NanoPi R4S (4GB)

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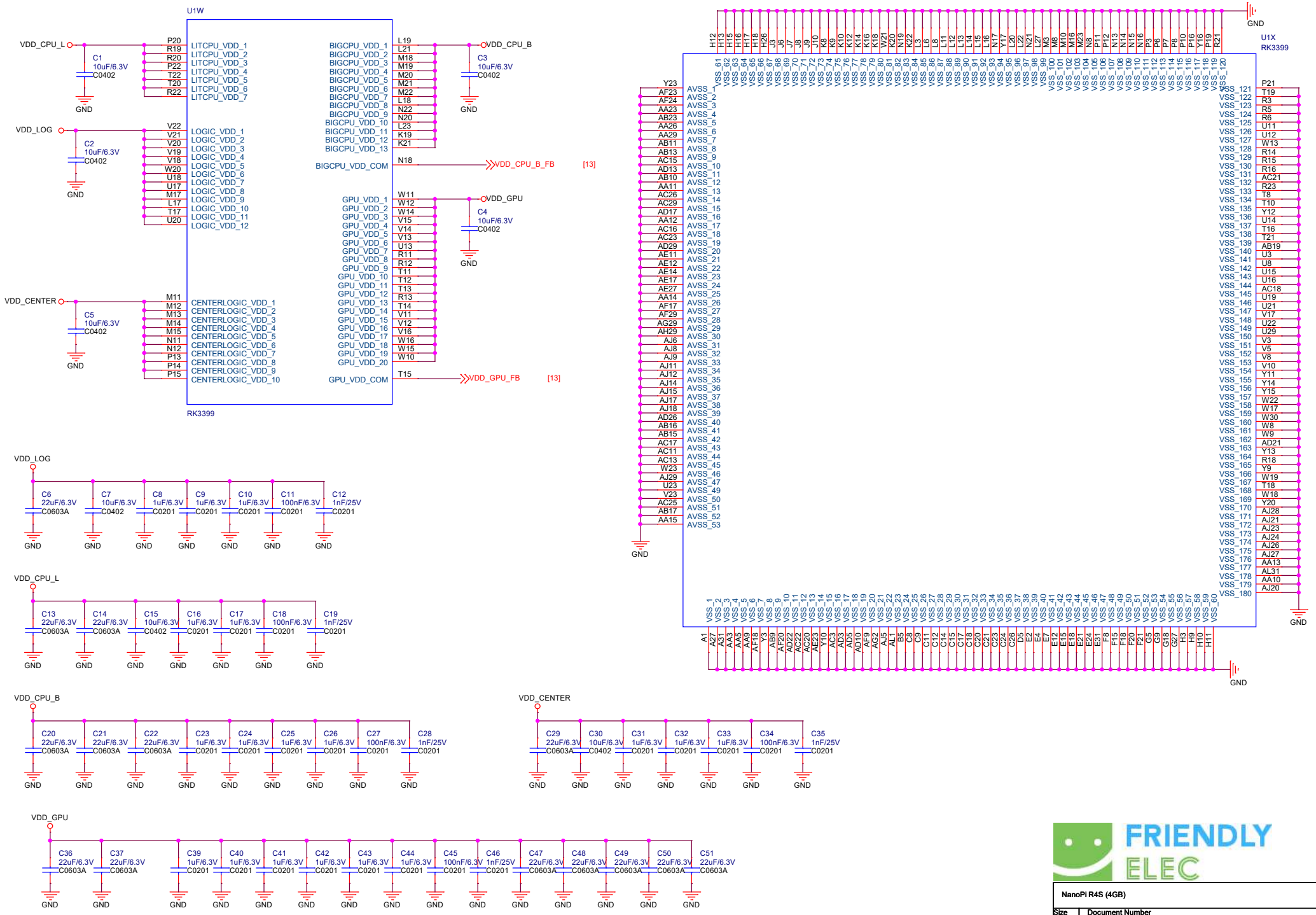
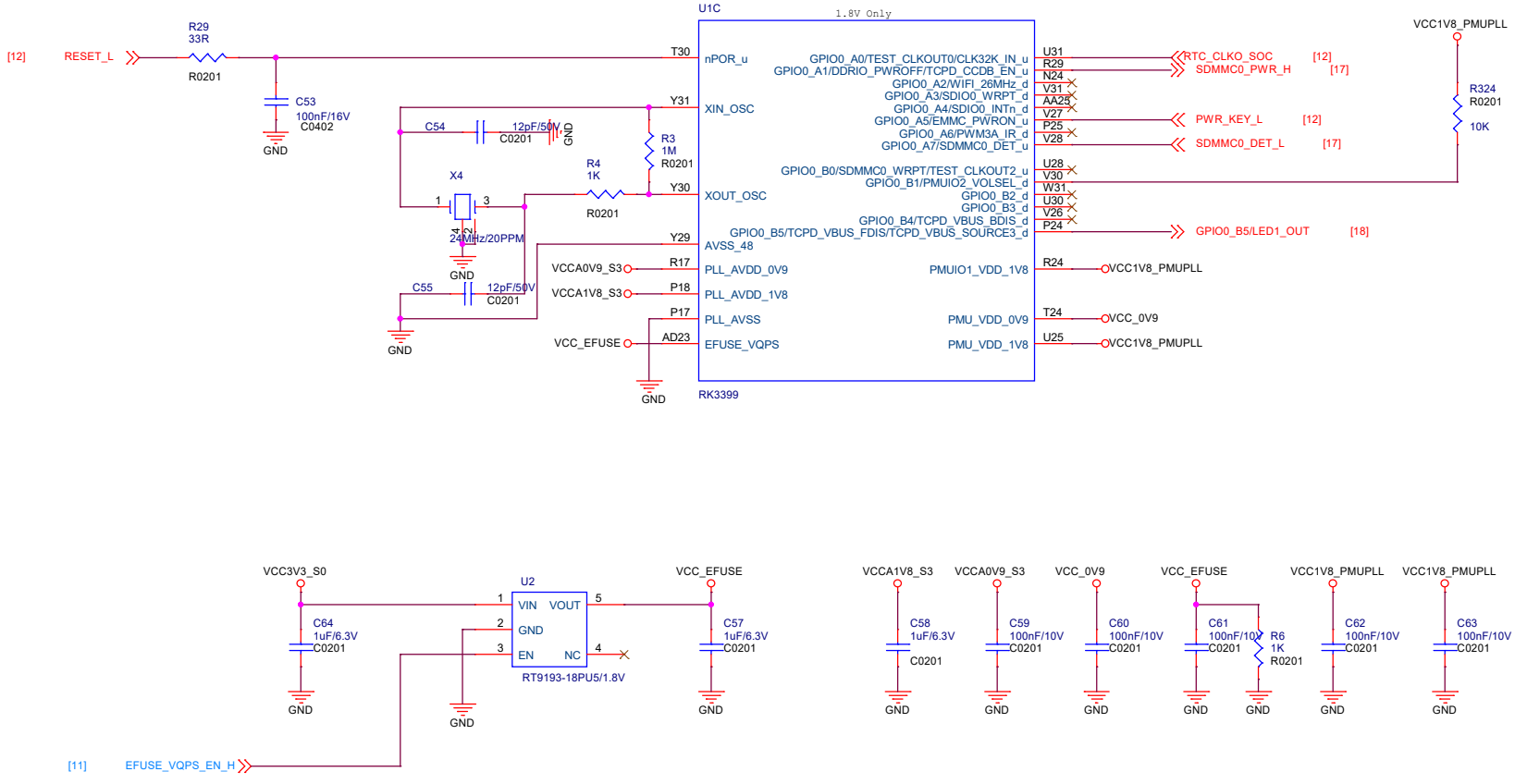
NanoPi R4S (4GB)		
Size: A3	Document Number: 01.Title	Rev: 2008
Date: Wednesday, October 28, 2020	Sheet 1 of 20	



NanoPi R4S (4GB)	
Size: A3	Document Number: 02.RK3399 Power
Rev: 2008	
Date: Wednesday, October 28, 2020	Sheet 2 of 20



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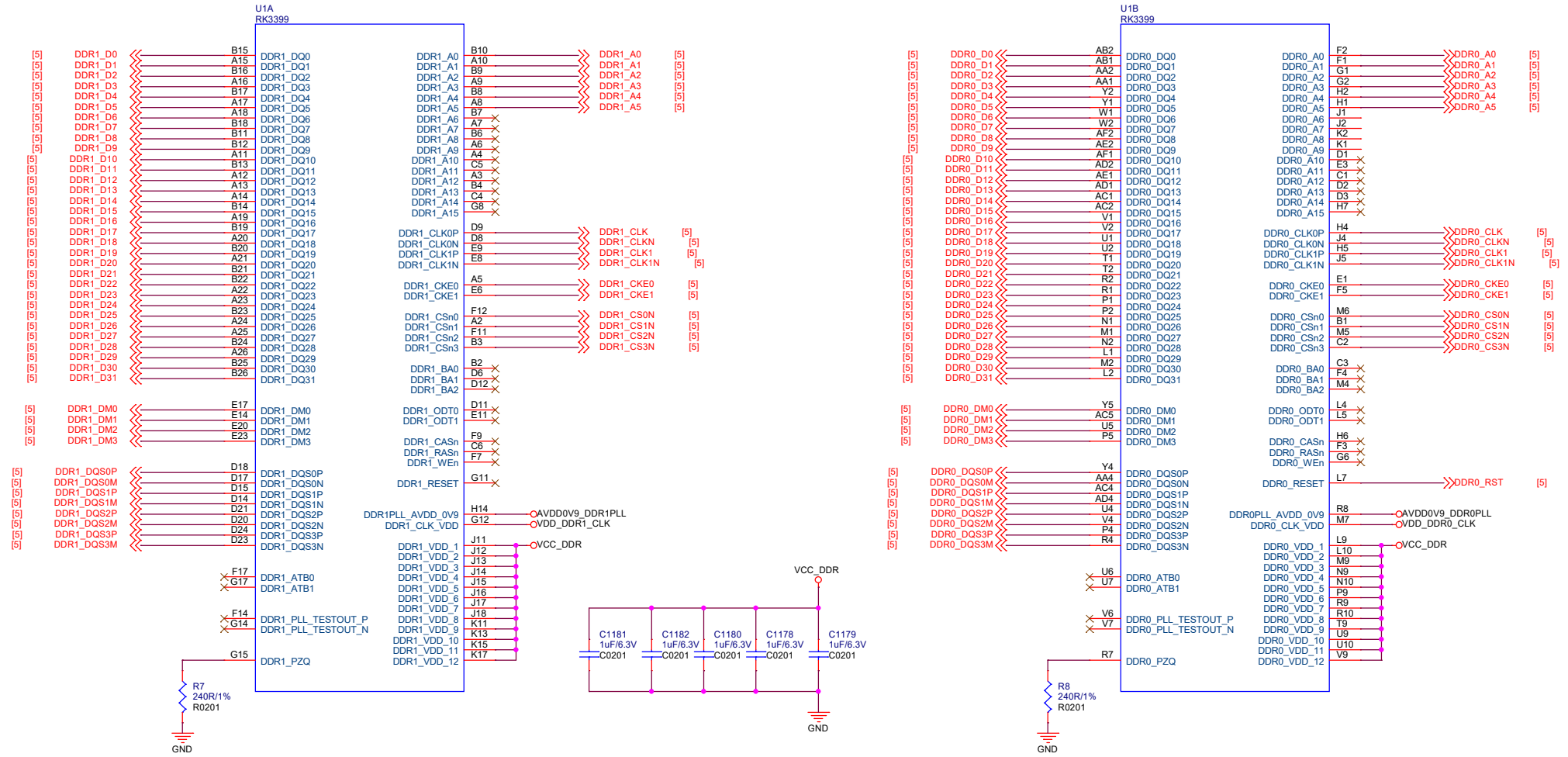
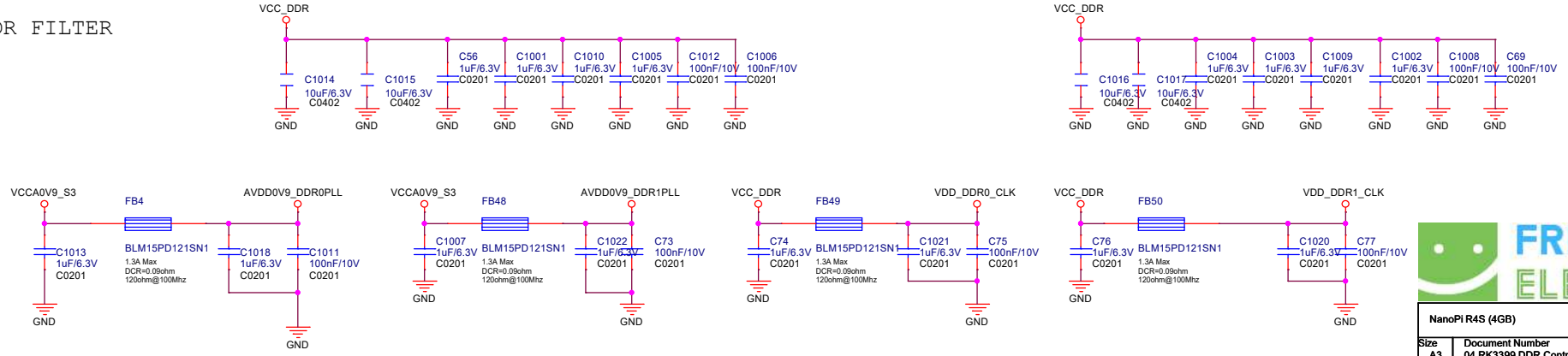
NanoPi R4S (4GB)		
Size A3	Document Number 03.RK3399 PMU Controler	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 3 of 20	



