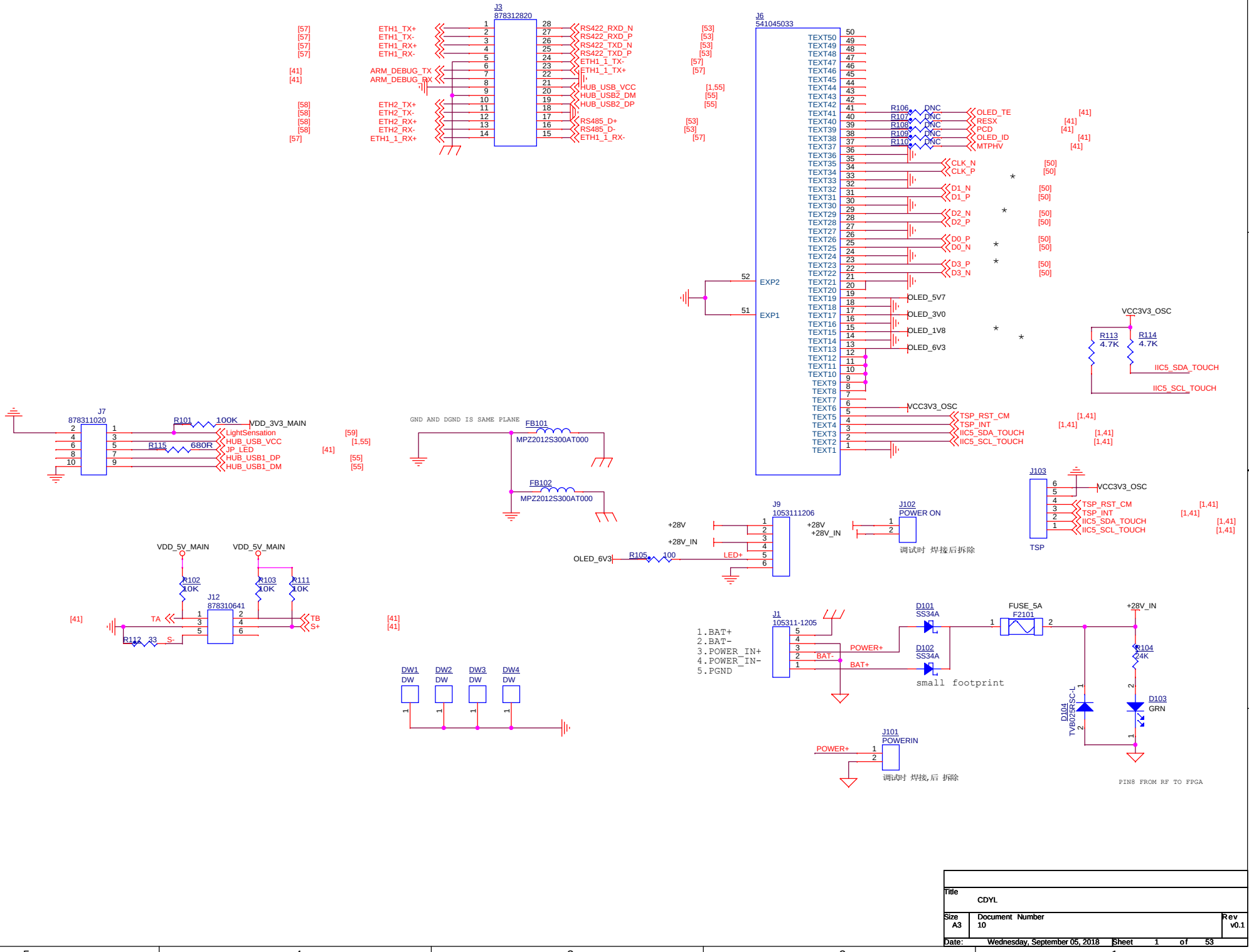

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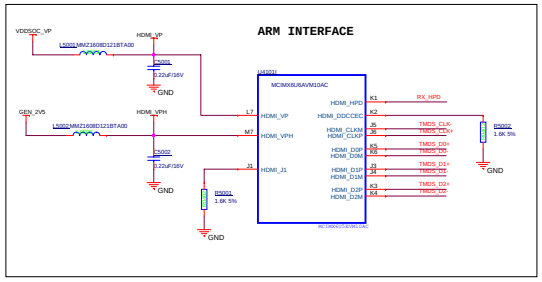

