD1 / I2S2_MCLK_M1 / / / GPIO3_B4_U AV35 MIPI_CAM4_RST_L
/ UART3_TX_M1 / / CAN1_RX_M0 / GMAC1_TXEN / I2S2_SCLK_M1 / / PWM12_M0 / GPIO3_B5_U AY35 I2S2_SCLK_M1_BT
/ UART3_RX_M1 / / CAN1_TX_M0 / GMAC1_MCLKINOUT / I2S2_LRCK_M1 / / PWM13_M0 / GPIO3_B6_D AW37 I2S2_LRCK_M1_BT
/ / SPI1_MOSI_M1 / I2C3_SCL_M1 / GMAC1_PTP_REF_CLK / / / / GPIO3_B7_D AY34 SPI1_MOSI_M1_1_8V
/ UART7_TX_M1 / SPI1_MISO_M1 / I2C3_SDA_M1 / GMAC1_PPSTRIG / / / / GPIO3_C0_D AR36 SPI1_MISO_M1_1_8V
/ UART7_RX_M1 / SPI1_CLK_M1 / / GMAC1_PPSCLK / / / / GPIO3_C1_D AW38 SPI1_CLK_M1_1_8V
/ UART7_RTSN_M1 / SPI1_CS0_M1 / I2C8_SCL_M4 / GMAC1_MDC / / MIPI_TE0 / PWM14_M0 / GPIO3_C2_D AV40 TP_RST_L
/ UART7_CTSN_M1 / SPI1_CS1_M1 / I2C8_SDA_M4 / GMAC1_MDIO / / MIPI_TE1 / PWM15_IR_M0 / GPIO3_C3_D AW39 SPI1_CS1_M1_1_8V
/ UART5_TX_M1 / SPI3_CS0_M3 / CAN2_RX_M0 / CIF_D8 / / FSPI_CS0N_M2 / / GPIO3_C4_U AU34 GPIO3_C4_1_8V
/ UART5_RX_M1 / SPI3_CS1_M3 / CAN2_TX_M0 / CIF_D9 / / FSPI_CS1N_M2 / / GPIO3_C5_U AV34 GPIO3_C5_1_8V
/ / SPI3_MISO_M3 / / CIF_D10 / / / / GPIO3_C6_U AV30 LCD_PWREN_H
/ / SPI3_MOSI_M3 / I2C5_SCL_M0 / CIF_D11 / PCIE20X1_2_CLKREQN_M0 / HDMI_TX0_SCL_M2 / / GPIO3_C7_U AU30 PCIE20X1_2_CLKREQN_M0
/ UART4_RX_M1 / SPI3_CLK_M3 / I2C5_SDA_M0 / CIF_D12 / PCIE20X1_2_WAKEN_M0 / HDMI_TX0_SDA_M2 / PWM8_M2 / GPIO3_D0_U AW31 PCIE20X1_2_WAKEN_M0
/ UART4_TX_M1 / SPI0_MISO_M3 / / CIF_D13 / PCIE20X1_2_PERSTN_M0 / / PWM9_M2 / GPIO3_D1_D AY27 PCIE20X1_2_PERSTN_M0
/ UART9_RTSN_M2 / SPI0_MOSI_M3 / I2C7_SCL_M2 / CIF_D14 / / / / GPIO3_D2_D AY30 UART9_RTSN_M2_BT
/ UART9_CTSN_M2 / SPI0_CLK_M3 / I2C7_SDA_M2 / CIF_D15 / / / PWM10_M2 / GPIO3_D3_D AY31 UART9_CTSN_M2_BT
/ UART9_RX_M2 / SPI0_CS0_M3 / / MCU_JTAG_TCK_M1 / / HDMI_TX0_HPD_M1 / / GPIO3_D4_D AV31 UART9_RX_M2_BT
/ UART9_TX_M2 / SPI0_CS1_M3 / / MCU_JTAG_TMS_M1 / / / PWM11_IR_M3 / GPIO3_D5_D AW30 UART9_TX_M2_BT
RESERVED AF35
VCCIO5_1V8 AF36
VCCIO5_1 AC33
VCCIO5_2 AC34
VCCIO5_1V8
VCCIO5
VCC_1V8_S0
C1904 100nF X5R 10V C0201
C1905 100nF X5R 10V C0201
R1909 0R 5% R0402
R1927 0R 5% R0402
RK3588S

Note:

Caps of between dashed green lines and U1000 should be placed under the U1000 package

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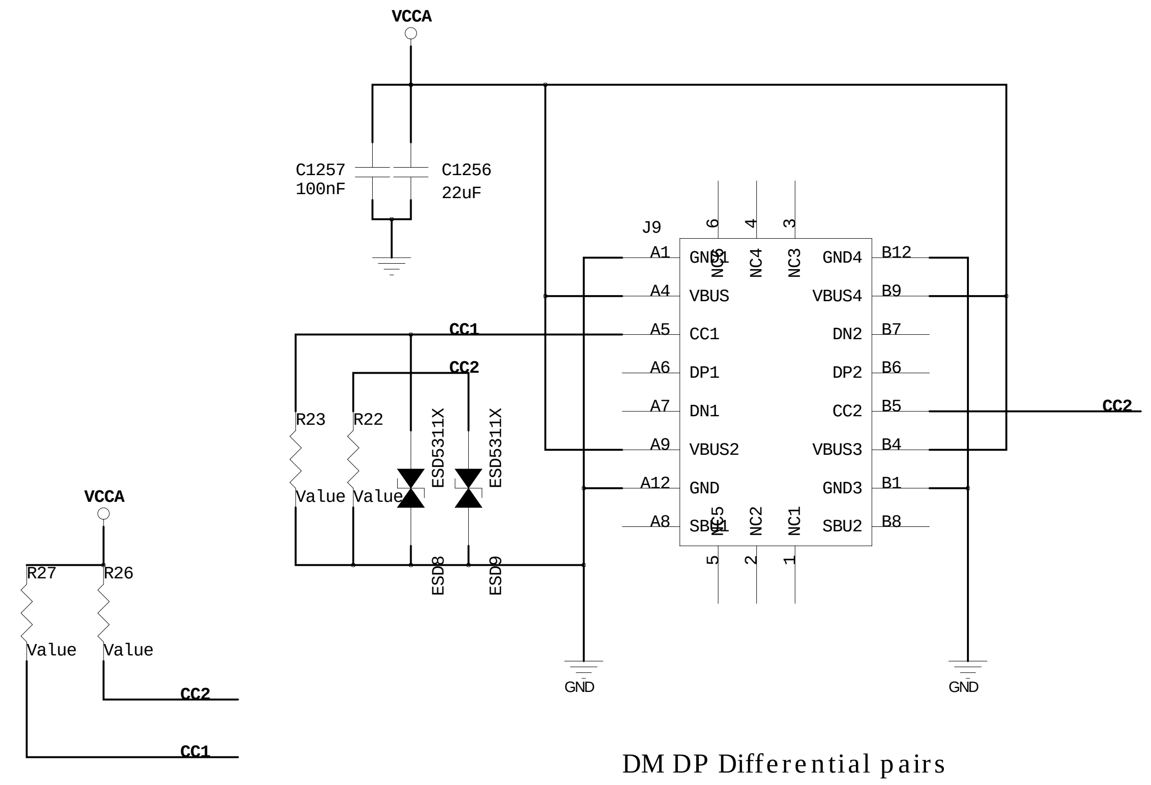
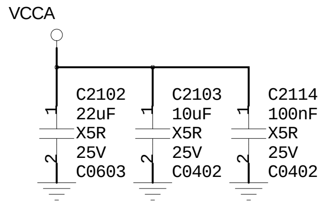
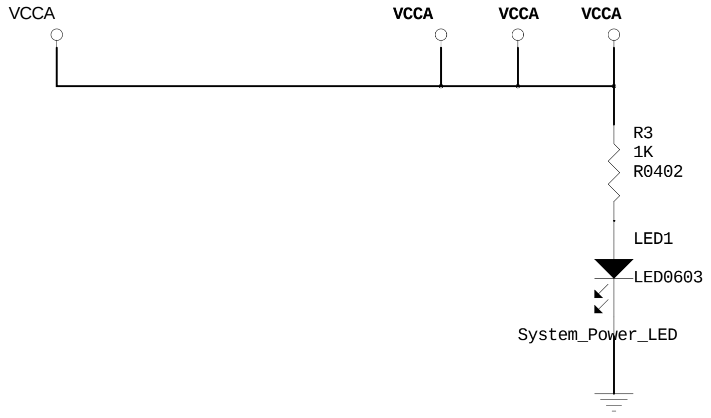
TPPE-C


VCCA
C1257
100nF
C1256
22uF
J9
A1 GND1
A4 VBUS
A5 CC1
A6 DP1
A7 DN1
A9 VBUS2
A12 GND
A8 SBU1
GND4 B12
VBUS4 B9
DN2 B7
DP2 B6
CC2 B5
VBUS3 B4
GND3 B1
SBU2 B8
6 NC5
4 NC4
3 NC3
5 NC6
2 NC2
1 NC1
CC1
CC2
CC2
R23
Value
R22
Value
ESD5311X
ESD5311X
ESD8
ESD9
GND
GND
VCCA
R27
Value
R26
Value
CC2
CC1

DM DP Differential pairs
Z0= 90 ohm


VCCA
C2102
22uF
X5R
25V
C0603
C2103
10uF
X5R
25V
C0402
C2114
100nF
X5R
25V
C0402
1
2
1
2
1
2


VCCA
VCCA
VCCA
VCCA
R3
1K
R0402
LED1
LED0603
System_Power_LED

Indiedroid.com
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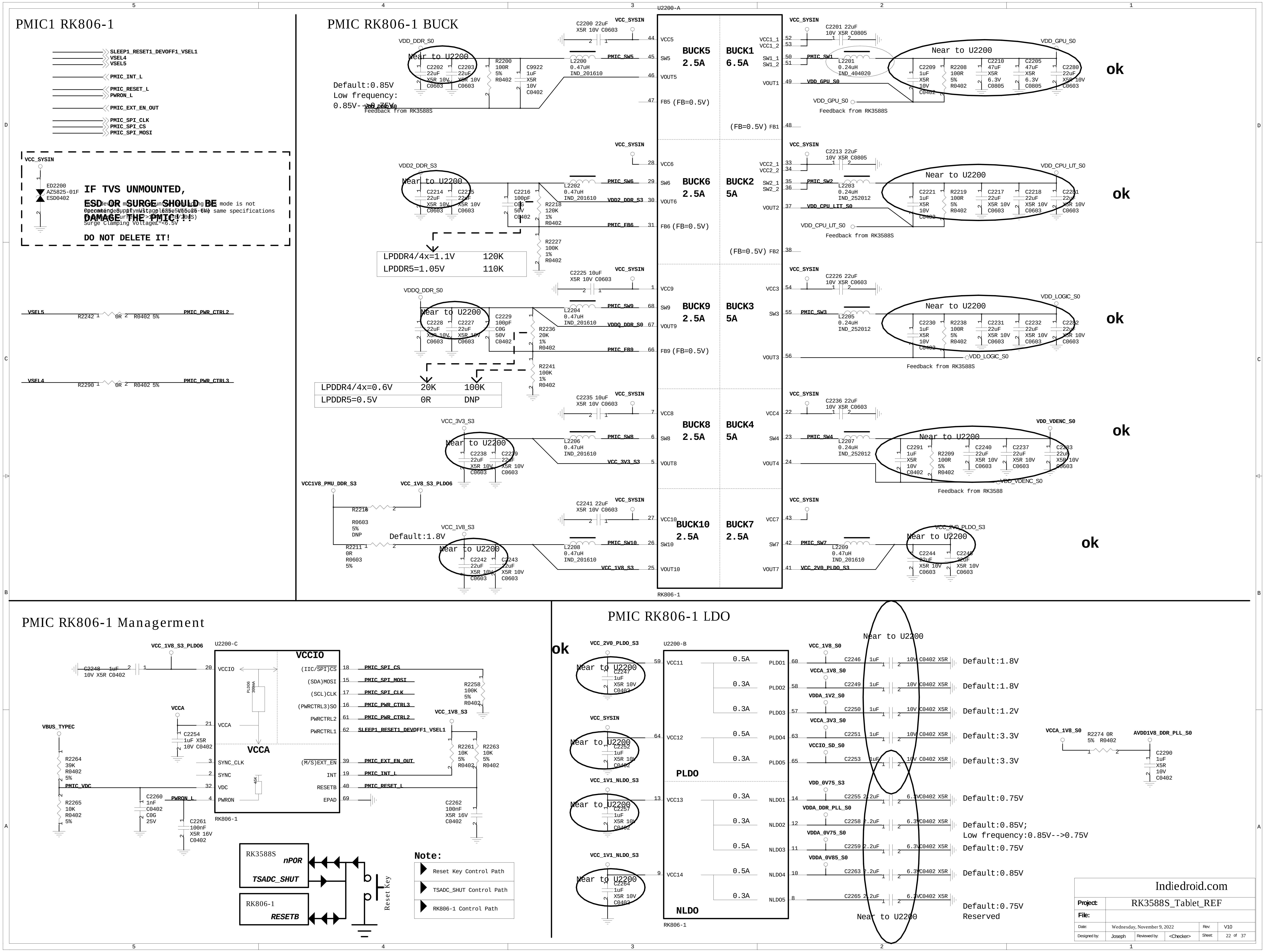
Designed by: Joseph Reviewed by: <Checker> Sheet: 21 of 37

