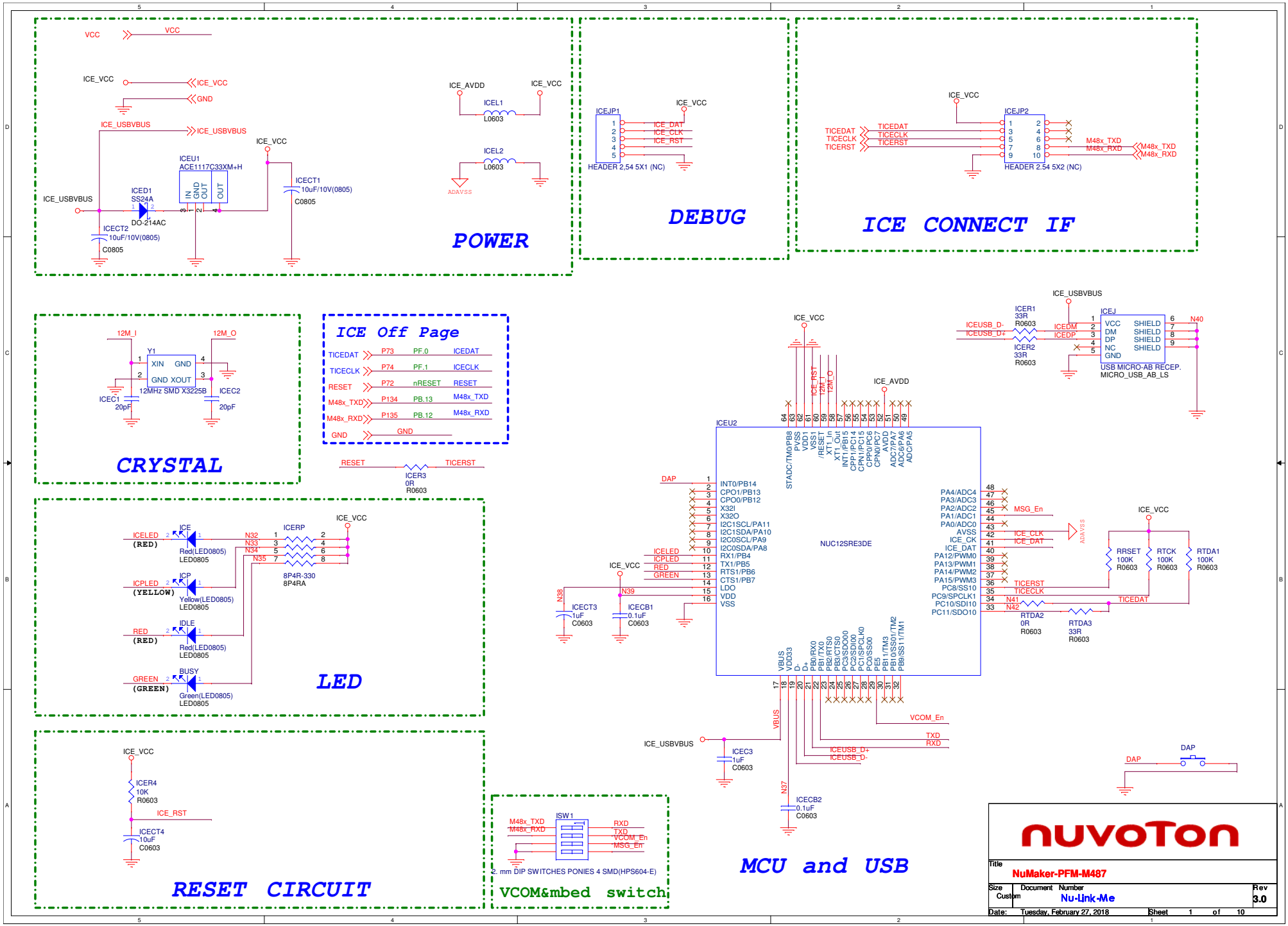
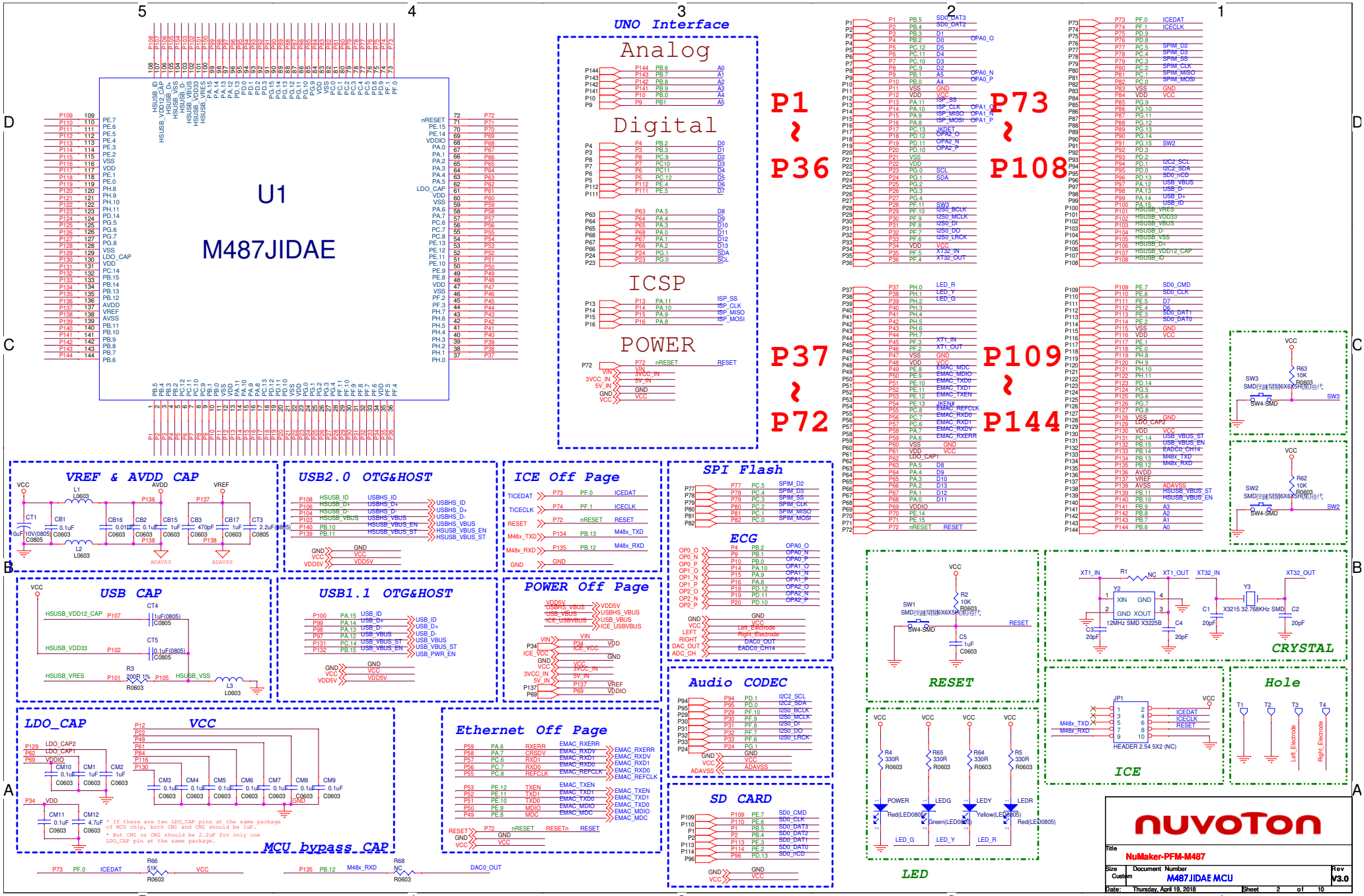
