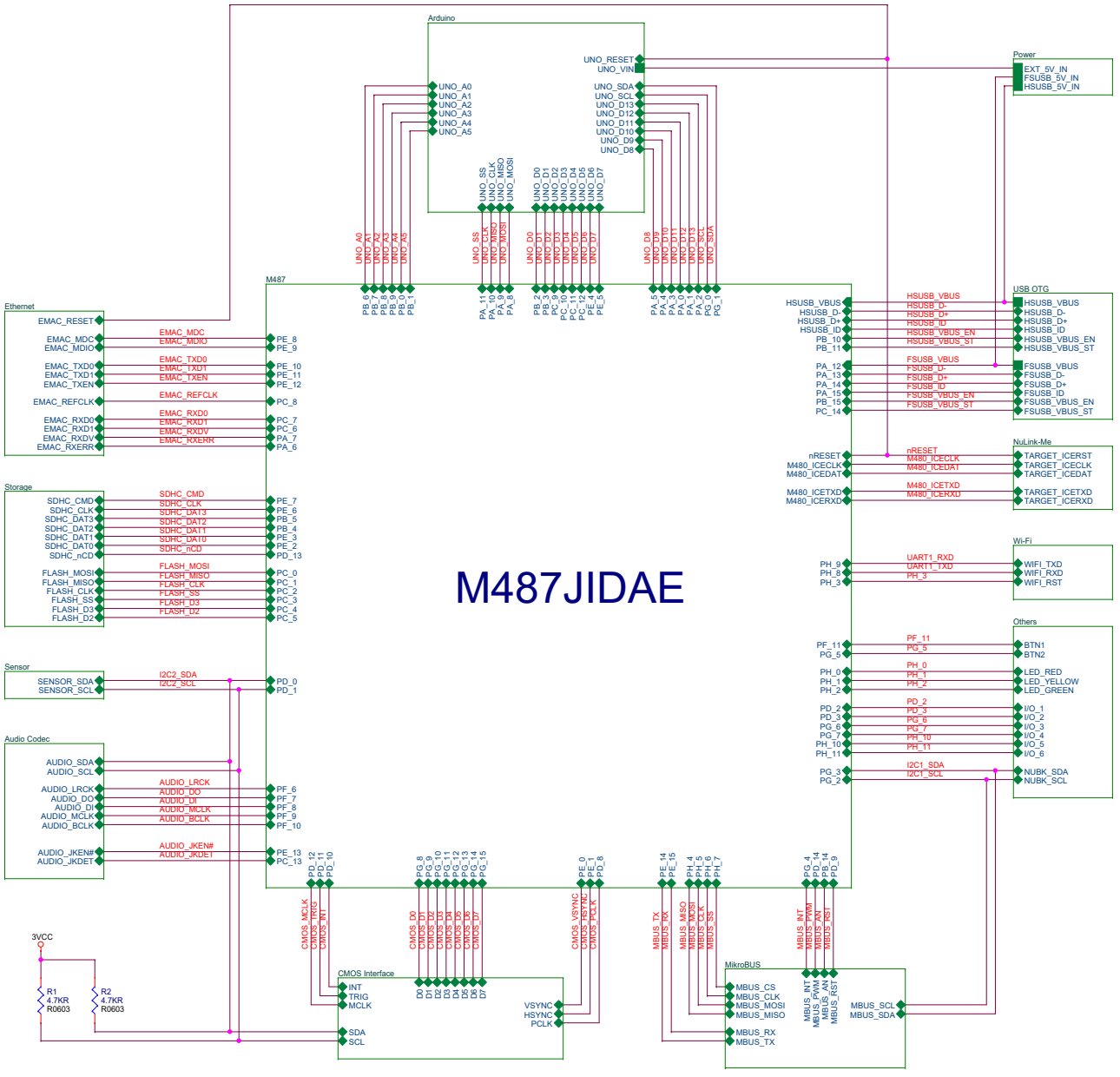
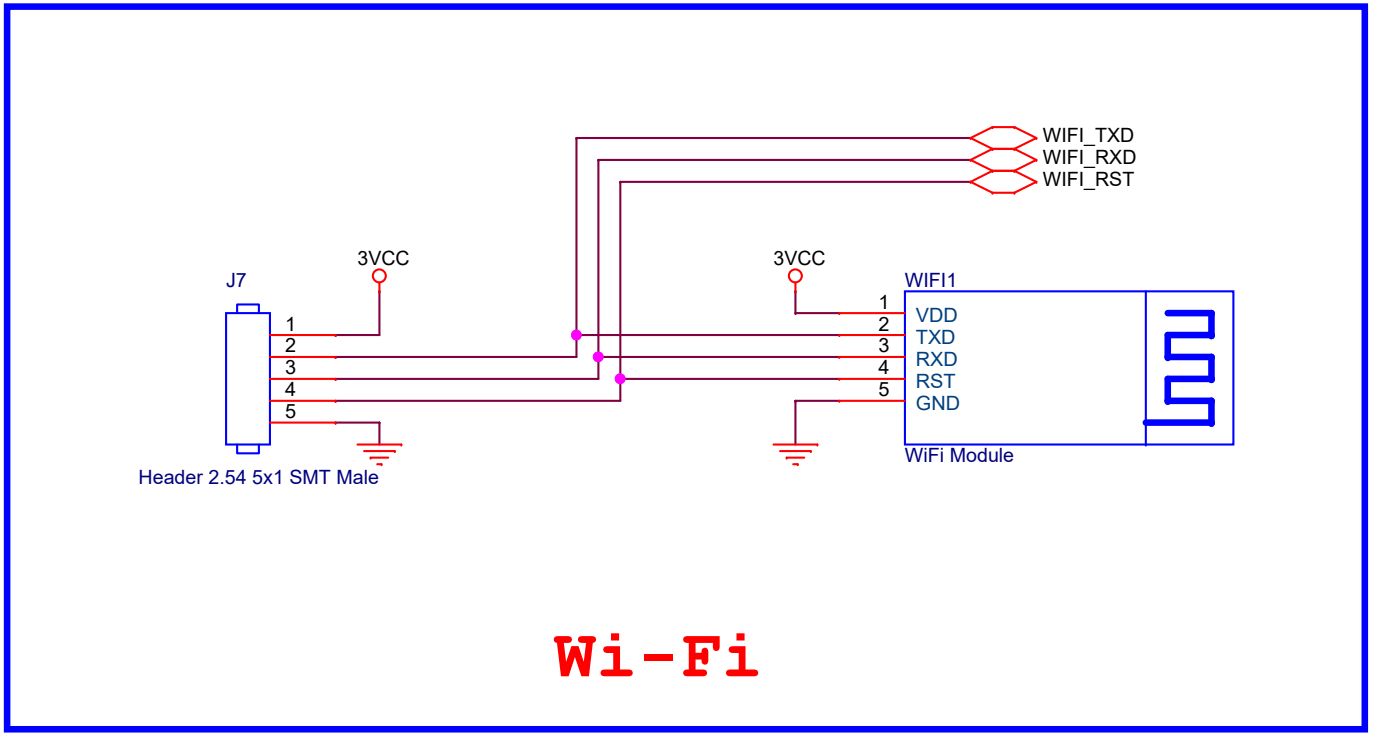
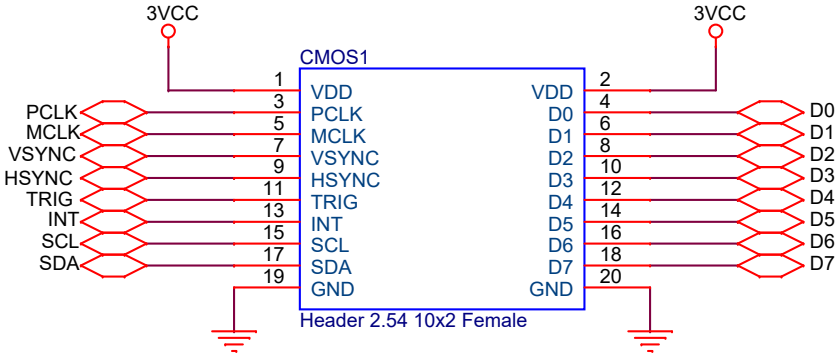


nuvoTon

Title	M87 IOT Platform	
Size C	Document Number: Interconnection	Rev 1.0
Date: Tuesday, August 14, 2018	Sheet 1 of 13	