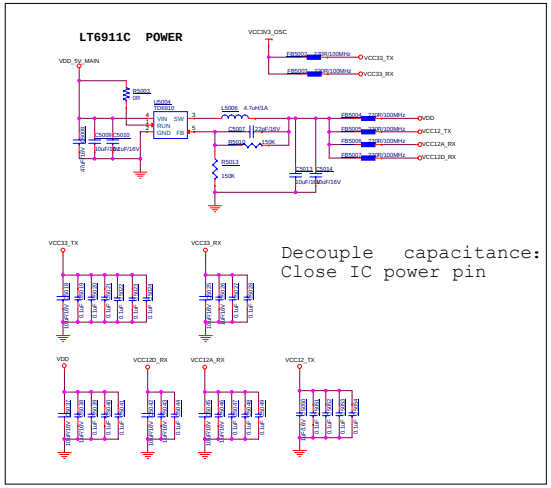

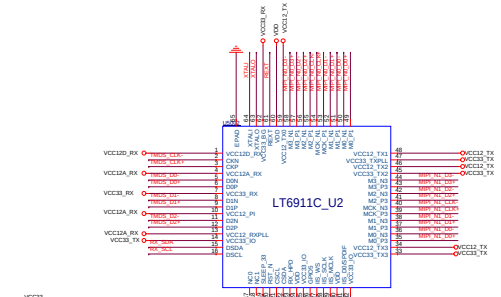

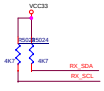

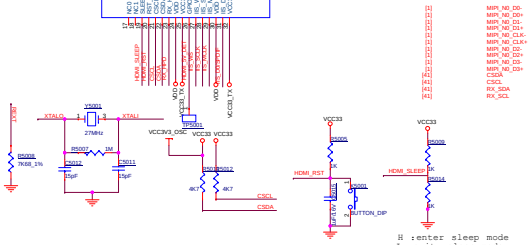

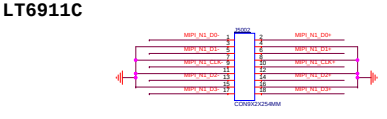

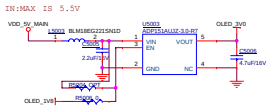

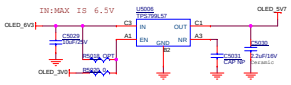

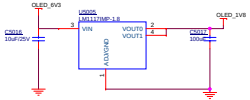

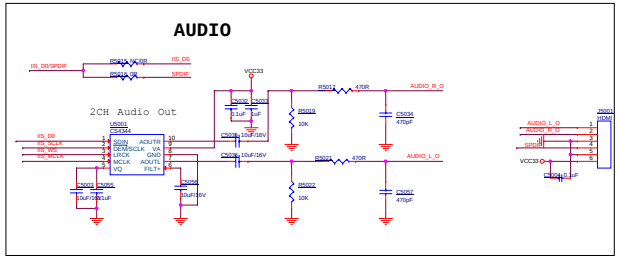

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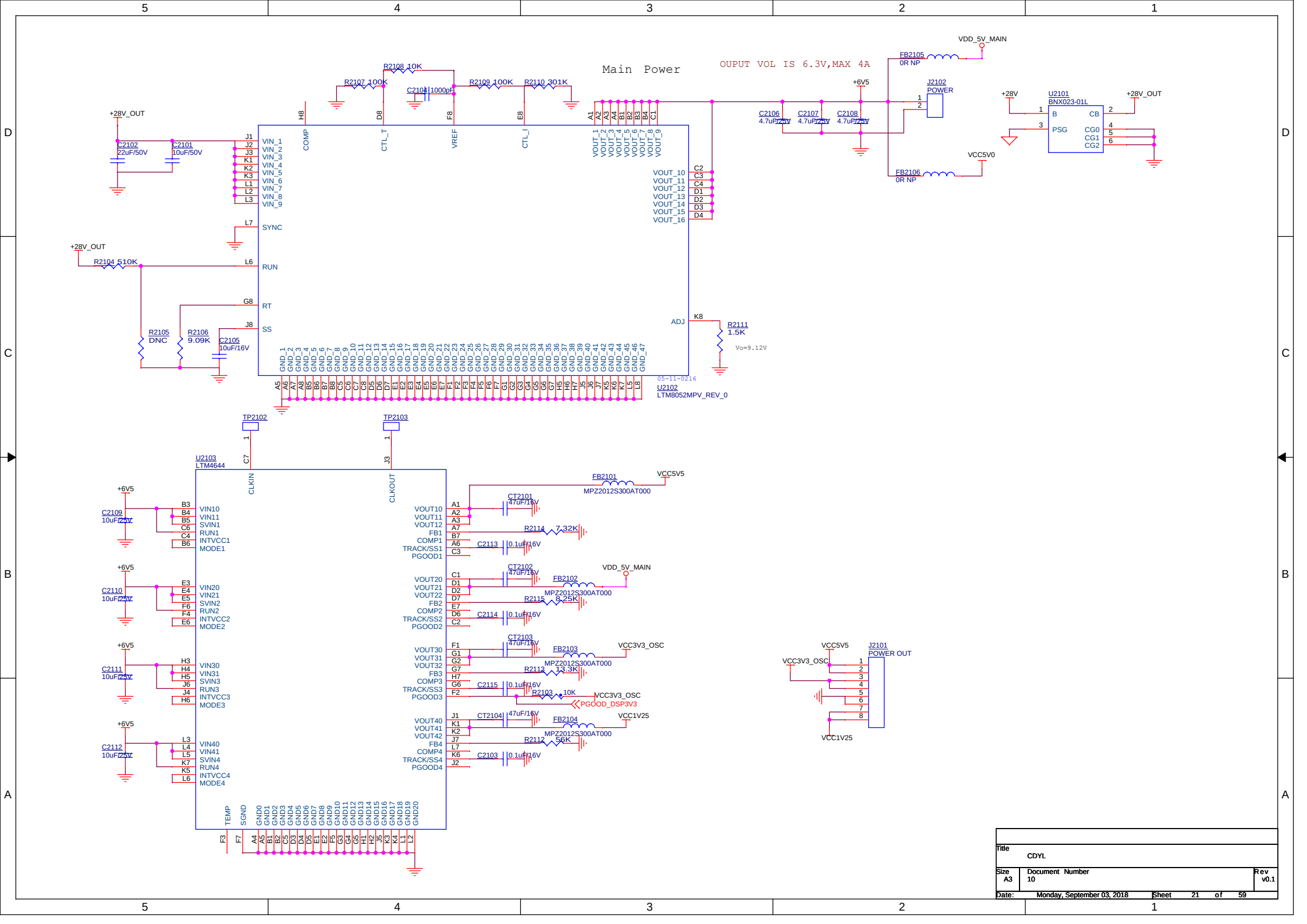
Main Power
OUPUT VOL IS 6.3V,MAX 4A
U2102
LTM8052MPV_REV_0
U2103
LTM4644
R2108 10K
R2107 100K
C2104 1000pF
R2109 100K
R2110 301K
R2111 1.5K
Vo=9.12V
R2104 510K
R2105 DNC
R2106 9.09K
C2105 10uF/16V
C2102 22uF/50V
C2101 10uF/50V
C2106 4.7uF/25V
C2107 4.7uF/25V
C2108 4.7uF/25V
FB2105 0R NP
FB2106 0R NP
J2102 POWER
J2101 POWER OUT
U2101 BNX023-01L
VDD_5V_MAIN
VCC5V0
VCC5V5
VCC3V3_OSC
VCC1V25
+28V_OUT
+6V5
+28V
TP2102
TP2103
FB2101 MPZ2012S300AT000
FB2102 MPZ2012S300AT000
FB2103 MPZ2012S300AT000
FB2104 MPZ2012S300AT000
R2114 7.32K
R2115 8.25K
R2113 13.3K
R2112 56K
R2103 10K
PGOOD_DSP3V3
CT2101 47uF/16V
CT2102 47uF/16V
CT2103 47uF/16V
CT2104 47uF/16V
C2113 0.1uF/16V
C2114 0.1uF/16V
C2115 0.1uF/16V
C2103 0.1uF/16V
C2109 10uF/25V
C2110 10uF/25V
C2111 10uF/25V
C2112 10uF/25V
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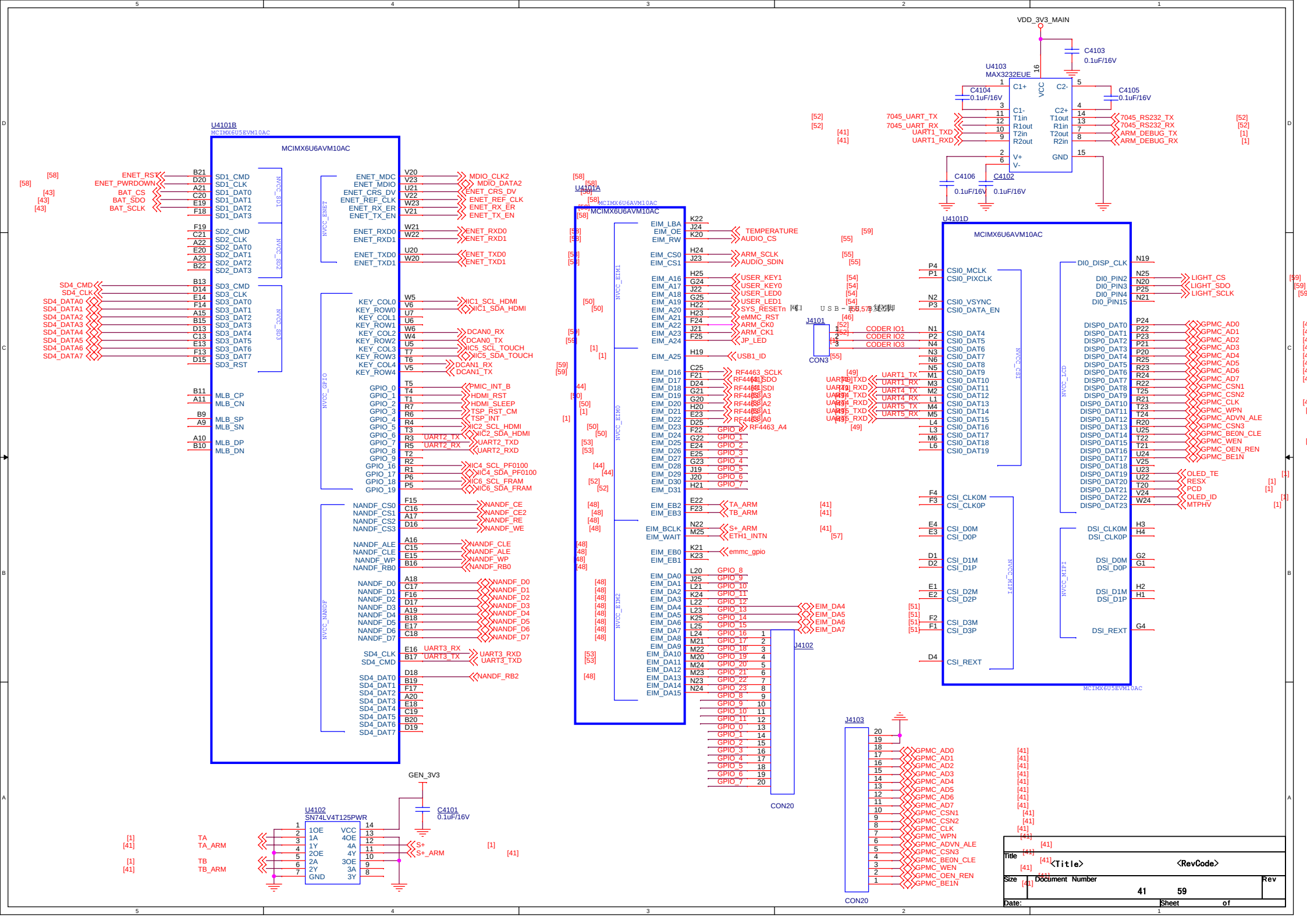
U4101B
MCIMX6U5EVM10AC
MCIMX6U6AVM10AC
ENET_RST
ENET_PWRDOWN
BAT_CS
BAT_SDO
BAT_SCLK
SD1_CMD
SD1_CLK
SD1_DAT0
SD1_DAT1
SD1_DAT2
SD1_DAT3
SD2_CMD
SD2_CLK
SD2_DAT0
SD2_DAT1
SD2_DAT2
SD2_DAT3
SD3_CMD
SD3_CLK
SD3_DAT0
SD3_DAT1
SD3_DAT2
SD3_DAT3
SD3_DAT4
SD3_DAT5
SD3_DAT6
SD3_DAT7
SD3_RST
MLB_CP
MLB_CN
MLB_SP
MLB_SN
MLB_DP
MLB_DN
ENET_MDC
ENET_MDIO
ENET_CRS_DV
ENET_REF_CLK
ENET_RX_ER
ENET_TX_EN
ENET_RXD0
ENET_RXD1
ENET_TXD0
ENET_TXD1
KEY_COL0
KEY_ROW0
KEY_COL1
KEY_ROW1
KEY_COL2
KEY_ROW2
KEY_COL3
KEY_ROW3
KEY_COL4
KEY_ROW4
GPIO_0
GPIO_1
GPIO_2
GPIO_3
GPIO_4
GPIO_5
GPIO_6
GPIO_7
GPIO_8
GPIO_9
GPIO_16
GPIO_17
GPIO_18
GPIO_19
NANDF_CS0
NANDF_CS1
NANDF_CS2
NANDF_CS3
NANDF_ALE
NANDF_CLE
NANDF_WP
NANDF_RB0
NANDF_D0
NANDF_D1
NANDF_D2
NANDF_D3
NANDF_D4
NANDF_D5
NANDF_D6
NANDF_D7
SD4_CLK
SD4_CMD
SD4_DAT0
SD4_DAT1
SD4_DAT2
SD4_DAT3
SD4_DAT4
SD4_DAT5
SD4_DAT6
SD4_DAT7
MDIO_CLK2
MDIO_DATA2
ENET_CRS_DV
ENET_REF_CLK
ENET_RX_ER
ENET_TX_EN
ENET_RXD0
ENET_RXD1
ENET_TXD0
ENET_TXD1
IIC1_SCL_HDMI
IIC1_SDA_HDMI
DCAN0_RX
DCAN0_TX
IIC5_SCL_TOUCH
IIC5_SDA_TOUCH
DCAN1_RX
DCAN1_TX
PMIC_INT_B
HDMI_RST
HDMI_SLEEP
TSP_RST_CM
TSP_INT
IIC2_SCL_HDMI
IIC2_SDA_HDMI
UART2_TX
UART2_RX
IIC4_SCL_PF0100
IIC4_SDA_PF0100
IIC6_SCL_FRAM
IIC6_SDA_FRAM
NANDF_CE
NANDF_CE2
NANDF_RE
NANDF_WE
NANDF_CLE
NANDF_ALE
NANDF_WP
NANDF_RB0
NANDF_D0
NANDF_D1
NANDF_D2
NANDF_D3
NANDF_D4
NANDF_D5
NANDF_D6
NANDF_D7
UART3_RX
UART3_TX
UART3_RXD
UART3_TXD
NANDF_RB2
NVCC_SD1
NVCC_SD2
NVCC_SD3
NVCC_ENET
NVCC_GPIO
NVCC_NANDF
U4102
SN74LV4T125PWR
GEN_3V3
C4101
0.1uF/16V
TA
TA_ARM
TB
TB_ARM
S+
S+_ARM
U4101A
TEMPERATURE
AUDIO_CS
ARM_SCLK
AUDIO_SDIN
USER_KEY1
USER_KEY0
USER_LED0
USER_LED1
SYS_RESETn
eMMC_RST
ARM_CK0
ARM_CK1
JP_LED
USB1_ID
RF4463_SCLK
RF4463_SDO
RF4463_SDI
RF4463_A3
RF4463_A2
RF4463_A1
RF4463_A0
RF4463_A4
TA_ARM
TB_ARM
S+_ARM
ETH1_INTN
emmc_gpio
EIM_DA4
EIM_DA5
EIM_DA6
EIM_DA7
J4102
CON20
NVCC_EIM1
NVCC_EIM0
NVCC_EIM2
VDD_3V3_MAIN
C4103
0.1uF/16V
U4103
MAX3232EUE
C4104
0.1uF/16V
C4105
0.1uF/16V
C4106
0.1uF/16V
C4102
0.1uF/16V
7045_UART_TX
7045_UART_RX
UART1_TXD
UART1_RXD
7045_RS232_TX
7045_RS232_RX
ARM_DEBUG_TX
ARM_DEBUG_RX
U4101D
CSI0_MCLK
CSI0_PIXCLK
CSI0_VSYNC
CSI0_DATA_EN
CSI0_DAT4
CSI0_DAT5
CSI0_DAT6
CSI0_DAT7
CSI0_DAT8
CSI0_DAT9
CSI0_DAT10
CSI0_DAT11
CSI0_DAT12
CSI0_DAT13
CSI0_DAT14
CSI0_DAT15
CSI0_DAT16
CSI0_DAT17
CSI0_DAT18
CSI0_DAT19
CSI_CLK0M
CSI_CLK0P
CSI_D0M
CSI_D0P
CSI_D1M
CSI_D1P
CSI_D2M
CSI_D2P
CSI_D3M
CSI_D3P
CSI_REXT
DI0_DISP_CLK
DISP0_DAT0
DISP0_DAT1
DISP0_DAT2
DISP0_DAT3
DISP0_DAT4
DISP0_DAT5
DISP0_DAT6
DISP0_DAT7
DISP0_DAT8
DISP0_DAT9
DISP0_DAT10
DISP0_DAT11
DISP0_DAT12
DISP0_DAT13
DISP0_DAT14
DISP0_DAT15
DISP0_DAT16
DISP0_DAT17
DISP0_DAT18
DISP0_DAT19
DISP0_DAT20
DISP0_DAT21
DISP0_DAT22
DISP0_DAT23
DSI_CLK0M
DSI_CLK0P
DSI_D0M
DSI_D0P
DSI_D1M
DSI_D1P
DSI_REXT
LIGHT_CS
LIGHT_SDO
LIGHT_SCLK
OLED_TE
RESX
PCD
OLED_ID
MTPHV
GPMC_AD0
GPMC_AD1
GPMC_AD2
GPMC_AD3
GPMC_AD4
GPMC_AD5
GPMC_AD6
GPMC_AD7
GPMC_CSN1
GPMC_CSN2
GPMC_CLK
GPMC_WPN
GPMC_ADVN_ALE
GPMC_CSN3
GPMC_BE0N_CLE
GPMC_WEN
GPMC_OEN_REN
GPMC_BE1N
CODER IO1
CODER IO2
CODER IO3
CON3
J4101
J4103
NVCC_LCD
NVCC_MIPI
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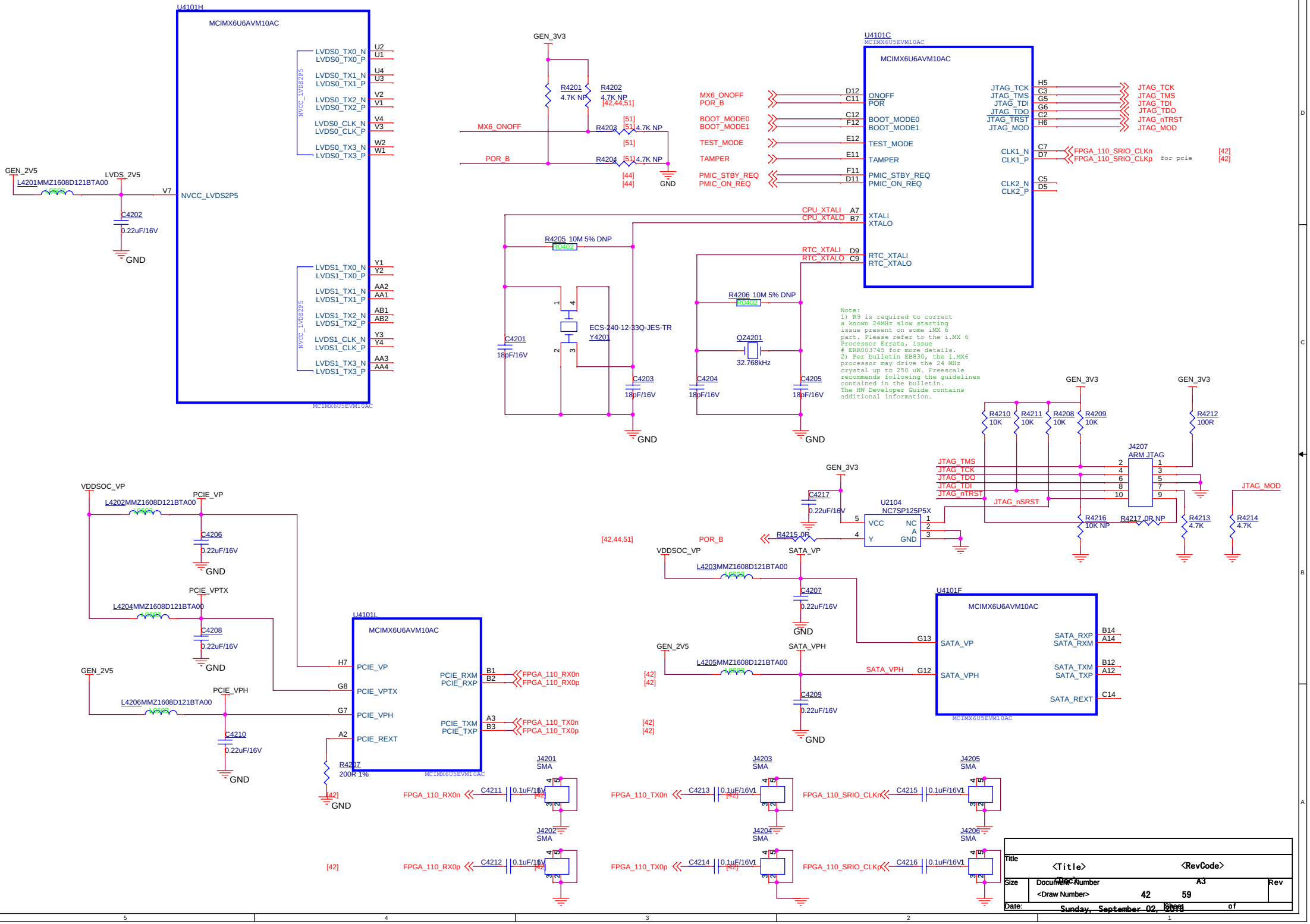
U4101H
MCIMX6U6AVM10AC
LVDS0_TX0_N
LVDS0_TX0_P
LVDS0_TX1_N
LVDS0_TX1_P
LVDS0_TX2_N
LVDS0_TX2_P
LVDS0_CLK_N
LVDS0_CLK_P
LVDS0_TX3_N
LVDS0_TX3_P
NVCC_LVDS2P5
LVDS1_TX0_N
LVDS1_TX0_P
LVDS1_TX1_N
LVDS1_TX1_P
LVDS1_TX2_N
LVDS1_TX2_P
LVDS1_CLK_N
LVDS1_CLK_P
LVDS1_TX3_N
LVDS1_TX3_P
GEN_2V5
L4201MMZ1608D121BTA00
LVDS_2V5
NVCC_LVDS2P5
C4202
0.22uF/16V
GND
GEN_3V3
R4201
4.7K NP
R4202
4.7K NP
R4203
4.7K NP
R4204
4.7K NP
MX6_ONOFF
POR_B
U4101C
MCIMX6U6AVM10AC
ONOFF
POR
BOOT_MODE0
BOOT_MODE1
TEST_MODE
TAMPER
PMIC_STBY_REQ
PMIC_ON_REQ
JTAG_TCK
JTAG_TMS
JTAG_TDI
JTAG_TDO
JTAG_TRST
JTAG_MOD
CLK1_N
CLK1_P
CLK2_N
CLK2_P
FPGA_110_SRIO_CLKn
FPGA_110_SRIO_CLKp
for pcie
CPU_XTALI
CPU_XTALO
XTALI
XTALO
R4205 10M 5% DNP
R0402
C4201
18pF/16V
ECS-240-12-33Q-JES-TR
Y4201
C4203
18pF/16V
RTC_XTALI
RTC_XTALO
R4206 10M 5% DNP
QZ4201
32.768kHz
C4204
18pF/16V
C4205
18pF/16V
Note:
1) R9 is required to correct a known 24MHz slow starting issue present on some iMX 6 part. Please refer to the i.MX 6 Processor Errata, issue # ERR003745 for more details.
2) Per bulletin EB830, the i.MX6 processor may drive the 24 MHz crystal up to 250 uW. Freescale recommends following the guidelines contained in the bulletin. The HW Developer Guide contains additional information.
R4210 10K
R4211 10K
R4208 10K
R4209 10K
R4212 100R
J4207
ARM JTAG
JTAG_nSRST
R4216 10K NP
R4217 0R NP
R4213 4.7K
R4214 4.7K
VDDSOC_VP
L4202MMZ1608D121BTA00
PCIE_VP
C4206
0.22uF/16V
PCIE_VPTX
L4204MMZ1608D121BTA00
C4208
0.22uF/16V
PCIE_VPH
L4206MMZ1608D121BTA00
C4210
0.22uF/16V
U4101L
MCIMX6U6AVM10AC
PCIE_RXM
PCIE_RXP
PCIE_TXM
PCIE_TXP
PCIE_REXT
R4207
200R 1%
FPGA_110_RX0n
FPGA_110_RX0p
FPGA_110_TX0n
FPGA_110_TX0p
J4201
SMA
J4202
SMA
J4203
SMA
J4204
SMA
J4205
SMA
J4206
SMA
C4211
0.1uF/16V
C4212
0.1uF/16V
C4213
0.1uF/16V
C4214
0.1uF/16V
C4215
0.1uF/16V
C4216
0.1uF/16V
U2104
NC7SP125P5X
VCC
GND
NC
A
Y
R4215 0R
JTAG_MOD
C4217
0.22uF/16V
SATA_VP
L4203MMZ1608D121BTA00
C4207
0.22uF/16V
SATA_VPH
L4205MMZ1608D121BTA00
C4209
0.22uF/16V
U4101F
MCIMX6U6AVM10AC
SATA_RXP
SATA_RXM
SATA_TXM
SATA_TXP
SATA_REXT
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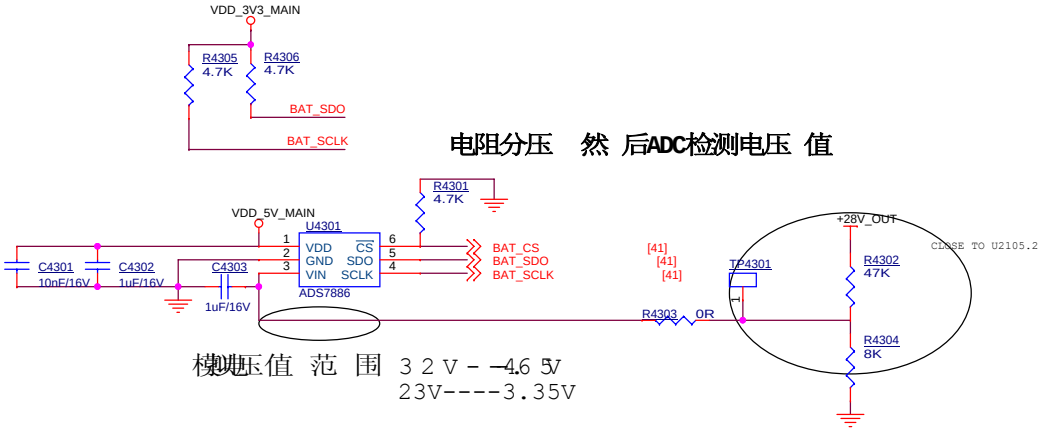