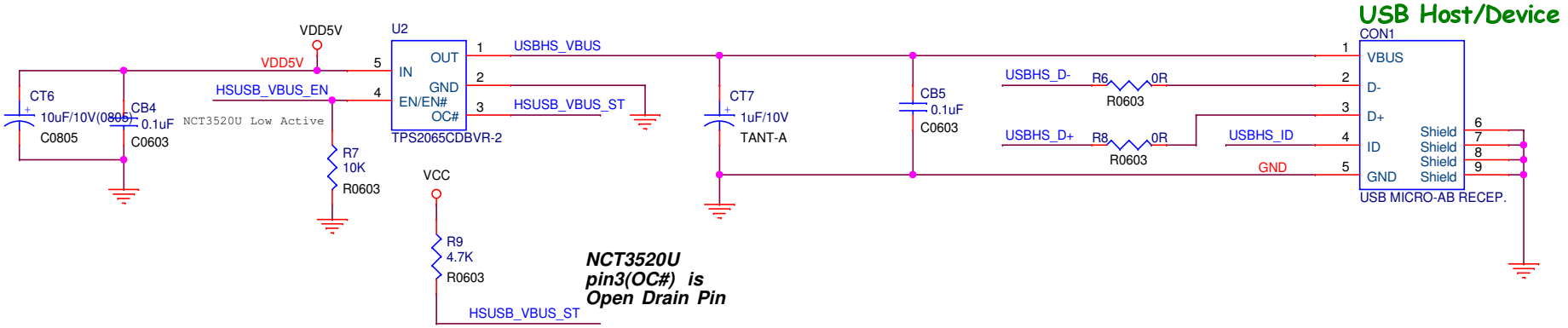
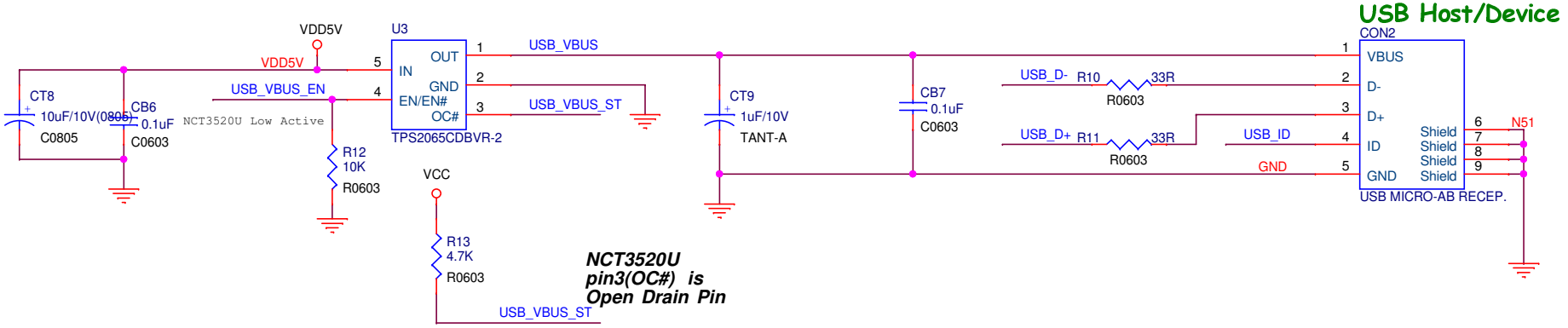