LED0603
R0201


PMIC1 RK806-1
SLEEP1_RESET1_DEVOFF1_VSEL1
VSEL4
VSEL5
PMIC_INT_L
PMIC_RESET_L
PWRON_L
PMIC_EXT_EN_OUT
PMIC_SPI_CLK
PMIC_SPI_CS
PMIC_SPI_MOSI
VCC_SYSIN
ED2200 AZ5825-01F ESD0402
IF TVS UNMOUNTED,
ESD OR SURGE SHOULD BE
DAMAGE THE PMIC!!
DO NOT DELETE IT!
VSEL5 R2242 0R R0402 5% PMIC_PWR_CTRL2
VSEL4 R2290 0R R0402 5% PMIC_PWR_CTRL3
PMIC RK806-1 BUCK
U2200-A
VDD_DDR_S0
Near to U2200
Default:0.85V
Low frequency:
0.85V-->0.75V
Feedback from RK3588S
BUCK5 2.5A
BUCK1 6.5A
(FB=0.5V)
VDD_GPU_S0
ok
VDD2_DDR_S3
BUCK6 2.5A
BUCK2 5A
VDD_CPU_LIT_S0
LPDDR4/4x=1.1V 120K
LPDDR5=1.05V 110K
VDDQ_DDR_S0
BUCK9 2.5A
BUCK3 5A
VDD_LOGIC_S0
LPDDR4/4x=0.6V 20K 100K
LPDDR5=0.5V 0R DNP
VCC_3V3_S3
BUCK8 2.5A
BUCK4 5A
VDD_VDENC_S0
Feedback from RK3588
VCC1V8_PMU_DDR_S3
VCC_1V8_S3_PLDO6
VCC_1V8_S3
Default:1.8V
BUCK10 2.5A
BUCK7 2.5A
VCC_2V0_PLDO_S3
RK806-1
PMIC RK806-1 Managerment
U2200-C
VCCIO
VCCA
(IIC/SPI)CS
(SDA)MOSI
(SCL)CLK
(PWRCTRL3)SO
PWRCTRL2
PWRCTRL1
SYNC_CLK
SYNC
VDC
PWRON
(M/S)EXT_EN
INT
RESETB
EPAD
VBUS_TYPEC
PMIC_VDC
PWRON_L
RK3588S nPOR TSADC_SHUT
RK806-1 RESETB
Reset Key
Note:
Reset Key Control Path
TSADC_SHUT Control Path
RK806-1 Control Path
PMIC RK806-1 LDO
U2200-B
VCC11
VCC12
VCC13
VCC14
PLDO
NLDO
PLDO1 0.5A
PLDO2 0.3A
PLDO3 0.3A
PLDO4 0.5A
PLDO5 0.3A
NLDO1 0.3A
NLDO2 0.3A
NLDO3 0.5A
NLDO4 0.5A
NLDO5 0.3A
VCC_1V8_S0 Default:1.8V
VCCA_1V8_S0 Default:1.8V
VDDA_1V2_S0 Default:1.2V
VCCA_3V3_S0 Default:3.3V
VCCIO_SD_S0 Default:3.3V
VDD_0V75_S3 Default:0.75V
VDDA_DDR_PLL_S0 Default:0.85V; Low frequency:0.85V-->0.75V
VDDA_0V75_S0 Default:0.75V
VDDA_0V85_S0 Default:0.85V
Default:0.75V Reserved
VCC_1V1_NLDO_S3
VCCA_1V8_S0 R2274 0R 5% R0402 AVDD1V8_DDR_PLL_S0
C2290 1uF X5R 10V C0402

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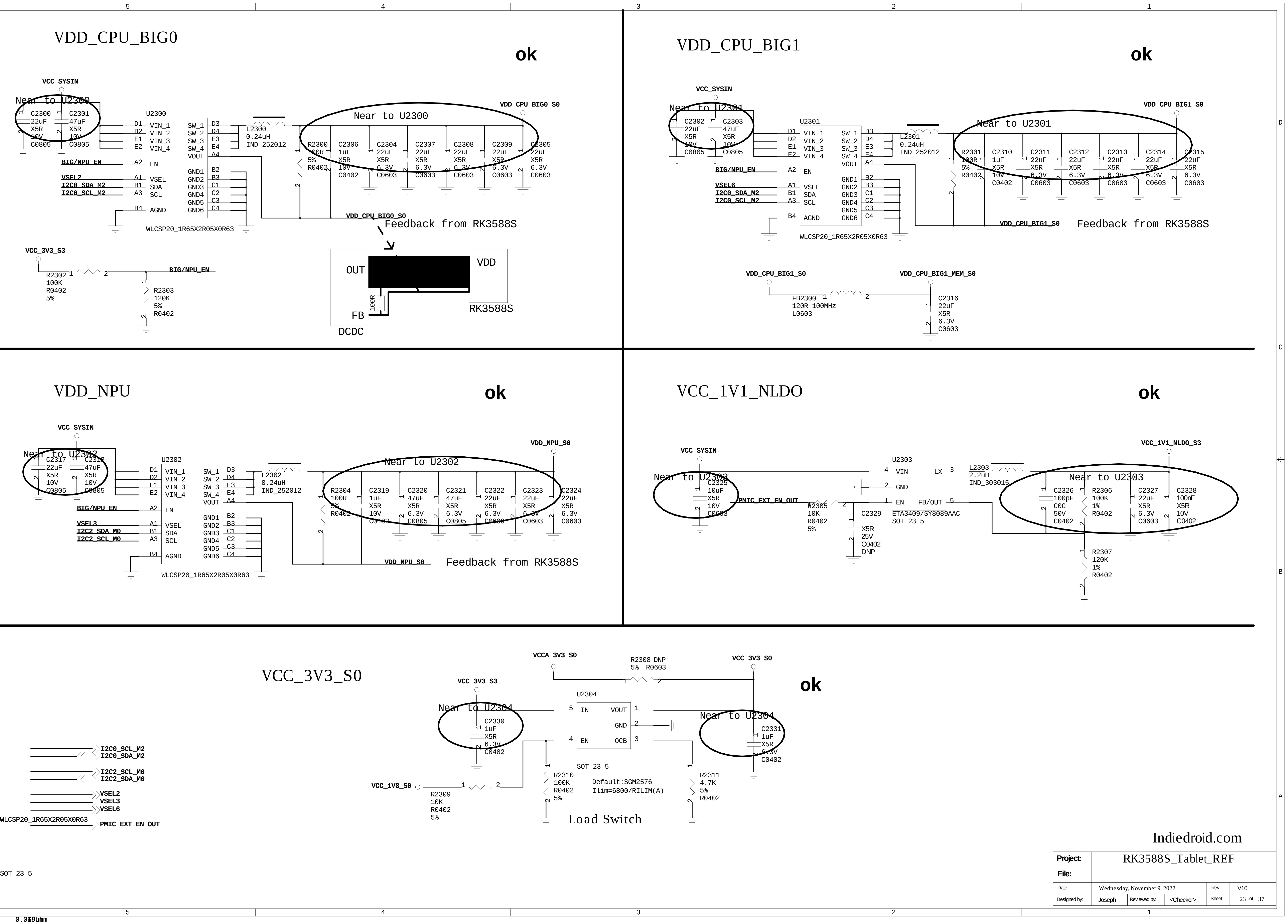
ESD0402


VDD_CPU_BIG0
ok
VCC_SYSIN
Near to U2300
C2300 22uF X5R 10V C0805
C2301 47uF X5R 10V C0805
U2300
VIN_1 VIN_2 VIN_3 VIN_4
SW_1 SW_2 SW_3 SW_4 VOUT
EN VSEL SDA SCL AGND
GND1 GND2 GND3 GND4 GND5 GND6
BIG/NPU_EN
VSEL2
I2C0_SDA_M2
I2C0_SCL_M2
WLCSP20_1R65X2R05X0R63
L2300 0.24uH IND_252012
Near to U2300
R2300 100R 5% R0402
C2306 1uF X5R 10V C0402
C2304 22uF X5R 6.3V C0603
C2307 22uF X5R 6.3V C0603
C2308 22uF X5R 6.3V C0603
C2309 22uF X5R 6.3V C0603
C2305 22uF X5R 6.3V C0603
VDD_CPU_BIG0_S0
VDD_CPU_BIG0_S0
Feedback from RK3588S
OUT
FB
DCDC
100R
VDD
RK3588S
VCC_3V3_S3
R2302 100K R0402 5%
BIG/NPU_EN
R2303 120K 5% R0402
VDD_CPU_BIG1
ok
VCC_SYSIN
Near to U2301
C2302 22uF X5R 10V C0805
C2303 47uF X5R 10V C0805
U2301
BIG/NPU_EN
VSEL6
I2C0_SDA_M2
I2C0_SCL_M2
WLCSP20_1R65X2R05X0R63
L2301 0.24uH IND_252012
Near to U2301
R2301 100R 5% R0402
C2310 1uF X5R 10V C0402
C2311 22uF X5R 6.3V C0603
C2312 22uF X5R 6.3V C0603
C2313 22uF X5R 6.3V C0603
C2314 22uF X5R 6.3V C0603
C2315 22uF X5R 6.3V C0603
VDD_CPU_BIG1_S0
VDD_CPU_BIG1_S0
Feedback from RK3588S
VDD_CPU_BIG1_S0
VDD_CPU_BIG1_MEM_S0
FB2300 120R-100MHz L0603
C2316 22uF X5R 6.3V C0603
VDD_NPU
ok
VCC_SYSIN
Near to U2302
C2317 22uF X5R 10V C0805
C2318 47uF X5R 10V C0805
U2302
BIG/NPU_EN
VSEL3
I2C2_SDA_M0
I2C2_SCL_M0
WLCSP20_1R65X2R05X0R63
L2302 0.24uH IND_252012
Near to U2302
R2304 100R 5% R0402
C2319 1uF X5R 10V C0402
C2320 47uF X5R 6.3V C0805
C2321 47uF X5R 6.3V C0805
C2322 22uF X5R 6.3V C0603
C2323 22uF X5R 6.3V C0603
C2324 22uF X5R 6.3V C0603
VDD_NPU_S0
VDD_NPU_S0
Feedback from RK3588S
VCC_1V1_NLDO
ok
VCC_SYSIN
Near to U2303
C2325 10uF X5R 10V C0603
PMIC_EXT_EN_OUT
R2305 10K R0402 5%
C2329 X5R 25V C0402 DNP
U2303
VIN LX GND EN FB/OUT
ETA3409/SY8089AAC
SOT_23_5
L2303 2.2uH IND_303015
Near to U2303
C2326 100pF C0G 50V C0402
R2306 100K 1% R0402
C2327 22uF X5R 6.3V C0603
C2328 100nF X5R 10V C0402
R2307 120K 1% R0402
VCC_1V1_NLDO_S3
VCC_3V3_S0
ok
VCCA_3V3_S0
R2308 DNP 5% R0603
VCC_3V3_S0
VCC_3V3_S3
Near to U2304
C2330 1uF X5R 6.3V C0402
U2304
IN VOUT GND EN OCB
SOT_23_5
Default:SGM2576
Ilim=6800/RILIM(A)
Near to U2304
C2331 1uF X5R 6.3V C0402
VCC_1V8_S0
R2309 10K R0402 5%
R2310 100K R0402 5%
R2311 4.7K 5% R0402
Load Switch
I2C0_SCL_M2
I2C0_SDA_M2
I2C2_SCL_M0
I2C2_SDA_M0
VSEL2
VSEL3
VSEL6
WLCSP20_1R65X2R05X0R63
PMIC_EXT_EN_OUT
SOT_23_5
0.050hm
5 4 3 2 1
D C B A

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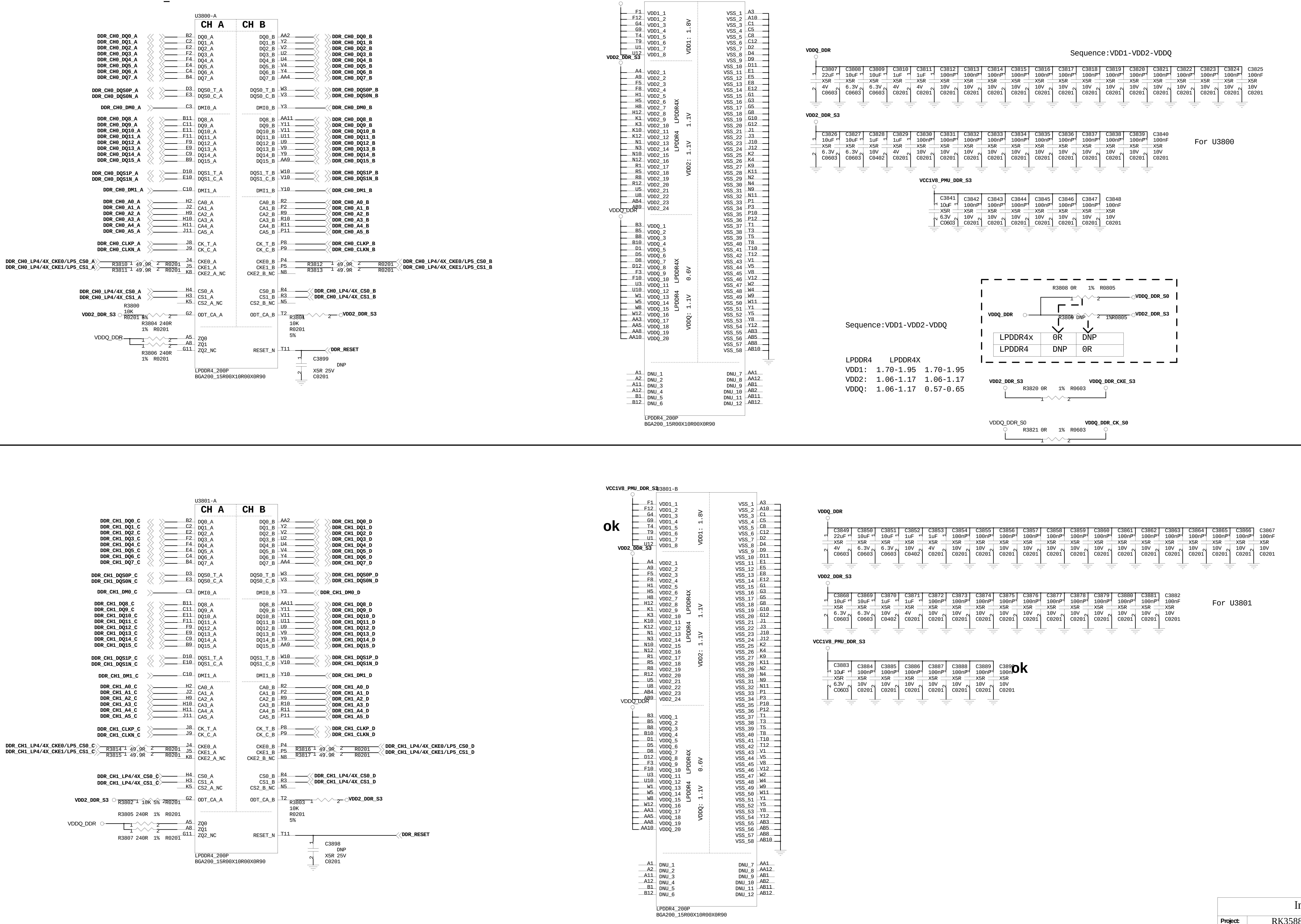
DRAM-LPDDR4/4x_2X32bit