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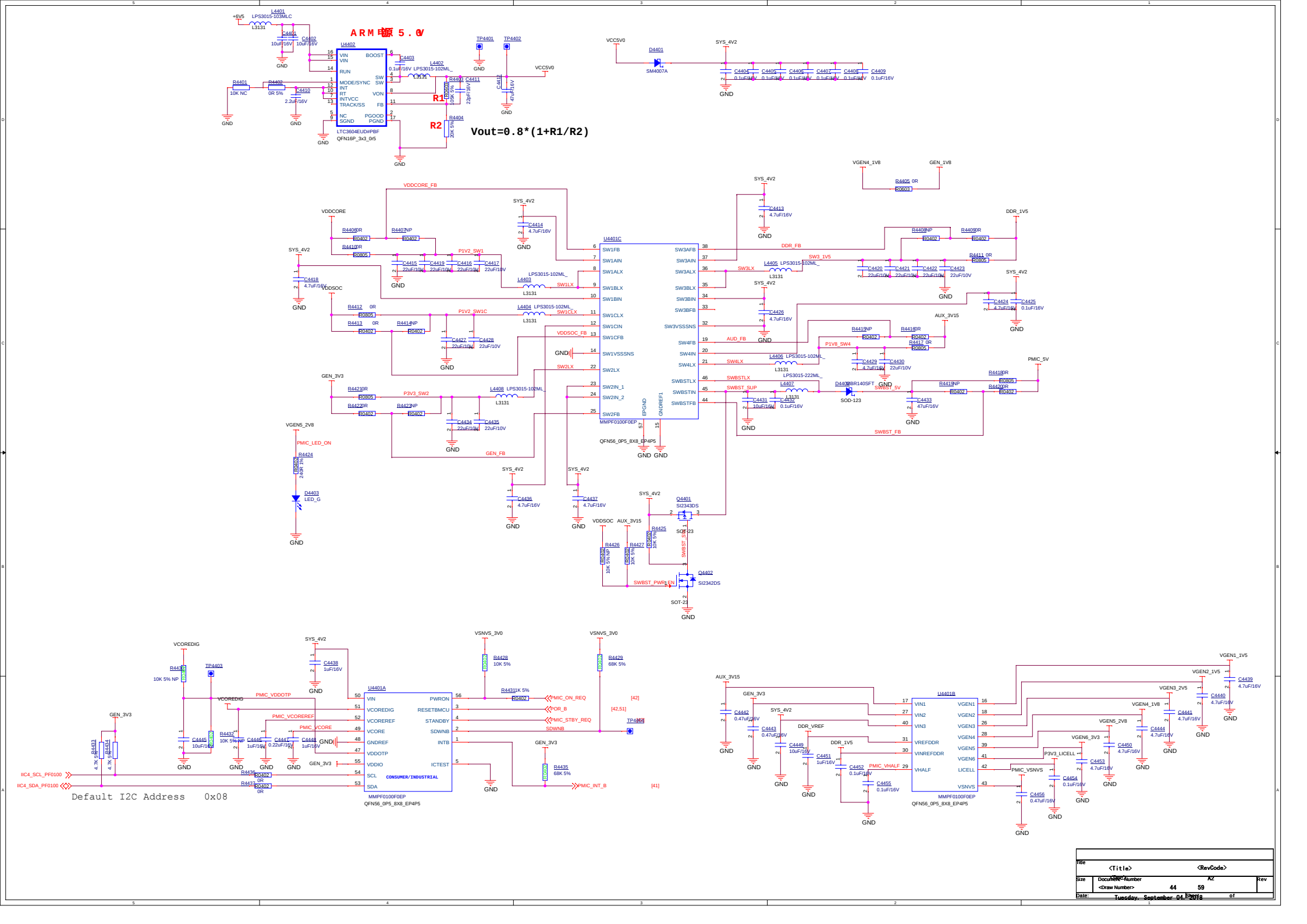
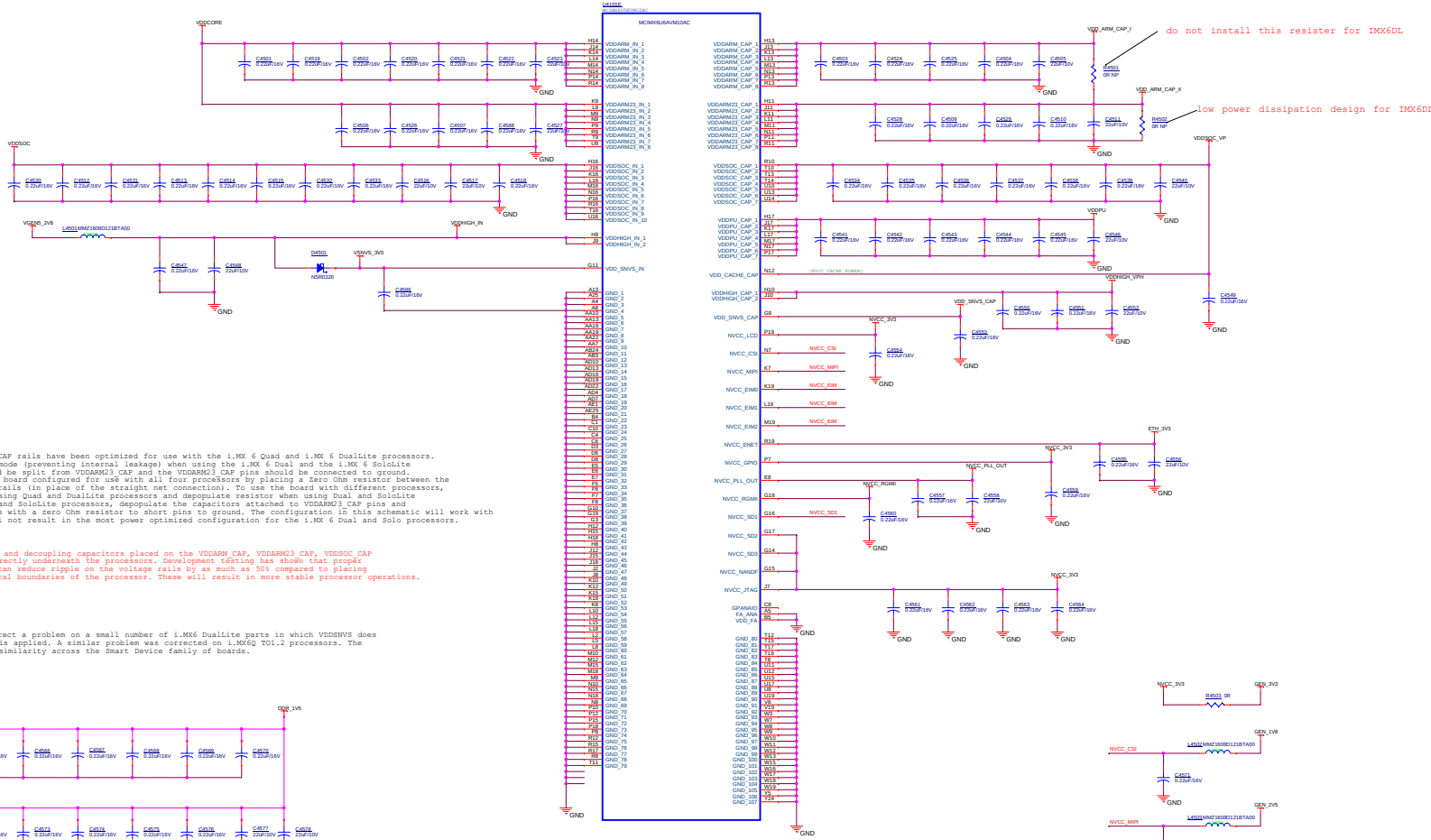