POWER
DEBUG
ICE CONNECT IF
CRYSTAL
ICE Off Page
LED
RESET CIRCUIT
VCOM&mbed switch
MCU and USB
NUC12SRE3DE
USB MICRO-AB RECEP.
MICRO_USB_AB_LS
HEADER 2.54 5X1 (NC)
HEADER 2.54 5X2 (NC)
12MHz SMD X3225B
8P4R-330
8P4RA
2. mm DIP SWITCHES PONIES 4 SMD(HPS604-E)
NuMaker-PFM-M487
Nu-Link-Me
Tuesday, February 27, 2018


UNO Interface
Analog
Digital
ICSP
POWER
P1 ~ P36
P73 ~ P108
P37 ~ P72
P109 ~ P144
U1
M487JIDAE
VREF & AVDD CAP
USB2.0 OTG&HOST
ICE Off Page
SPI Flash
ECG
USB CAP
USB1.1 OTG&HOST
POWER Off Page
Audio CODEC
LDO_CAP
VCC
MCU bypass CAP
Ethernet Off Page
SD CARD
RESET
CRYSTAL
Hole
ICE
LED
nuvoTon
NuMaker-PFM-M487
M487JIDAE MCU
V3.0
Thursday, April 19, 2018

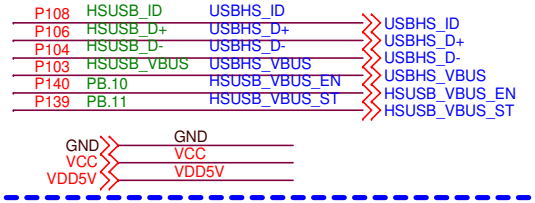
USB2.0 OTG HOST/DEVICE



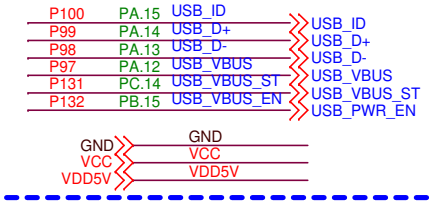
USB1.1 OTG HOST/DEVICE



USB2.0 OTG&HOST



USB1.1 OTG&HOST



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Title: NuMaker-PFM-M487		
Size: A4	Document Number: USB OTG	Rev: V3.0
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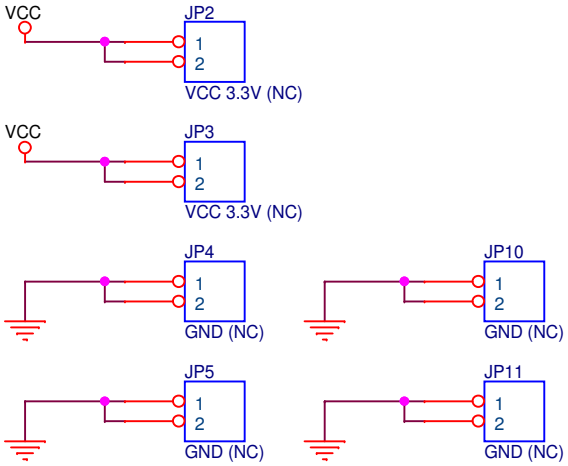
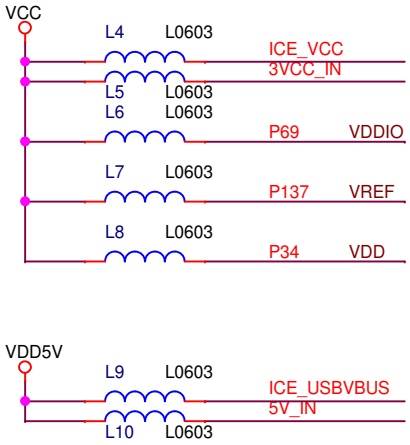
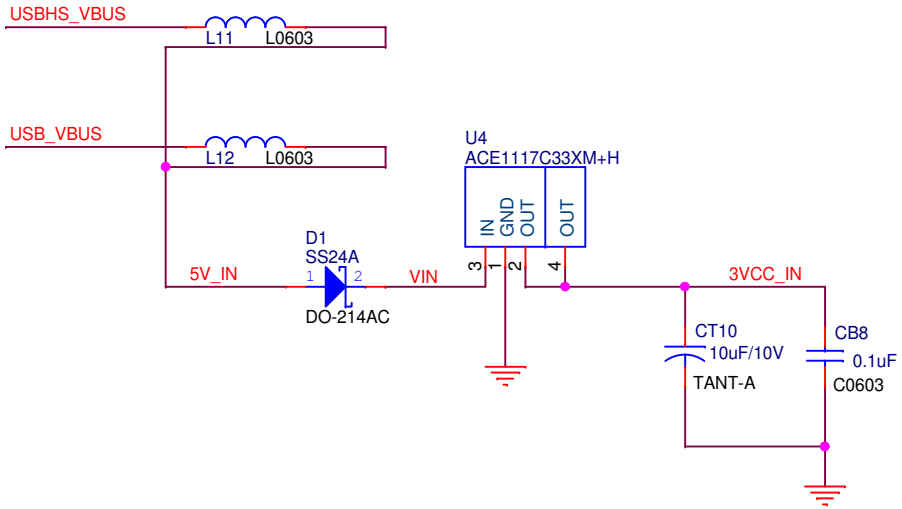
Power (3.3V) Connector

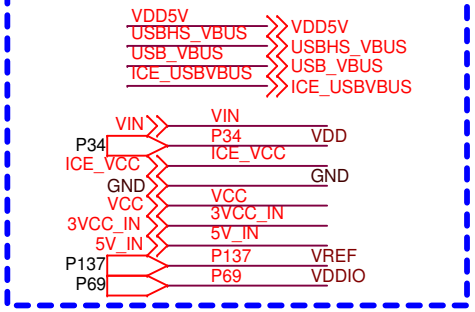


Power Selector





POWER Off Page



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Title: NuMaker-PFM-M487		
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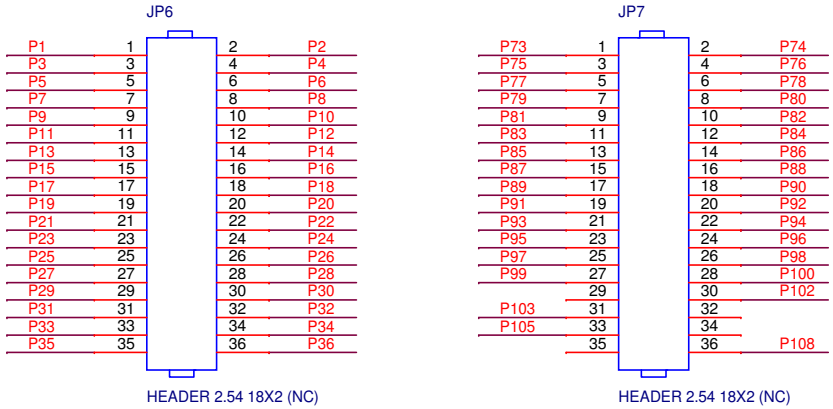
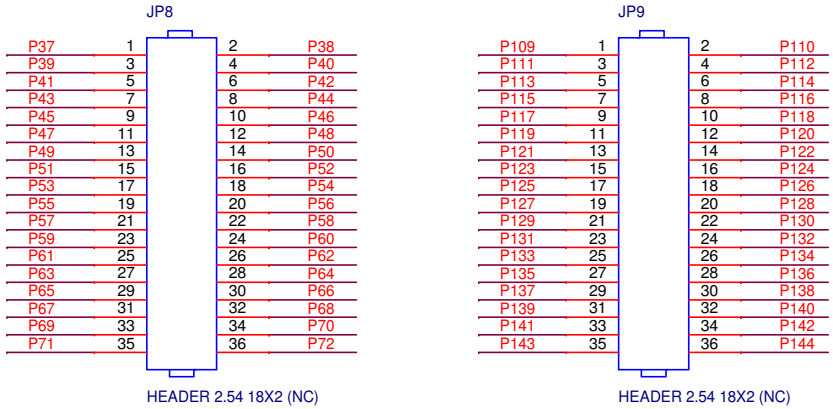
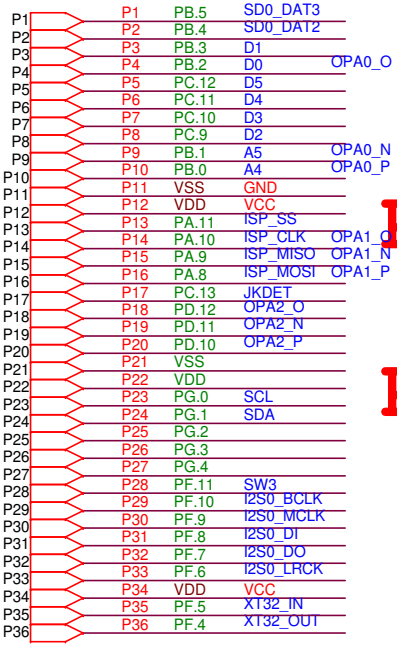
MCU CONNECTOR