DDR FILTER



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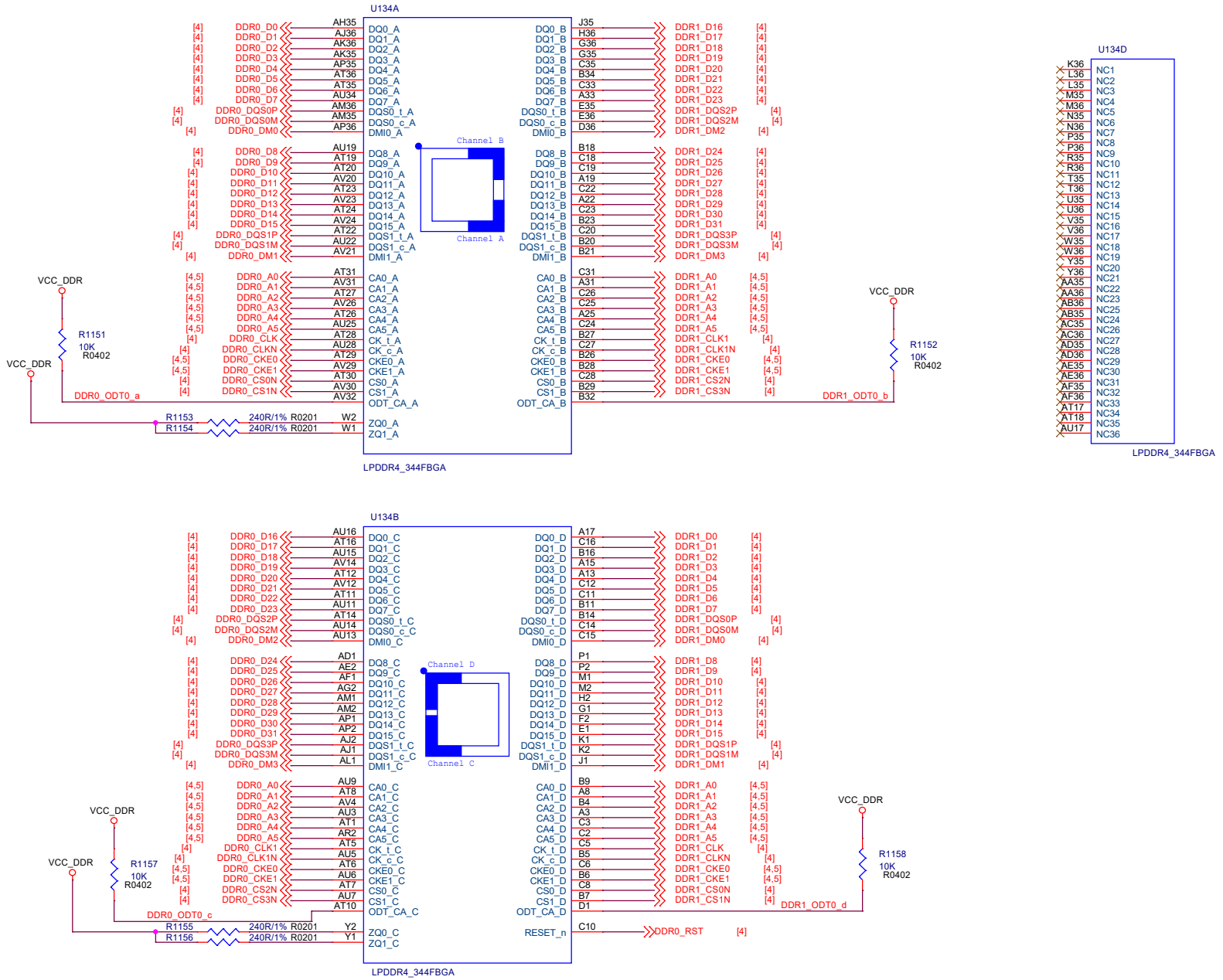
NanoPi R4S (4GB)		
Size: A3	Document Number: 04.RK3399 DDR Controler	Rev: 2008
Date: Wednesday, October 28, 2020	Sheet 4 of 20	



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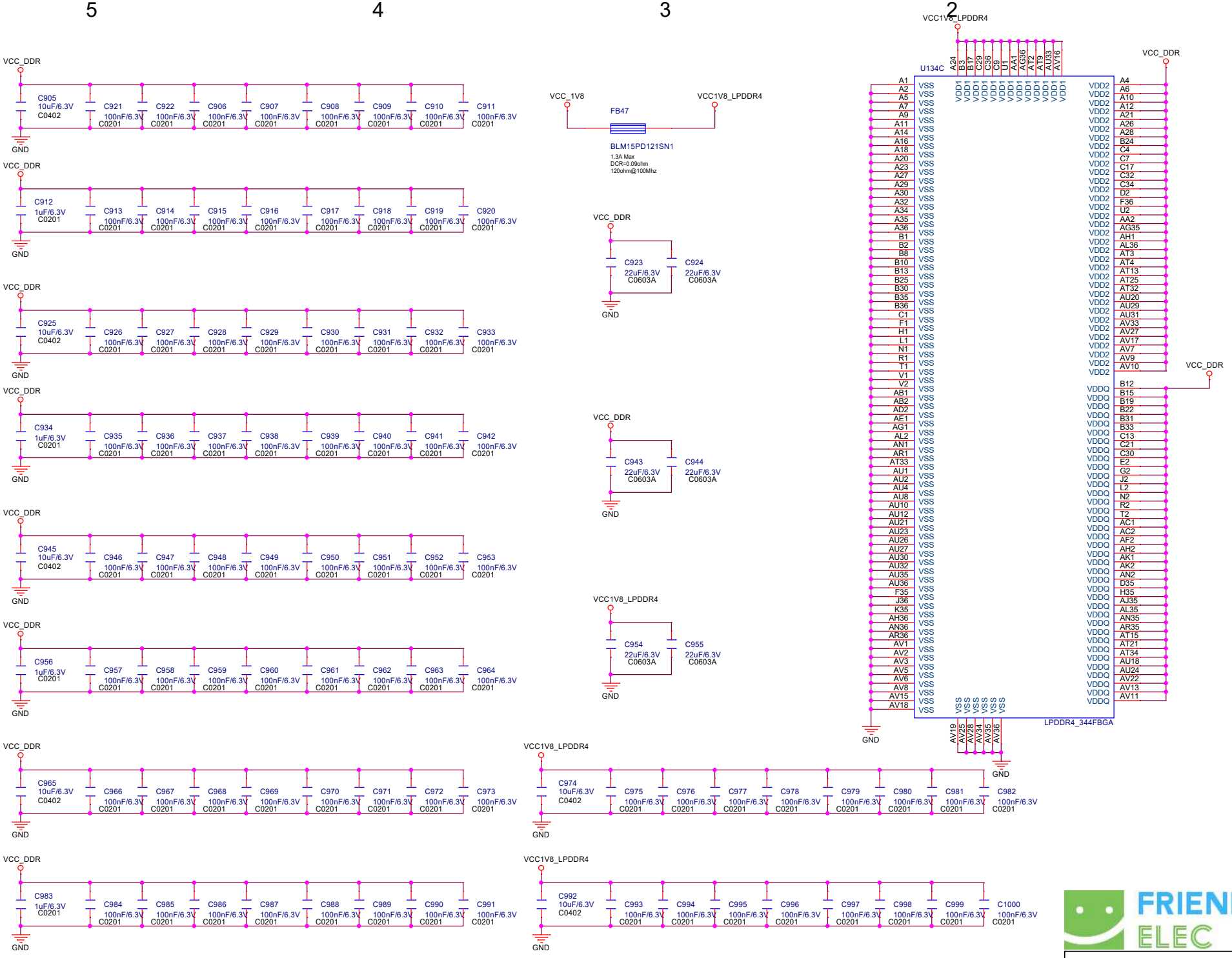
NanoPi R4S (4GB)		
Size A3	Document Number 05.LPDDR4_A	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 5 of 20	