U3800-A
CH A
CH B
DDR_CH0_DQ0_A … DDR_CH0_DQ15_A
DDR_CH0_DQS0P_A
DDR_CH0_DQS0N_A
DDR_CH0_DM0_A
DDR_CH0_DQS1P_A
DDR_CH0_DQS1N_A
DDR_CH0_DM1_A
DDR_CH0_A0_A … DDR_CH0_A5_A
DDR_CH0_CLKP_A
DDR_CH0_CLKN_A
DDR_CH0_LP4/4X_CKE0/LP5_CS0_A
DDR_CH0_LP4/4X_CKE1/LP5_CS1_A
DDR_CH0_LP4/4X_CS0_A
DDR_CH0_LP4/4X_CS1_A
DDR_CH0_DQ0_B … DDR_CH0_DQ15_B
DDR_CH0_DQS0P_B
DDR_CH0_DQS0N_B
DDR_CH0_DM0_B
DDR_CH0_DQS1P_B
DDR_CH0_DQS1N_B
DDR_CH0_DM1_B
DDR_CH0_A0_B … DDR_CH0_A5_B
DDR_CH0_CLKP_B
DDR_CH0_CLKN_B
DDR_CH0_LP4/4X_CKE0/LP5_CS0_B
DDR_CH0_LP4/4X_CKE1/LP5_CS1_B
DDR_CH0_LP4/4X_CS0_B
DDR_CH0_LP4/4X_CS1_B
R3810 49.9R R0201
R3811 49.9R R0201
R3812 49.9R R0201
R3813 49.9R R0201
VDD2_DDR_S3
R3800 10K R0201 5%
R3804 240R 1% R0201
R3801 10K R0201 5%
VDDQ_DDR
R3806 240R 1% R0201
DDR_RESET
C3899 DNP X5R 25V C0201
LPDDR4_200P
BGA200_15R00X10R00X0R90
U3800-B
VCC1V8_PMU_DDR_S3
VDD1: 1.8V
LPDDR4 1.1V
LPDDR4X
VDD2: 1.1V
LPDDR4X 0.6V
LPDDR4
VDDQ: 1.1V
VDD1_1 … VDD1_8
VDD2_1 … VDD2_24
VDDQ_1 … VDDQ_20
VSS_1 … VSS_58
DNU_1 … DNU_12
VDDQ_DDR
C3807 22uF X5R 4V C0603
C3808 10uF X5R 6.3V C0603
C3809 10uF X5R 6.3V C0603
C3810 1uF X5R 4V C0201
C3811 1uF X5R 4V C0201
C3812 … C3825 100nF X5R 10V C0201
VDD2_DDR_S3
C3826 10uF X5R 6.3V C0603
C3827 10uF X5R 6.3V C0603
C3828 1uF X5R 10V C0402
C3829 1uF X5R 4V C0201
C3830 … C3840 100nF X5R 10V C0201
VCC1V8_PMU_DDR_S3
C3841 10uF X5R 6.3V C0603
C3842 … C3848 100nF X5R 10V C0201
Sequence:VDD1-VDD2-VDDQ
For U3800
R3808 0R 1% R0805
VDDQ_DDR_S0
VDDQ_DDR
R3809 DNP 1% R0805
VDDQ_DDR_S3
Sequence:VDD1-VDD2-VDDQ
VDD2_DDR_S3
R3820 0R 1% R0603
VDDQ_DDR_CKE_S3
VDDQ_DDR_S0
R3821 0R 1% R0603
VDDQ_DDR_CK_S0
U3801-A
DDR_CH1_DQ0_C … DDR_CH1_DQ15_C
DDR_CH1_DQS0P_C
DDR_CH1_DQS0N_C
DDR_CH1_DM0_C
DDR_CH1_DQS1P_C
DDR_CH1_DQS1N_C
DDR_CH1_DM1_C
DDR_CH1_A0_C … DDR_CH1_A5_C
DDR_CH1_CLKP_C
DDR_CH1_CLKN_C
DDR_CH1_LP4/4X_CKE0/LP5_CS0_C
DDR_CH1_LP4/4X_CKE1/LP5_CS1_C
DDR_CH1_LP4/4X_CS0_C
DDR_CH1_LP4/4X_CS1_C
DDR_CH1_DQ0_D … DDR_CH1_DQ15_D
DDR_CH1_DQS0P_D
DDR_CH1_DQS0N_D
DDR_CH1_DM0_D
DDR_CH1_DQS1P_D
DDR_CH1_DQS1N_D
DDR_CH1_DM1_D
DDR_CH1_A0_D … DDR_CH1_A5_D
DDR_CH1_CLKP_D
DDR_CH1_CLKN_D
DDR_CH1_LP4/4X_CKE0/LP5_CS0_D
DDR_CH1_LP4/4X_CKE1/LP5_CS1_D
DDR_CH1_LP4/4X_CS0_D
DDR_CH1_LP4/4X_CS1_D
R3814 49.9R R0201
R3815 49.9R R0201
R3816 49.9R R0201
R3817 49.9R R0201
R3802 10K 5% R0201
R3805 240R 1% R0201
R3803 10K R0201 5%
R3807 240R 1% R0201
C3898 DNP X5R 25V C0201
U3801-B
ok
C3849 22uF X5R 4V C0603
C3850 10uF X5R 6.3V C0603
C3851 10uF X5R 6.3V C0603
C3852 1uF X5R 10V C0402
C3853 1uF X5R 4V C0201
C3854 … C3867 100nF X5R 10V C0201
C3868 10uF X5R 6.3V C0603
C3869 10uF X5R 6.3V C0603
C3870 1uF X5R 10V C0402
C3871 1uF X5R 4V C0201
C3872 … C3882 100nF X5R 10V C0201
C3883 10uF X5R 6.3V C0603
C3884 … C3890 100nF X5R 10V C0201
For U3801
ok

LPDDR4x	0R	DNP
LPDDR4	DNP	0R

	LPDDR4	LPDDR4X
VDD1:	1.70-1.95	1.70-1.95
VDD2:	1.06-1.17	1.06-1.17
VDDQ:	1.06-1.17	0.57-0.65

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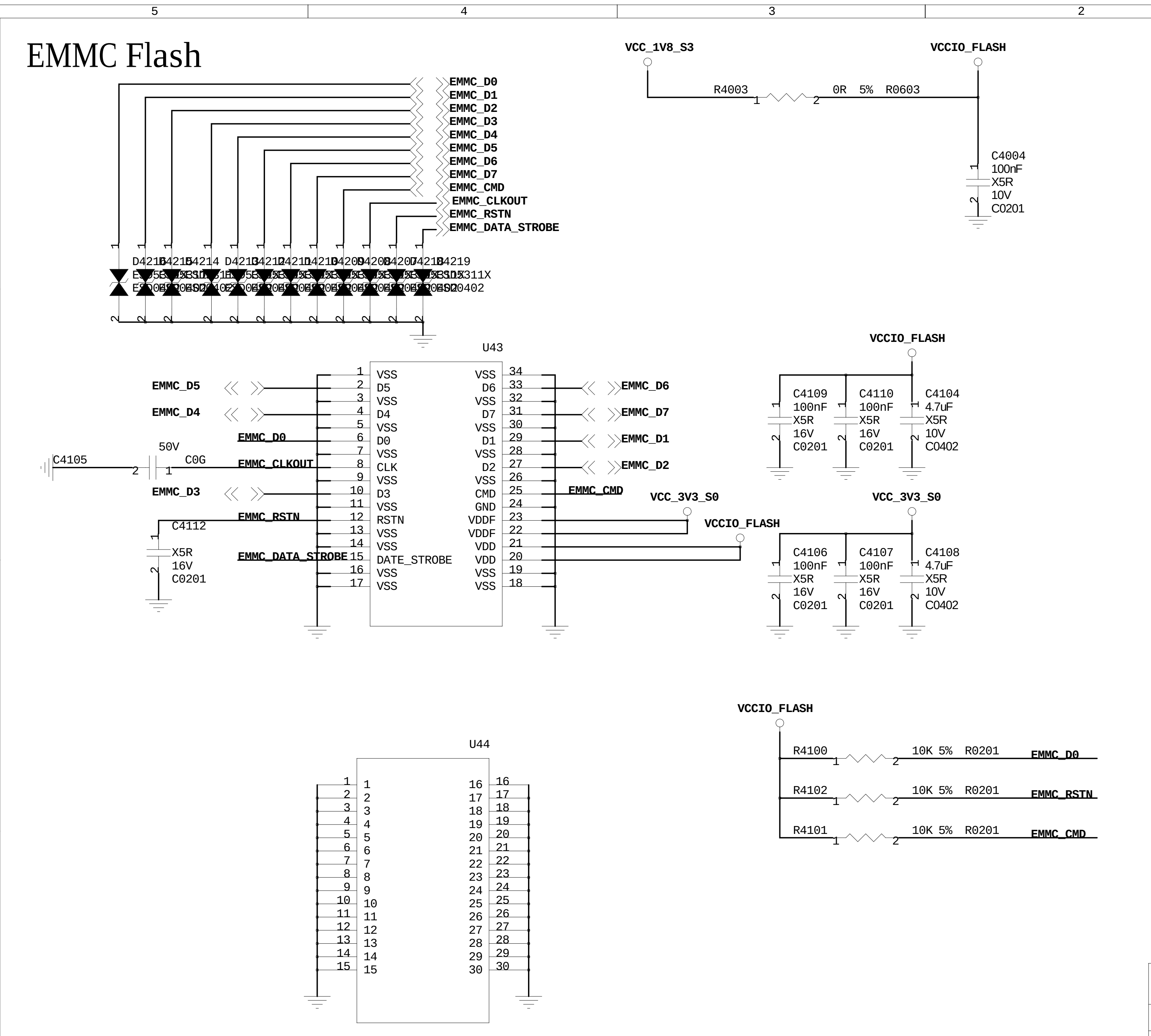
Reviewed by:	

EMMC Flash


EMMC_D0
EMMC_D1
EMMC_D2
EMMC_D3
EMMC_D4
EMMC_D5
EMMC_D6
EMMC_D7
EMMC_CMD
EMMC_CLKOUT
EMMC_RSTN
EMMC_DATA_STROBE
D4216 D4215 D4214 D4213 D4212 D4211 D4210 D4209 D4208 D4207 D4218 D4219
ESD5B5311X
ESD0402
VCC_1V8_S3
VCCIO_FLASH
R4003
0R 5% R0603
C4004
100nF
X5R
10V
C0201
U43
VSS
D5
D4
D0
CLK
D3
RSTN
DATE_STROBE
D6
D7
D1
D2
CMD
GND
VDDF
VDD
C4105
50V
C0G
C4112
X5R
16V
C0201
VCC_3V3_S0
C4109 100nF X5R 16V C0201
C4110 100nF X5R 16V C0201
C4104 4.7uF X5R 10V C0402
C4106 100nF X5R 16V C0201
C4107 100nF X5R 16V C0201
C4108 4.7uF X5R 10V C0402
U44
R4100 10K 5% R0201
R4102 10K 5% R0201
R4101 10K 5% R0201
ESD0402

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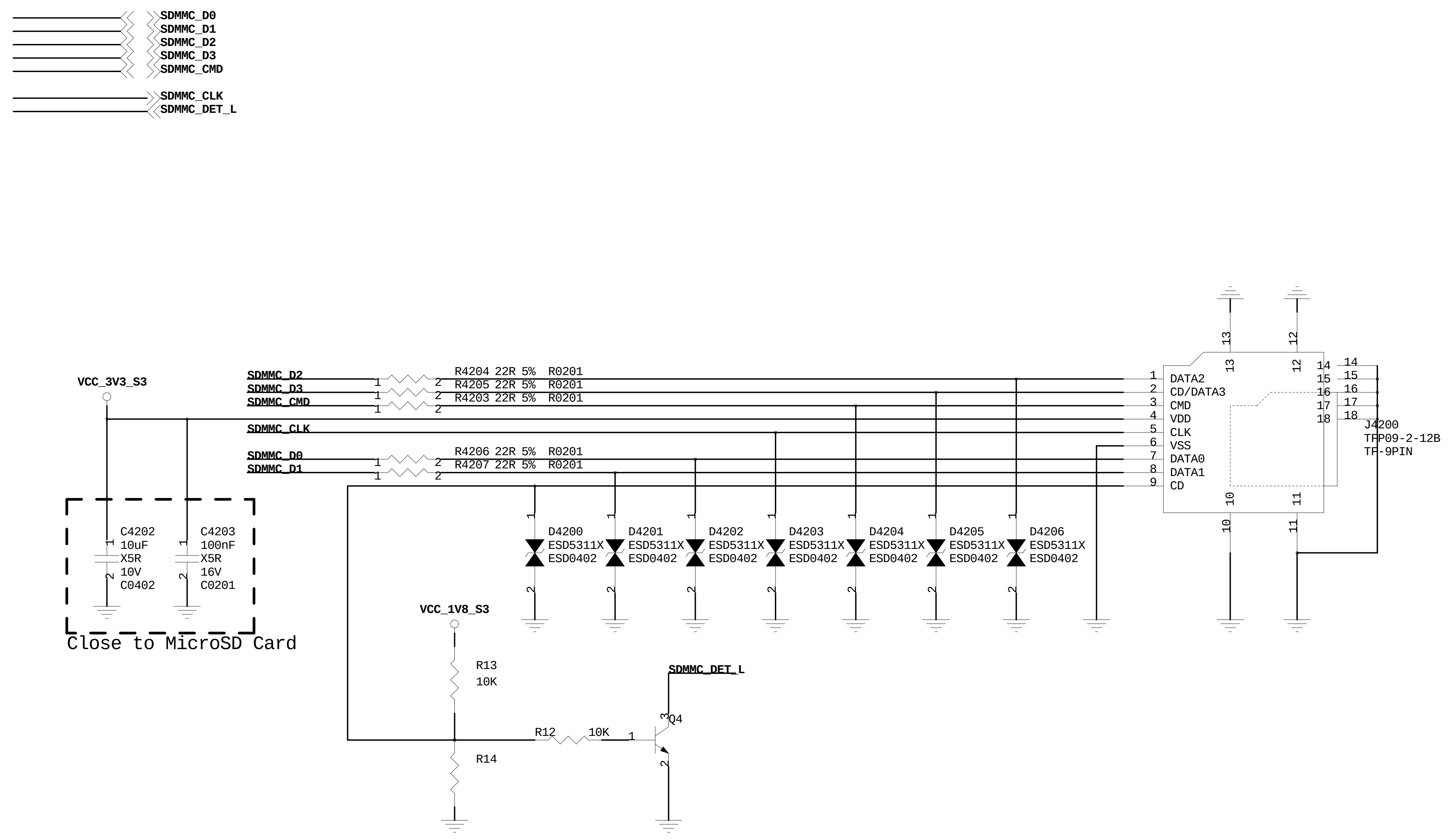
MicroSD Card