ARM电源 5.0V
R1
R2
Vout=0.8*(1+R1/R2)
Default I2C Address 0x08



NOTE:
The VDDARM_CAP and VDDARM23_CAP rails have been optimized for use with the i.MX 6 Quad and i.MX 6 DualLite processors. To achieve the lowest power mode (preventing internal leakage) when using the i.MX 6 Dual and the i.MX 6 SoloLite processors, VDDARM_CAP should be split from VDDARM23_CAP and the VDDARM23_CAP pins should be connected to ground. This can be done on a single board configured for use with all four processors by placing a zero Ohm resistor between the VDDARM_CAP and VDDARM23_CAP rails (in place of the straight net connection). To use the board with different processors, populate the resistor when using Quad and DualLite processors and depopulate resistor when using Dual and SoloLite processors. When using Dual and SoloLite processors, depopulate the capacitors attached to VDDARM23_CAP pins and replace one of the capacitors with a zero Ohm resistor to short pins to ground. The configuration in this schematic will work with all four processors, but will not result in the most power optimized configuration for the i.MX 6 Dual and Solo processors.

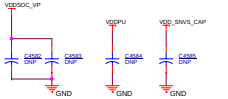
LAYOUT NOTE:
It is critical that the bulk and decoupling capacitors placed on the VDDARM_CAP, VDDARM23_CAP, VDDSOC_CAP and VDDPU rails be placed directly underneath the processors. Development testing has shown that proper placement of the capacitors can reduce ripple on the voltage rails by as much as 50% compared to placing capacitors outside the physical boundaries of the processor. These will result in more stable processor operations.

NOTE:
Diode D10 is required to correct a problem on a small number of i.MX6 DualLite parts in which VDDSNVS does not come up when VDDHIGH_IN is applied. A similar problem was corrected on i.MX6Q TO1.2 processors. The diode is left populated for similarity across the Smart Device family of boards.

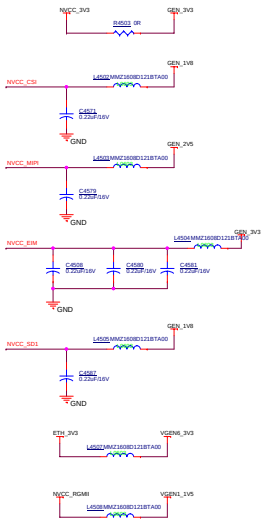
(These capacitors are part of i.MX6 DDR3 Power Domain. They decouple pins shown on Page 4 of these schematics)

NOTE:
Freescale has validated two difference sets of decoupling capacitors and board layouts for use with the i.MX 6 processor. The customer is free to choose the desired decoupling scheme. This scheme uses fewer components. The alternate scheme can be found on the ARD board. Refer to SCH-27142 and LAY-27142.

Extra Bulk Capacitors



NOTE:
In early designs of the Smart Device board, these bulk capacitors were used. After testing of the board, it was found that these capacitors could be removed with no effect. This reduces the capacitive loading on the internal processor LDOs. The coponents/footprints have been left in place in the event that future applications and/or software changes show that these capacitors are needed.



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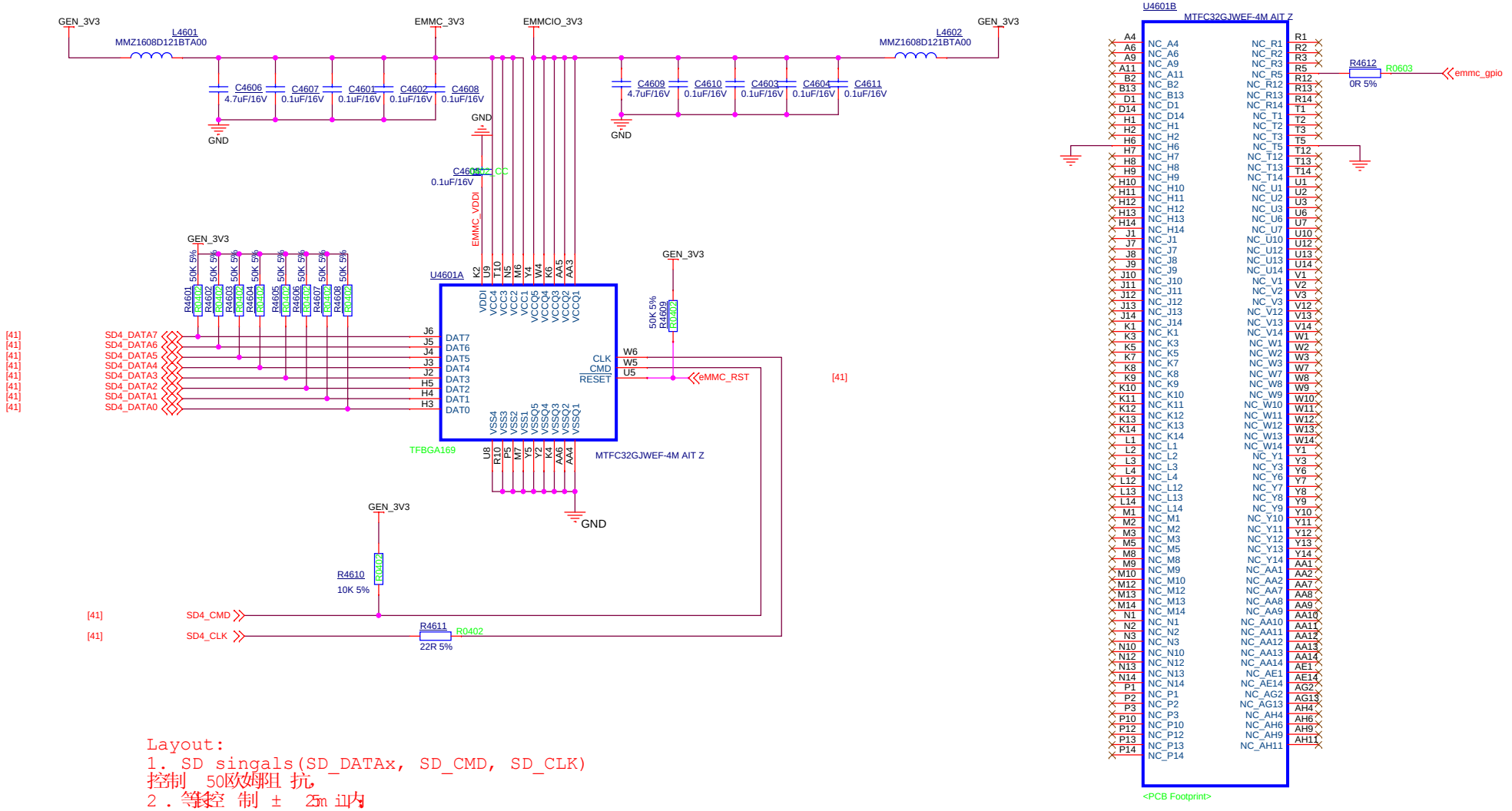