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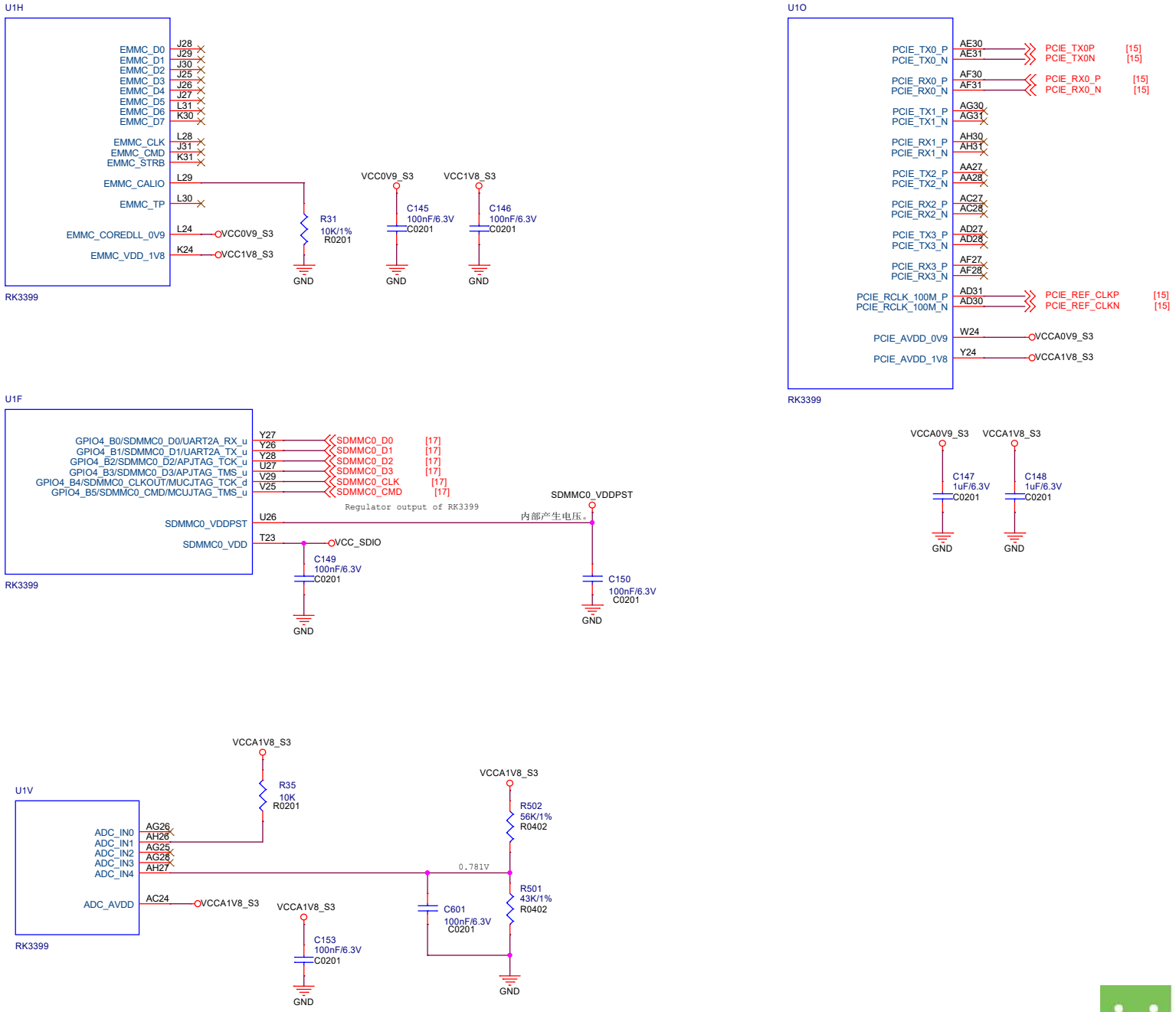
NanoPi R4S (4GB)		
Size A3	Document Number 06.LPDDR4_B	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 6 of 20	



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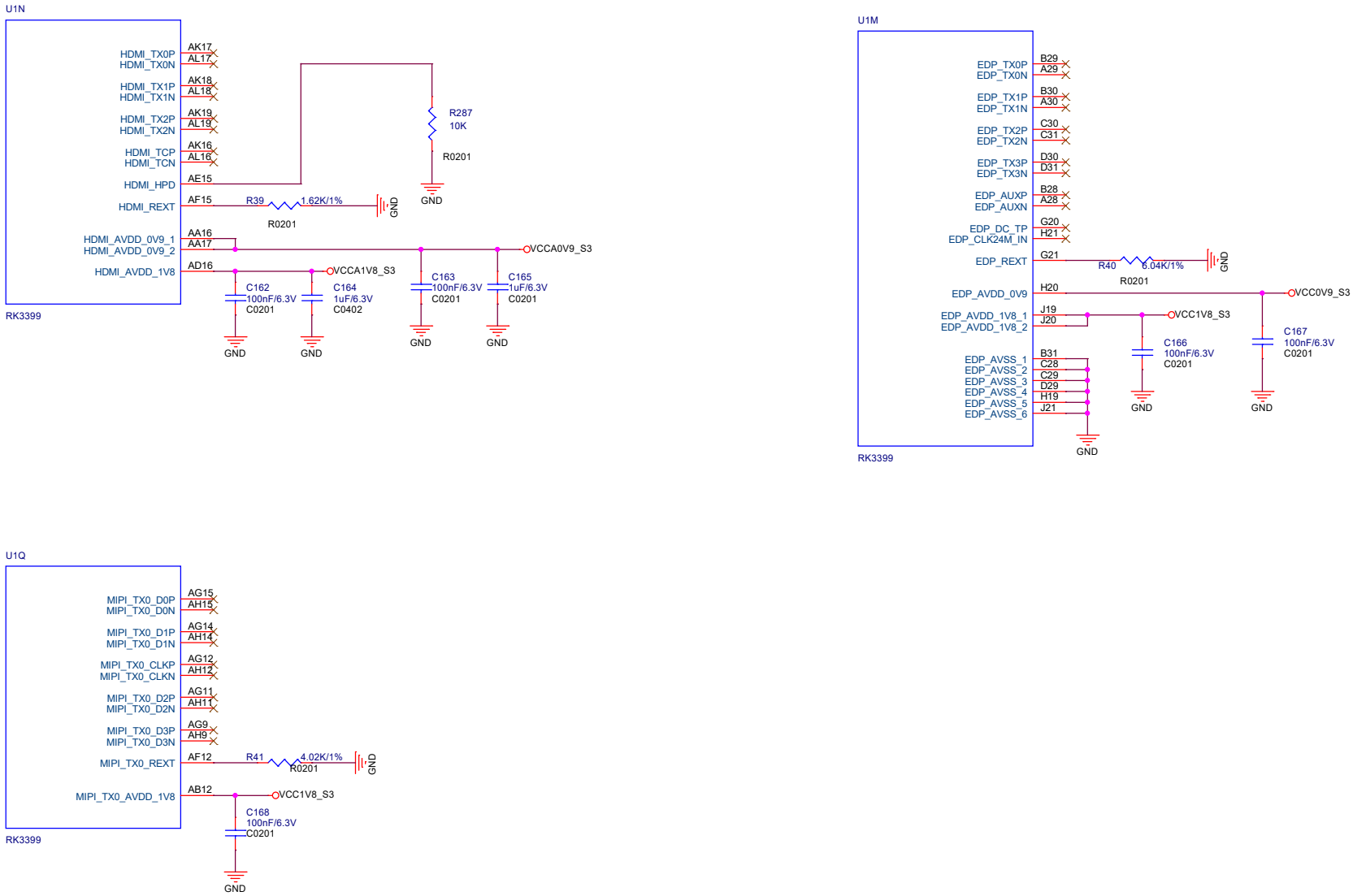
NanoPi R4S (4GB)		
Size A3	Document Number 06.RK3399 MMC/ADC/PCIe	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 7 of 20	



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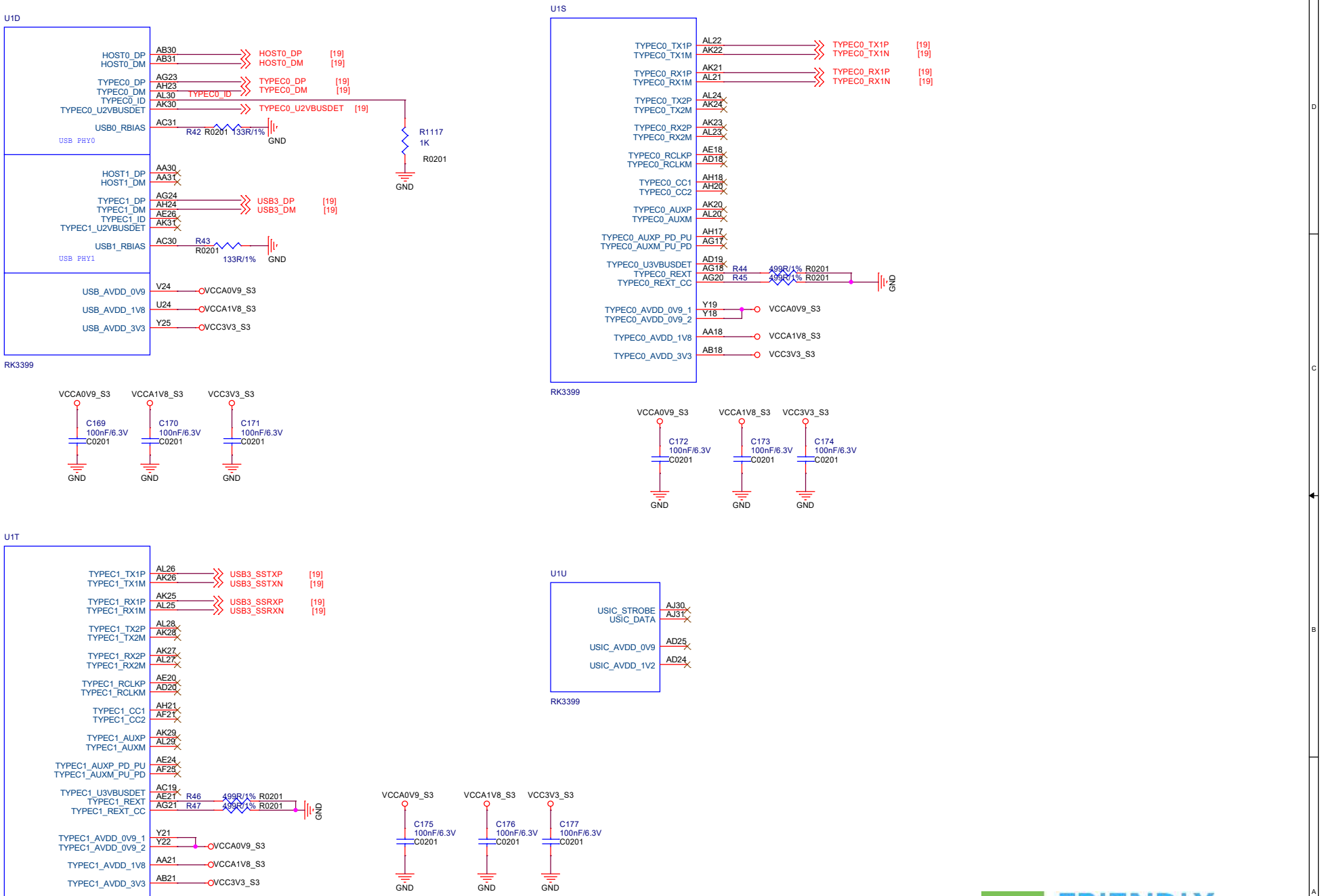
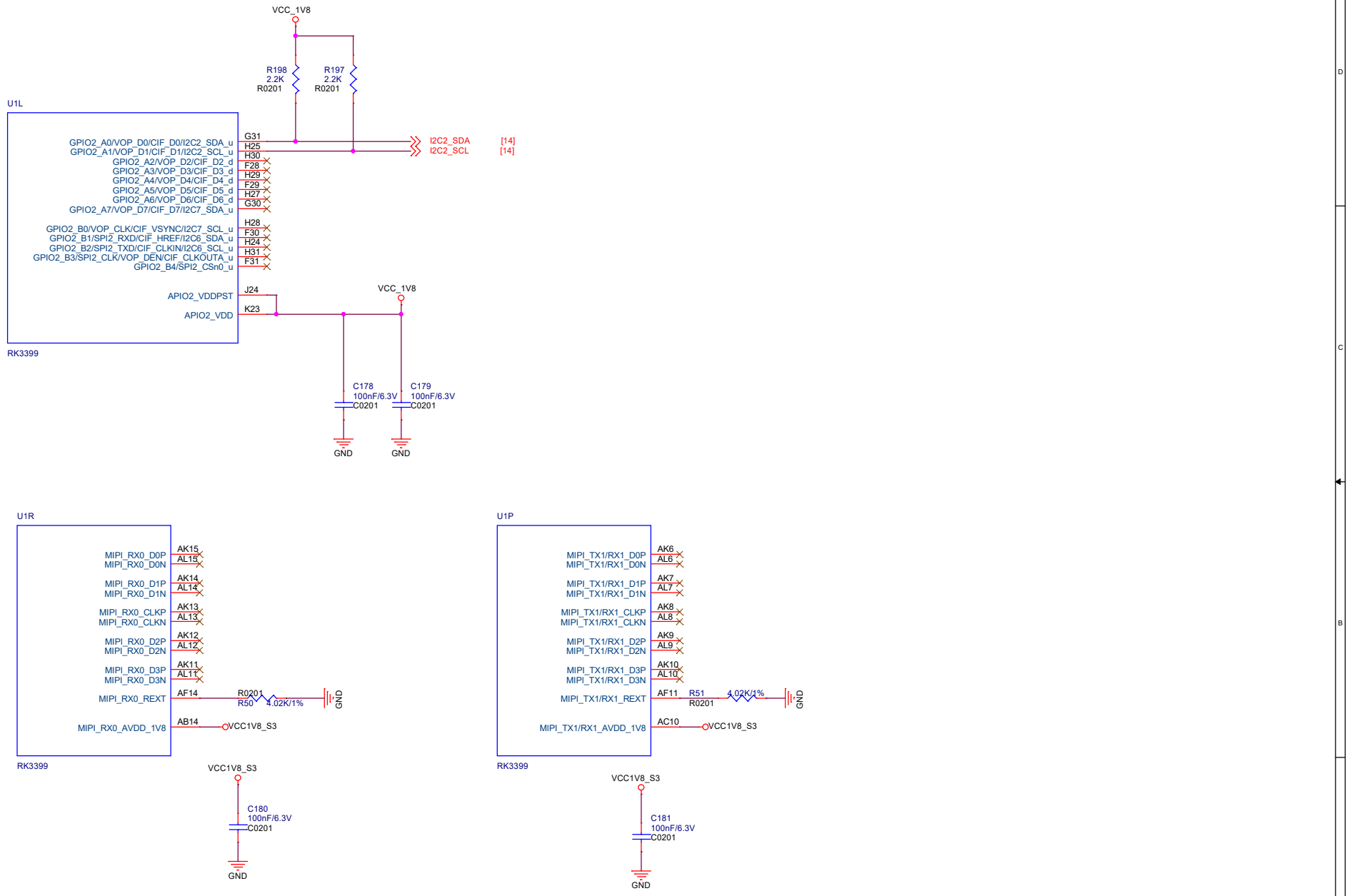
NanoPi R4S (4GB)		
Size A3	Document Number 07.RK3399 Display Interface	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 8 of 20	