SDMMC_D0
SDMMC_D1
SDMMC_D2
SDMMC_D3
SDMMC_CMD
SDMMC_CLK
SDMMC_DET_L
VCC_3V3_S3
SDMMC_D2
SDMMC_D3
SDMMC_CMD
SDMMC_CLK
SDMMC_D0
SDMMC_D1
R4204 22R 5% R0201
R4205 22R 5% R0201
R4203 22R 5% R0201
R4206 22R 5% R0201
R4207 22R 5% R0201
C4202
10uF
X5R
10V
C0402
C4203
100nF
X5R
16V
C0201
Close to MicroSD Card
D4200 ESD5311X ESD0402
D4201 ESD5311X ESD0402
D4202 ESD5311X ESD0402
D4203 ESD5311X ESD0402
D4204 ESD5311X ESD0402
D4205 ESD5311X ESD0402
D4206 ESD5311X ESD0402
1 DATA2
2 CD/DATA3
3 CMD
4 VDD
5 CLK
6 VSS
7 DATA0
8 DATA1
9 CD
10
11
12
13
14
15
16
17
18
J4200
TFP09-2-12B
TF-9PIN
VCC_1V8_S3
R13
10K
R14
R12
10K
Q4
SDMMC_DET_L

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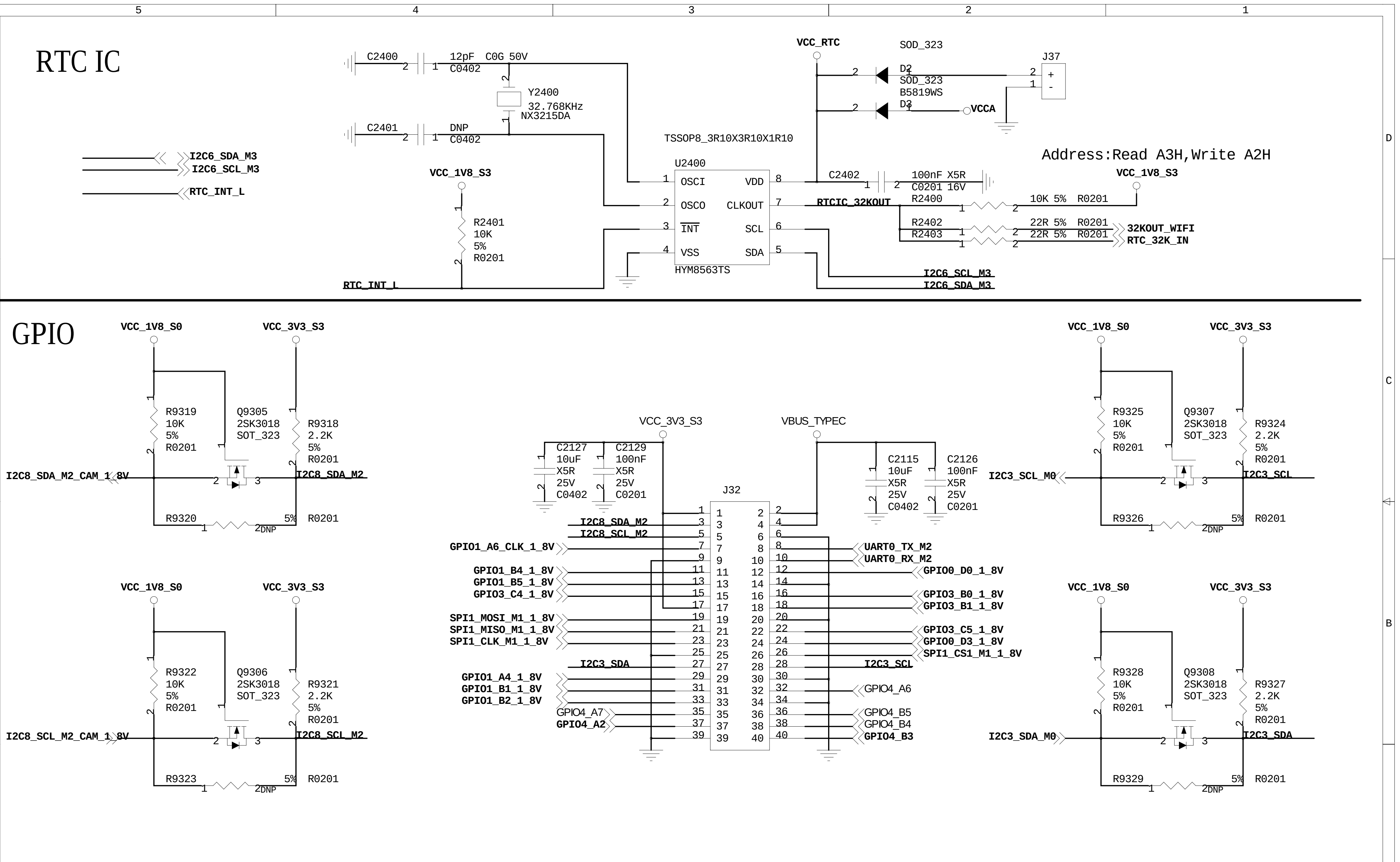
ESD0402


5
4
3
2
1
D
C
B
RTC IC
C2400
12pF C0G 50V
C0402
Y2400
32.768KHz
NX3215DA
C2401
DNP
C0402
I2C6_SDA_M3
I2C6_SCL_M3
RTC_INT_L
VCC_1V8_S3
R2401
10K
5%
R0201
RTC_INT_L
TSSOP8_3R10X3R10X1R10
U2400
OSCI
OSCO
INT
VSS
VDD
CLKOUT
SCL
SDA
HYM8563TS
VCC_RTC
SOD_323
D2
SOD_323
B5819WS
D3
VCCA
J37
C2402
100nF X5R
C0201 16V
Address:Read A3H,Write A2H
VCC_1V8_S3
RTCIC_32KOUT
R2400
10K 5% R0201
R2402
22R 5% R0201
R2403
22R 5% R0201
32KOUT_WIFI
RTC_32K_IN
I2C6_SCL_M3
I2C6_SDA_M3
GPIO
VCC_1V8_S0
VCC_3V3_S3
R9319
10K
5%
R0201
Q9305
2SK3018
SOT_323
R9318
2.2K
5%
R0201
I2C8_SDA_M2_CAM_1_8V
I2C8_SDA_M2
R9320
5%
R0201
DNP
R9322
10K
5%
R0201
Q9306
2SK3018
SOT_323
R9321
2.2K
5%
R0201
I2C8_SCL_M2_CAM_1_8V
I2C8_SCL_M2
R9323
VCC_3V3_S3
VBUS_TYPEC
C2127
10uF
X5R
25V
C0402
C2129
100nF
X5R
25V
C0201
C2115
10uF
X5R
25V
C0402
C2126
100nF
X5R
25V
C0201
J32
I2C8_SDA_M2
I2C8_SCL_M2
GPIO1_A6_CLK_1_8V
GPIO1_B4_1_8V
GPIO1_B5_1_8V
GPIO3_C4_1_8V
SPI1_MOSI_M1_1_8V
SPI1_MISO_M1_1_8V
SPI1_CLK_M1_1_8V
I2C3_SDA
GPIO1_A4_1_8V
GPIO1_B1_1_8V
GPIO1_B2_1_8V
GPIO4_A7
GPIO4_A2
UART0_TX_M2
UART0_RX_M2
GPIO0_D0_1_8V
GPIO3_B0_1_8V
GPIO3_B1_1_8V
GPIO3_C5_1_8V
GPIO0_D3_1_8V
SPI1_CS1_M1_1_8V
I2C3_SCL
GPIO4_A6
GPIO4_B5
GPIO4_B4
GPIO4_B3
R9325
10K
5%
R0201
Q9307
2SK3018
SOT_323
R9324
2.2K
5%
R0201
I2C3_SCL_M0
I2C3_SCL
R9326
R9328
10K
5%
R0201
Q9308
2SK3018
SOT_323
R9327
2.2K
5%
R0201
I2C3_SDA_M0
I2C3_SDA
R9329

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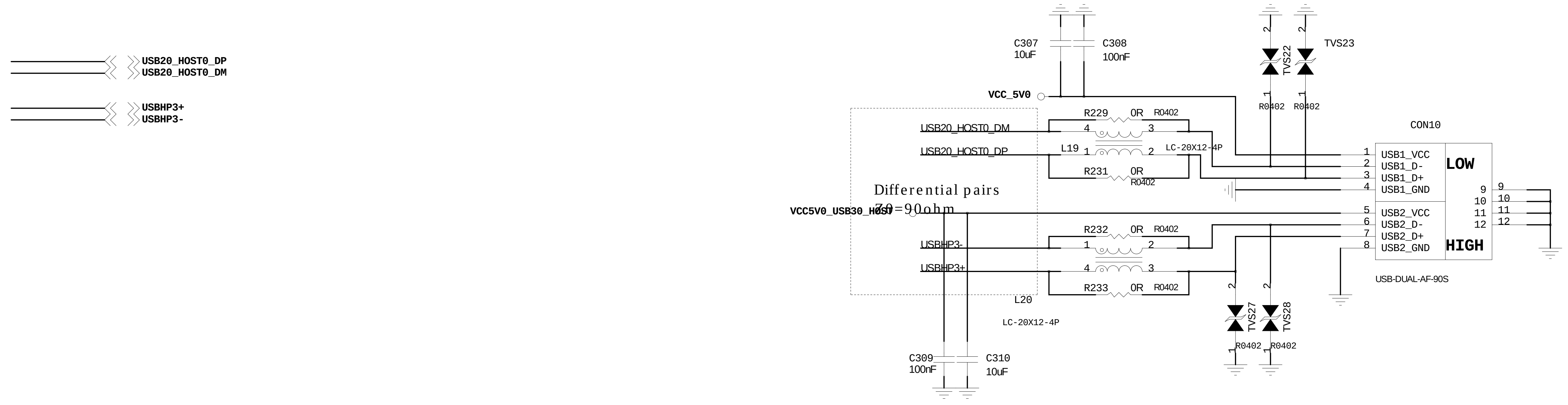
A

5 4 3 2 1

SOD_323

SOT_323

USB2.0 HOST



USB20_HOST0_DP
USB20_HOST0_DM
USBHP3+
USBHP3-
C307
10uF
C308
100nF
TVS22
TVS23
R0402
R0402
VCC_5V0
R229
0R
R0402
USB20_HOST0_DM
4
3
USB20_HOST0_DP
L19
1
2
LC-20X12-4P
R231
0R
R0402
Differential pairs
Z0=90ohm
VCC5V0_USB30_HOST
R232
0R
R0402
USBHP3-
1
2
USBHP3+
4
3
R233
0R
R0402
L20
LC-20X12-4P
C309
100nF
C310
10uF
TVS27
TVS28
R0402
R0402
CON10
1 USB1_VCC
2 USB1_D-
3 USB1_D+
4 USB1_GND
LOW
5 USB2_VCC
6 USB2_D-
7 USB2_D+
8 USB2_GND
HIGH
9
10
11
12
USB-DUAL-AF-90S

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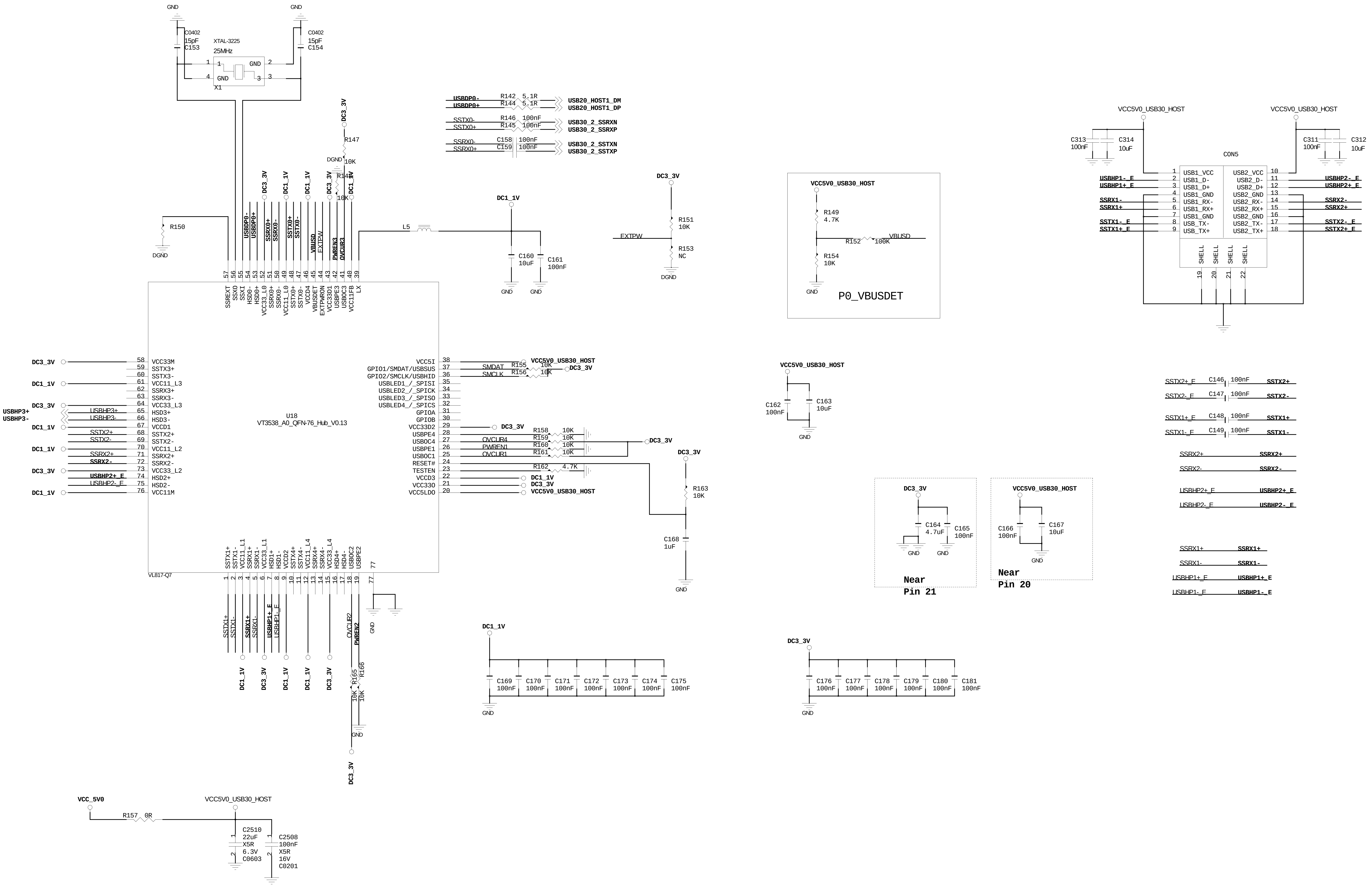
USB3.0 HOST