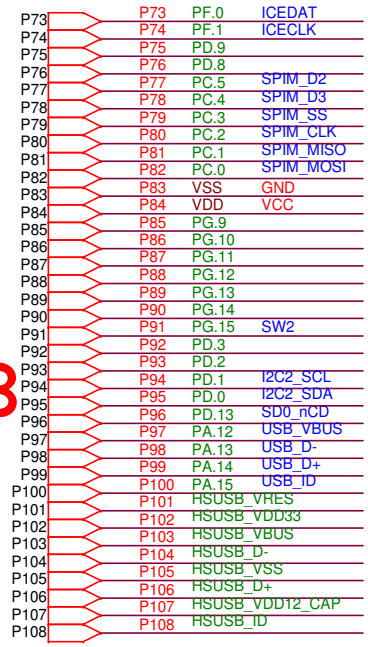




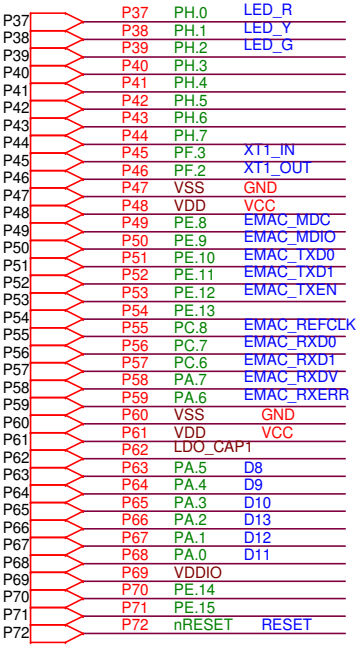
P1 ~ P36



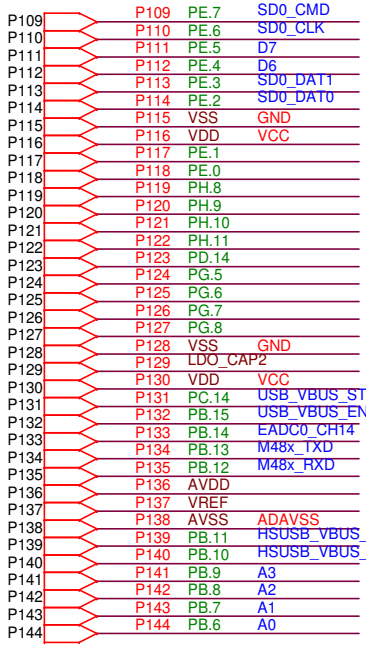
P73 ~ P108



P37 ~ P72



P109 ~ P144



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Title	NuMaker-PFM-M487	
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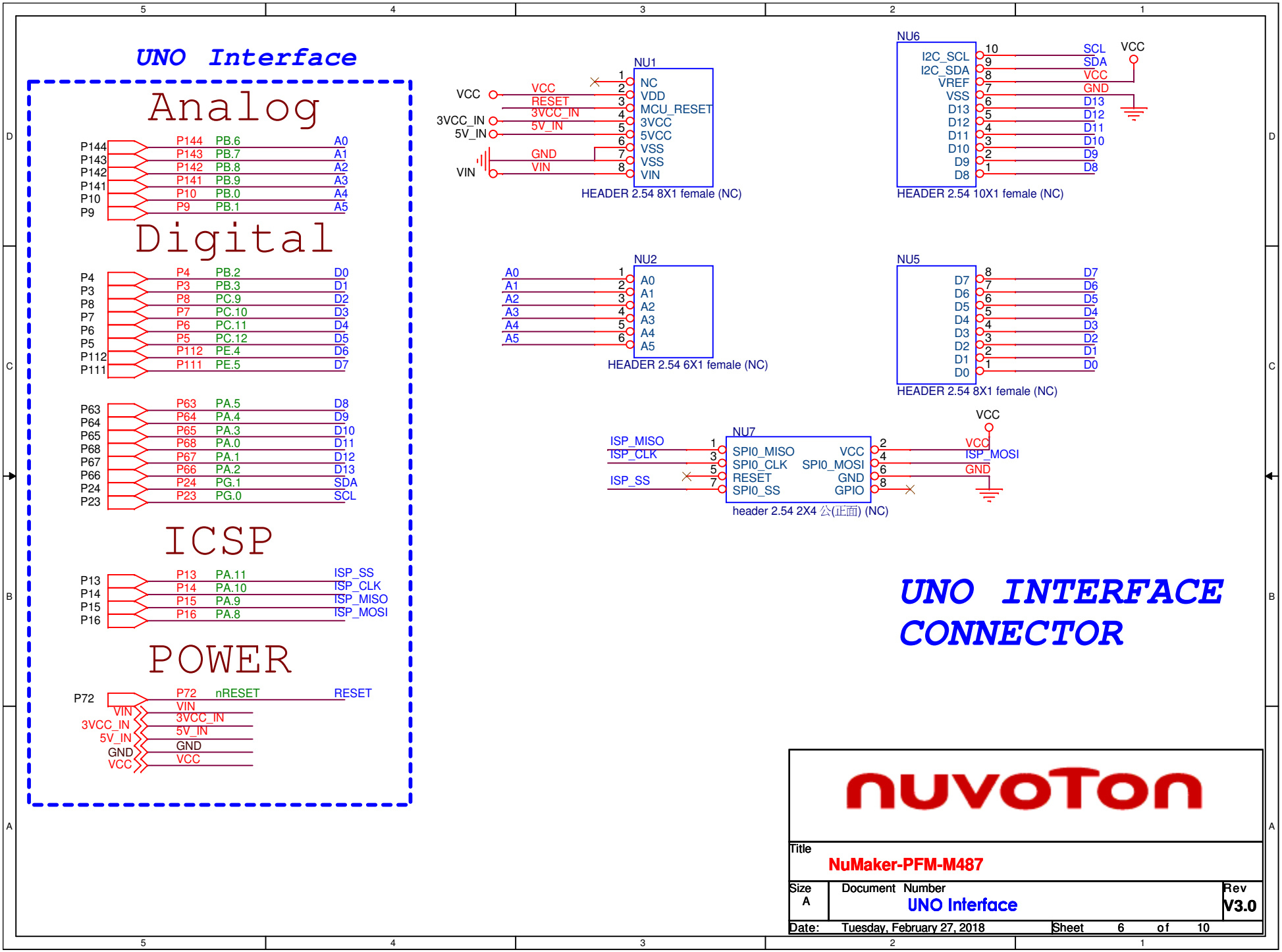
UNO Interface
Analog
P144 PB.6 A0
P143 PB.7 A1
P142 PB.8 A2
P141 PB.9 A3
P10 PB.0 A4
P9 PB.1 A5
Digital
P4 PB.2 D0
P3 PB.3 D1
P8 PC.9 D2
P7 PC.10 D3
P6 PC.11 D4
P5 PC.12 D5
P112 PE.4 D6
P111 PE.5 D7
P63 PA.5 D8
P64 PA.4 D9
P65 PA.3 D10
P68 PA.0 D11
P67 PA.1 D12
P66 PA.2 D13
P24 PG.1 SDA
P23 PG.0 SCL
ICSP
P13 PA.11 ISP_SS
P14 PA.10 ISP_CLK
P15 PA.9 ISP_MISO
P16 PA.8 ISP_MOSI
POWER
P72 nRESET RESET
VIN
3VCC_IN
5V_IN
GND
VCC
NU1
NC
VDD
MCU_RESET
3VCC
5VCC
VSS
VSS
VIN
HEADER 2.54 8X1 female (NC)
NU6
I2C_SCL
I2C_SDA
VREF
VSS
D13
D12
D11
D10
D9
D8
SCL
SDA
VCC
GND
D13
D12
D11
D10
D9
D8
HEADER 2.54 10X1 female (NC)
NU2
A0
A1
A2
A3
A4
A5
HEADER 2.54 6X1 female (NC)
NU5
HEADER 2.54 8X1 female (NC)
NU7
SPI0_MISO
SPI0_CLK
RESET
SPI0_SS
VCC
SPI0_MOSI
GND
GPIO
header 2.54 2X4 公(正面) (NC)
UNO INTERFACE CONNECTOR