Layout:
1. SD singals(SD_DATAx, SD_CMD, SD_CLK)
控制 50欧姆阻抗,
2．等长控制 ± 25mil内

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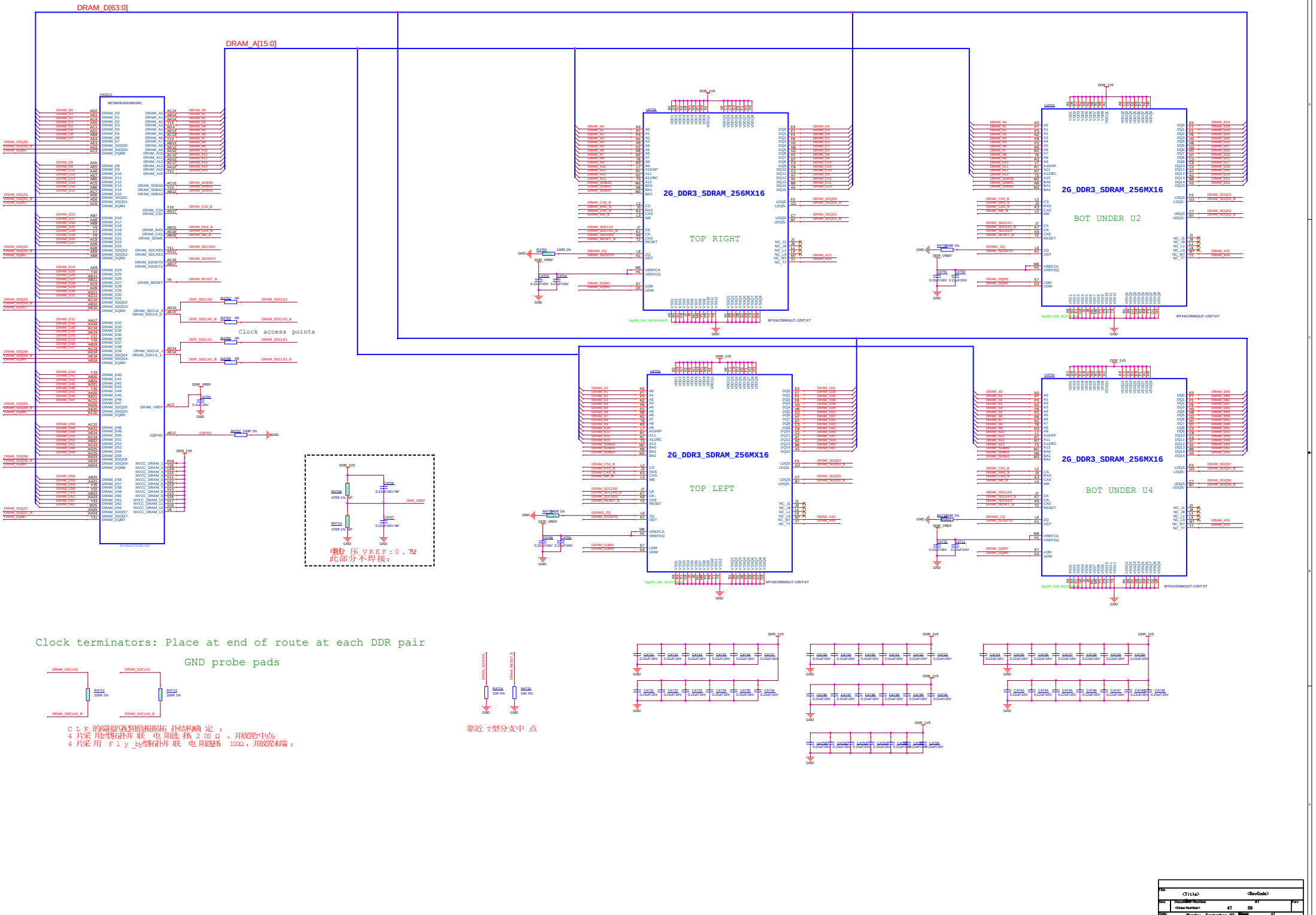
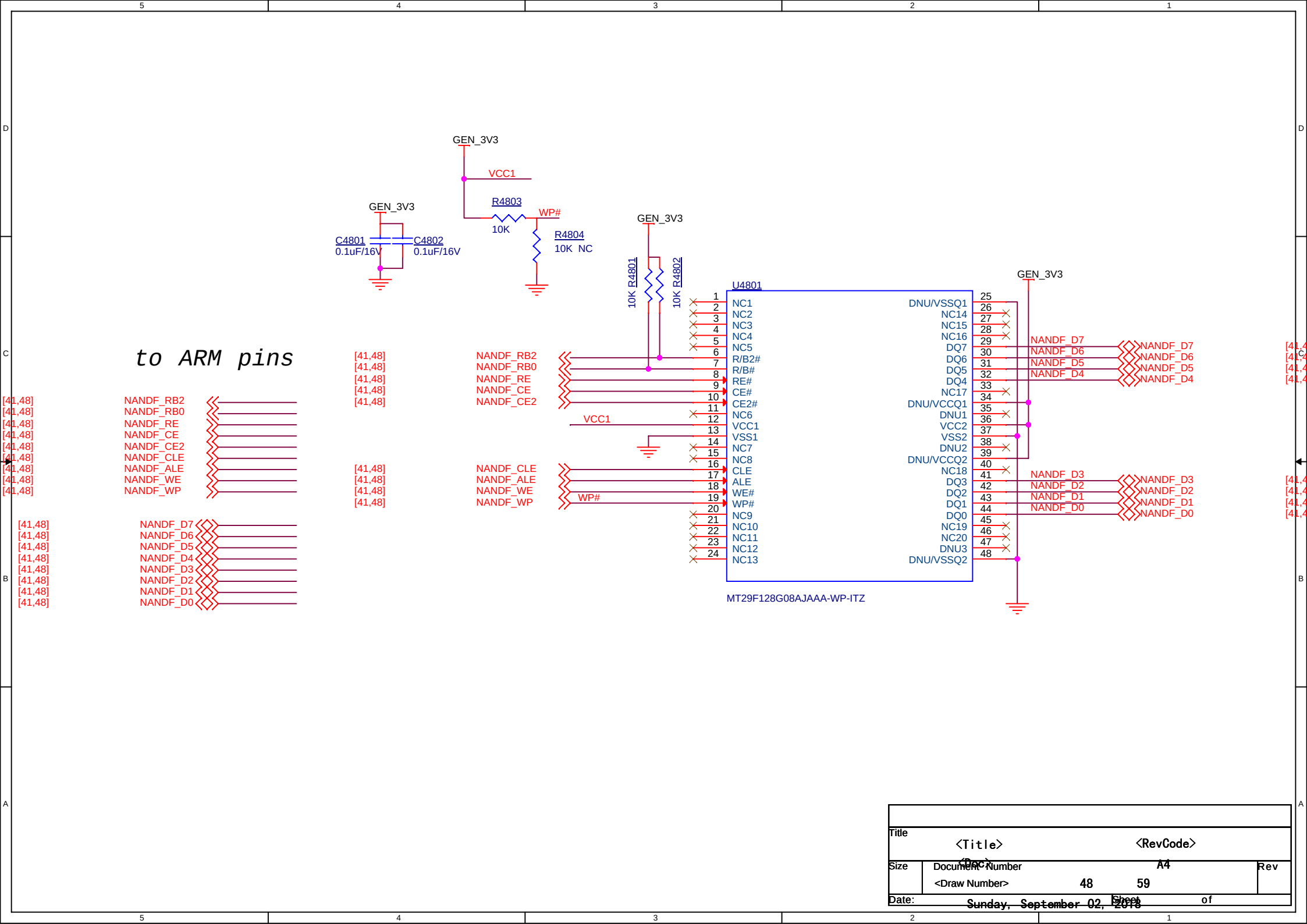

DRAM_D[63:0]
DRAM_A[15:0]
2G_DDR3_SDRAM_256MX16
TOP RIGHT
TOP LEFT
BOT UNDER U2
BOT UNDER U4
MT41K256M16JT-125IT:K
Clock access points
Clock terminators: Place at end of route at each DDR pair
GND probe pads
此部分不焊接；
靠近 T型分支中 点



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Size	Document Number <Draw Number>	A4 48	Rev 59
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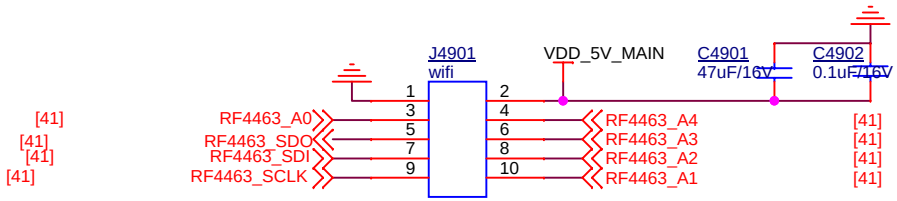

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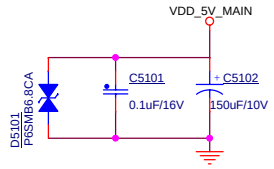
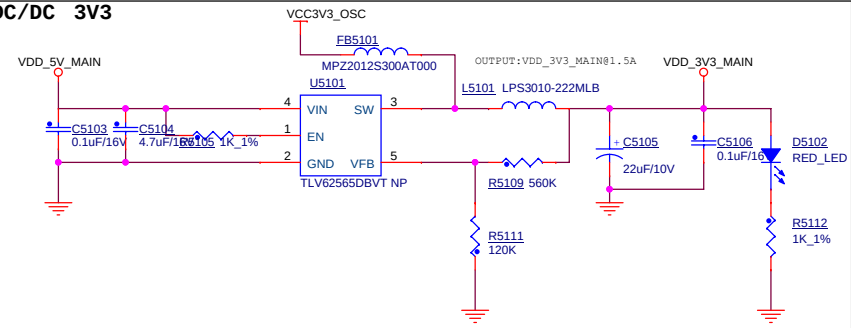
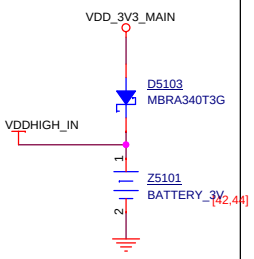
POWER INPUT



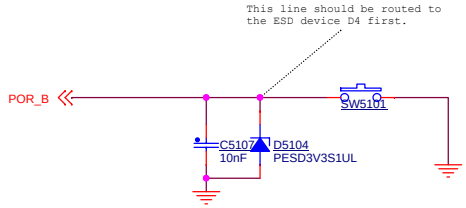
DC/DC 3V3



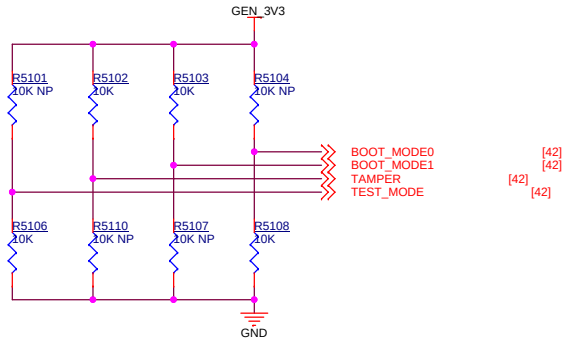
RTC BATTERY



WARM RESET INPUT

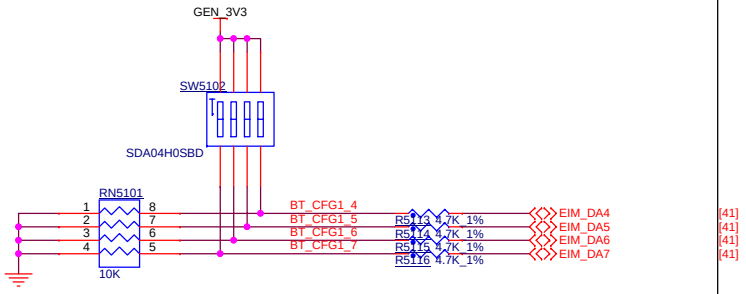


ARM BOOT SET



BOOT MODES:
00 Boot from fuses
01 Serial downloader
10 Boot from board settings (DEFAULT)
11 Reserved