NanoPi R4S (4GB)		
Size A3	Document Number 08.RK3399 USB/USIC Controler	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 9 of 20	



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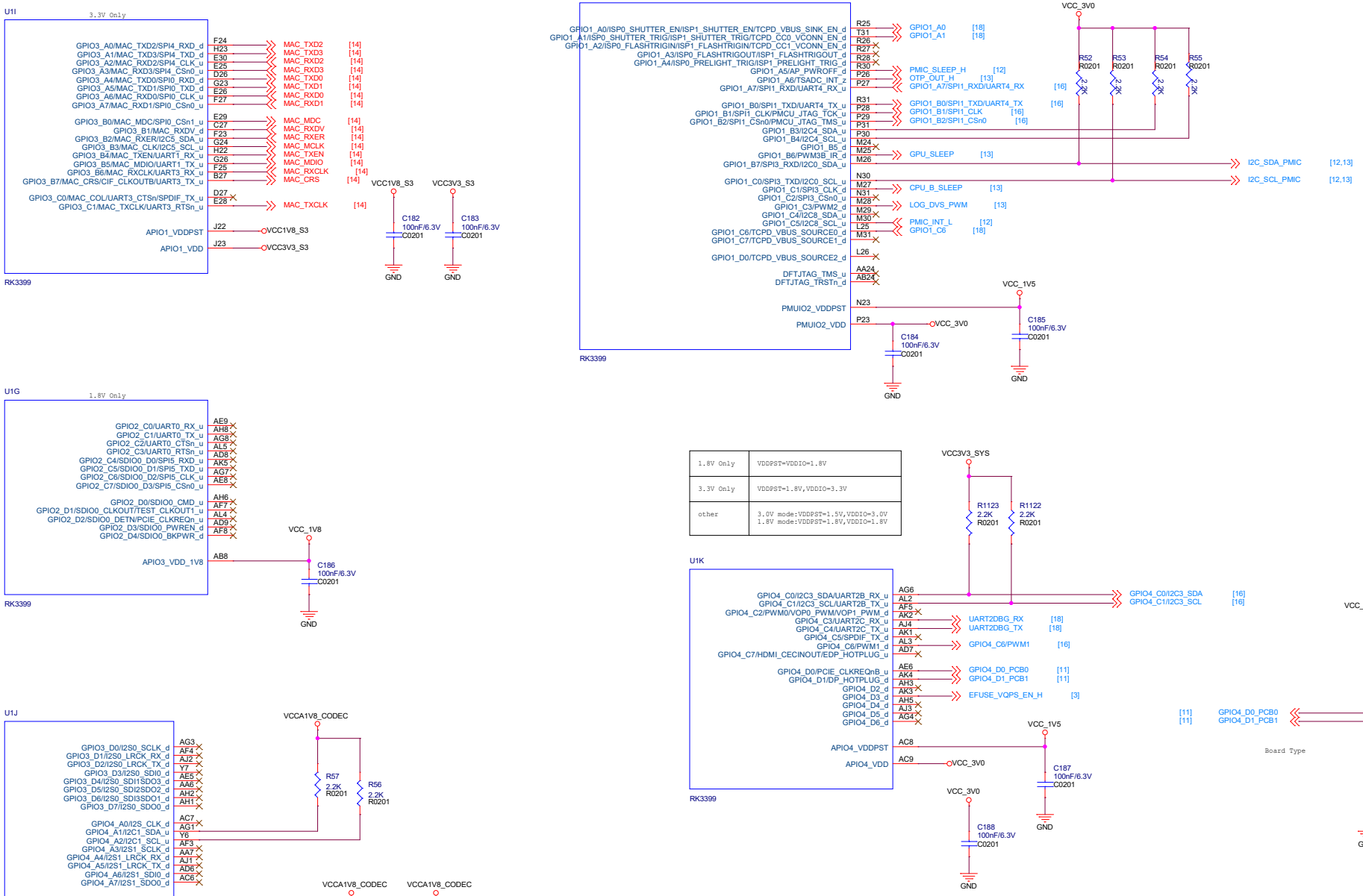
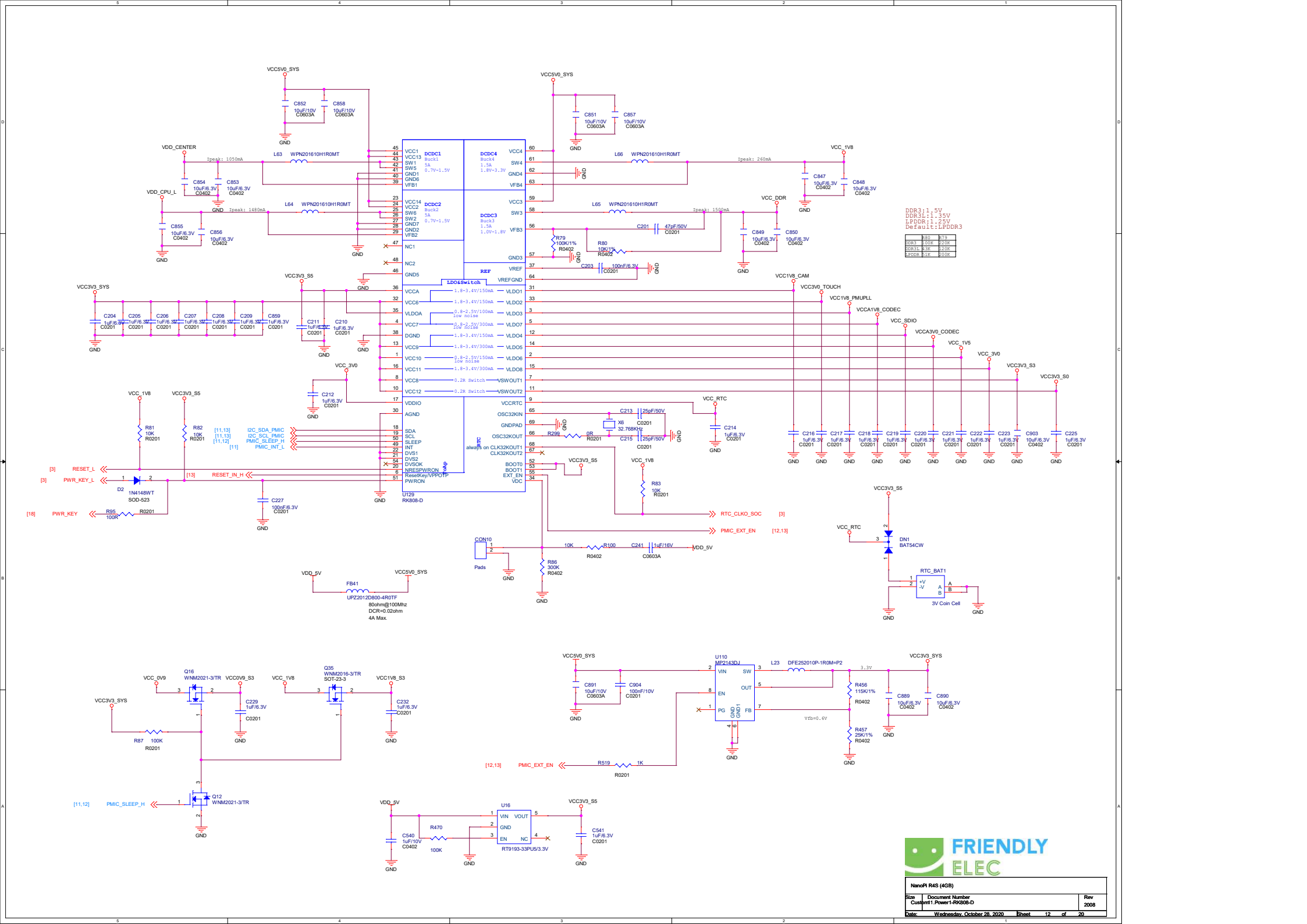
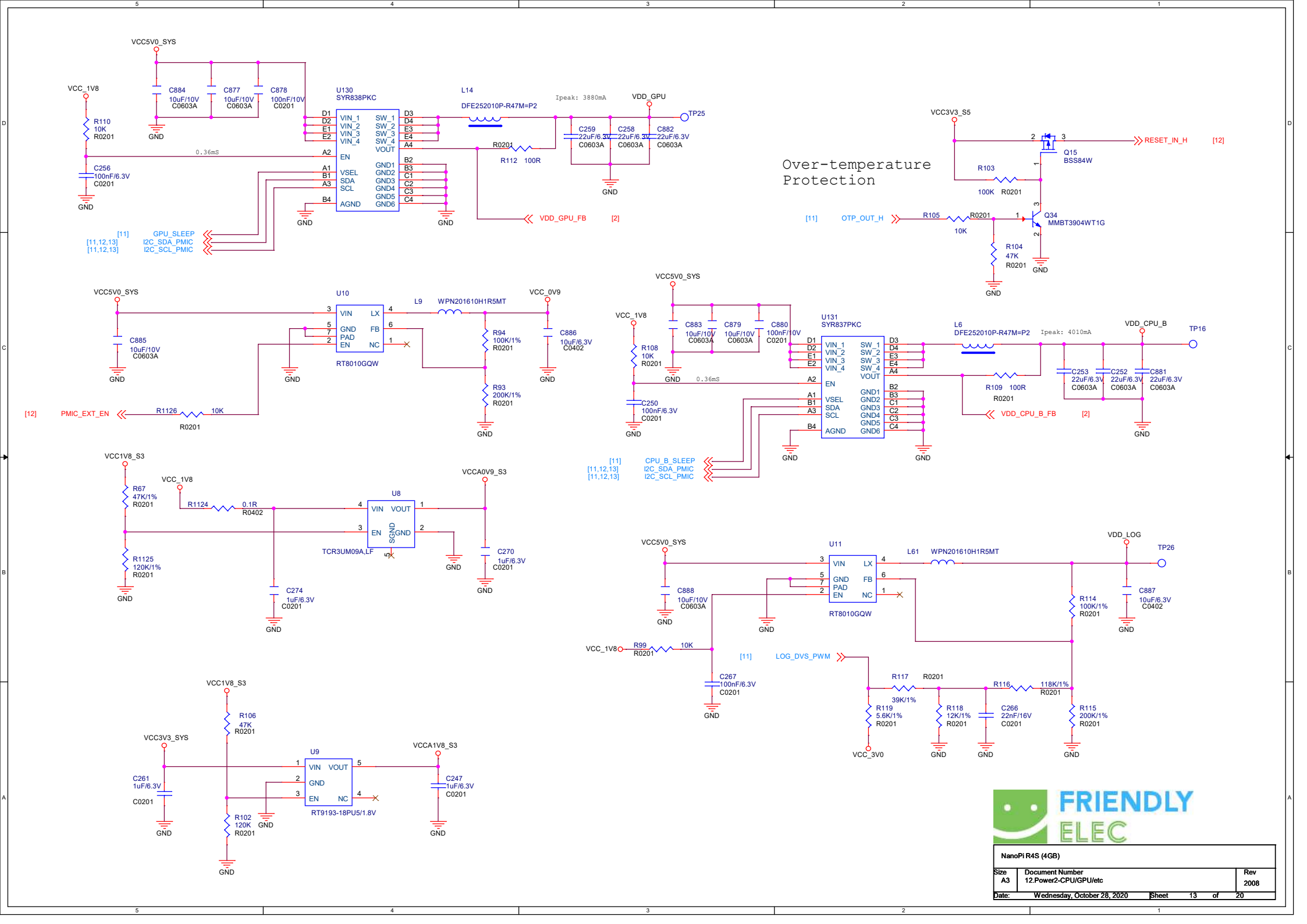
NanoPi R4S (4GB)		
Size A3	Document Number 09.RK3399 DVP/MIPI CSI	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 10 of 20	