nuvoTon
Title
NuMaker-PFM-M487
Size A
Document Number
UNO Interface
Rev V3.0
Date: Tuesday, February 27, 2018
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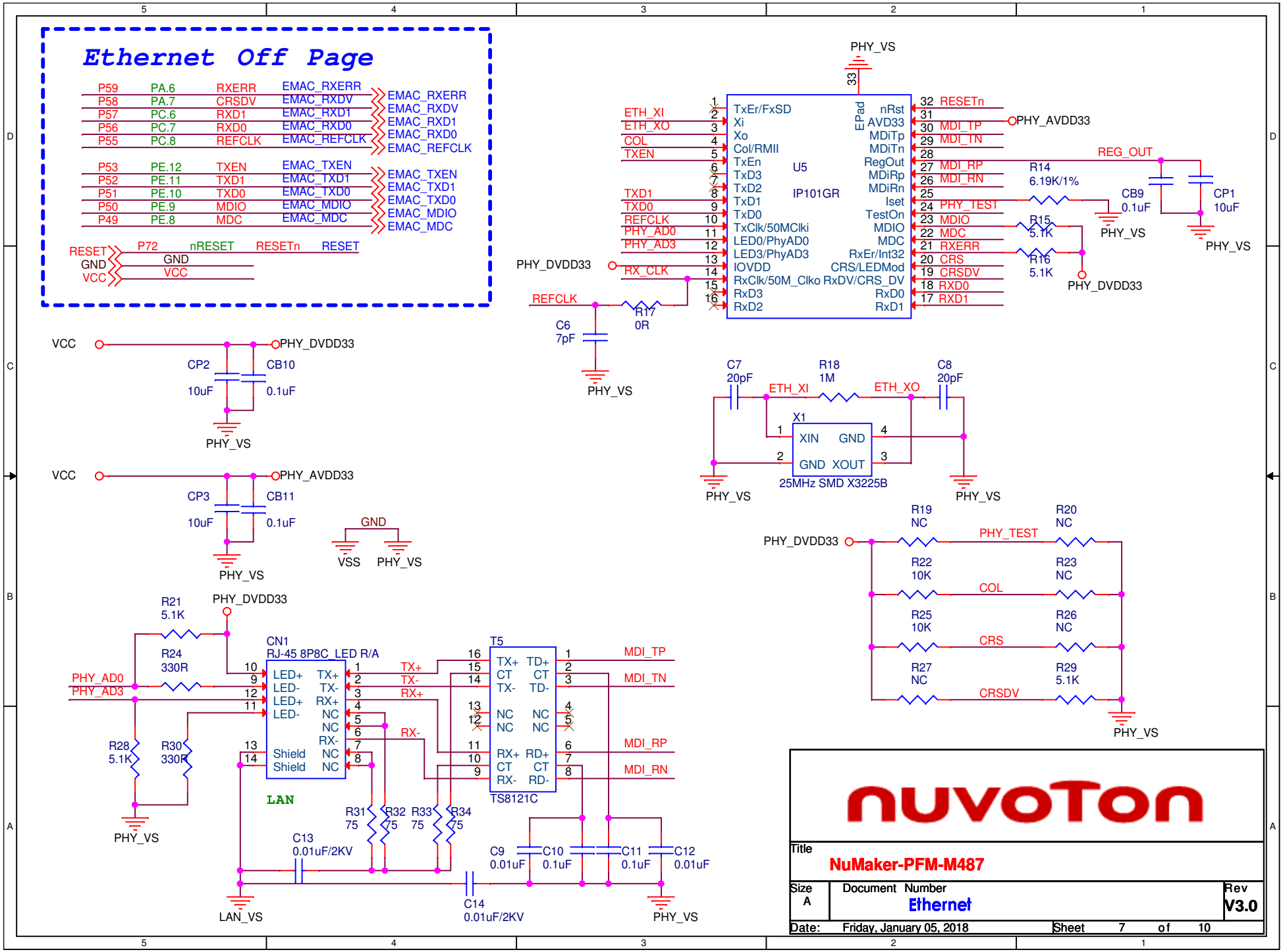
Ethernet Off Page
P59 PA.6 RXERR EMAC_RXERR
P58 PA.7 CRSDV EMAC_RXDV
P57 PC.6 RXD1 EMAC_RXD1
P56 PC.7 RXD0 EMAC_RXD0
P55 PC.8 REFCLK EMAC_REFCLK
P53 PE.12 TXEN EMAC_TXEN
P52 PE.11 TXD1 EMAC_TXD1
P51 PE.10 TXD0 EMAC_TXD0
P50 PE.9 MDIO EMAC_MDIO
P49 PE.8 MDC EMAC_MDC
RESET P72 nRESET RESETn RESET
GND GND
VCC VCC
EMAC_RXERR EMAC_RXDV EMAC_RXD1 EMAC_RXD0 EMAC_REFCLK
EMAC_TXEN EMAC_TXD1 EMAC_TXD0 EMAC_MDIO EMAC_MDC
PHY_VS
33
U5
IP101GR
EPad
TxEr/FxSD
Xi
Xo
Col/RMII
TxEn
TxD3
TxD2
TxD1
TxD0
TxClk/50MClki
LED0/PhyAD0
LED3/PhyAD3
IOVDD
RxClk/50M_Clko
RxD3
RxD2
nRst
AVD33
MDiTp
MDiTn
RegOut
MDiRp
MDiRn
Iset
TestOn
MDIO
MDC
RxEr/Int32
CRS/LEDMod
RxDV/CRS_DV
RxD0
RxD1
ETH_XI
ETH_XO
COL
TXEN
TXD1
TXD0
REFCLK
PHY_AD0
PHY_AD3
RX_CLK
PHY_DVDD33
PHY_AVDD33
RESETn
MDI_TP
MDI_TN
REG_OUT
MDI_RP
MDI_RN
PHY_TEST
MDIO
MDC
RXERR
CRS
CRSDV
RXD0
RXD1
R14 6.19K/1%
R15 5.1K
R16 5.1K
R17 0R
CB9 0.1uF
CP1 10uF
C6 7pF
VCC
CP2 10uF
CB10 0.1uF
CP3 10uF
CB11 0.1uF
GND
VSS
C7 20pF