Boot Configuration Select



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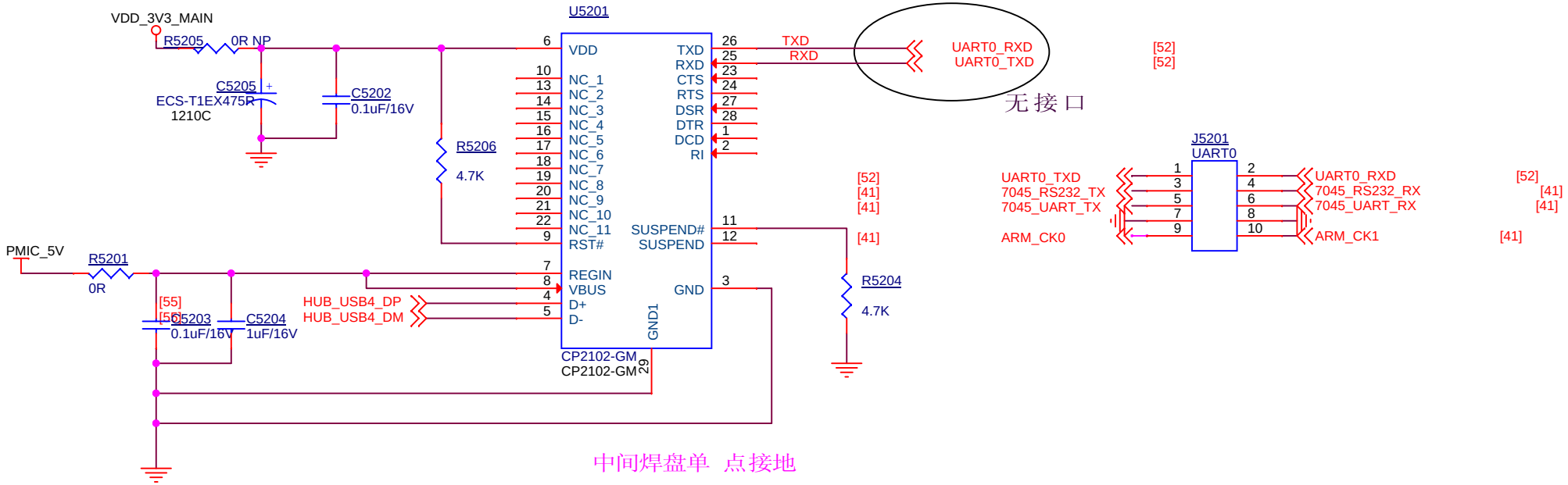
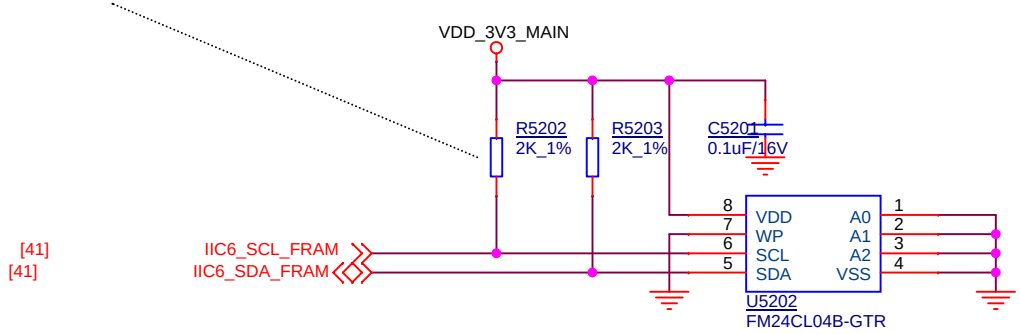
USB TO UART0



FRAM

I2C2 bus haven't ben pulled up in the SOM.
Should place pull-up resisters here.



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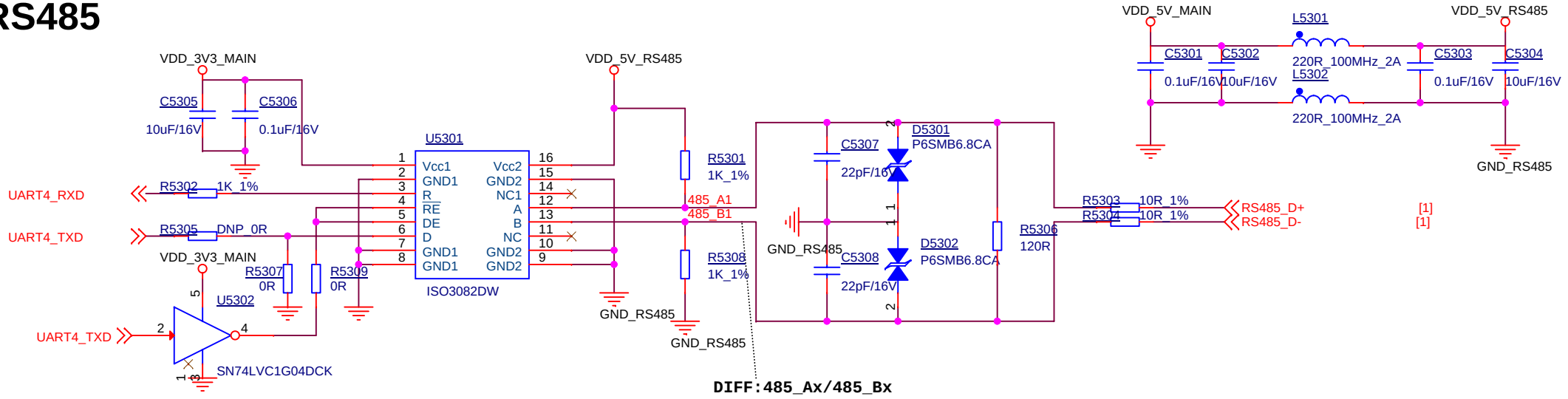
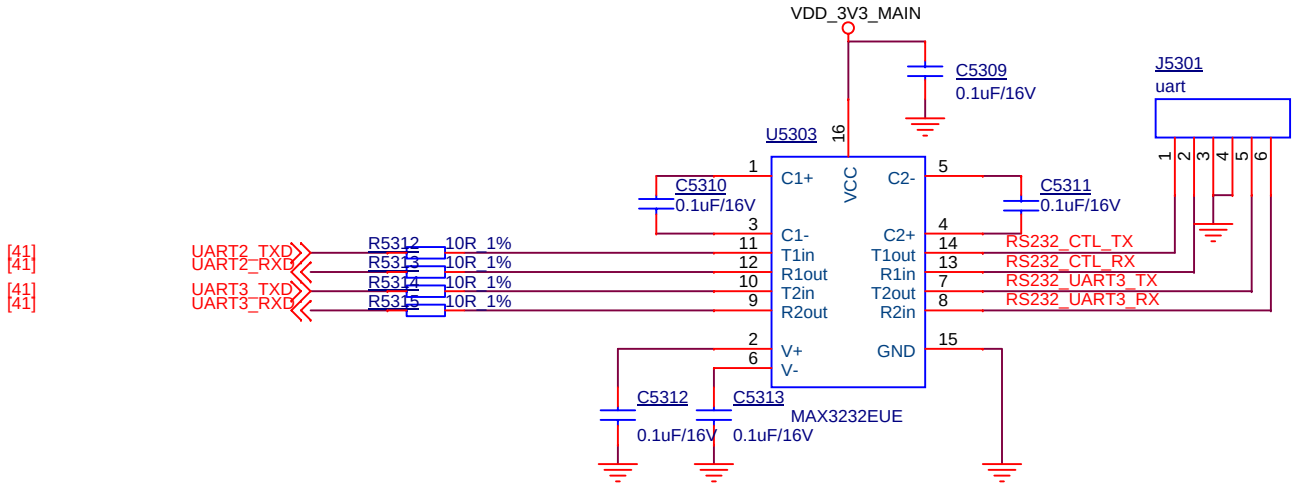
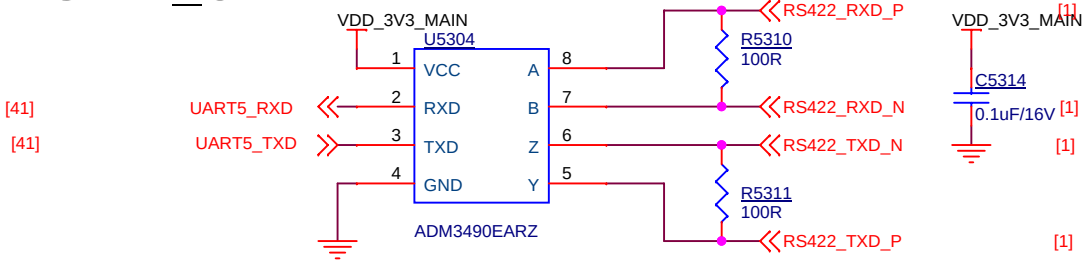
RS485



RS232



RS422_UART



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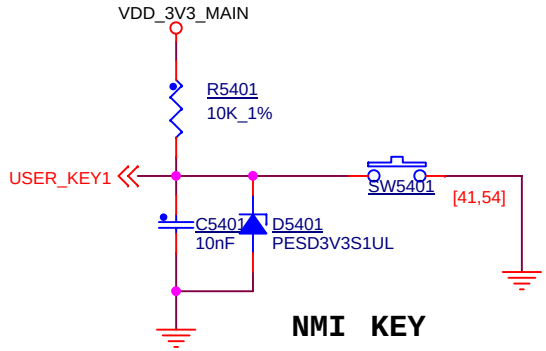
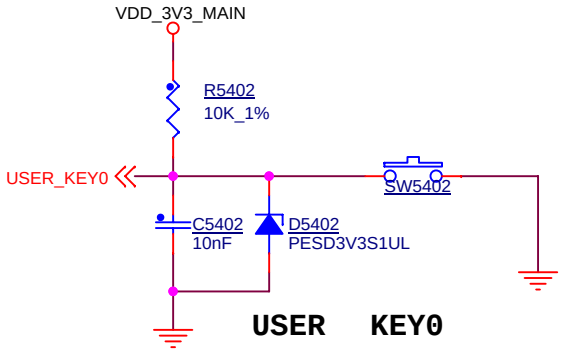
USER KEY