U18
VT3538_A0_QFN-76_Hub_V0.13
VL817-Q7
X1
XTAL-3225
25MHz
C153 C0402 15pF
C154 C0402 15pF
GND
DGND
R150
R147 10K
R148 10K
DC3_3V
DC1_1V
VCC5V0_USB30_HOST
L5
C160 10uF
C161 100nF
EXTPW
R151 10K
R153 NC
R149 4.7K
R152 100K
R154 10K
VBUSD
P0_VBUSDET
USBDP0- R142 5.1R USB20_HOST1_DM
USBDP0+ R144 5.1R USB20_HOST1_DP
SSTX0- R146 100nF USB30_2_SSRXN
SSTX0+ R145 100nF USB30_2_SSRXP
SSRX0- C158 100nF USB30_2_SSTXN
SSRX0+ C159 100nF USB30_2_SSTXP
CON5
USB1_VCC USB1_D- USB1_D+ USB1_GND USB1_RX- USB1_RX+ USB1_GND USB_TX- USB_TX+
USB2_VCC USB2_D- USB2_D+ USB2_GND USB2_RX- USB2_RX+ USB2_GND USB2_TX- USB2_TX+
SHELL
C313 100nF
C314 10uF
C311 100nF
C312 10uF
USBHP1-_E USBHP1+_E SSRX1- SSRX1+ SSTX1-_E SSTX1+_E
USBHP2-_E USBHP2+_E SSRX2- SSRX2+ SSTX2-_E SSTX2+_E
SMDAT R155 10K
SMCLK R156 10K
R158 10K
OVCUR4 R159 10K
PWREN1 R160 10K
OVCUR1 R161 10K
R162 4.7K
R163 10K
C168 1uF
C162 100nF
C163 10uF
SSTX2+_E C146 100nF SSTX2+
SSTX2-_E C147 100nF SSTX2-
SSTX1+_E C148 100nF SSTX1+
SSTX1-_E C149 100nF SSTX1-
SSRX2+ SSRX2+
SSRX2- SSRX2-
USBHP2+_E USBHP2+_E
USBHP2-_E USBHP2-_E
SSRX1+ SSRX1+
SSRX1- SSRX1-
USBHP1+_E USBHP1+_E
USBHP1-_E USBHP1-_E
C164 4.7uF
C165 100nF
Near Pin 21
C166 100nF
C167 10uF
Near Pin 20
USBHP3+
USBHP3-
SSTX2+ SSTX2- SSRX2+ SSRX2-
USBHP2+_E USBHP2-_E
SSTX1+ SSTX1- SSRX1+ SSRX1- USBHP1+_E USBHP1-_E
OVCUR2 PWREN2
R165 10K
R166 10K
C169 C170 C171 C172 C173 C174 C175 100nF
C176 C177 C178 C179 C180 C181 100nF
VCC_5V0
R157 0R
C2510 22uF X5R 6.3V C0603
C2508 100nF X5R 16V C0201

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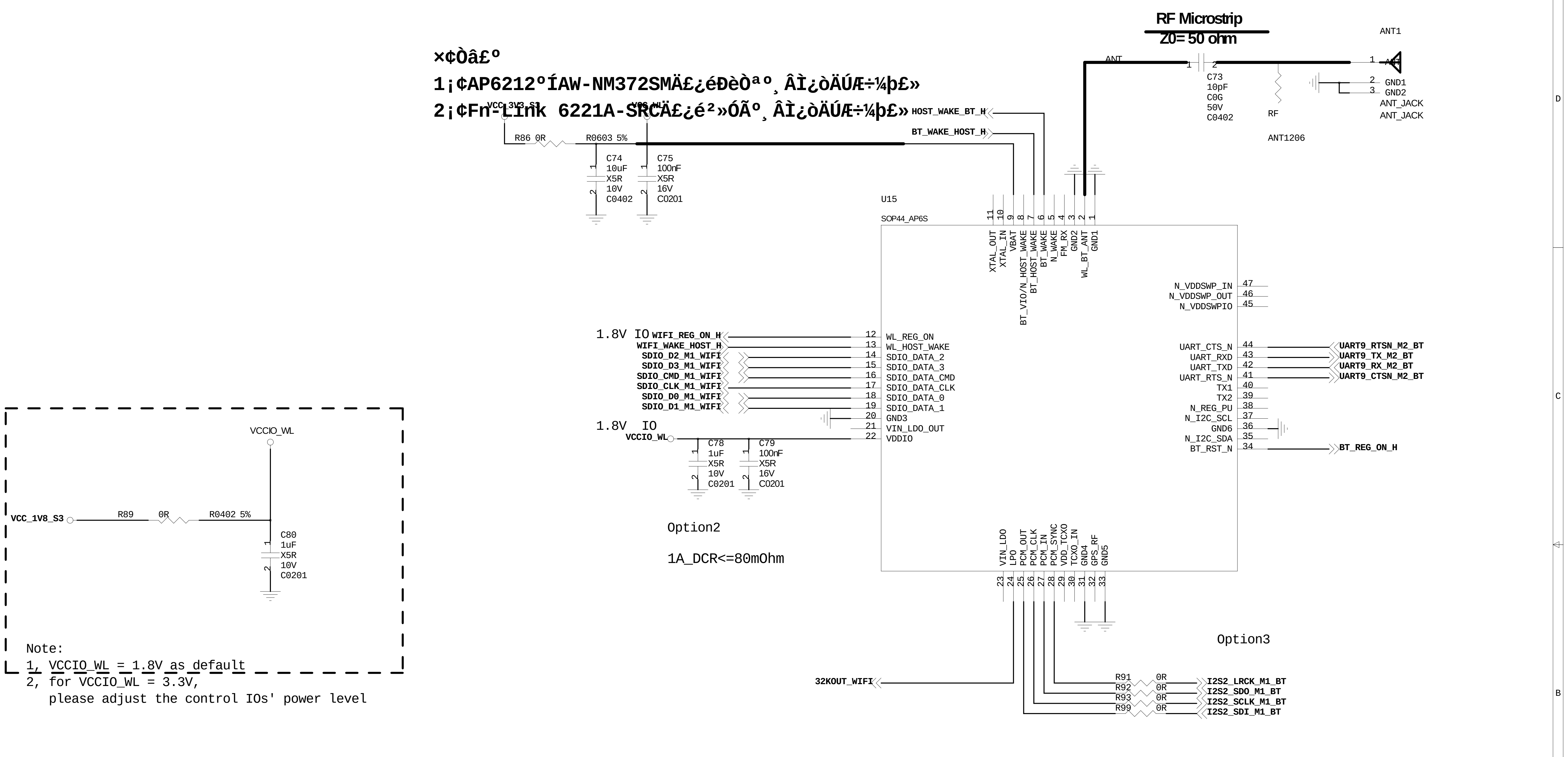
SDIO WIFI/BT Module-1T1R


×¢Òâ£º
1¡¢AP6212ºÍAW-NM372SMÄ£¿éÐèÒªº¸ÂÌ¿òÄÚÆ÷¼þ£»
2¡¢Fn-Link 6221A-SRCÄ£¿é²»ÓÃº¸ÂÌ¿òÄÚÆ÷¼þ£»
RF Microstrip
Z0= 50 ohm
ANT
ANT1
C73
10pF
C0G
50V
C0402
RF
ANT1206
GND1
GND2
ANT_JACK
ANT_JACK
VCC_3V3_S3
VCC_WL
R86 0R
R0603 5%
C74
10uF
X5R
10V
C0402
C75
100nF
X5R
16V
C0201
HOST_WAKE_BT_H
BT_WAKE_HOST_H
U15
SOP44_AP6S
XTAL_OUT
XTAL_IN
VBAT
BT_VIO/N_HOST_WAKE
BT_HOST_WAKE
BT_WAKE
N_WAKE
FM_RX
GND2
WL_BT_ANT
GND1
1.8V IO
WIFI_REG_ON_H
WIFI_WAKE_HOST_H
SDIO_D2_M1_WIFI
SDIO_D3_M1_WIFI
SDIO_CMD_M1_WIFI
SDIO_CLK_M1_WIFI
SDIO_D0_M1_WIFI
SDIO_D1_M1_WIFI
WL_REG_ON
WL_HOST_WAKE
SDIO_DATA_2
SDIO_DATA_3
SDIO_DATA_CMD
SDIO_DATA_CLK
SDIO_DATA_0
SDIO_DATA_1
GND3
VIN_LDO_OUT
VDDIO
1.8V IO
VCCIO_WL
C78
1uF
X5R
10V
C0201
C79
100nF
X5R
16V
C0201
Option2
1A_DCR<=80mOhm
N_VDDSWP_IN
N_VDDSWP_OUT
N_VDDSWPIO
UART_CTS_N
UART_RXD
UART_TXD
UART_RTS_N
TX1
TX2
N_REG_PU
N_I2C_SCL
GND6
N_I2C_SDA
BT_RST_N
UART9_RTSN_M2_BT
UART9_TX_M2_BT
UART9_RX_M2_BT
UART9_CTSN_M2_BT
BT_REG_ON_H
VIN_LDO
LPO
PCM_OUT
PCM_CLK
PCM_IN
PCM_SYNC
VDD_TCXO
TCXO_IN
GND4
GPS_RF
GND5
Option3
32KOUT_WIFI
R91 0R
R92 0R
R93 0R
R99 0R
I2S2_LRCK_M1_BT
I2S2_SDO_M1_BT
I2S2_SCLK_M1_BT
I2S2_SDI_M1_BT
VCCIO_WL
VCC_1V8_S3
R89 0R
R0402 5%
C80
1uF
X5R
10V
C0201
5
4
3
2
1
D
C
B
A

Note:
1, VCCIO_WL = 1.8V as default
2, for VCCIO_WL = 3.3V,
please adjust the control IOs' power level

SOP44_AP6S

Note:
Yes: option circuit be mounted
No: option circuit not be mounted

OPTION	WIFI				BT	Crystals	VCCIO_SDIO	OPTION1	OPTION2	OPTION3	OPTION4
	a	b/g/n	ac	5GHz							
AW-CM256SM	Yes	Yes	Yes	Yes	4.2	37.4MHz	1.71-3.6V	Yes	Yes	Yes@SDIO2.0 No@SDIO3.0	No
AP6236/AP6212	No	Yes	No	No	4.2/4.0	26MHz	1.71-3.6V	Yes	Yes	No	No
AP6256/AP6255	Yes	Yes	Yes	Yes	5.0/4.2	37.4MHz	1.71-3.6V	Yes	Yes	Yes@SDIO2.0 No@SDIO3.0	No
RTL8189ETV Module F89FTSM12-W3	No	Yes	No	No	No	Module Integrated	1.8-3.3V	No	No	No	No
RTL8723DS Module 6223A-SRD	No	Yes	No	No	4.2	Module Integrated	1.62-3.6V	No	No	No	Yes
RTL8821CS Module 6221A-SRC	Yes	Yes	Yes	Yes	4.2	Module Integrated	1.7-3.45V	No	No	No	No

ANT_JACK

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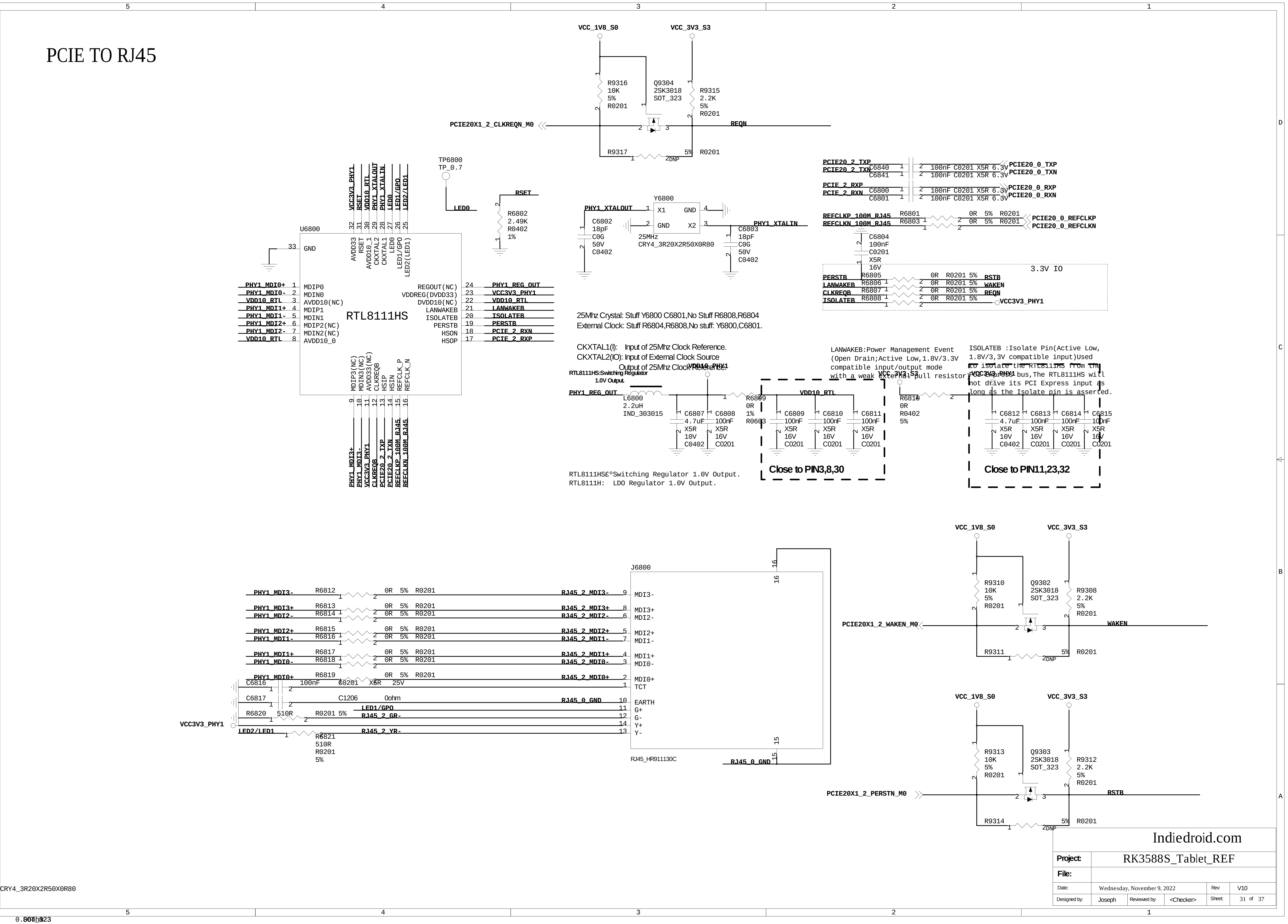
PCIE TO RJ45