C8 20pF
R18 1M
X1
XIN GND GND XOUT
25MHz SMD X3225B
R19 NC
R20 NC
R22 10K
R23 NC
R25 10K
R26 NC
R27 NC
R29 5.1K
R21 5.1K
R24 330R
R28 5.1K
R30 330R
CN1
RJ-45 8P8C_LED R/A
LED+ TX+
LED- TX-
LED+ RX+
LED- NC
NC
RX-
Shield NC
Shield NC
LAN
T5
TS8121C
TX+ TD+
CT CT
TX- TD-
NC NC
NC NC
RX+ RD+
CT CT
RX- RD-
TX+
TX-
RX+
RX-
MDI_TP
MDI_TN
MDI_RP
MDI_RN
R31 75
R32 75
R33 75
R34 75
C13 0.01uF/2KV
C14 0.01uF/2KV
C9 0.01uF
C10 0.1uF
C11 0.1uF
C12 0.01uF
LAN_VS
nuvoTon
Title
NuMaker-PFM-M487
Size A
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Ethernet
Rev V3.0
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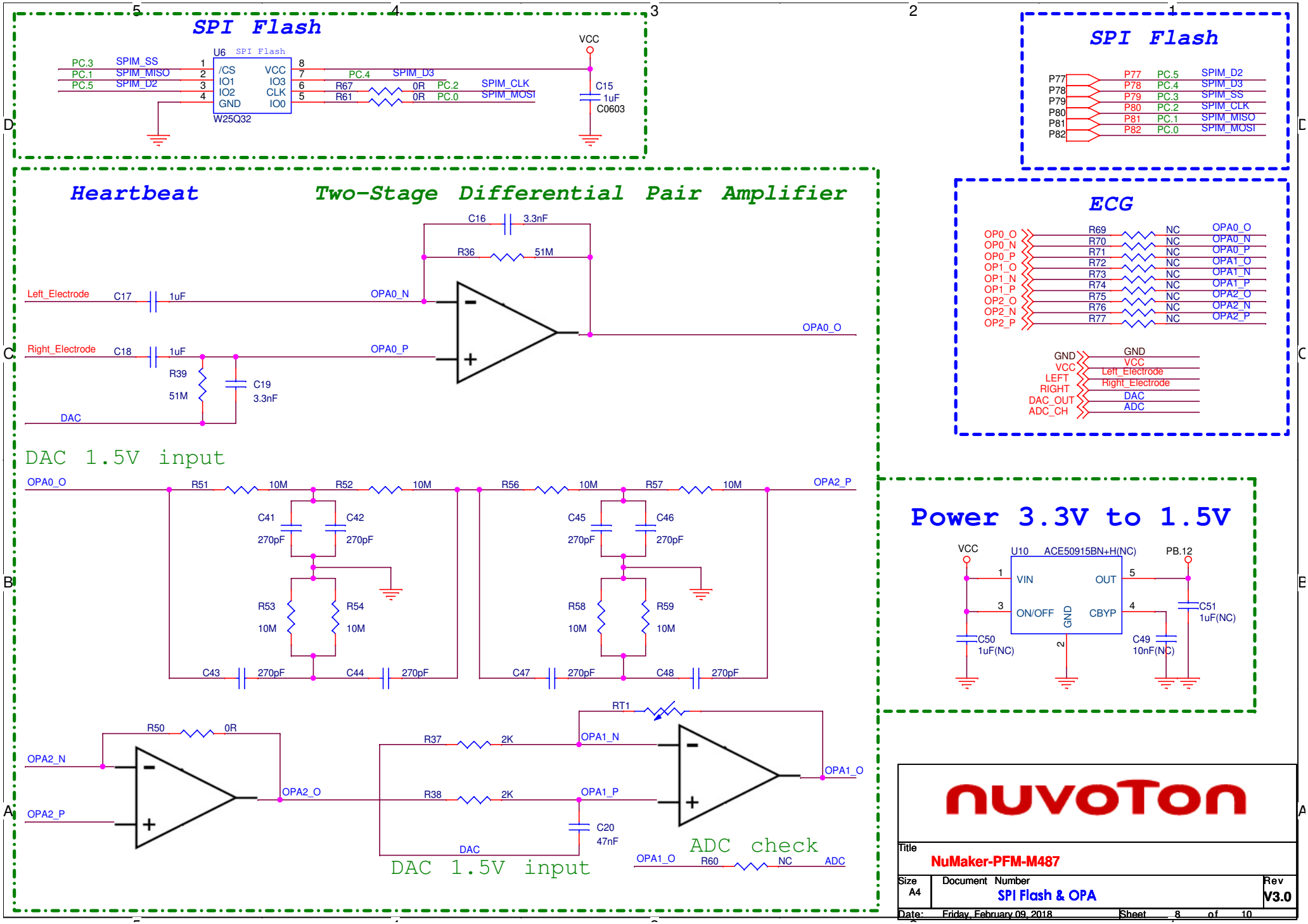
SPI Flash
U6 SPI Flash
PC.3 SPIM_SS
PC.1 SPIM_MISO
PC.5 SPIM_D2
/CS
IO1
IO2
GND
VCC
IO3
CLK
IO0
W25Q32
PC.4 SPIM_D3
R67 0R PC.2 SPIM_CLK
R61 0R PC.0 SPIM_MOSI
VCC
C15
1uF
C0603
SPI Flash
P77 PC.5 SPIM_D2
P78 PC.4 SPIM_D3
P79 PC.3 SPIM_SS
P80 PC.2 SPIM_CLK
P81 PC.1 SPIM_MISO
P82 PC.0 SPIM_MOSI
Heartbeat
Two-Stage Differential Pair Amplifier
C16 3.3nF
R36 51M
Left_Electrode
C17 1uF
OPA0_N
Right_Electrode
C18 1uF
OPA0_P
R39
51M
C19
3.3nF
DAC
OPA0_O
DAC 1.5V input
OPA0_O
R51 10M
R52 10M
R56 10M
R57 10M