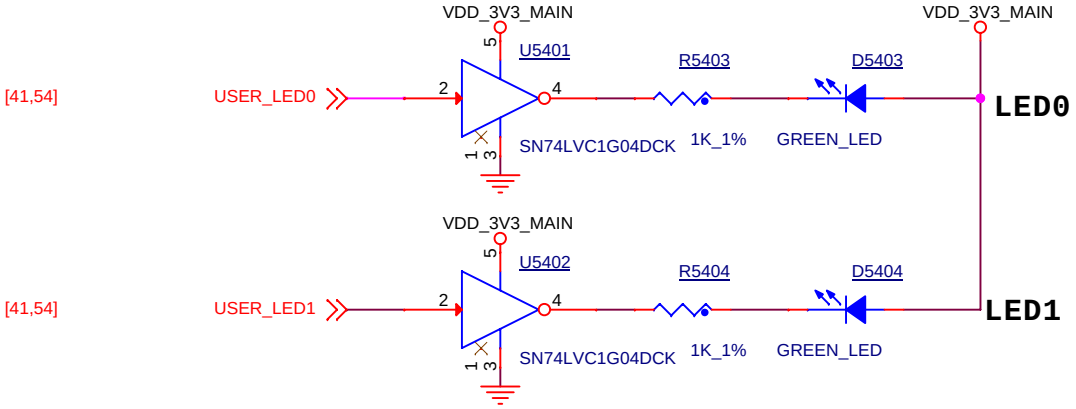




[41,54] USER_KEY1
[41,54] USER_KEY0

USER LED

[41,54] USER_LED0
[41,54] USER_LED1



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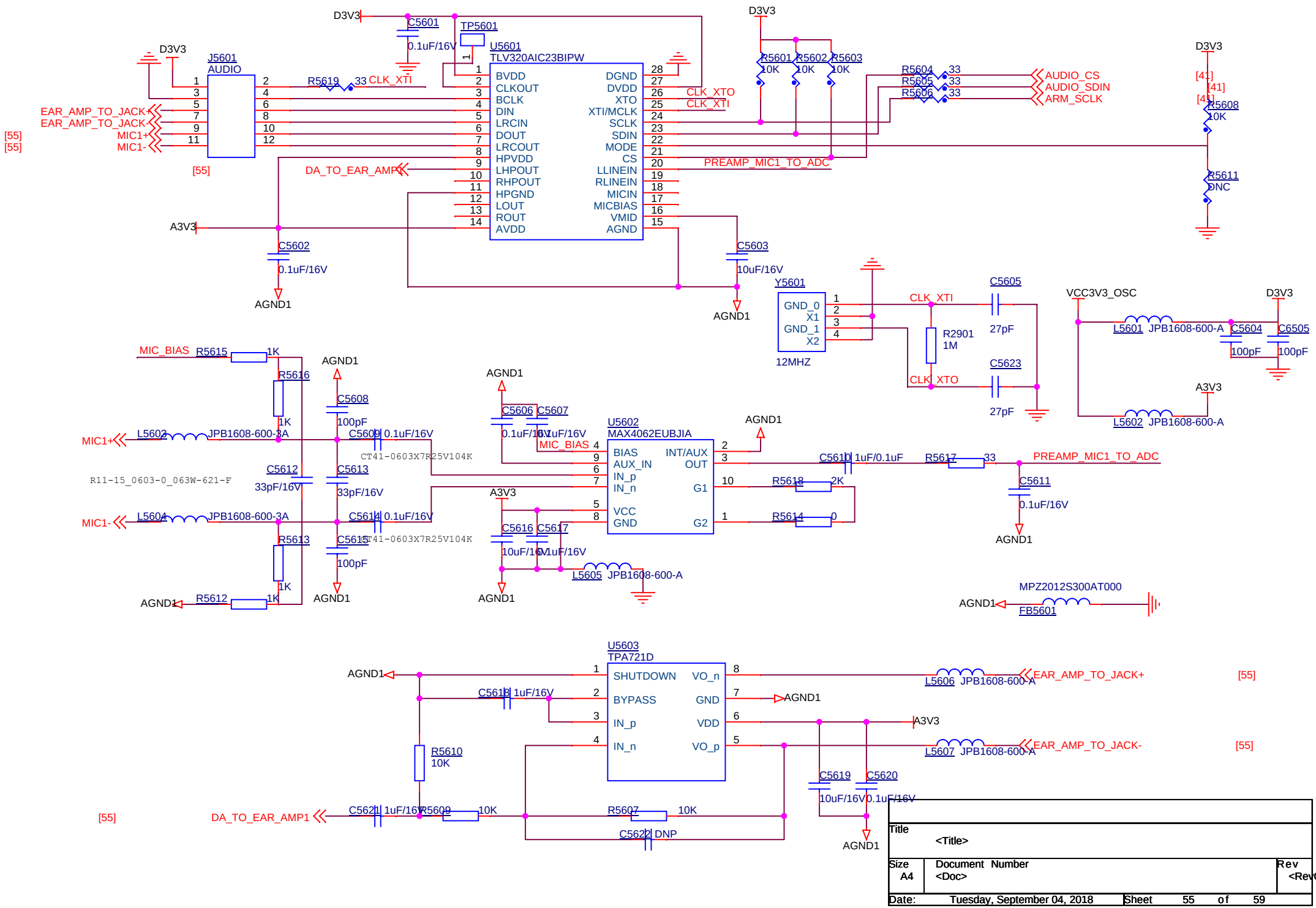
D3V3
C5601
0.1uF/16V
TP5601
U5601
TLV320AIC23BIPW
BVDD
CLKOUT
BCLK
DIN
LRCIN
DOUT
LRCOUT
HPVDD
LHPOUT
RHPOUT
HPGND
LOUT
ROUT
AVDD
DGND
DVDD
XTO
XTI/MCLK
SCLK
SDIN
MODE
CS
LLINEIN
RLINEIN
MICIN
MICBIAS
VMID
AGND
J5601
AUDIO
R5619
33
CLK_XTI
CLK_XTO
EAR_AMP_TO_JACK+
EAR_AMP_TO_JACK-
MIC1+
MIC1-
[55]
DA_TO_EAR_AMP1
PREAMP_MIC1_TO_ADC
R5601
R5602
R5603
10K
R5604
R5605
R5606
AUDIO_CS
AUDIO_SDIN
ARM_SCLK
[41]
R5608
R5611
DNC
A3V3
C5602
C5603
10uF/16V
AGND1
Y5601
GND_0
X1
GND_1
X2
12MHZ
C5605
27pF
C5623
R2901
1M
VCC3V3_OSC
L5601
JPB1608-600-A
C5604
100pF
C6505
L5602
MIC_BIAS
R5615
1K
R5616
C5608
C5609
0.1uF/16V
CT41-0603X7R25V104K
C5612
33pF/16V
C5613
R11-15_0603-0_063W-621-F
R5613
C5615
R5612
C5606
C5607
U5602
MAX4062EUBJIA
BIAS
AUX_IN
IN_p
IN_n
VCC
GND
INT/AUX
OUT
G1
G2
C5610
1uF/0.1uF
R5617
R5618
2K
R5614
0
C5611
C5616
C5617
10uF/16V
1uF/16V
L5605
JPB1608-600-A
MPZ2012S300AT000
FB5601
U5603
TPA721D
SHUTDOWN
BYPASS
IN_p
IN_n
VO_n
GND
VDD
VO_p
L5606
L5607
C5618
1uF/16V
R5610
10K
C5621
R5609
R5607
C5622
DNP
C5619
10uF/16V
C5620
0.1uF/16V
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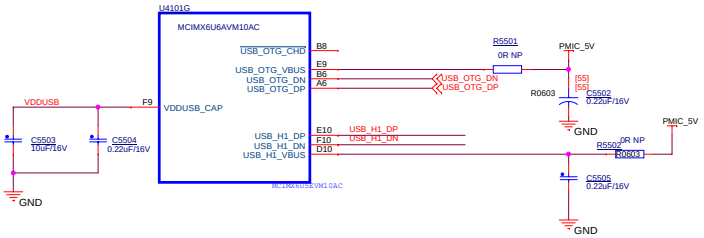
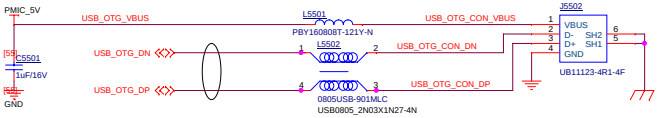
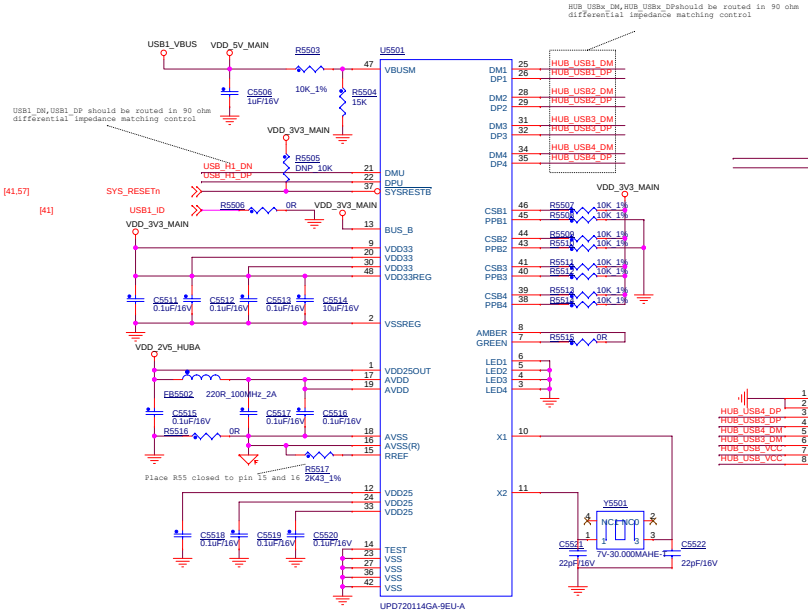
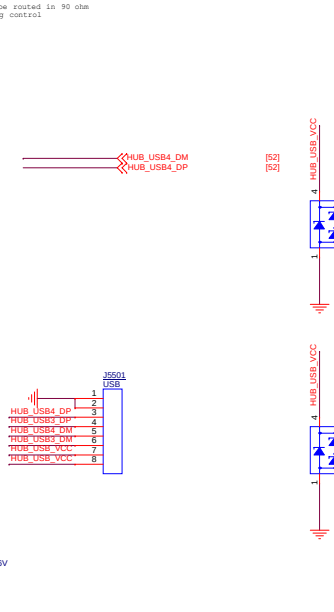
Layout: 90ohm differential pairs

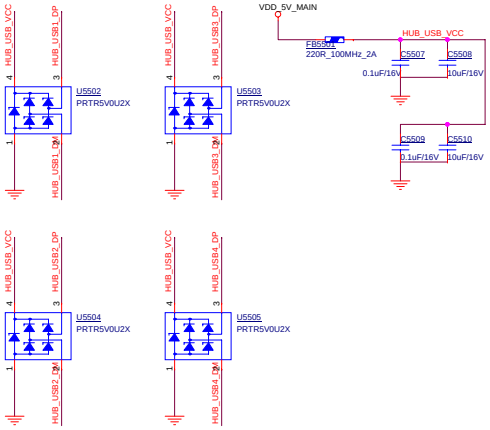




USB2.0 HUB







to ARM pins

HUB_USB2_DP [1]
HUB_USB1_DP [1]
HUB_USB2_DM [1]
HUB_USB1_DM [1]
HUB_USB_VCC [1]

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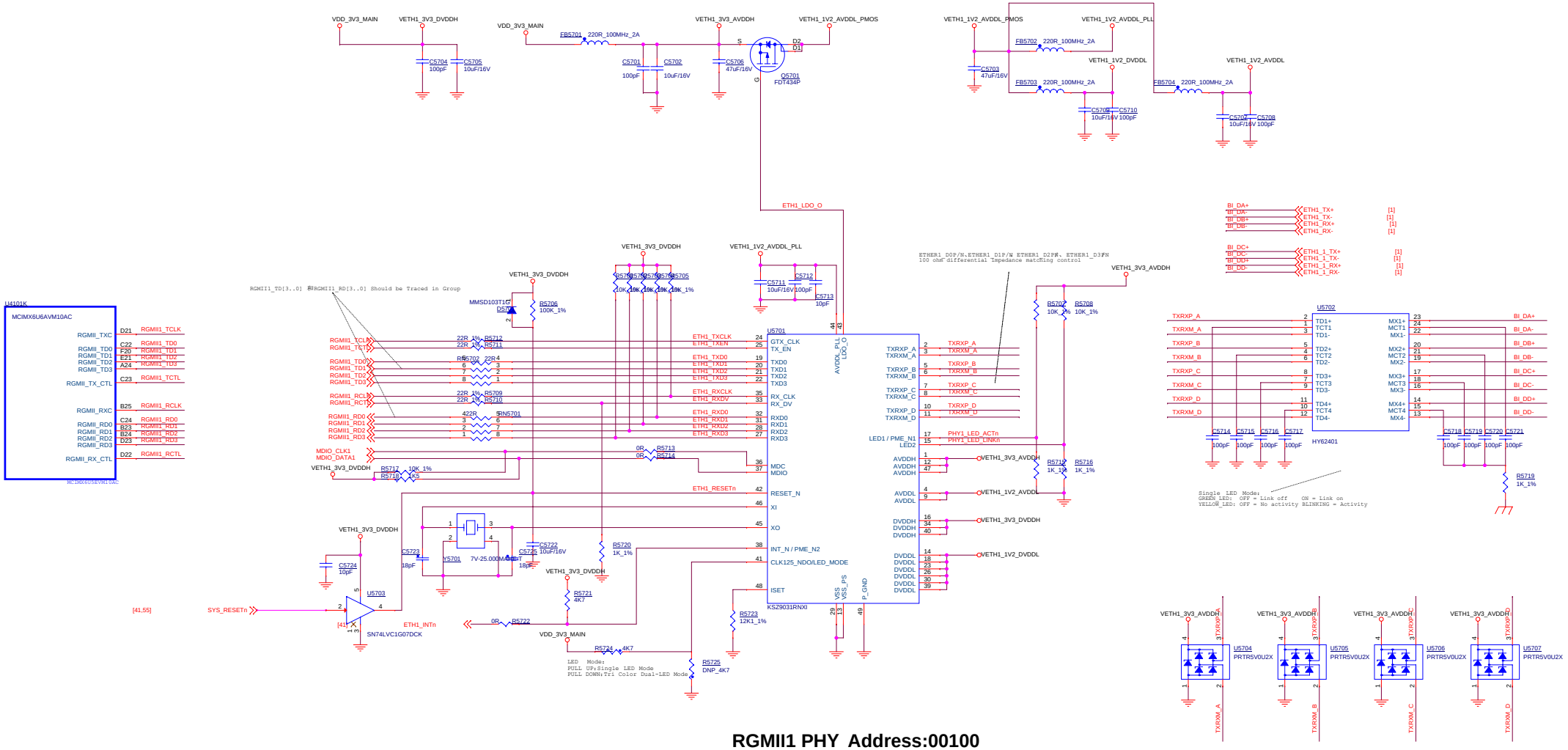
RGMII1