5
4
3
2
1
D
C
B
A
VCC_1V8_S0
VCC_3V3_S3
R9316 10K 5% R0201
Q9304 2SK3018 SOT_323
R9315 2.2K 5% R0201
PCIE20X1_2_CLKREQN_M0
REQN
R9317 5% R0201 DNP
TP6800 TP_0.7
LED0
RSET
R6802 2.49K R0402 1%
U6800
RTL8111HS
GND
33
VCC3V3_PHY1
RSET
VDD10_RTL
PHY1_XTALOUT
PHY1_XTALIN
LED0
LED1/GPO
LED2/LED1
AVDD33
AVDD10_1
CKXTAL2
CKXTAL1
LED2(LED1)
PHY1_MDI0+
PHY1_MDI0-
VDD10_RTL
PHY1_MDI1+
PHY1_MDI1-
PHY1_MDI2+
PHY1_MDI2-
VDD10_RTL
MDIP0
MDIN0
AVDD10(NC)
MDIP1
MDIN1
MDIP2(NC)
MDIN2(NC)
AVDD10_0
REGOUT(NC)
VDDREG(DVDD33)
DVDD10(NC)
LANWAKEB
ISOLATEB
PERSTB
HSON
HSOP
PHY1_REG_OUT
VCC3V3_PHY1
VDD10_RTL
LANWAKEB
ISOLATEB
PERSTB
PCIE_2_RXN
PCIE_2_RXP
MDIP3(NC)
MDIN3(NC)
AVDD33(NC)
CLKREQB
HSIP
HSIN
REFCLK_P
REFCLK_N
PHY1_MDI3+
PHY1_MDI3-
VCC3V3_PHY1
CLKREQB
PCIE20_2_TXP
PCIE20_2_TXN
REFCLKP_100M_RJ45
REFCLKN_100M_RJ45
Y6800
X1
GND
X2
PHY1_XTALOUT
PHY1_XTALIN
C6802 18pF C0G 50V C0402
25MHz CRY4_3R20X2R50X0R80
C6803 18pF C0G 50V C0402
PCIE20_2_TXP
PCIE20_2_TXN
C6840
C6841
100nF C0201 X5R 6.3V
PCIE20_0_TXP
PCIE20_0_TXN
PCIE_2_RXP
PCIE_2_RXN
C6800
C6801
PCIE20_0_RXP
PCIE20_0_RXN
REFCLKP_100M_RJ45
REFCLKN_100M_RJ45
R6801
R6803
0R 5% R0201
PCIE20_0_REFCLKP
PCIE20_0_REFCLKN
C6804 100nF C0201 X5R 16V
3.3V IO
PERSTB
LANWAKEB
CLKREQB
ISOLATEB
R6805
R6806
R6807
R6808
0R R0201 5%
RSTB
WAKEN
REQN
VCC3V3_PHY1
VDD10_PHY1
PHY1_REG_OUT
L6800 2.2uH IND_303015
C6807 4.7uF X5R 10V C0402
C6808 100nF X5R 16V C0201
R6809 0R 1% R0603
VDD10_RTL
C6809 100nF X5R 16V C0201
C6810 100nF X5R 16V C0201
C6811 100nF X5R 16V C0201
VCC_3V3_S3
VCC3V3_PHY1
R6810 0R R0402 5%
C6812 4.7uF X5R 10V C0402
C6813 100nF X5R 16V C0201
C6814 100nF X5R 16V C0201
C6815 100nF X5R 16V C0201
J6800
PHY1_MDI3-
PHY1_MDI3+
PHY1_MDI2-
PHY1_MDI2+
PHY1_MDI1-
PHY1_MDI1+
PHY1_MDI0-
PHY1_MDI0+
R6812
R6813
R6814
R6815
R6816
R6817
R6818
R6819
0R 5% R0201
RJ45_2_MDI3-
RJ45_2_MDI3+
RJ45_2_MDI2-
RJ45_2_MDI2+
RJ45_2_MDI1-
RJ45_2_MDI1+
RJ45_2_MDI0-
RJ45_2_MDI0+
C6816 100nF C0201 X5R 25V
C6817
C1206 0ohm
RJ45_0_GND
R6820 510R R0201 5%
LED1/GPO
RJ45_2_GR-
VCC3V3_PHY1
LED2/LED1
RJ45_2_YR-
R6821 510R R0201 5%
MDI3-
MDI3+
MDI2-
MDI2+
MDI1-
MDI1+
MDI0-
MDI0+
TCT
EARTH
G+
G-
Y+
Y-
RJ45_HR911130C
RJ45_0_GND
VCC_1V8_S0
VCC_3V3_S3
R9310 10K 5% R0201
Q9302 2SK3018 SOT_323
R9308 2.2K 5% R0201
PCIE20X1_2_WAKEN_M0
WAKEN
R9311 5% R0201 DNP
VCC_1V8_S0
VCC_3V3_S3
R9313 10K 5% R0201
Q9303 2SK3018 SOT_323
R9312 2.2K 5% R0201
PCIE20X1_2_PERSTN_M0
RSTB
R9314 5% R0201 DNP
CRY4_3R20X2R50X0R80

25Mhz Crystal: Stuff Y6800 C6801,No Stuff R6808,R6804
External Clock: Stuff R6804,R6808,No stuff: Y6800,C6801.

CKXTAL1(I): Input of 25Mhz Clock Reference.
CKXTAL2(IO): Input of External Clock Source
Output of 25Mhz Clock Reference.

RTL8111HS:Switching Regulator
1.0V Output.

RTL8111HSE°Switching Regulator 1.0V Output.
RTL8111H: LDO Regulator 1.0V Output.

LANWAKEB:Power Management Event
(Open Drain;Active Low,1.8V/3.3V
compatible input/output mode
with a weak external pull resistor)

ISOLATEB :Isolate Pin(Active Low,
1.8V/3,3V compatible input)Used
to isolate the RTL8111HS from the
PCI Express bus,The RTL8111HS will
not drive its PCI Express input as
long as the Isolate pin is asserted.

Close to PIN3,8,30

Close to PIN11,23,32

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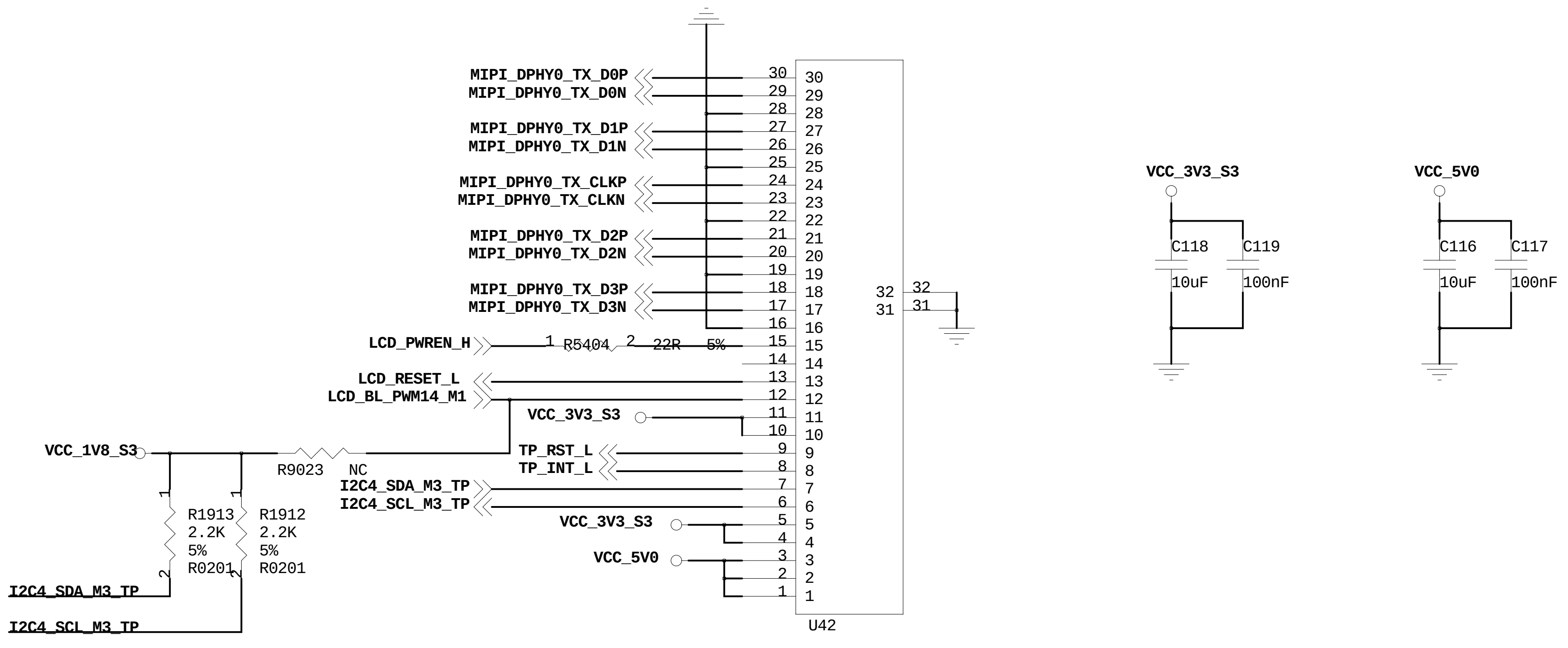
Single-MIPI LCM(MIPI DPHY0 TX)


MIPI_DPHY0_TX_D0P
MIPI_DPHY0_TX_D0N
MIPI_DPHY0_TX_D1P
MIPI_DPHY0_TX_D1N
MIPI_DPHY0_TX_CLKP
MIPI_DPHY0_TX_CLKN
MIPI_DPHY0_TX_D2P
MIPI_DPHY0_TX_D2N
MIPI_DPHY0_TX_D3P
MIPI_DPHY0_TX_D3N
LCD_PWREN_H
1 R5404 2 22R 5%
LCD_RESET_L
LCD_BL_PWM14_M1
VCC_3V3_S3
VCC_1V8_S3
R9023 NC
TP_RST_L
TP_INT_L
I2C4_SDA_M3_TP
I2C4_SCL_M3_TP
VCC_3V3_S3
VCC_5V0
R1913
2.2K
5%
R0201
R1912
2.2K
5%
R0201
I2C4_SDA_M3_TP
I2C4_SCL_M3_TP
U42
30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
32
31
VCC_3V3_S3
C118
10uF
C119
100nF
VCC_5V0
C116
10uF
C117
100nF

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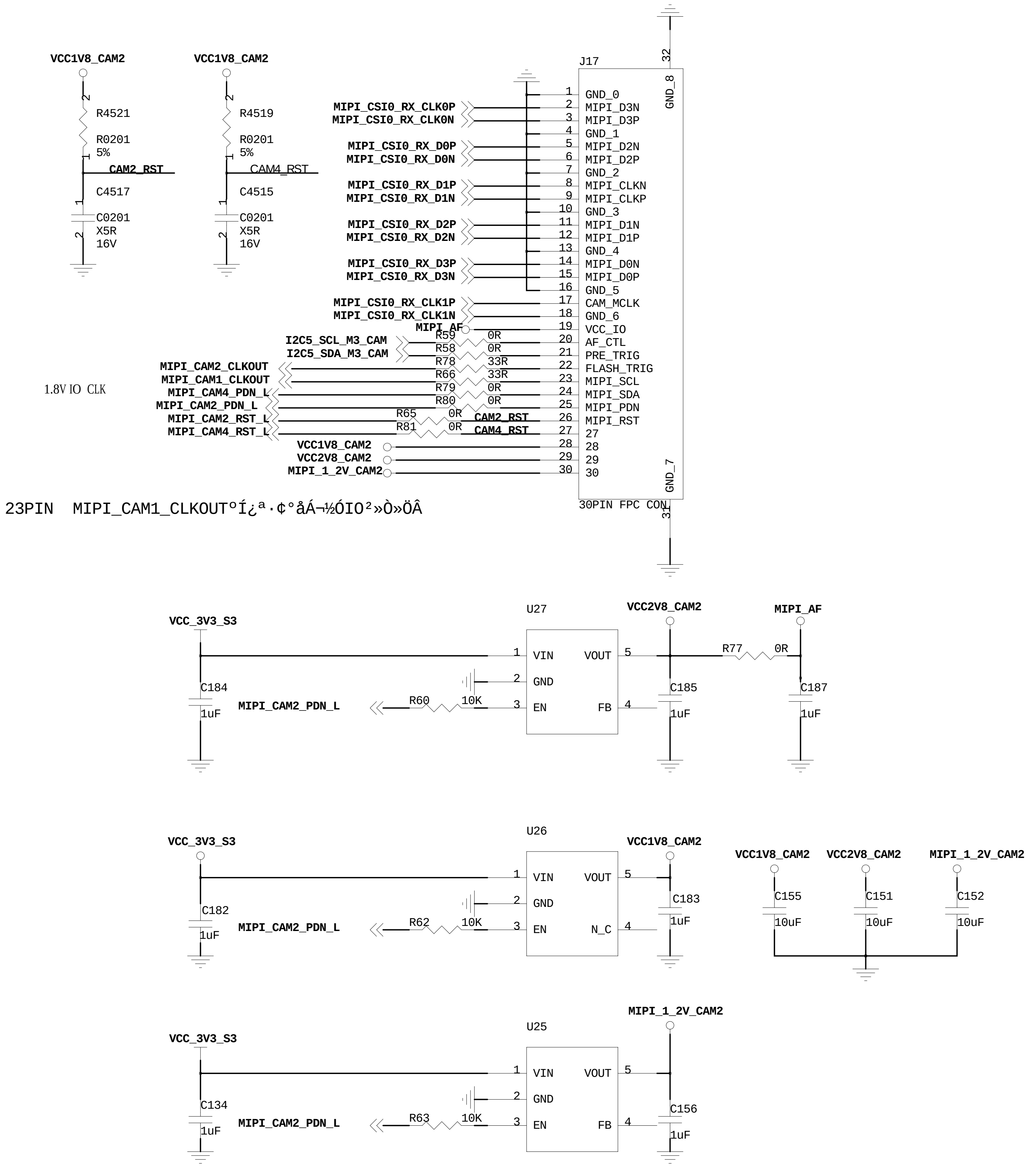
MIPI-DPHY0_RX

Rear Camera

Note:
Adjust the power on sequence according to the camera model
eg:GC8034
Power on Sequence
1.8V-->1.2V-->2.8V--->MCLK-->PWDN--->RST