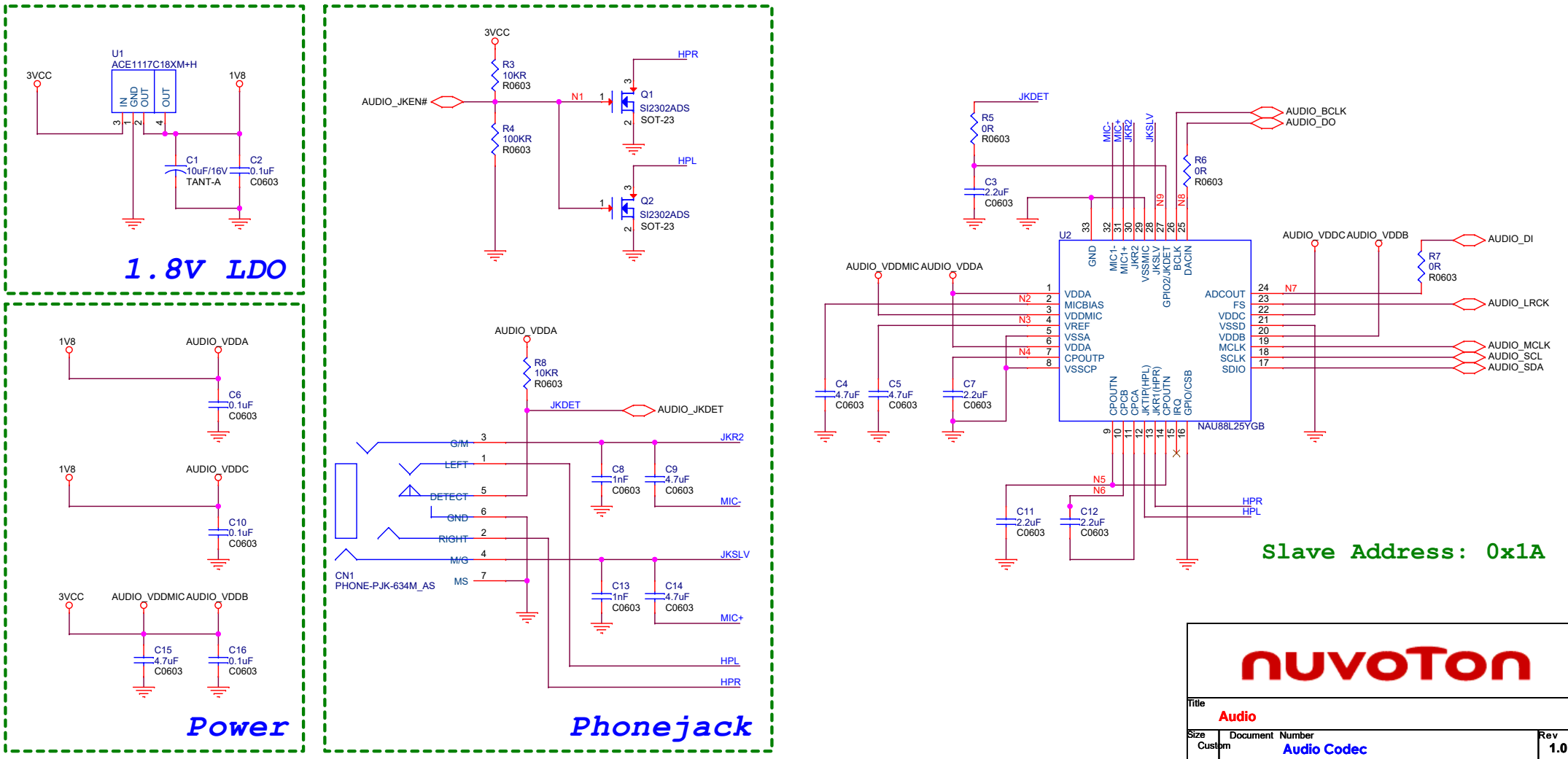


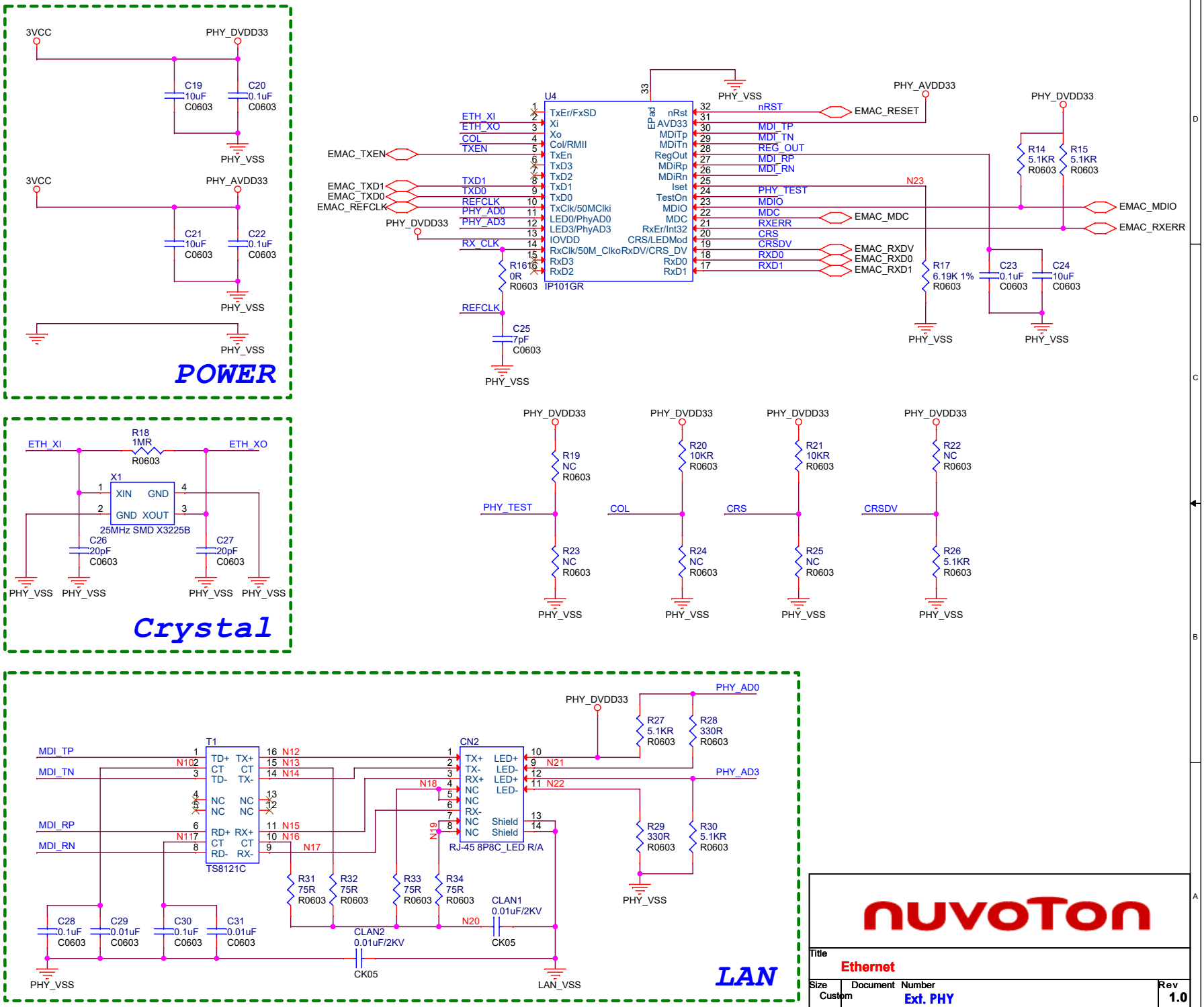
Title: Wi-Fi		
Size: A	Document Number: Wi-Fi Module	Rev: 1.0
Date: Tuesday, August 14, 2018	Sheet 1 of 10	