OPA2_P
C41 270pF
C42 270pF
C45 270pF
C46 270pF
R53 10M
R54 10M
R58 10M
R59 10M
C43 270pF
C44 270pF
C47 270pF
C48 270pF
RT1
R50 0R
OPA2_N
OPA2_P
OPA2_O
R37 2K
R38 2K
OPA1_N
OPA1_P
OPA1_O
C20
47nF
DAC
DAC 1.5V input
ADC check
OPA1_O
R60 NC ADC
ECG
OP0_O R69 NC OPA0_O
OP0_N R70 NC OPA0_N
OP0_P R71 NC OPA0_P
OP1_O R72 NC OPA1_O
OP1_N R73 NC OPA1_N
OP1_P R74 NC OPA1_P
OP2_O R75 NC OPA2_O
OP2_N R76 NC OPA2_N
OP2_P R77 NC OPA2_P
GND GND
VCC VCC
LEFT Left_Electrode
RIGHT Right_Electrode
DAC_OUT DAC
ADC_CH ADC
Power 3.3V to 1.5V
VCC
U10 ACE50915BN+H(NC)
PB.12
VIN
ON/OFF
GND
OUT
CBYP
C50 1uF(NC)
C49 10nF(NC)
C51 1uF(NC)
nuvoTon
Title
NuMaker-PFM-M487
Size A4
Document Number
SPI Flash & OPA
Rev V3.0
Date: Friday, February 09, 2018
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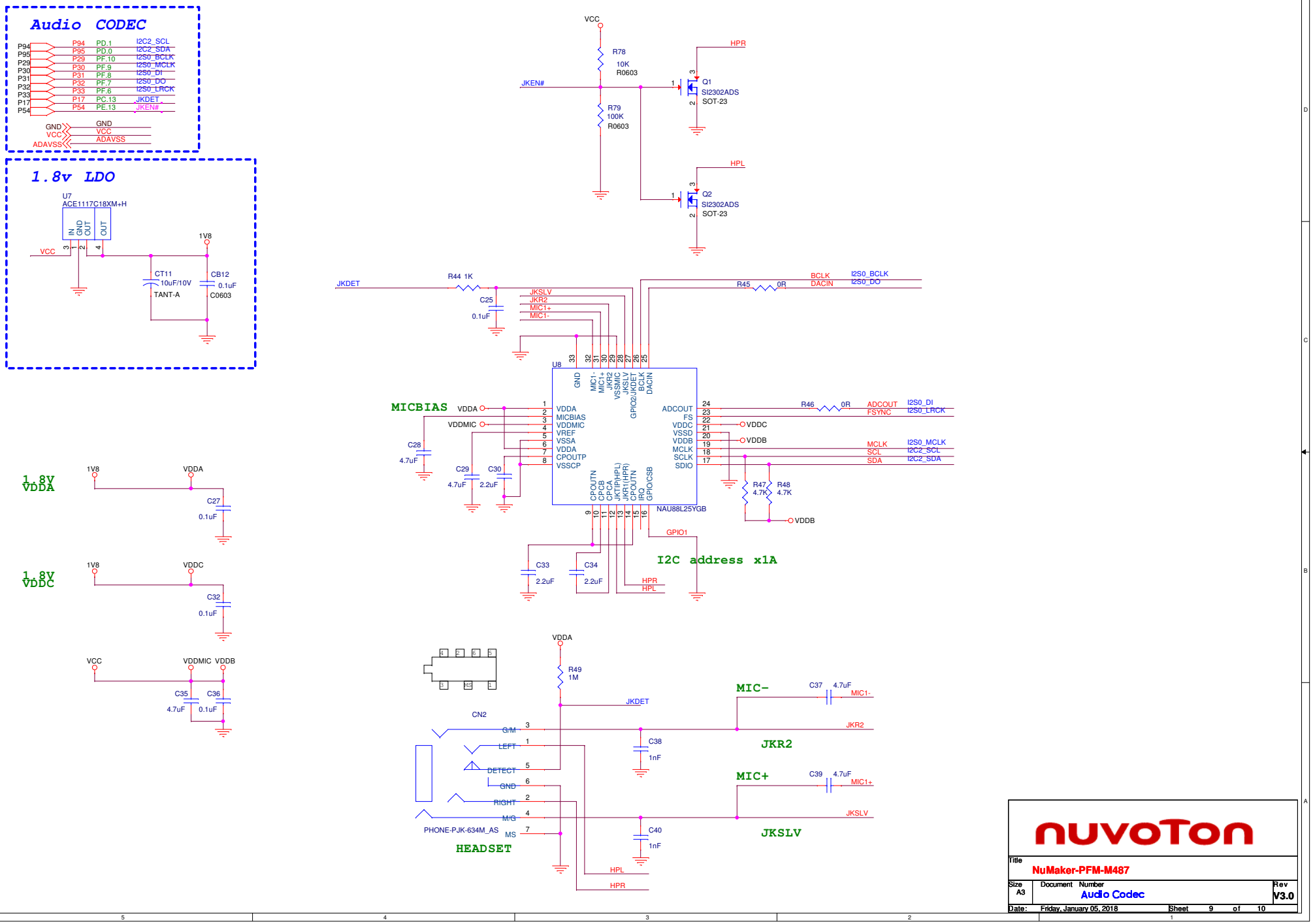
Audio CODEC
P94 PD.1 I2C2_SCL
P95 PD.0 I2C2_SDA
P29 PF.10 I2S0_BCLK
P30 PF.9 I2S0_MCLK
P31 PF.8 I2S0_DI
P32 PF.7 I2S0_DO
P33 PF.6 I2S0_LRCK
P17 PC.13 JKDET
P54 PE.13 JKEN#
GND GND
VCC VCC
ADAVSS ADAVSS
1.8v LDO
U7
ACE1117C18XM+H
IN GND OUT OUT
VCC
1V8
CT11
10uF/10V
TANT-A
CB12
0.1uF
C0603
1.8V VDDA
1V8
VDDA
C27
0.1uF
1.8V VDDC
1V8
VDDC