VCC1V8_CAM2
R4521
R0201
5%
CAM2_RST
C4517
C0201
X5R
16V
VCC1V8_CAM2
R4519
R0201
5%
CAM4_RST
C4515
C0201
X5R
16V
J17
MIPI_CSI0_RX_CLK0P
MIPI_CSI0_RX_CLK0N
MIPI_CSI0_RX_D0P
MIPI_CSI0_RX_D0N
MIPI_CSI0_RX_D1P
MIPI_CSI0_RX_D1N
MIPI_CSI0_RX_D2P
MIPI_CSI0_RX_D2N
MIPI_CSI0_RX_D3P
MIPI_CSI0_RX_D3N
MIPI_CSI0_RX_CLK1P
MIPI_CSI0_RX_CLK1N
MIPI_AF
I2C5_SCL_M3_CAM
I2C5_SDA_M3_CAM
MIPI_CAM2_CLKOUT
MIPI_CAM1_CLKOUT
MIPI_CAM4_PDN_L
MIPI_CAM2_PDN_L
MIPI_CAM2_RST_L
MIPI_CAM4_RST_L
VCC1V8_CAM2
VCC2V8_CAM2
MIPI_1_2V_CAM2
1.8V IO CLK
R59 0R
R58 0R
R78 33R
R66 33R
R79 0R
R80 0R
R65 0R CAM2_RST
R81 0R CAM4_RST
GND_0
MIPI_D3N
MIPI_D3P
GND_1
MIPI_D2N
MIPI_D2P
GND_2
MIPI_CLKN
MIPI_CLKP
GND_3
MIPI_D1N
MIPI_D1P
GND_4
MIPI_D0N
MIPI_D0P
GND_5
CAM_MCLK
GND_6
VCC_IO
AF_CTL
PRE_TRIG
FLASH_TRIG
MIPI_SCL
MIPI_SDA
MIPI_PDN
MIPI_RST
27
28
29
30
GND_8
GND_7
30PIN FPC CON
U27
VCC_3V3_S3
C184 1uF
MIPI_CAM2_PDN_L
R60 10K
VIN
GND
EN
VOUT
FB
VCC2V8_CAM2
C185 1uF
R77 0R
MIPI_AF
C187 1uF
U26
VCC_3V3_S3
C182 1uF
MIPI_CAM2_PDN_L
R62 10K
VIN
GND
EN
VOUT
N_C
VCC1V8_CAM2
C183 1uF
VCC1V8_CAM2
C155 10uF
VCC2V8_CAM2
C151 10uF
MIPI_1_2V_CAM2
C152 10uF
U25
VCC_3V3_S3
C134 1uF
MIPI_CAM2_PDN_L
R63 10K
VIN
GND
EN
VOUT
FB
MIPI_1_2V_CAM2
C156 1uF

23PIN MIPI_CAM1_CLKOUTºÍ¿ª·¢°åÁ¬½ÓIO²»Ò»ÖÂ

Note:

According to camera model,
DCDC power supply is
recommended
if the DVDD current
Below 100mA

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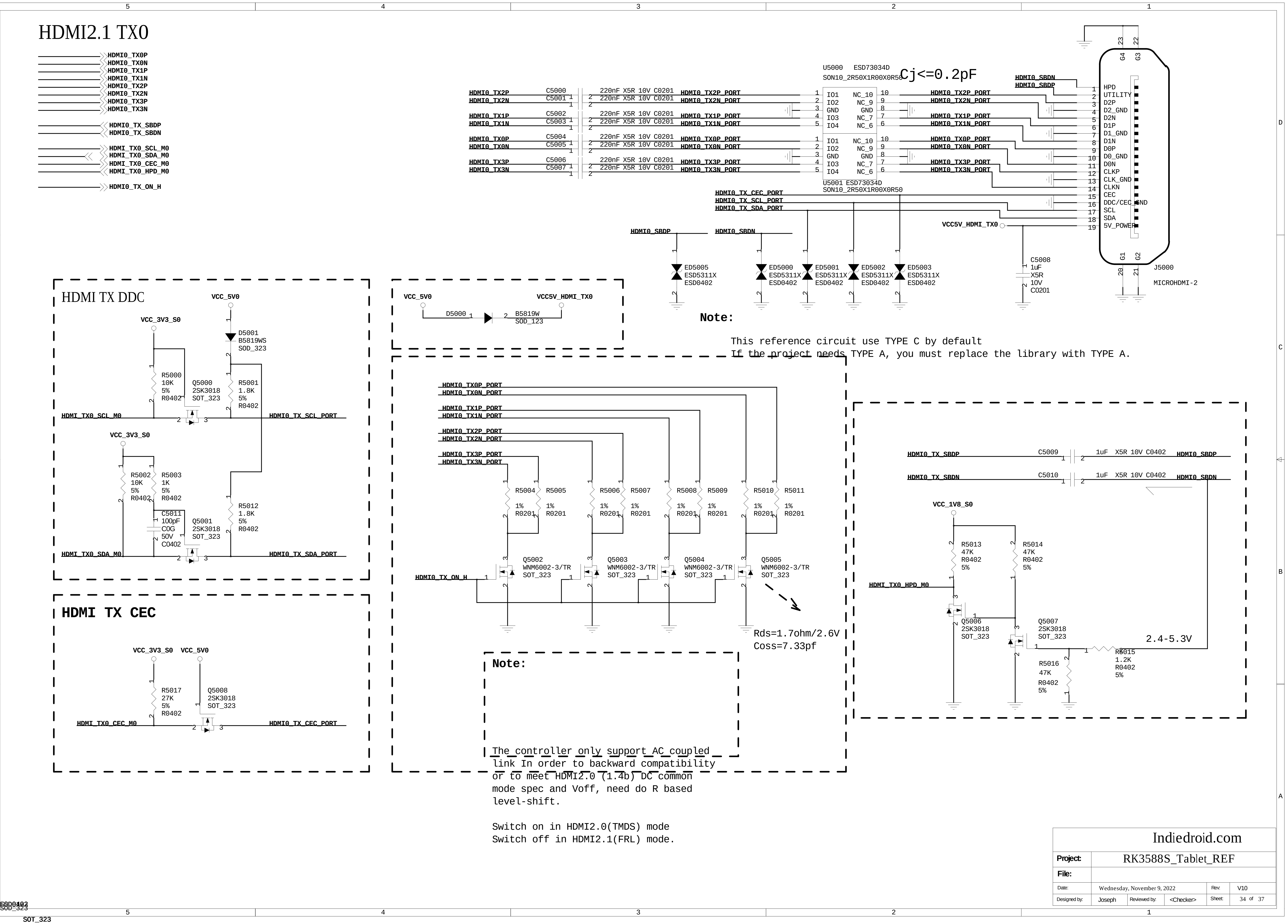
HDMI2.1 TX0


HDMI0_TX0P
HDMI0_TX0N
HDMI0_TX1P
HDMI0_TX1N
HDMI0_TX2P
HDMI0_TX2N
HDMI0_TX3P
HDMI0_TX3N
HDMI0_TX_SBDP
HDMI0_TX_SBDN
HDMI_TX0_SCL_M0
HDMI_TX0_SDA_M0
HDMI_TX0_CEC_M0
HDMI_TX0_HPD_M0
HDMI0_TX_ON_H
C5000 ... C5007 220nF X5R 10V C0201
HDMI0_TX2P_PORT
HDMI0_TX2N_PORT
HDMI0_TX1P_PORT
HDMI0_TX1N_PORT
HDMI0_TX0P_PORT
HDMI0_TX0N_PORT
HDMI0_TX3P_PORT
HDMI0_TX3N_PORT
U5000 ESD73034D
SON10_2R50X1R00X0R50
U5001 ESD73034D
SON10_2R50X1R00X0R50
IO1 IO2 GND IO3 IO4 NC_10 NC_9 GND NC_7 NC_6
Cj<=0.2pF
HDMI0_SBDN
HDMI0_SBDP
HPD
UTILITY
D2P
D2_GND
D2N
D1P
D1_GND
D1N
D0P
D0_GND
D0N
CLKP
CLK_GND
CLKN
CEC
DDC/CEC_GND
SCL
SDA
5V_POWER
G4 G3 G1 G2
J5000
MICROHDMI-2
HDMI0_TX_CEC_PORT
HDMI0_TX_SCL_PORT
HDMI0_TX_SDA_PORT
VCC5V_HDMI_TX0
C5008 1uF X5R 10V C0201
ED5005 ESD5311X ESD0402
ED5000 ESD5311X ESD0402
ED5001 ESD5311X ESD0402
ED5002 ESD5311X ESD0402
ED5003 ESD5311X ESD0402
HDMI TX DDC
VCC_5V0
VCC_3V3_S0
D5001 B5819WS SOD_323
R5000 10K 5% R0402
Q5000 2SK3018 SOT_323
R5001 1.8K 5% R0402
HDMI0_TX_SCL_PORT
R5002 10K 5% R0402
R5003 1K 5% R0402
C5011 100pF COG 50V C0402
Q5001 2SK3018 SOT_323
R5012 1.8K 5% R0402
HDMI0_TX_SDA_PORT
HDMI TX CEC
VCC_3V3_S0 VCC_5V0
R5017 27K 5% R0402
Q5008 2SK3018 SOT_323
HDMI_TX0_CEC_M0
HDMI0_TX_CEC_PORT
VCC_5V0
VCC5V_HDMI_TX0
D5000
B5819W SOD_123
R5004 R5005 R5006 R5007 R5008 R5009 R5010 R5011
1% R0201
Q5002 WNM6002-3/TR SOT_323
Q5003 WNM6002-3/TR SOT_323
Q5004 WNM6002-3/TR SOT_323
Q5005 WNM6002-3/TR SOT_323
Rds=1.7ohm/2.6V
Coss=7.33pf
HDMI0_TX_SBDP
HDMI0_TX_SBDN
C5009 1uF X5R 10V C0402
C5010 1uF X5R 10V C0402
HDMI0_SBDP
HDMI0_SBDN
VCC_1V8_S0
R5013 47K R0402 5%
R5014 47K R0402 5%
HDMI_TX0_HPD_M0
Q5006 2SK3018 SOT_323
Q5007 2SK3018 SOT_323
R5015 1.2K R0402 5%
R5016 47K R0402 5%
2.4-5.3V
5 4 3 2 1
D C B A
ESD0402
SOD_323
SOT_323

Note:

This reference circuit use TYPE C by default
If the project needs TYPE A, you must replace the library with TYPE A.

Note:

The controller only support AC coupled link In order to backward compatibility or to meet HDMI2.0 (1.4b) DC common mode spec and Voff, need do R based level-shift.

Switch on in HDMI2.0(TMDS) mode
Switch off in HDMI2.1(FRL) mode.

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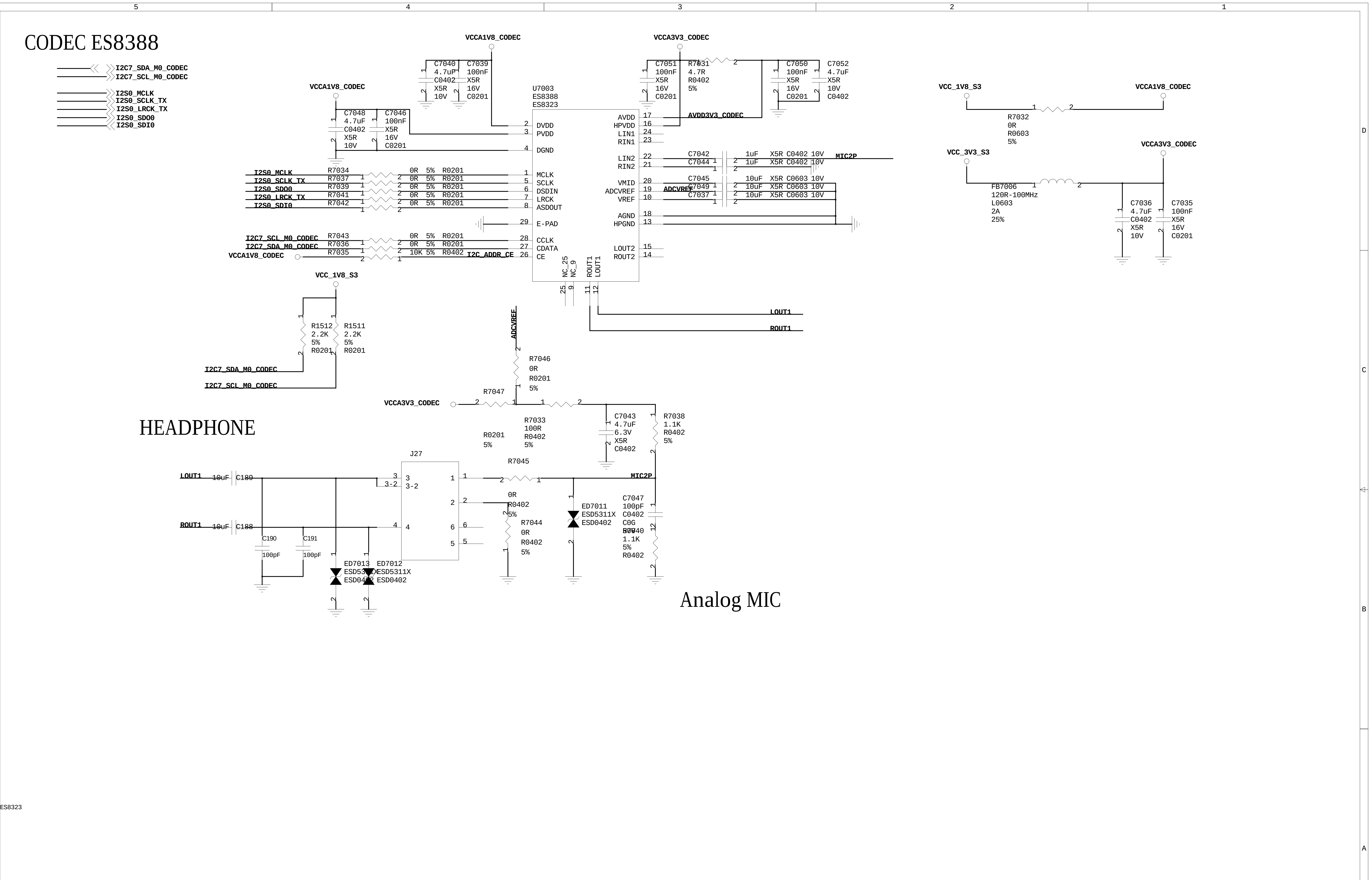
5
4
3
2
1
D
C
B
A
CODEC ES8388
I2C7_SDA_M0_CODEC
I2C7_SCL_M0_CODEC
I2S0_MCLK
I2S0_SCLK_TX
I2S0_LRCK_TX
I2S0_SDO0
I2S0_SDI0
VCCA1V8_CODEC
C7040 4.7uF C0402 X5R 10V
C7039 100nF X5R 16V C0201
C7048 4.7uF C0402 X5R 10V
C7046 100nF X5R 16V C0201
U7003
ES8388
ES8323
DVDD
PVDD
DGND
MCLK
SCLK
DSDIN
LRCK
ASDOUT
E-PAD
CCLK
CDATA
CE
NC_25
NC_9
ROUT1
LOUT1
AVDD
HPVDD
LIN1
RIN1
LIN2
RIN2
VMID
ADCVREF
VREF
AGND
HPGND
LOUT2
ROUT2
R7034 0R 5% R0201
R7037 0R 5% R0201
R7039 0R 5% R0201
R7041 0R 5% R0201
R7042 0R 5% R0201
R7043 0R 5% R0201
R7036 0R 5% R0201
R7035 10K 5% R0402
I2C_ADDR_CE
VCCA3V3_CODEC
C7051 100nF X5R 16V C0201
R7031 4.7R R0402 5%
C7050 100nF X5R 16V C0201
C7052 4.7uF X5R 10V C0402
AVDD3V3_CODEC
C7042 1uF X5R C0402 10V
C7044 1uF X5R C0402 10V
MIC2P
C7045 10uF X5R C0603 10V
C7049 10uF X5R C0603 10V
C7037 10uF X5R C0603 10V
ADCVREF
LOUT1
ROUT1
VCC_1V8_S3
R1512 2.2K 5% R0201
R1511 2.2K 5% R0201
VCC_1V8_S3
R7032 0R R0603 5%
VCC_3V3_S3
FB7006 120R-100MHz L0603 2A 25%
C7036 4.7uF C0402 X5R 10V
C7035 100nF X5R 16V C0201
HEADPHONE
R7046 0R R0201 5%
R7047 R0201 5%
R7033 100R R0402 5%
C7043 4.7uF 6.3V X5R C0402
R7038 1.1K R0402 5%
J27
3-2
C189 10uF
C188 10uF
C190 100pF
C191 100pF
ED7013 ESD5311X ESD0402
ED7012 ESD5311X ESD0402
R7045
R7044 0R R0402 5%
ED7011 ESD5311X ESD0402
C7047 100pF C0402 C0G 50V
R7040 1.1K 5% R0402
Analog MIC
ES8323