CMOS Interface

Title: CMOS		
Size: A	Document Number: CMOS Interface	Rev: 1.0
Date: Friday, August 17, 2018	Sheet 1 of 10	


U1
ACE1117C18XM+H
3VCC
1V8
IN
GND
OUT
OUT
C1
10uF/16V
TANT-A
C2
0.1uF
C0603
1.8V LDO
1V8
AUDIO_VDDA
C6
0.1uF
C0603
1V8
AUDIO_VDDC
C10
0.1uF
C0603
3VCC
AUDIO_VDDMIC
AUDIO_VDDB
C15
4.7uF
C0603
C16
0.1uF
C0603
Power
3VCC
R3
10KR
R0603
AUDIO_JKEN#
N1
R4
100KR
R0603
HPR
Q1
SI2302ADS
SOT-23
HPL
Q2
SI2302ADS
SOT-23
AUDIO_VDDA
R8
10KR
R0603
JKDET
AUDIO_JKDET
G/M
LEFT
DETECT
GND
RIGHT
M/G
MS
CN1
PHONE-PJK-634M_AS
JKR2
MIC-
JKSLV
MIC+
HPL
HPR
C8
1nF
C0603
C9
4.7uF
C0603
C13
1nF
C0603
C14
4.7uF
C0603
Phonejack
JKDET
R5
0R
R0603
C3
2.2uF
C0603
AUDIO_BCLK
AUDIO_DO
R6
0R
R0603
U2
NAU88L25YGB
AUDIO_VDDMIC
AUDIO_VDDA
AUDIO_VDDC
AUDIO_VDDB
VDDA
MICBIAS
VDDMIC
VREF
VSSA
VDDA
CPOUTP
VSSCP
ADCOUT
FS
VDDC
VSSD
VDDB
MCLK
SCLK
SDIO
CPOUTN
CPCB
CPCA
JKTIP(HPL)
JKR1(HPR)
CPOUTN
IRQ
GPIO/CSB
C4
4.7uF
C0603
C5
4.7uF
C0603
C7
2.2uF
C0603
C11
2.2uF
C0603
C12
2.2uF
C0603
R7
0R
R0603
AUDIO_DI
AUDIO_LRCK
AUDIO_MCLK
AUDIO_SCL
AUDIO_SDA
HPR
HPL
Slave Address: 0x1A
nuvoTon
Title
Audio
Size
Custom
Document Number
Audio Codec
Rev
1.0
Date:
Tuesday, August 14, 2018
Sheet
2
of
13


3VCC
PHY_DVDD33
C19
10uF
C0603
C20
0.1uF
C0603
PHY_VSS
PHY_AVDD33
C21
C22
POWER
U4
IP101GR
ETH_XI
ETH_XO
EMAC_TXEN
EMAC_TXD1
EMAC_TXD0
EMAC_REFCLK
PHY_DVDD33
REFCLK
R16
0R
R0603
C25
7pF
EMAC_RESET
EMAC_MDC
EMAC_RXDV
EMAC_RXD0
EMAC_RXD1
EMAC_MDIO
EMAC_RXERR
R14
5.1KR
R15
R17
6.19K 1%
C23
C24
R18
1MR
X1
25MHz SMD X3225B
C26
20pF
C27
Crystal
R19
NC
R20
10KR
R21
R22
R23
R24
R25
R26
PHY_TEST
COL
CRS
CRSDV
T1
TS8121C
CN2
RJ-45 8P8C_LED R/A
MDI_TP
MDI_TN
MDI_RP
MDI_RN
R27
R28
330R
R29
R30
R31
75R
R32
R33
R34
CLAN1
0.01uF/2KV
CLAN2
CK05
LAN_VSS
LAN
nuvoTon
Title
Ethernet
Size
Custom
Document Number
Ext. PHY
Rev
1.0
Date:
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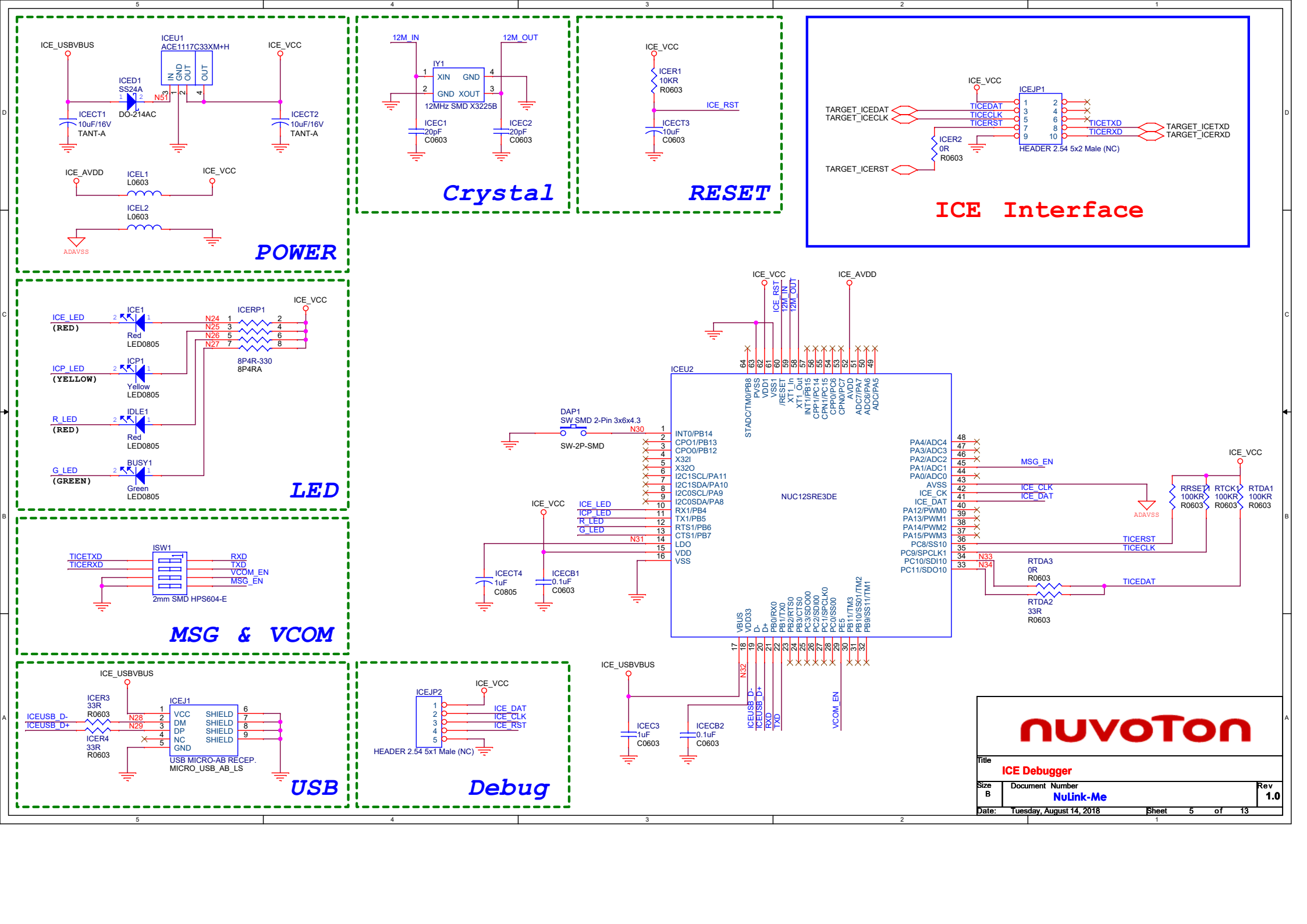
4
of
13