U1I
3.3V Only
GPIO3_A0/MAC_TXD2/SPI4_RXD_d
GPIO3_A1/MAC_TXD3/SPI4_TXD_d
GPIO3_A2/MAC_RXD2/SPI4_CLK_u
GPIO3_A3/MAC_RXD3/SPI4_CSn0_u
GPIO3_A4/MAC_TXD0/SPI0_RXD_d
GPIO3_A5/MAC_TXD1/SPI0_TXD_d
GPIO3_A6/MAC_RXD0/SPI0_CLK_u
GPIO3_A7/MAC_RXD1/SPI0_CSn0_u
GPIO3_B0/MAC_MDC/SPI0_CSn1_u
GPIO3_B1/MAC_RXDV_d
GPIO3_B2/MAC_RXER/I2C5_SDA_u
GPIO3_B3/MAC_CLK/I2C5_SCL_u
GPIO3_B4/MAC_TXEN/UART1_RX_u
GPIO3_B5/MAC_MDIO/UART1_TX_u
GPIO3_B6/MAC_RXCLK/UART3_RX_u
GPIO3_B7/MAC_CRS/CIF_CLKOUTB/UART3_TX_u
GPIO3_C0/MAC_COL/UART3_CTSn/SPDIF_TX_u
GPIO3_C1/MAC_TXCLK/UART3_RTSn_u
APIO1_VDDPST
APIO1_VDD
MAC_TXD2 [14]
MAC_TXD3 [14]
MAC_RXD2 [14]
MAC_RXD3 [14]
MAC_TXD0 [14]
MAC_TXD1 [14]
MAC_RXD0 [14]
MAC_RXD1 [14]
MAC_MDC [14]
MAC_RXDV [14]
MAC_RXER [14]
MAC_MCLK [14]
MAC_TXEN [14]
MAC_MDIO [14]
MAC_RXCLK [14]
MAC_CRS [14]
MAC_TXCLK [14]
VCC1V8_S3
VCC3V3_S3
C182 100nF/6.3V C0201
C183 100nF/6.3V C0201
GND
RK3399
U1E
GPIO1_A0/ISP0_SHUTTER_EN/ISP1_SHUTTER_EN/TCPD_VBUS_SINK_EN_d
GPIO1_A1/ISP0_SHUTTER_TRIG/ISP1_SHUTTER_TRIG/TCPD_CC0_VCONN_EN_d
GPIO1_A2/ISP0_FLASHTRIGIN/ISP1_FLASHTRIGIN/TCPD_CC1_VCONN_EN_d
GPIO1_A3/ISP0_FLASHTRIGOUT/ISP1_FLASHTRIGOUT_d
GPIO1_A4/ISP0_PRELIGHT_TRIG/ISP1_PRELIGHT_TRIG_d
GPIO1_A5/AP_PWROFF_d
GPIO1_A6/TSADC_INT_z
GPIO1_A7/SPI1_RXD/UART4_RX_u
GPIO1_B0/SPI1_TXD/UART4_TX_u
GPIO1_B1/SPI1_CLK/PMCU_JTAG_TCK_u
GPIO1_B2/SPI1_CSn0/PMCU_JTAG_TMS_u
GPIO1_B3/I2C4_SDA_u
GPIO1_B4/I2C4_SCL_u
GPIO1_B5_d
GPIO1_B6/PWM3B_IR_d
GPIO1_B7/SPI3_RXD/I2C0_SDA_u
GPIO1_C0/SPI3_TXD/I2C0_SCL_u
GPIO1_C1/SPI3_CLK_d
GPIO1_C2/SPI3_CSn0_u
GPIO1_C3/PWM2_d
GPIO1_C4/I2C8_SDA_u
GPIO1_C5/I2C8_SCL_u
GPIO1_C6/TCPD_VBUS_SOURCE0_d
GPIO1_C7/TCPD_VBUS_SOURCE1_d
GPIO1_D0/TCPD_VBUS_SOURCE2_d
DFTJTAG_TMS_u
DFTJTAG_TRSTn_d
PMUIO2_VDDPST
PMUIO2_VDD
GPIO1_A0 [18]
GPIO1_A1 [18]
PMIC_SLEEP_H [12]
OTP_OUT_H [13]
GPIO1_A7/SPI1_RXD/UART4_RX [16]
GPIO1_B0/SPI1_TXD/UART4_TX [16]
GPIO1_B1/SPI1_CLK [16]
GPIO1_B2/SPI1_CSn0 [16]
GPU_SLEEP [13]
I2C_SDA_PMIC [12,13]
I2C_SCL_PMIC [12,13]
CPU_B_SLEEP [13]
LOG_DVS_PWM [13]
PMIC_INT_L [12]
GPIO1_C6 [18]
VCC_3V0
VCC_1V5
R52 R0201
R53 R0201
R54 R0201
R55 R0201
2.2K
C184 100nF/6.3V C0201
C185 100nF/6.3V C0201
GND
RK3399
U1G
1.8V Only
GPIO2_C0/UART0_RX_u
GPIO2_C1/UART0_TX_u
GPIO2_C2/UART0_CTSn_u
GPIO2_C3/UART0_RTSn_u
GPIO2_C4/SDIO0_D0/SPI5_RXD_u
GPIO2_C5/SDIO0_D1/SPI5_TXD_u
GPIO2_C6/SDIO0_D2/SPI5_CLK_u
GPIO2_C7/SDIO0_D3/SPI5_CSn0_u
GPIO2_D0/SDIO0_CMD_u
GPIO2_D1/SDIO0_CLKOUT/TEST_CLKOUT1_u
GPIO2_D2/SDIO0_DETN/PCIE_CLKREQn_u
GPIO2_D3/SDIO0_PWREN_d
GPIO2_D4/SDIO0_BKPWR_d
APIO3_VDD_1V8
VCC_1V8
C186 100nF/6.3V C0201
GND
RK3399
1.8V Only | VDDPST=VDDIO=1.8V
3.3V Only | VDDPST=1.8V,VDDIO=3.3V
other | 3.0V mode:VDDPST=1.5V,VDDIO=3.0V 1.8V mode:VDDPST=1.8V,VDDIO=1.8V
VCC3V3_SYS
R1123 2.2K R0201
R1122 2.2K R0201
U1K
GPIO4_C0/I2C3_SDA/UART2B_RX_u
GPIO4_C1/I2C3_SCL/UART2B_TX_u
GPIO4_C2/PWM0/VOP0_PWM/VOP1_PWM_d
GPIO4_C3/UART2C_RX_u
GPIO4_C4/UART2C_TX_u
GPIO4_C5/SPDIF_TX_d
GPIO4_C6/PWM1_d
GPIO4_C7/HDMI_CECINOUT/EDP_HOTPLUG_u
GPIO4_D0/PCIE_CLKREQnB_u
GPIO4_D1/DP_HOTPLUG_d
GPIO4_D2_d
GPIO4_D3_d
GPIO4_D4_d
GPIO4_D5_d
GPIO4_D6_d
APIO4_VDDPST
APIO4_VDD
GPIO4_C0/I2C3_SDA [16]
GPIO4_C1/I2C3_SCL [16]
UART2DBG_RX [18]
UART2DBG_TX [18]
GPIO4_C6/PWM1 [16]
GPIO4_D0_PCB0 [11]
GPIO4_D1_PCB1 [11]
EFUSE_VQPS_EN_H [3]
VCC_1V5
C187 100nF/6.3V C0201
C188 100nF/6.3V C0201
GND
RK3399
VCC_3V0
R74 1K R0402
R85 1K R0402
R68 1K/NC R0402
R69 1K/NC R0402
Board Type
U1J
GPIO3_D0/I2S0_SCLK_d
GPIO3_D1/I2S0_LRCK_RX_d
GPIO3_D2/I2S0_LRCK_TX_d
GPIO3_D3/I2S0_SDI0_d
GPIO3_D4/I2S0_SDI1SDO3_d
GPIO3_D5/I2S0_SDI2SDO2_d
GPIO3_D6/I2S0_SDI3SDO1_d
GPIO3_D7/I2S0_SDO0_d
GPIO4_A0/I2S_CLK_d
GPIO4_A1/I2C1_SDA_u
GPIO4_A2/I2C1_SCL_u
GPIO4_A3/I2S1_SCLK_d
GPIO4_A4/I2S1_LRCK_RX_d
GPIO4_A5/I2S1_LRCK_TX_d
GPIO4_A6/I2S1_SDI0_d
GPIO4_A7/I2S1_SDO0_d
APIO5_VDDPST
APIO5_VDD
VCCA1V8_CODEC
R57 2.2K R0201
R56 2.2K R0201
C189 100nF/6.3V C0201
C845 100nF/6.3V C0201
GND
RK3399
NanoPi R4S (4GB)
Size
Custom
Document Number
10.RK3399 RGMII/SDIO/SPI/etc
Rev
2008
Date: Wednesday, October 28, 2020
Sheet 11 of 20