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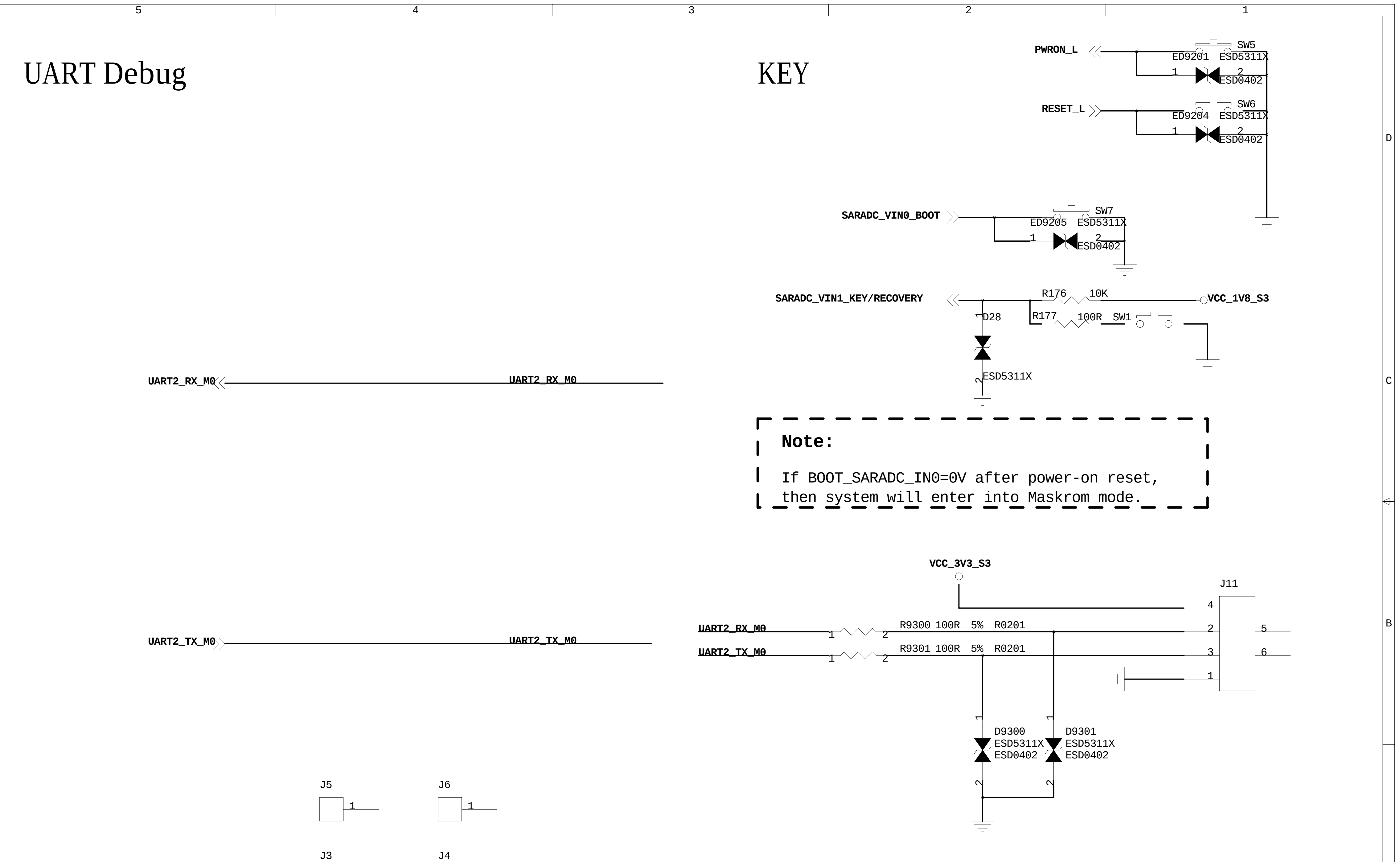
ESD0402

UART Debug

KEY


PWRON_L
SW5
ED9201
ESD5311X
ESD0402
RESET_L
SW6
ED9204
ESD5311X
ESD0402
SARADC_VIN0_BOOT
SW7
ED9205
ESD5311X
ESD0402
SARADC_VIN1_KEY/RECOVERY
R176
10K
VCC_1V8_S3
D28
R177
100R
SW1
ESD5311X
UART2_RX_M0
UART2_RX_M0
UART2_TX_M0
UART2_TX_M0
VCC_3V3_S3
J11
UART2_RX_M0
R9300 100R 5% R0201
UART2_TX_M0
R9301 100R 5% R0201
D9300
ESD5311X
ESD0402
D9301
ESD5311X
ESD0402
J5
J6
J3
J4
ESD0402

Note:

If BOOT_SARADC_IN0=0V after power-on reset, then system will enter into Maskrom mode.

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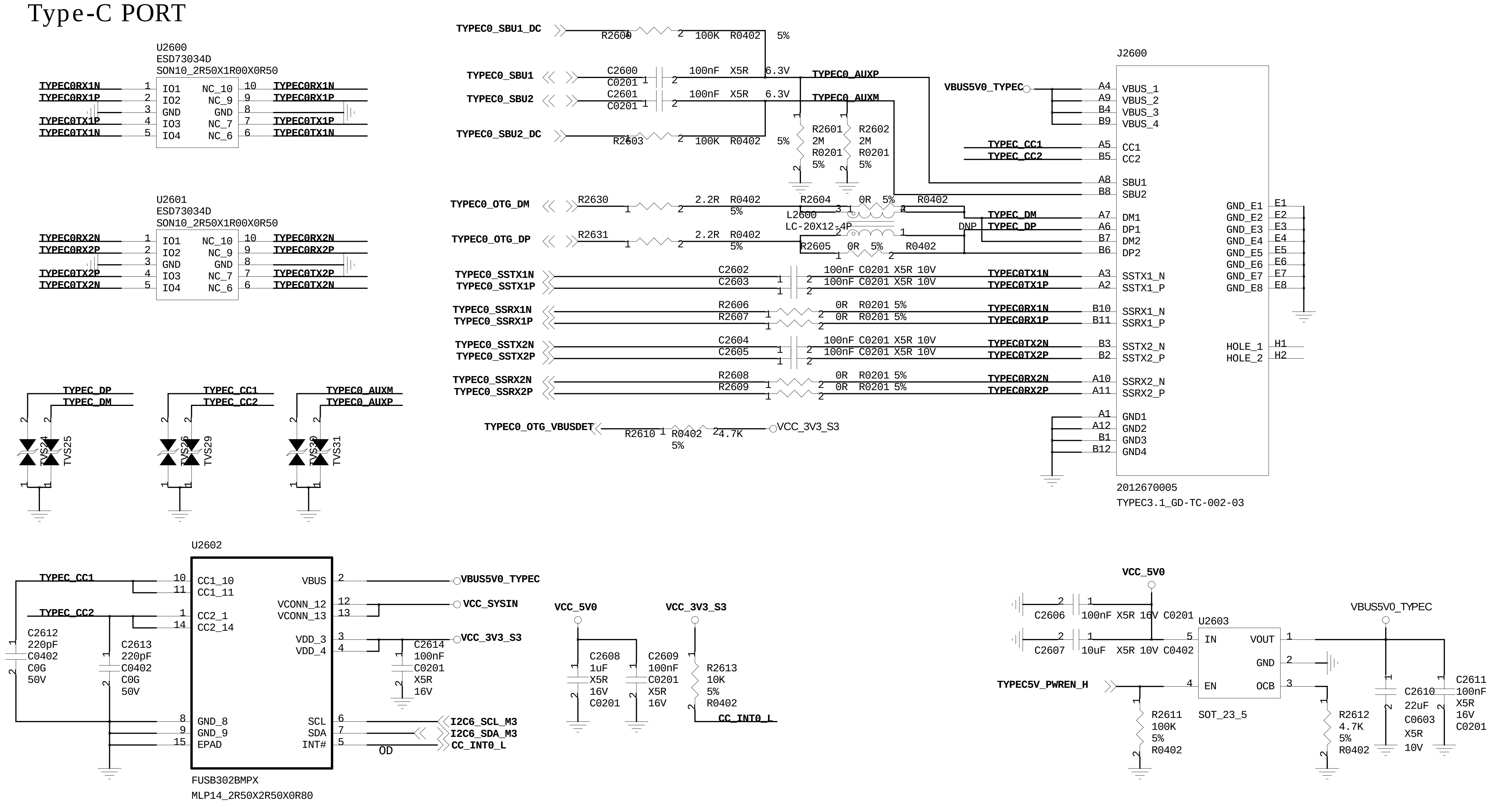
Type-C PORT


U2600
ESD73034D
SON10_2R50X1R00X0R50
TYPEC0RX1N
TYPEC0RX1P
TYPEC0TX1P
TYPEC0TX1N
IO1
IO2
GND
IO3
IO4
NC_10
NC_9
GND
NC_7
NC_6
U2601
ESD73034D
SON10_2R50X1R00X0R50
TYPEC0RX2N
TYPEC0RX2P
TYPEC0TX2P
TYPEC0TX2N
TYPEC_DP
TYPEC_DM
TYPEC_CC1
TYPEC_CC2
TYPEC0_AUXM
TYPEC0_AUXP
TVS25
TVS29
TVS31
TYPEC0_SBU1_DC
R2600 100K R0402 5%
TYPEC0_SBU1
C2600 C0201 100nF X5R 6.3V
TYPEC0_SBU2
C2601 C0201 100nF X5R 6.3V
TYPEC0_SBU2_DC
R2603 100K R0402 5%
TYPEC0_AUXP
TYPEC0_AUXM
R2601 2M R0201 5%
R2602 2M R0201 5%
TYPEC0_OTG_DM
R2630 2.2R R0402 5%
TYPEC0_OTG_DP
R2631 2.2R R0402 5%
R2604 0R 5% R0402
L2600 LC-20X12-4P
R2605 0R 5% R0402
DNP
TYPEC_DM
TYPEC_DP
TYPEC0_SSTX1N
TYPEC0_SSTX1P
C2602
C2603
100nF C0201 X5R 10V
TYPEC0_SSRX1N
TYPEC0_SSRX1P
R2606
R2607
0R R0201 5%
TYPEC0_SSTX2N
TYPEC0_SSTX2P
C2604
C2605
TYPEC0_SSRX2N
TYPEC0_SSRX2P
R2608
R2609
TYPEC0_OTG_VBUSDET
R2610 R0402 4.7K 5%
VCC_3V3_S3
J2600
VBUS5V0_TYPEC
VBUS_1
VBUS_2
VBUS_3
VBUS_4
CC1
CC2
SBU1
SBU2
DM1
DP1
DM2
DP2
SSTX1_N
SSTX1_P
SSRX1_N
SSRX1_P
SSTX2_N
SSTX2_P
SSRX2_N
SSRX2_P
GND1
GND2
GND3
GND4
GND_E1 … GND_E8
HOLE_1
HOLE_2
2012670005
TYPEC3.1_GD-TC-002-03
U2602
CC1_10
CC1_11
CC2_1
CC2_14
GND_8
GND_9
EPAD
VBUS
VCONN_12
VCONN_13
VDD_3
VDD_4
SCL
SDA
INT#
VBUS5V0_TYPEC
VCC_SYSIN
VCC_3V3_S3
I2C6_SCL_M3
I2C6_SDA_M3
CC_INT0_L
OD
FUSB302BMPX
MLP14_2R50X2R50X0R80
C2612 220pF C0402 C0G 50V
C2613 220pF C0402 C0G 50V
C2614 100nF C0201 X5R 16V
VCC_5V0
C2608 1uF X5R 16V C0201
C2609 100nF C0201 X5R 16V
R2613 10K 5% R0402
CC_INT0_L
VCC_5V0
C2606 100nF X5R 16V C0201
C2607 10uF X5R 10V C0402
U2603
IN
GND
EN
VOUT
OCB
SOT_23_5
TYPEC5V_PWREN_H
R2611 100K 5% R0402
R2612 4.7K 5% R0402
VBUS5V0_TYPEC
C2610 22uF C0603 X5R 10V
C2611 100nF X5R 16V C0201

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TYPEC3.1_GD-TC-002-03

MLP14_2R50X2R50X0R80

SOT_23_5

LC-20X12-4P