ICE_USBVBUS
ICEU1
ACE1117C33XM+H
IN
GND
OUT
OUT
ICE_VCC
ICED1
SS24A
DO-214AC
N51
ICECT1
10uF/16V
TANT-A
ICECT2
10uF/16V
TANT-A
ICE_AVDD
ICEL1
L0603
ICEL2
L0603
ADAVSS
POWER
12M_IN
12M_OUT
IY1
XIN
GND
GND
XOUT
12MHz SMD X3225B
ICEC1
20pF
C0603
ICEC2
20pF
C0603
Crystal
ICE_VCC
ICER1
10KR
R0603
ICE_RST
ICECT3
10uF
C0603
RESET
ICE_VCC
ICEJP1
TARGET_ICEDAT
TARGET_ICECLK
TICEDAT
TICECLK
TICERST
ICER2
0R
R0603
TARGET_ICERST
TICETXD
TICERXD
TARGET_ICETXD
TARGET_ICERXD
HEADER 2.54 5x2 Male (NC)
ICE Interface
ICE_LED
(RED)
ICE1
Red
LED0805
N24
N25
N26
N27
ICERP1
8P4R-330
8P4RA
ICE_VCC
ICP_LED
(YELLOW)
ICP1
Yellow
LED0805
R_LED
(RED)
IDLE1
Red
LED0805
G_LED
(GREEN)
BUSY1
Green
LED0805
LED
ICE_VCC
ICE_AVDD
ICEU2
ICE_RST
12M_IN
12M_OUT
STADC/TM0/PB8
PVSS
VDD1
VSS1
/RESET
XT1_In
XT1_Out
INT1/PB15
CPP1/PC14
CPN1/PC15
CPP0/PC6
CPN0/PC7
AVDD
ADC7/PA7
ADC6/PA6
ADC/PA5
DAP1
SW SMD 2-Pin 3x6x4.3
SW-2P-SMD
N30
INT0/PB14
CPO1/PB13
CPO0/PB12
X32I
X32O
I2C1SCL/PA11
I2C1SDA/PA10
I2C0SCL/PA9
I2C0SDA/PA8
RX1/PB4
TX1/PB5
RTS1/PB6
CTS1/PB7
LDO
VDD
VSS
NUC12SRE3DE
PA4/ADC4
PA3/ADC3
PA2/ADC2
PA1/ADC1
PA0/ADC0
AVSS
ICE_CK
ICE_DAT
PA12/PWM0
PA13/PWM1
PA14/PWM2
PA15/PWM3
PC8/SS10
PC9/SPCLK1
PC10/SDI10
PC11/SDO10
MSG_EN
ICE_CLK
ICE_DAT
ADAVSS
RRSET
100KR
R0603
RTCK1
100KR
R0603
RTDA1
100KR
R0603
TICERST
TICECLK
TICEDAT
RTDA3
0R
R0603
RTDA2
33R
R0603
N33
N34
ICE_VCC
ICECT4
1uF
C0805
ICECB1
0.1uF
C0603
ICE_LED
ICP_LED
R_LED
G_LED
N31
VBUS
VDD33
D-
D+
PB0/RX0
PB1/TX0
PB2/RTS0
PB3/CTS0
PC3/SDO00
PC2/SDI00
PC1/SPCLK0
PC0/SS00
PE5
PB11/TM3
PB10/SS01/TM2
PB9/SS11/TM1
N32
ICEUSB_D-
ICEUSB_D+
RXD
TXD
VCOM_EN
ICE_USBVBUS
ICEC3
1uF
C0603
ICECB2
0.1uF
C0603
MSG & VCOM
TICETXD
TICERXD
ISW1
RXD
TXD
VCOM_EN
MSG_EN
2mm SMD HPS604-E
ICE_USBVBUS
ICER3
33R
R0603
ICEUSB_D-
ICEUSB_D+
ICER4
33R
R0603
ICEJ1
VCC
DM
DP
NC
GND
SHIELD
SHIELD
SHIELD
SHIELD
N28
N29
USB MICRO-AB RECEP.
MICRO_USB_AB_LS
USB
ICE_VCC
ICEJP2
ICE_DAT
ICE_CLK
ICE_RST
HEADER 2.54 5x1 Male (NC)
Debug
nuvoTon
Title
ICE Debugger
Size
B
Document Number
NuLink-Me
Rev
1.0
Date:
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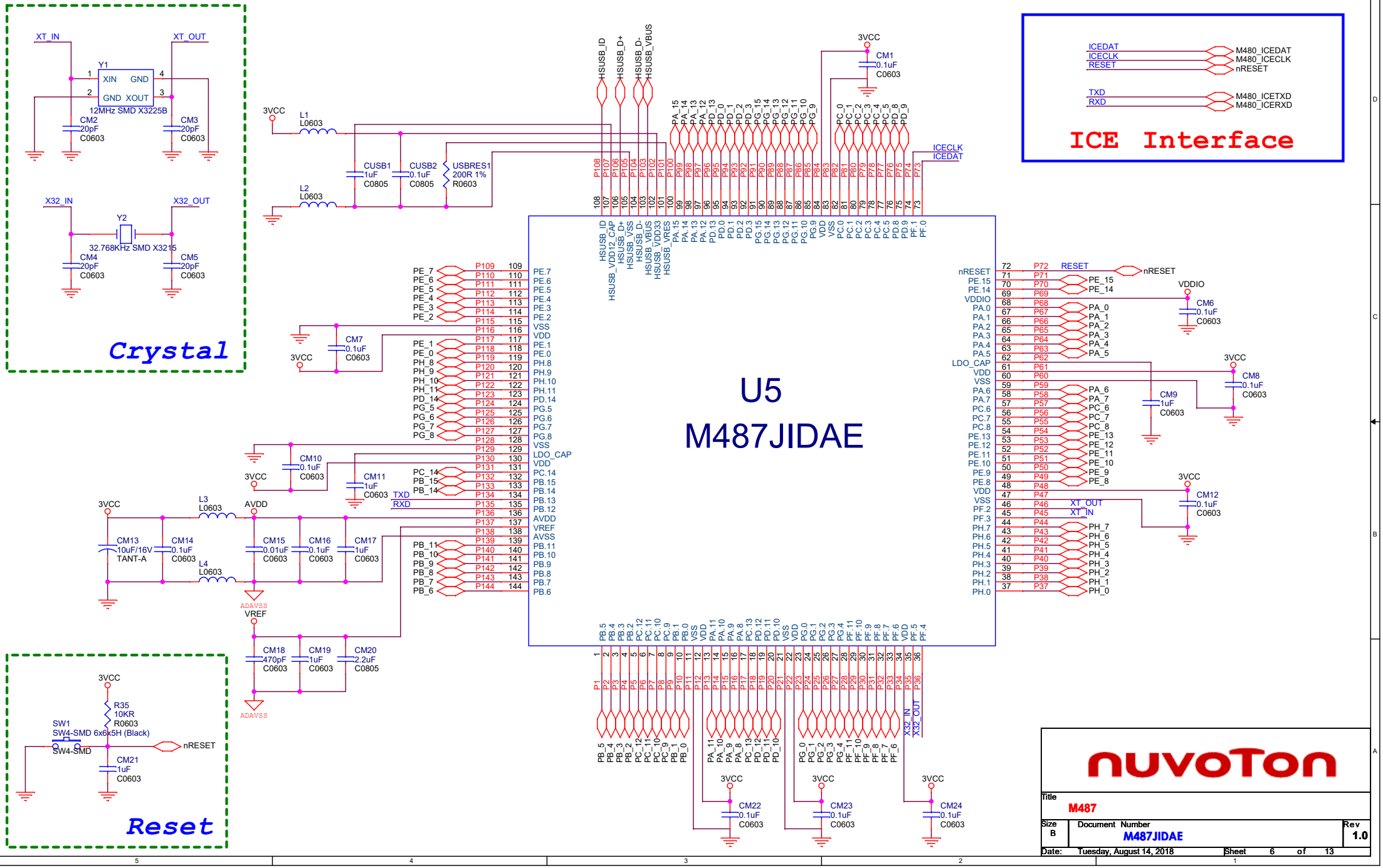
13