VCC5V0_SYS
C852 10uF/10V C0603A
C858 10uF/10V C0603A
GND
VDD_CENTER
Ipeak: 1050mA
L63 WPN201610H1R0MT
C854 10uF/6.3V C0402
C853 10uF/6.3V C0402
VDD_CPU_L
Ipeak: 1480mA
L64 WPN201610H1R0MT
C855 10uF/6.3V C0402
C856 10uF/6.3V C0402
DCDC1 Buck1 5A 0.7V-1.5V
DCDC2 Buck2 5A 0.7V-1.5V
DCDC3 Buck3 1.5A 1.0V-1.8V
DCDC4 Buck4 1.5A 1.8V-3.3V
NC1
NC2
GND5
REF
VREFGND
LDO&Switch
VCCA 1.8-3.4V/150mA VLDO1
VCC6 1.8-3.4V/150mA VLDO2
VLDOA 0.8-2.5V/100mA low noise VLDO3
VCC7 0.8-2.5V/300mA low noise VLDO7
DGND 1.8-3.4V/150mA VLDO4
VCC9 1.8-3.4V/300mA VLDO5
VCC10 0.8-2.5V/150mA low noise VLDO6
VCC11 1.8-3.4V/300mA VLDO8
VCC8 0.2R Switch VSWOUT1
VCC12 0.2R Switch VSWOUT2
VDDIO
AGND
SDA
SCL
SLEEP
INT
DVS1
DVS2
DVSOK
NRESPWRON
ResetKey/VPPOTP
PWRON
VCCRTC
OSC32KIN
GNDPAD
OSC32KOUT
always on CLK32KOUT1
CLK32KOUT2
BOOT0
BOOT1
EXT_EN
VDC
U129 RK808-D
VCC5V0_SYS
C851 10uF/10V C0603A
C857 10uF/10V C0603A
L66 WPN201610H1R0MT
Ipeak: 260mA
VCC_1V8
C847 10uF/6.3V C0402
C848 10uF/6.3V C0402
L65 WPN201610H1R0MT
Ipeak: 1500mA
VCC_DDR
C201 47pF/50V C0201
C849 10uF/6.3V C0402
C850 10uF/6.3V C0402
R79 100K/1% R0402
R80 10K/1% R0402
C203 100nF/6.3V C0201
DDR3:1.5V
DDR3L:1.35V
LPDDR:1.25V
Default:LPDDR3
R80 R79
DDR3 100K 220K
DDR3L 43K 120K
LPDDR 51K 200K
VCC3V3_SYS
C204 1uF/6.3V C0201
C205 1uF/6.3V C0201
C206 1uF/6.3V C0201
C207 1uF/6.3V C0201
C208 1uF/6.3V C0201
C209 1uF/6.3V C0201
C859 1uF/6.3V C0201
VCC3V3_S5
C211 1uF/6.3V C0201
C210 1uF/6.3V C0201
VCC_3V0
C212 1uF/6.3V C0201
VCC1V8_CAM
VCC3V0_TOUCH
VCC1V8_PMUPLL
VCCA1V8_CODEC
VCC_SDIO
VCCA3V0_CODEC
VCC_1V5
VCC_3V0
VCC3V3_S3
VCC3V3_S0
C213 25pF/50V C0201
X6 32.768KHz
C215 25pF/50V C0201
R299 0R R0201
C214 1uF/6.3V C0201
C216 1uF/6.3V C0201
C217 1uF/6.3V C0201
C218 1uF/6.3V C0201
C219 1uF/6.3V C0201
C220 1uF/6.3V C0201
C221 1uF/6.3V C0201
C222 1uF/6.3V C0201
C223 1uF/6.3V C0201
C903 10uF/6.3V C0402
C225 1uF/6.3V C0201
VCC_1V8
VCC3V3_S5
R81 10K R0201
R82 10K R0201
[11,13] I2C_SDA_PMIC
[11,13] I2C_SCL_PMIC
[11,12] PMIC_SLEEP_H
[11] PMIC_INT_L
[3] RESET_L
[3] PWR_KEY_L
[13] RESET_IN_H
D2 1N4148WT SOD-523
[18] PWR_KEY
R95 100R
R0201
C227 100nF/6.3V C0201
R83 10K R0201
RTC_CLKO_SOC [3]
PMIC_EXT_EN [12,13]
CON10 Pads
10K R100 R0402
C241 1uF/16V C0603A
VDD_5V
R86 300K R0402
VDD_5V
FB41 UPZ2012D800-4R0TF
80ohm@100Mhz
DCR=0.02ohm
4A Max
VCC5V0_SYS
DN1 BAT54CW
RTC_BAT1
3V Coin Cell
Q16 WNM2021-3/TR
VCC_0V9
VCC0V9_S3
C229 1uF/6.3V C0201
Q35 WNM2016-3/TR SOT-23-3
VCC1V8_S3
C232 1uF/6.3V C0201
R87 100K R0201
Q12 WNM2021-3/TR
[11,12] PMIC_SLEEP_H
U110 MP2143DJ
VIN SW EN OUT PG FB GND GND1
L23 DFE252010P-1R0M=P2
3.3V
R456 115K/1% R0402
R457 25K/1% R0402
Vfb=0.6V
C889 10uF/6.3V C0402
C890 10uF/6.3V C0402
C891 10uF/10V C0603A
C904 100nF/10V C0201
[12,13] PMIC_EXT_EN
R519 1K R0201
U16 RT9193-33PU5/3.3V
VIN VOUT GND EN NC
R470 100K
C540 1uF/10V C0402
C541 1uF/6.3V C0201
FRIENDLY ELEC
NanoPi R4S (4GB)
Size Document Number Rev
Custom1.Power1-RK808-D 2008
Date: Wednesday, October 28, 2020 Sheet 12 of 20



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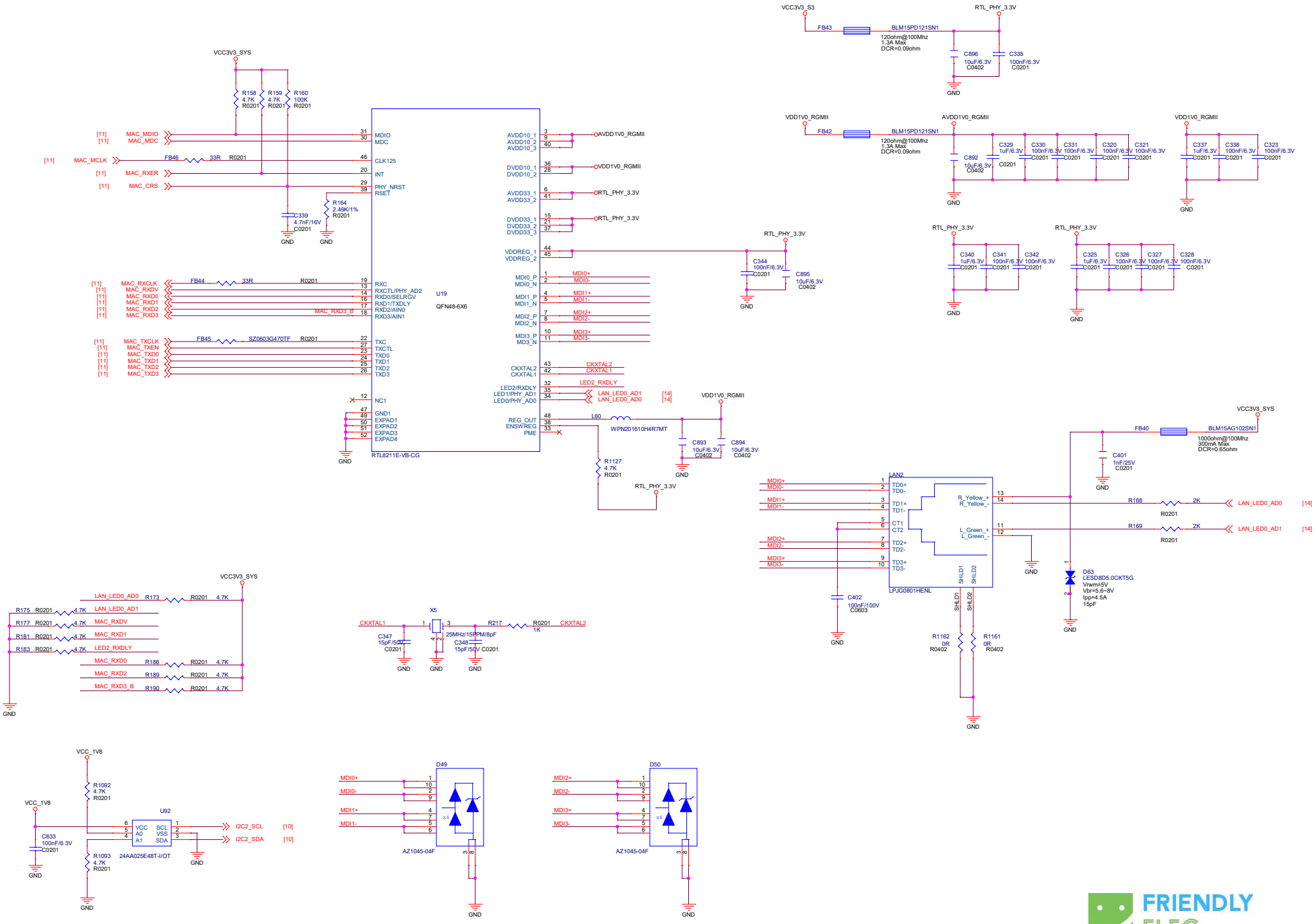
NanoPi R4S (4GB)		
Size A3	Document Number 12.Power2-CPU/GPU/etc	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 13 of 20	