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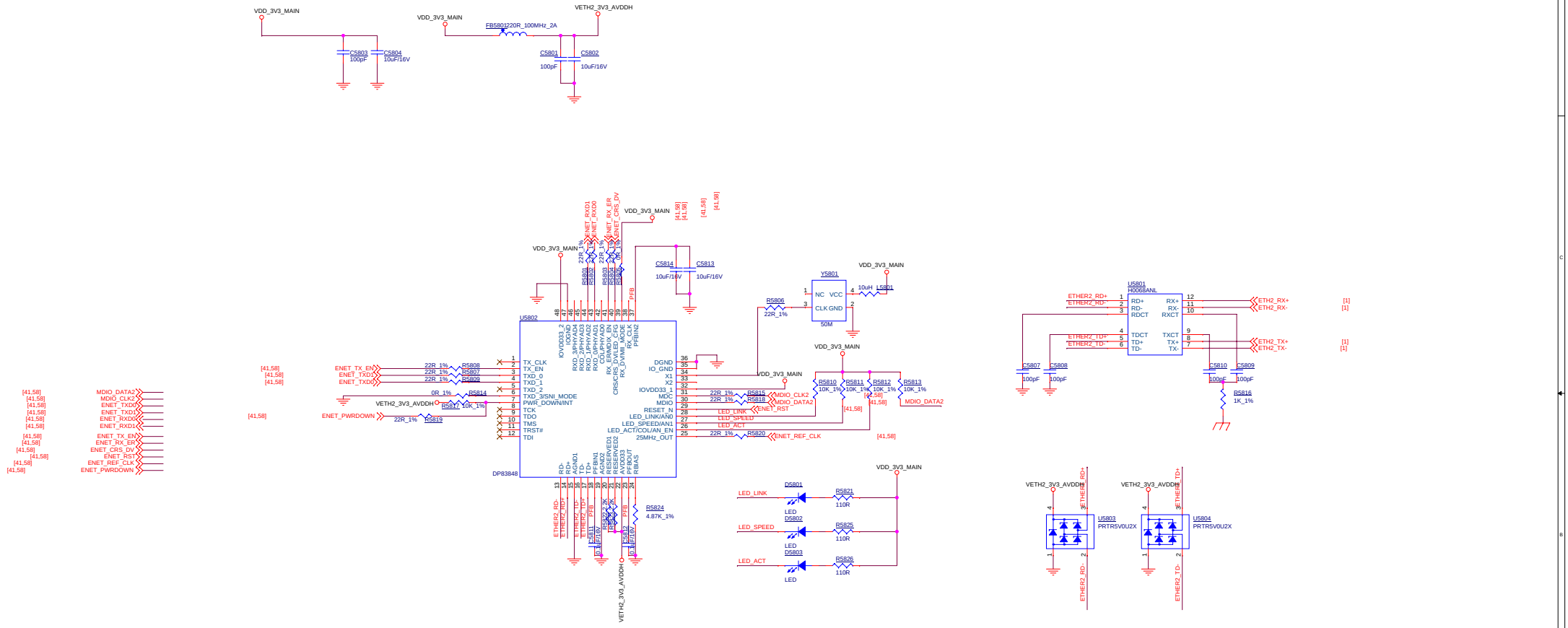
RGMII2



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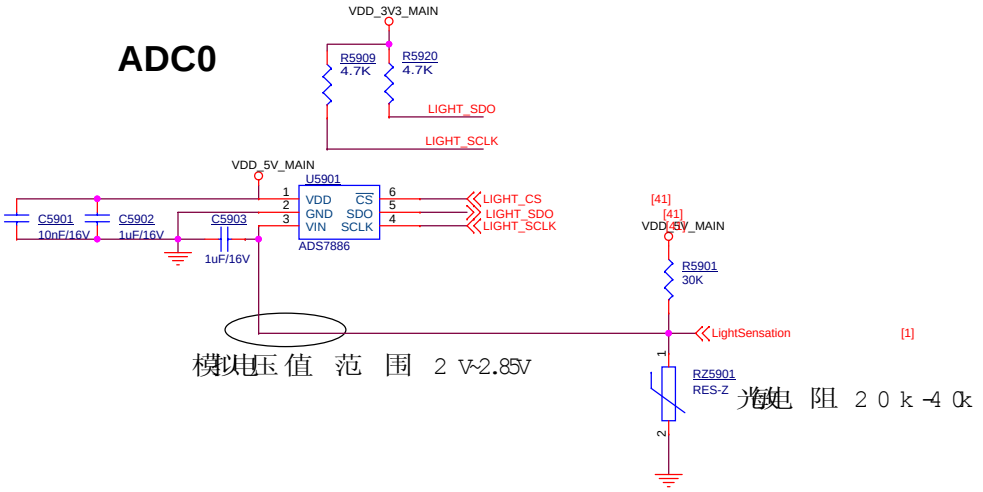
ADC0



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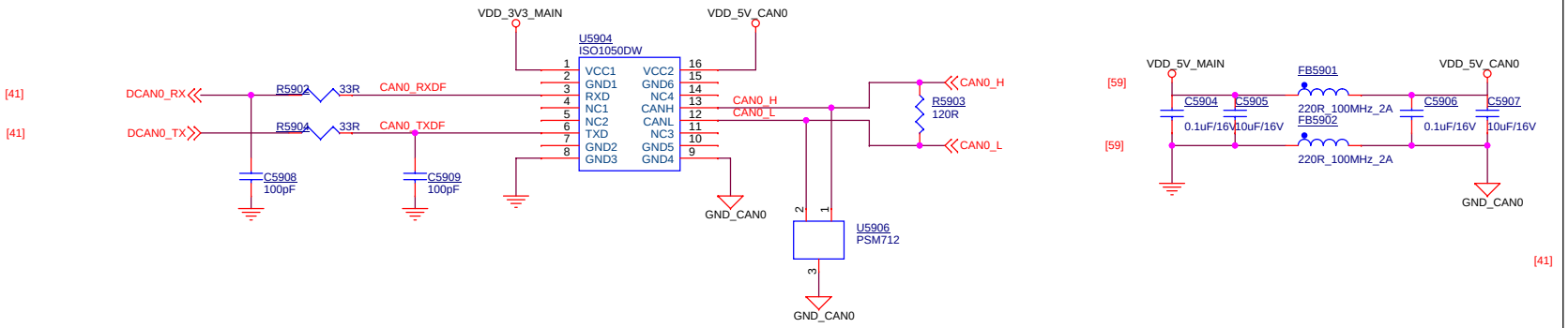
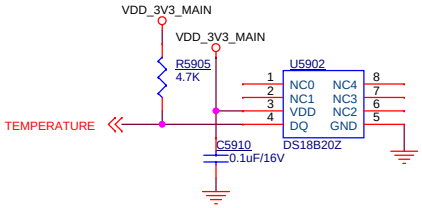
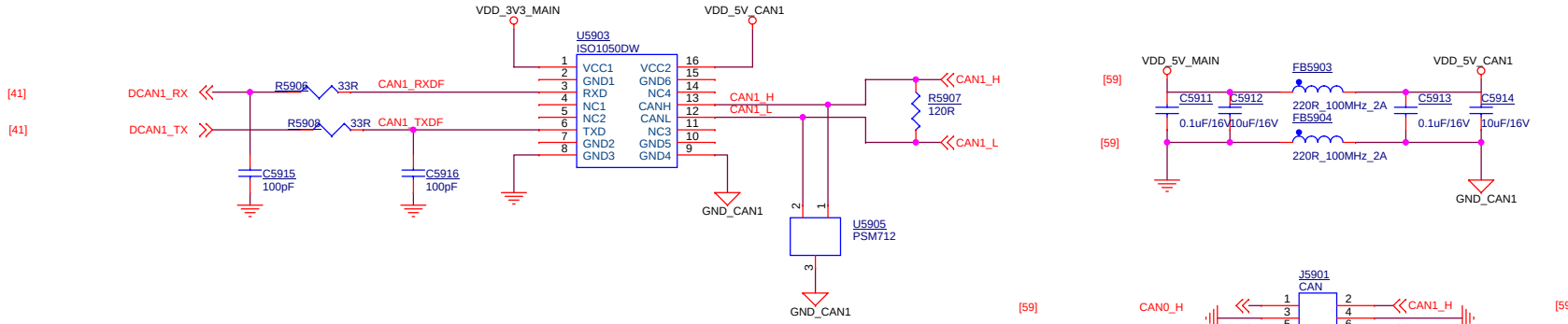


DS18B20Z



CAN1



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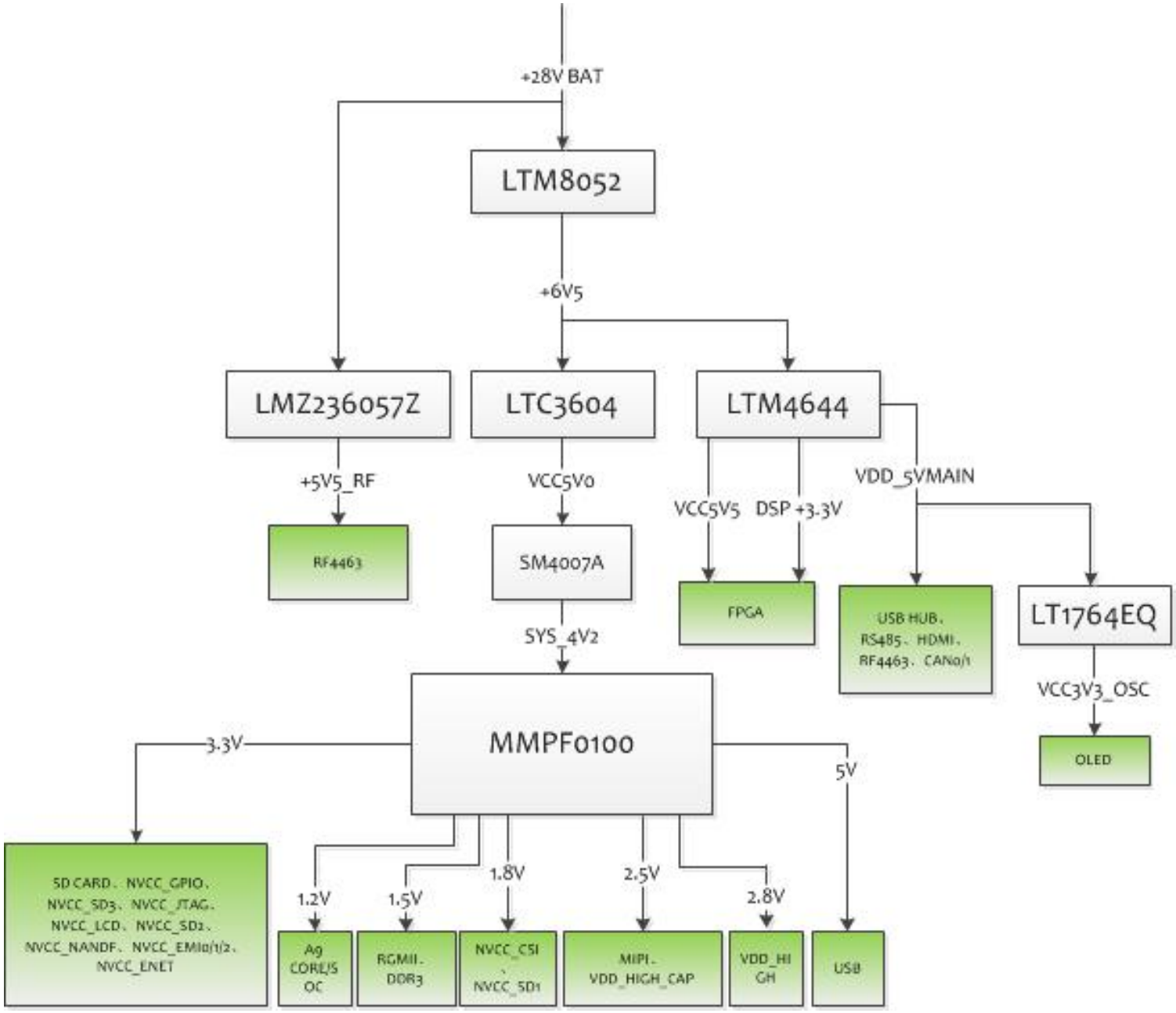

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