Crystal
XT_IN
XT_OUT
Y1
12MHz SMD X3225B
CM2 20pF C0603
CM3 20pF C0603
X32_IN
X32_OUT
Y2
32.768KHz SMD X3215
CM4 20pF C0603
CM5 20pF C0603
Reset
3VCC
R35 10KR R0603
SW1
SW4-SMD 6x6x5H (Black)
SW4-SMD
nRESET
CM21 1uF C0603
ICE Interface
ICEDAT
ICECLK
RESET
TXD
RXD
M480_ICEDAT
M480_ICECLK
nRESET
M480_ICETXD
M480_ICERXD
U5
M487JIDAE
L1 L0603
L2 L0603
CUSB1 1uF C0805
CUSB2 0.1uF C0805
USBRES1 200R 1% R0603
HSUSB_ID
HSUSB_D+
HSUSB_D-
HSUSB_VBUS
CM1 0.1uF C0603
CM6 0.1uF C0603
CM7 0.1uF C0603
CM8 0.1uF C0603
CM9 1uF C0603
CM10 0.1uF C0603
CM11 1uF C0603
CM12 0.1uF C0603
L3 L0603
L4 L0603
AVDD
CM13 10uF/16V TANT-A
CM14 0.1uF C0603
CM15 0.01uF C0603
CM16 0.1uF C0603
CM17 1uF C0603
ADAVSS
VREF
CM18 470pF C0603
CM19 1uF C0603
CM20 2.2uF C0805
CM22 0.1uF C0603
CM23 0.1uF C0603
CM24 0.1uF C0603
nuvoTon
Title
M487
Size B
Document Number
M487JIDAE
Rev 1.0
Date: Tuesday, August 14, 2018
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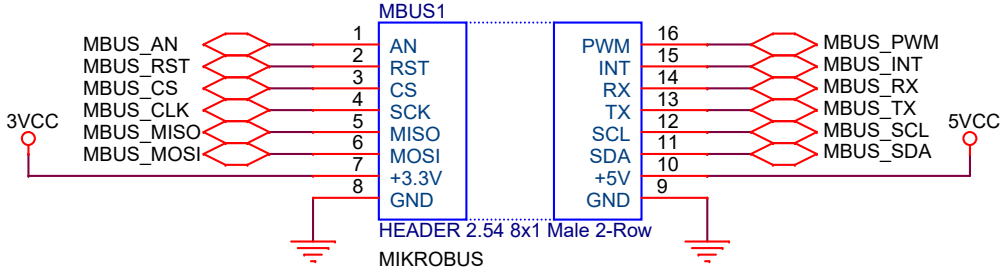
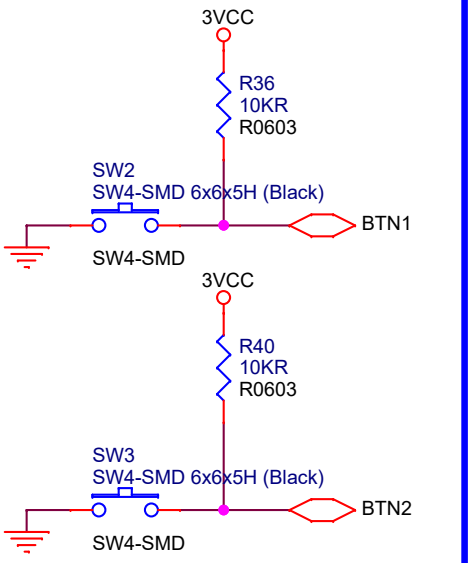
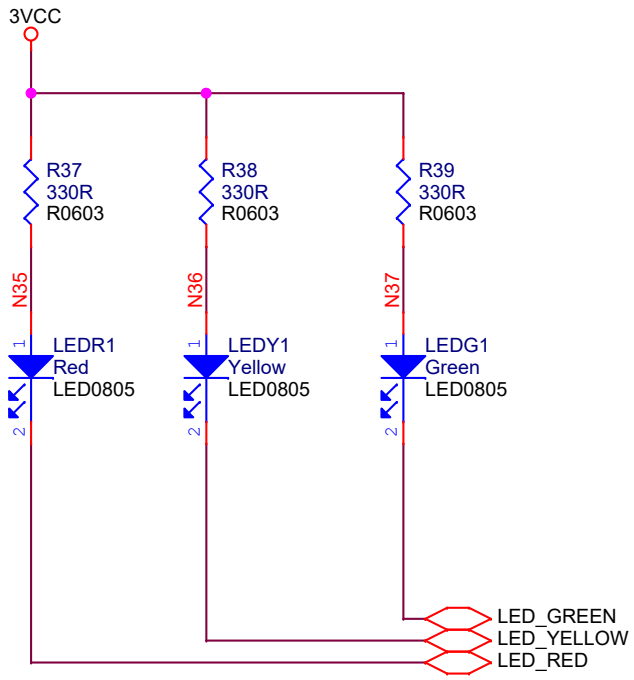


MikroBUS Interface

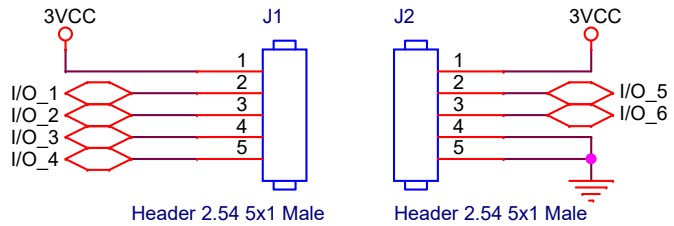
Title: MikroBUS		
Size: A	Document Number: MikroBUS	Rev: 1.0
Date: Tuesday, August 14, 2018	Sheet 7 of 13	