10/100/1000M Ethernet



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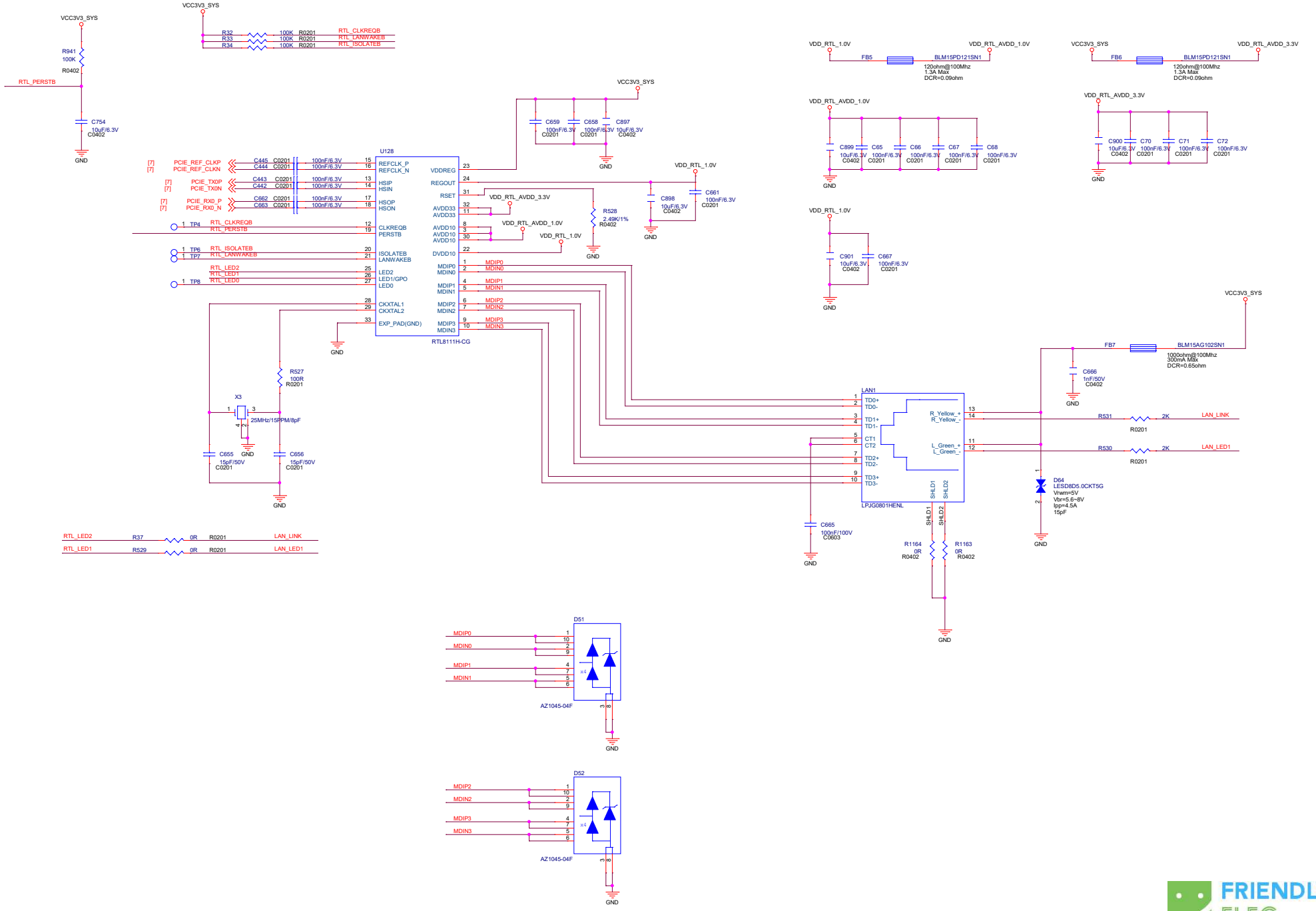
NanoPI R4S (4GB)		
Size A2	Document Number 14.RGMII-10/100/1000M	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 14 of 20	



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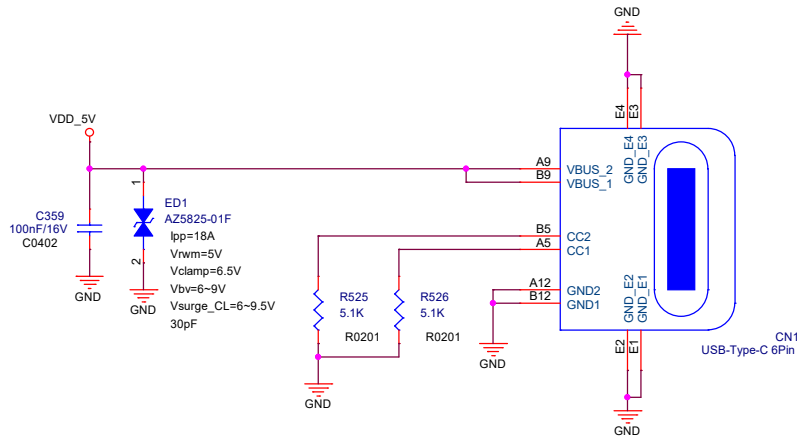
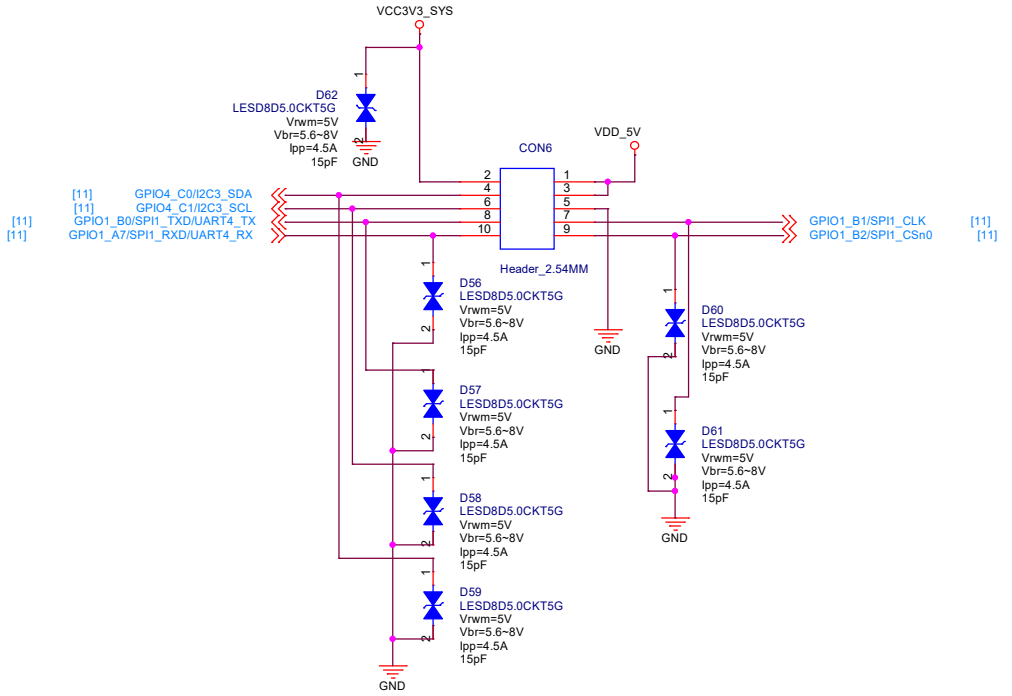
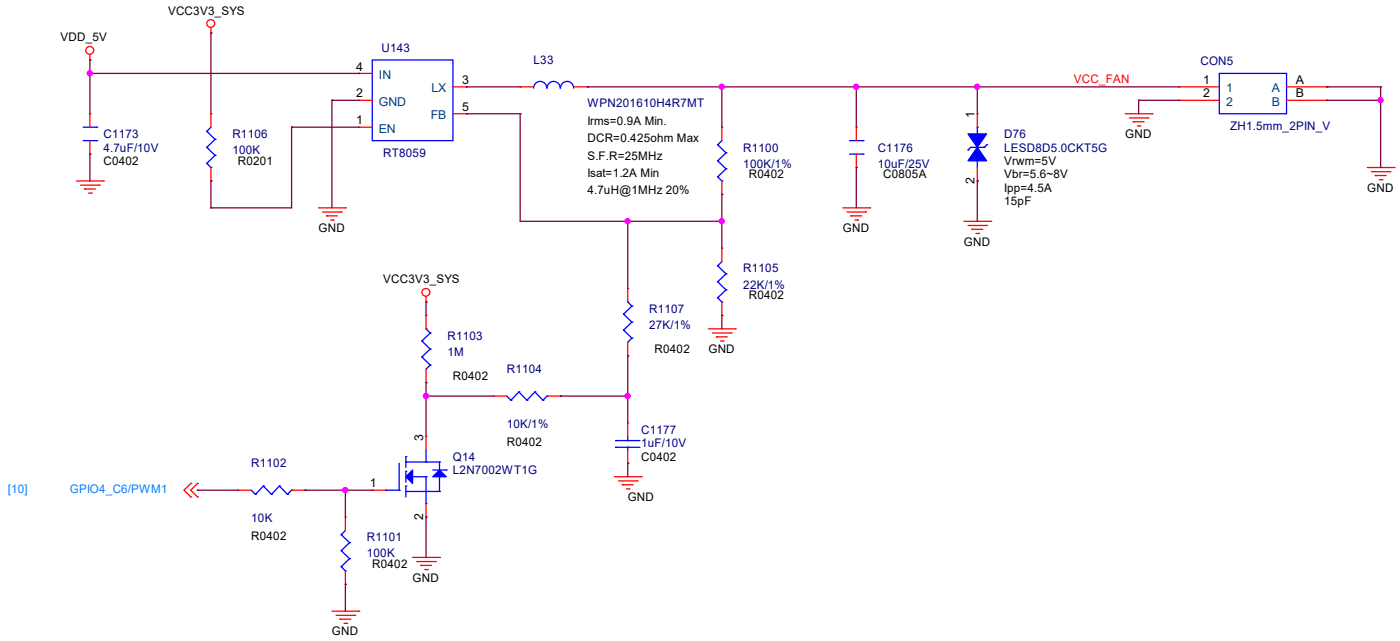
NanoPI R4S (4GB)		
Size A2	Document Number 15.PCIe LAN	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 15 of 20	