C32
0.1uF
VCC
VDDMIC VDDB
C35
4.7uF
C36
0.1uF
VCC
R78
10K
R0603
JKEN#
R79
100K
R0603
HPR
Q1
SI2302ADS
SOT-23
HPL
Q2
SI2302ADS
SOT-23
JKDET
R44 1K
C25
0.1uF
JKSLV
JKR2
MIC1+
MIC1-
R45 0R
BCLK
DACIN
I2S0_BCLK
I2S0_DO
U8
GND
MIC1-
MIC1+
JKR2
VSSMIC
JKSLV
GPIO2/JKDET
BCLK
DACIN
MICBIAS
VDDA
VDDMIC
VDDA
MICBIAS
VDDMIC
VREF
VSSA
VDDA
CPOUTP
VSSCP
ADCOUT
FS
VDDC
VSSD
VDDB
MCLK
SCLK
SDIO
R46 0R
ADCOUT
FSYNC
I2S0_DI
I2S0_LRCK
VDDC
VDDB
MCLK
SCL
SDA
I2S0_MCLK
I2C2_SCL
I2C2_SDA
C28
4.7uF
C29
4.7uF
C30
2.2uF
R47
4.7K
R48
4.7K
VDDB
CPOUTN
CPCB
CPCA
JKTIP(HPL)
JKR1(HPR)
CPOUTN
IRQ
GPIO/CSB
NAU88L25YGB
GPIO1
I2C address x1A
C33
2.2uF
C34
2.2uF
HPR
HPL
VDDA
R49
1M
JKDET
CN2
G/M
LEFT
DETECT
GND
RIGHT
M/G
MS
PHONE-PJK-634M_AS
HEADSET
MIC-
C37
4.7uF
MIC1-
JKR2
JKR2
C38
1nF
MIC+
C39
4.7uF
MIC1+
JKSLV
JKSLV
C40
1nF
HPL
HPR
nuvoTon
Title
NuMaker-PFM-M487
Size
A3
Document Number
Audio Codec
Rev
V3.0
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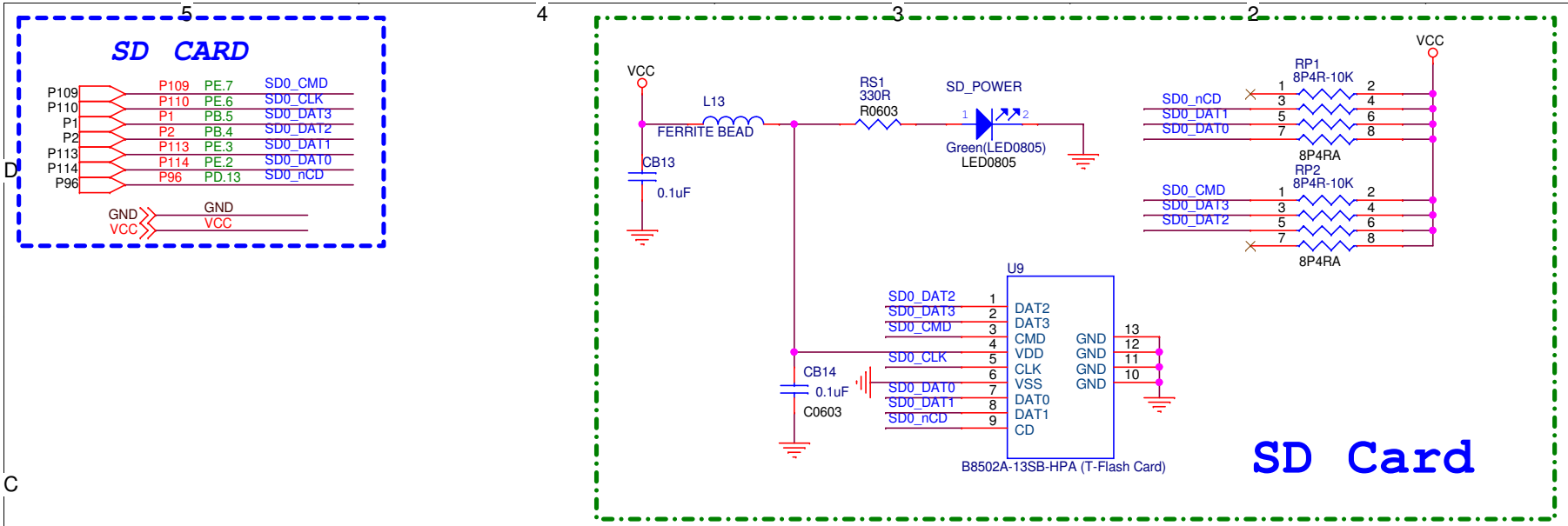

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Title: NuMaker-PFM-M487		
Size: A4	Document Number: SD Card	Rev: V3.0
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