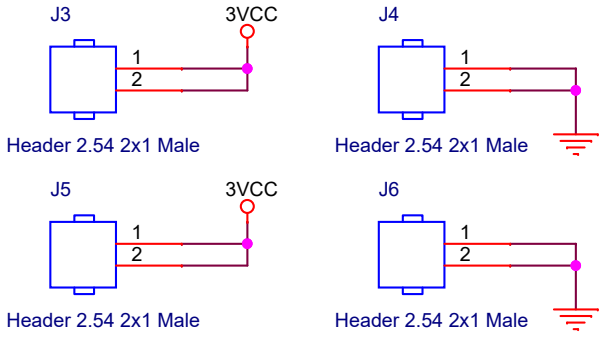
Button



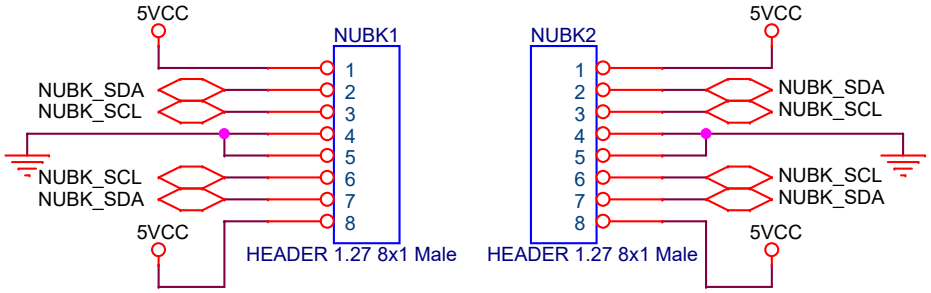
LEDs



I/O



Power



NuBrick Interface

nuvoTon

Title: Others		
Size: A	Document Number: others	Rev: 1.0
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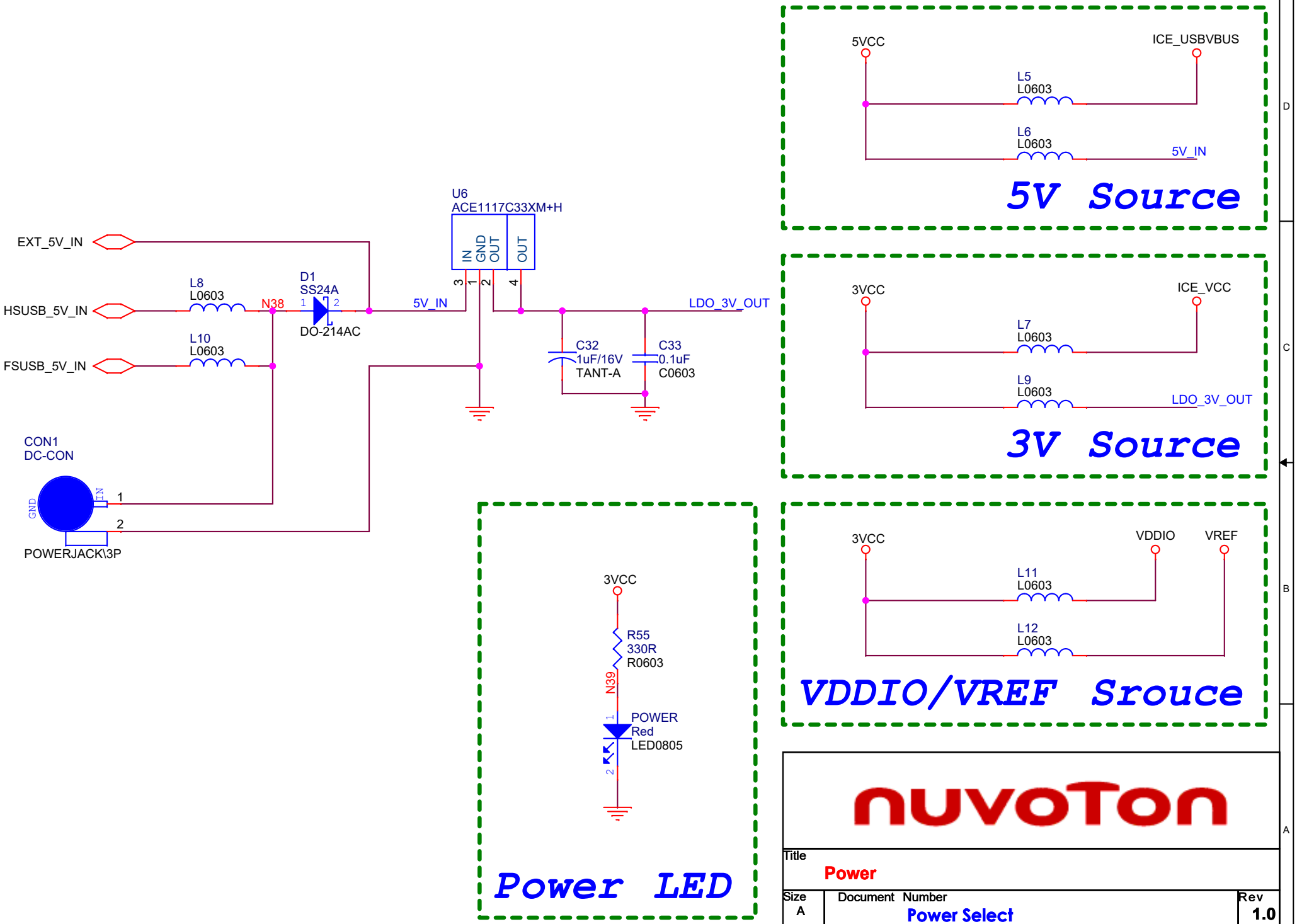
EXT_5V_IN
HSUSB_5V_IN
FSUSB_5V_IN
L8
L0603
L10
L0603
N38
D1
SS24A
DO-214AC
U6
ACE1117C33XM+H
IN
GND
OUT
OUT
5V_IN
LDO_3V_OUT
C32
1uF/16V
TANT-A
C33
0.1uF
C0603
CON1
DC-CON
GND
IN
1
2
POWERJACK\3P
5VCC
ICE_USBVBUS