USB Type-C





FAN



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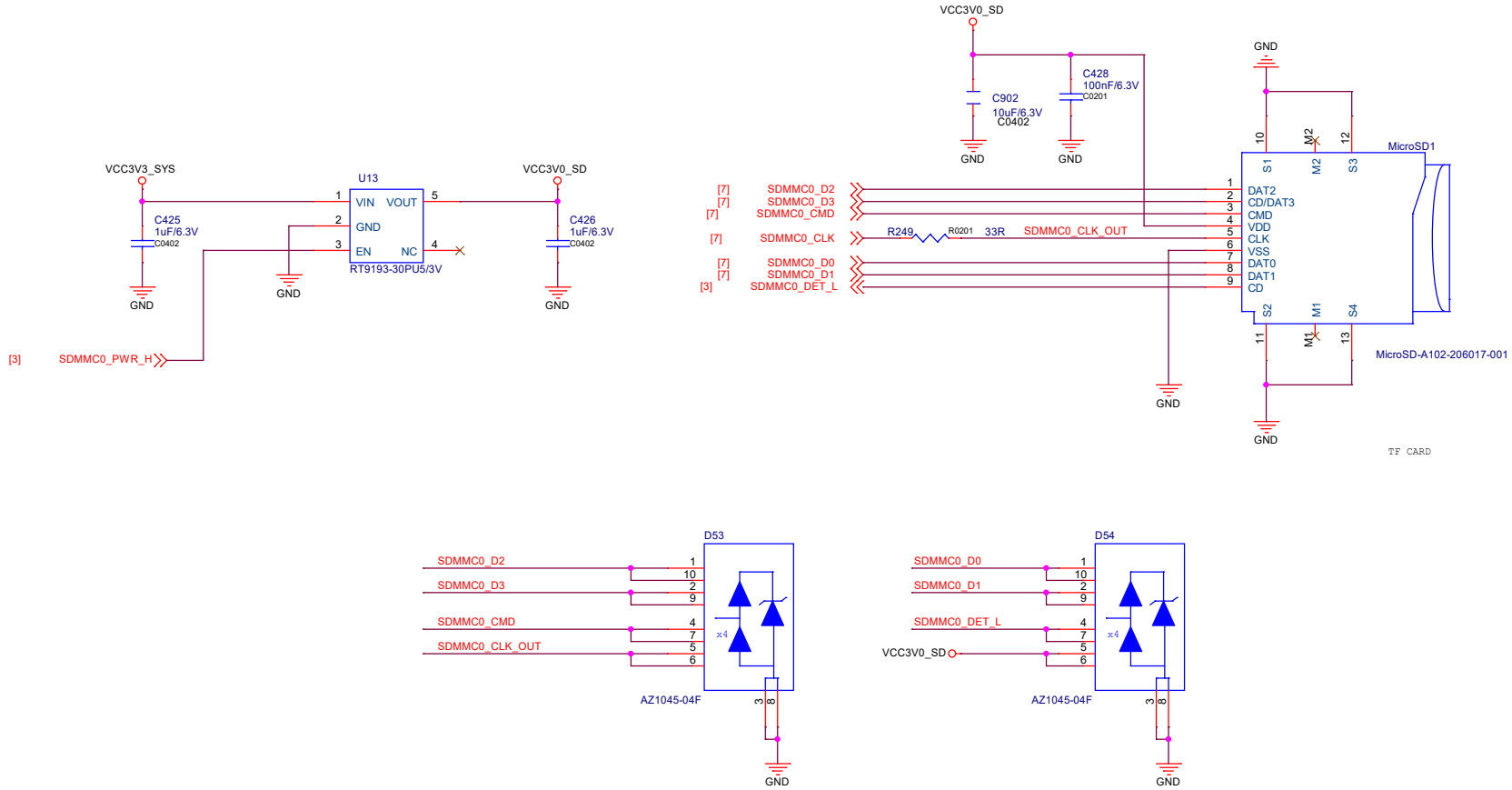
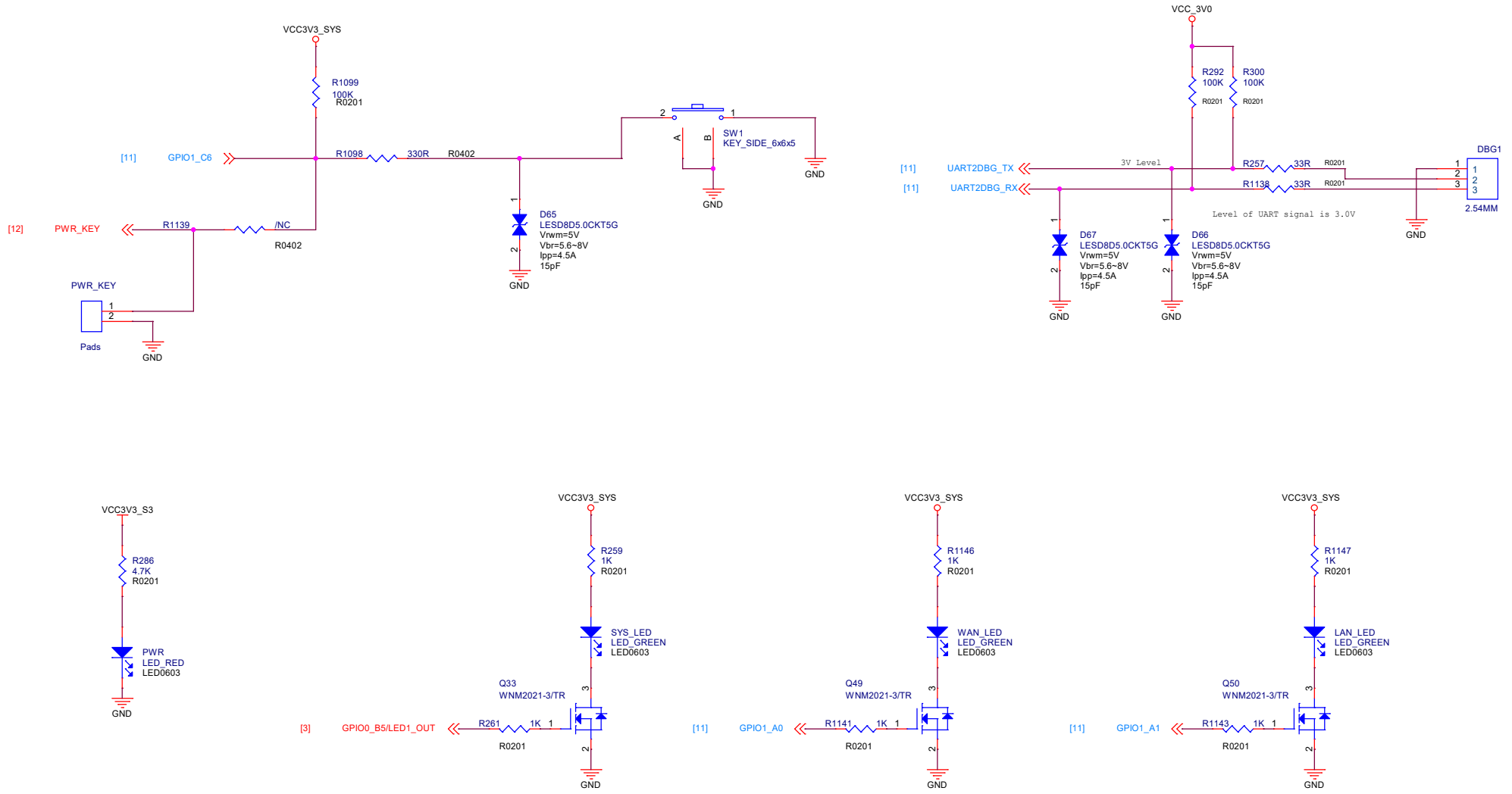
NanoPi R4S (4GB)		
Size A3	Document Number 16.USB Type-C	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 16 of 20	



NanoPi R4S (4GB)		
Size A3	Document Number 17.SD Card	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 17 of 20	



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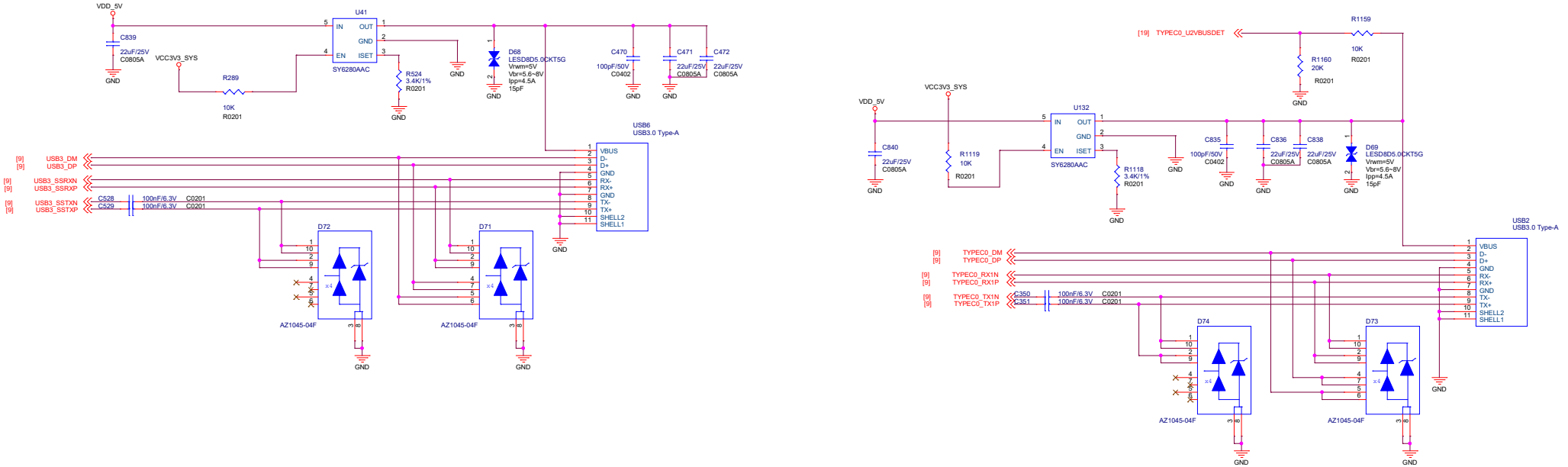
NanoPi R4S (4GB)		
Size A3	Document Number 18.Key/LED/Debug	Rev 2008
Date: Wednesday, October 28, 2020	Sheet 18 of 20	

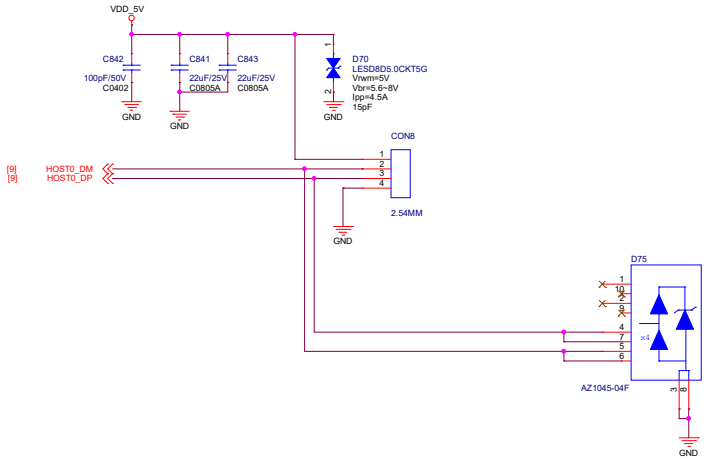
5 4 3 2 1

D C B A

USB3.0 Host



USB2.0 Host



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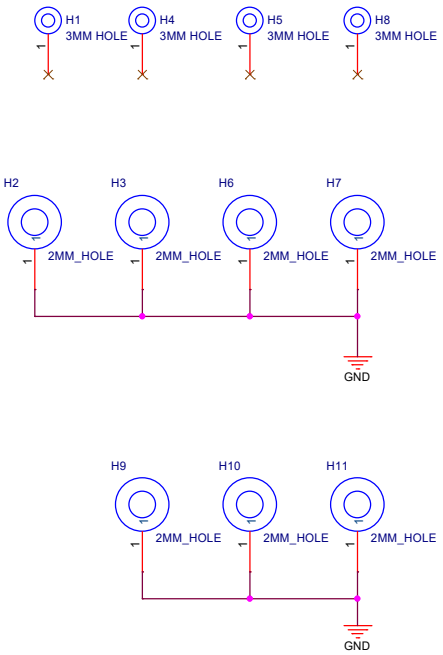
NanoPi R4S (4GB)

Size	Document Number	Rev
A2	19.USB3-Ports	2008

Date: Wednesday, October 28, 2020 Sheet 19 of 20



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NanoPi R4S (4GB)		
Size: A3	Document Number: 20.Holes	Rev: 2008
Date: Wednesday, October 28, 2020	Sheet 20 of 20	