L5
L0603
L6
L0603
5V_IN
5V Source
3VCC
ICE_VCC
L7
L0603
L9
L0603
LDO_3V_OUT
3V Source
3VCC
VDDIO
VREF
L11
L0603
L12
L0603
VDDIO/VREF Srouce
3VCC
R55
330R
R0603
N39
POWER
Red
LED0805
Power LED
nuvoTon
Title
Power
Size
A
Document Number
Power Select
Rev
1.0
Date:
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9
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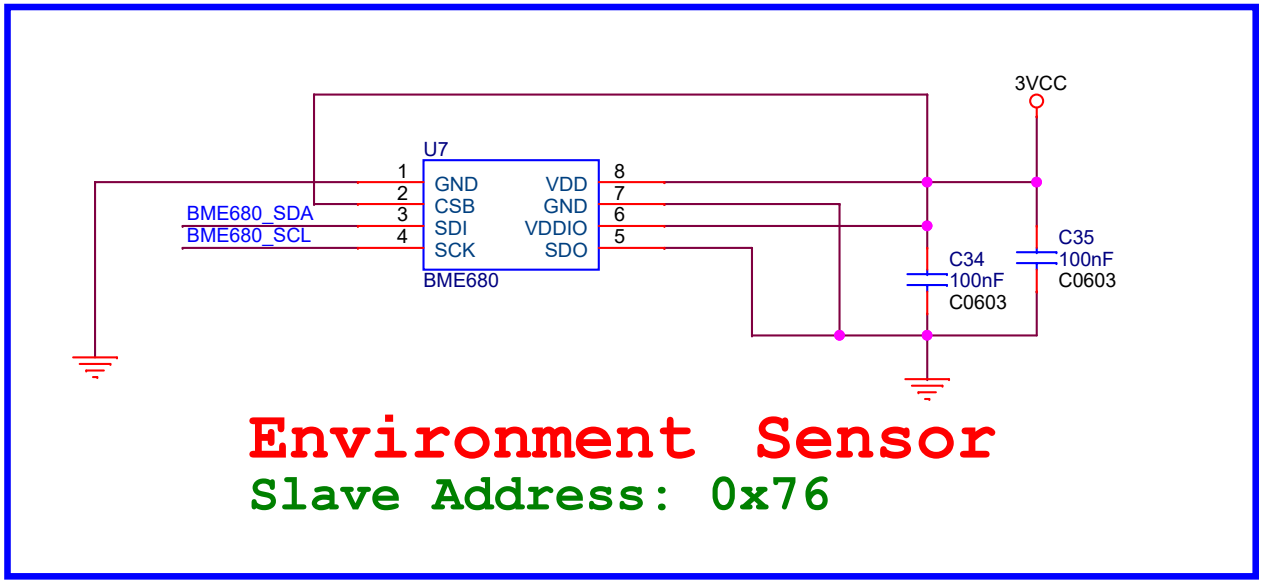
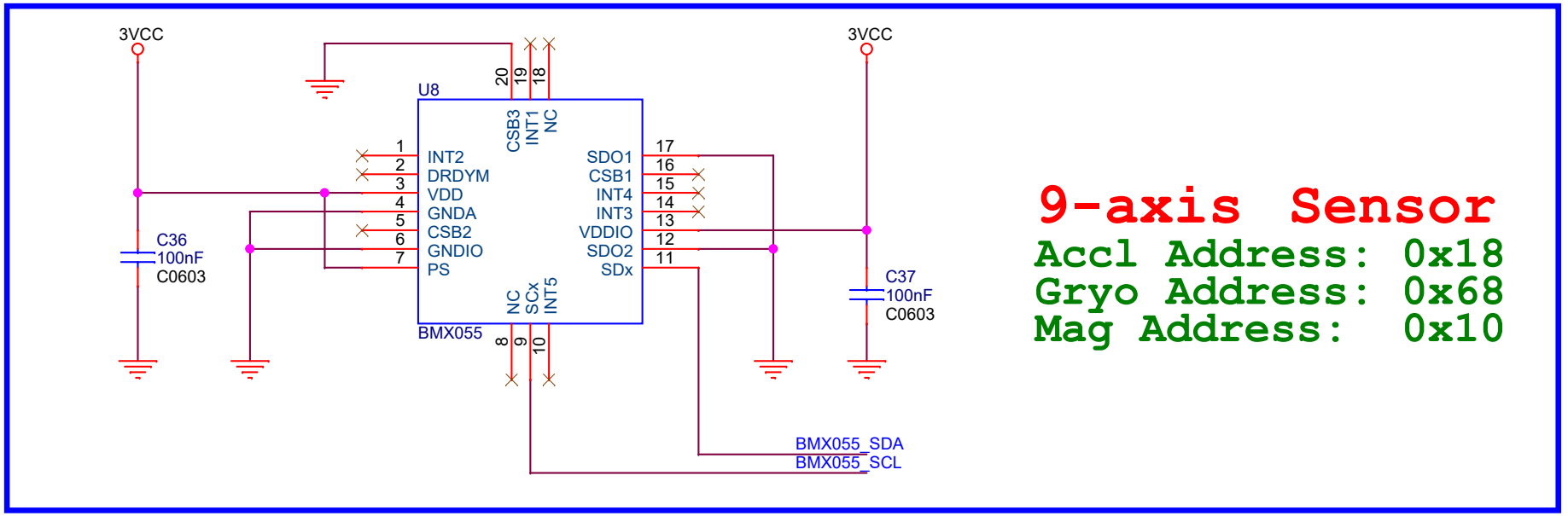
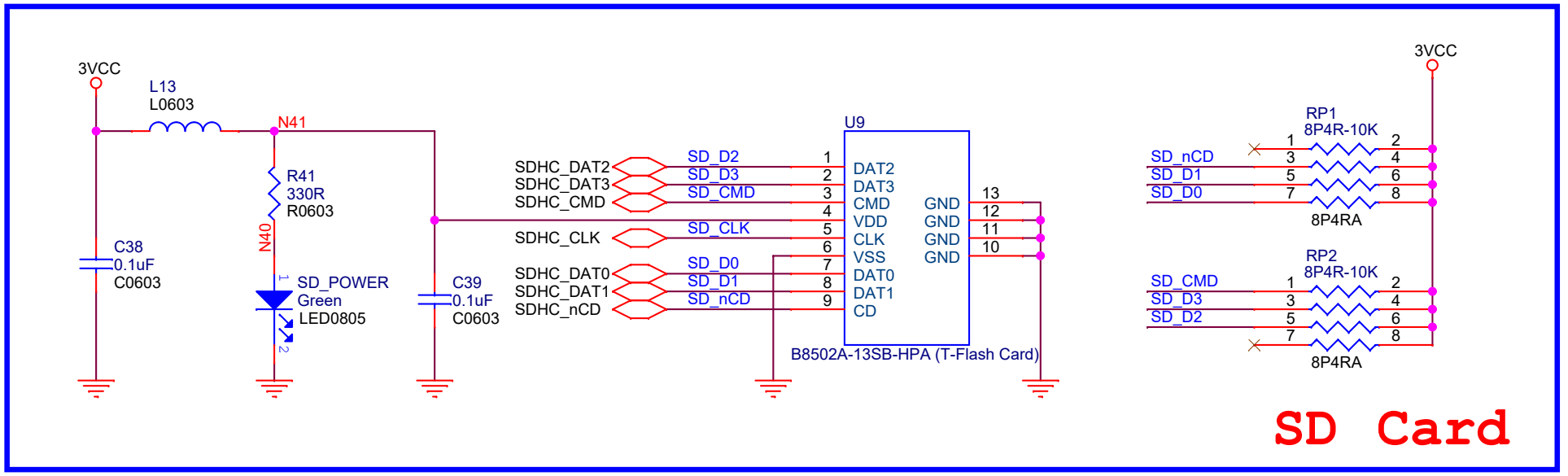
13

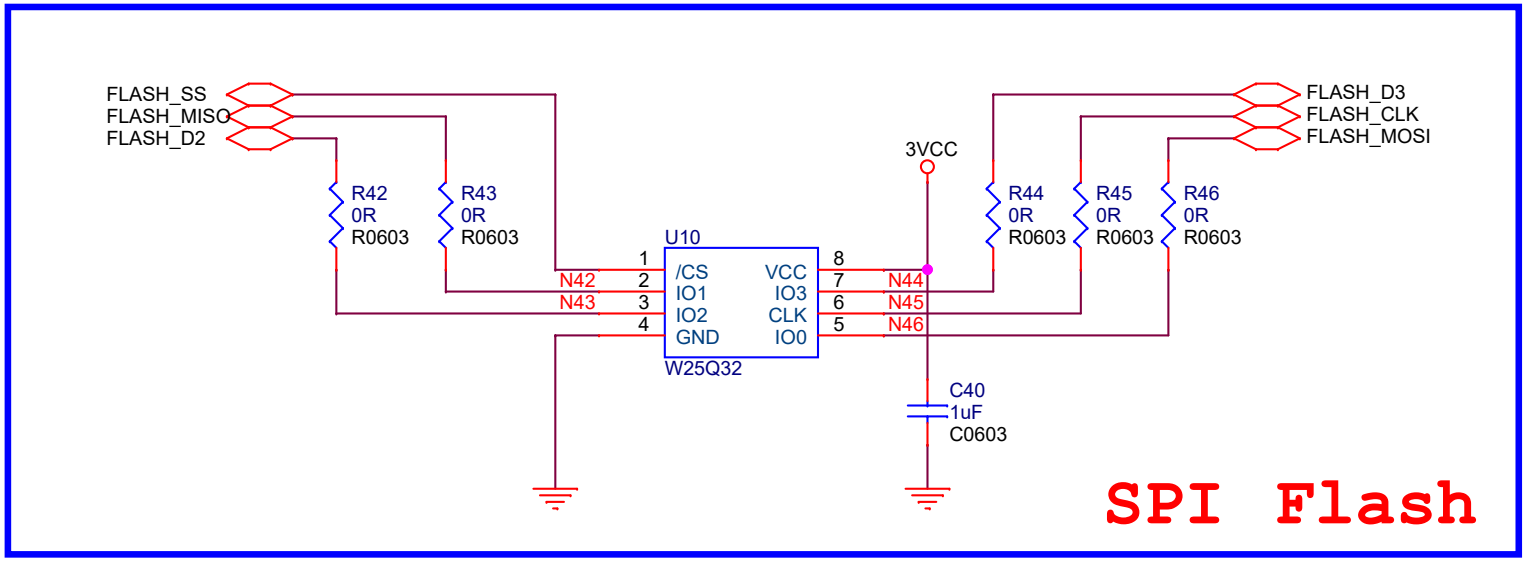




nuvoTon

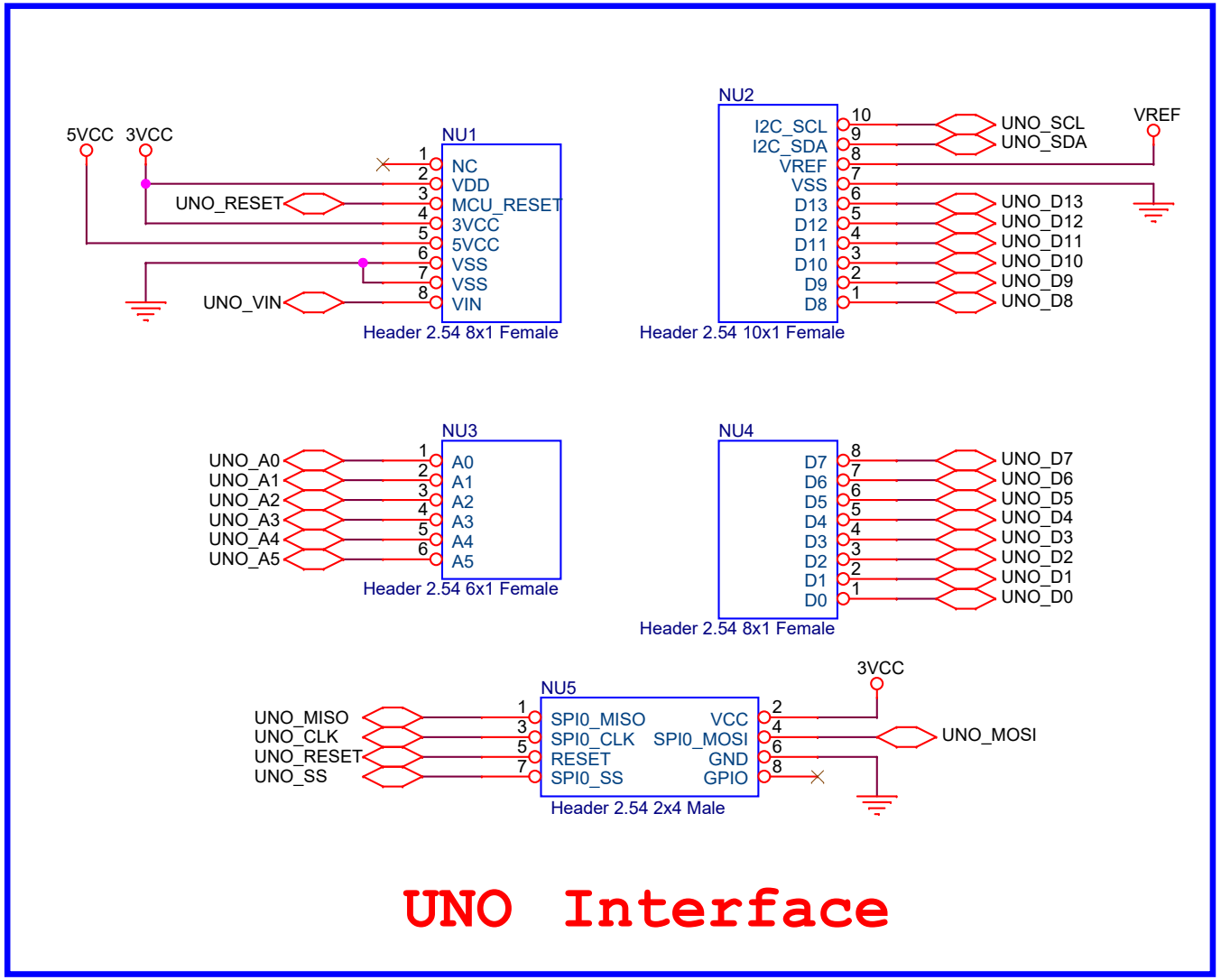
Title: Sensor		
Size: A	Document Number: Environment, 9-axis	Rev: 1.0
Date: Tuesday, August 14, 2018	Sheet 10 of 13	





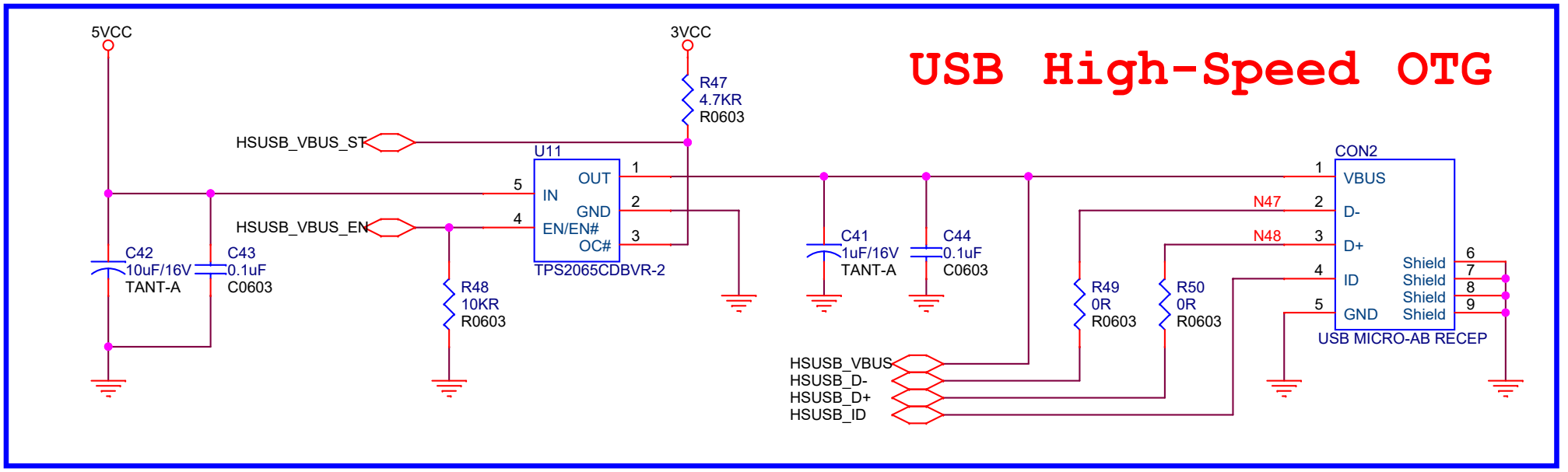
nuvoTon

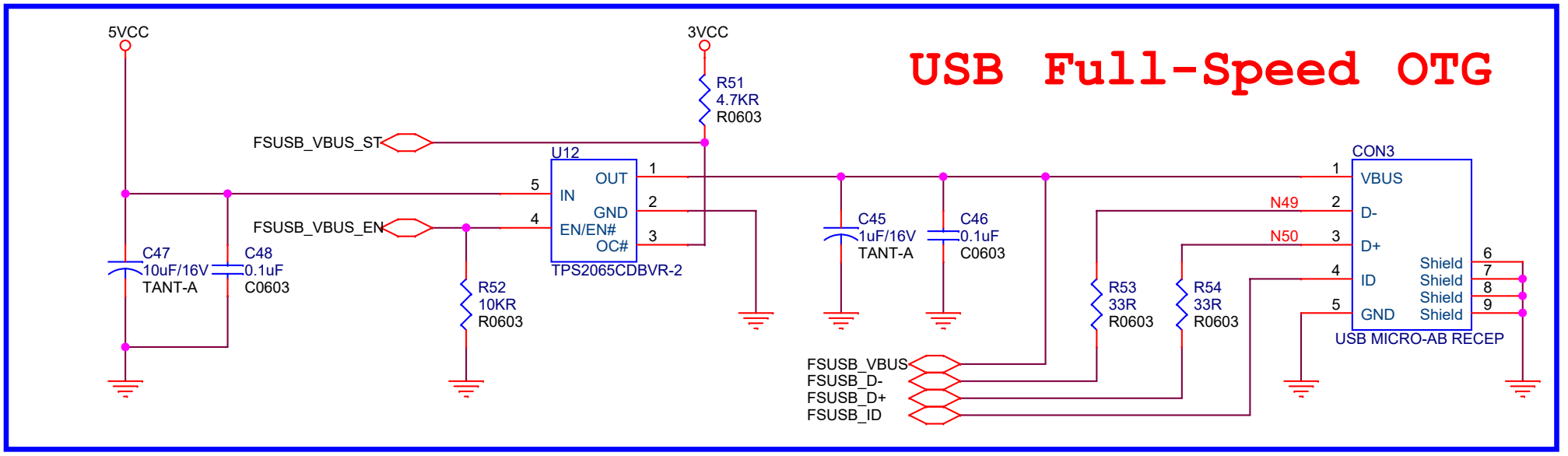
Title: Storage		
Size: A	Document Number: SPI Flash, SD Card	Rev: 1.0
Date: Tuesday, August 14, 2018	Sheet 11 of 13	



nuvoTon

Title: Uno Interface		
Size: A	Document Number: Uno Interface	Rev: 1.0
Date: Tuesday, August 14, 2018	Sheet 12 of 13	





nuvoTon

Title: USB OTG		
Size: A	Document Number: USB OTG	Rev: 1.0
Date: Tuesday, August 14, 2018	Sheet 13 of 13	