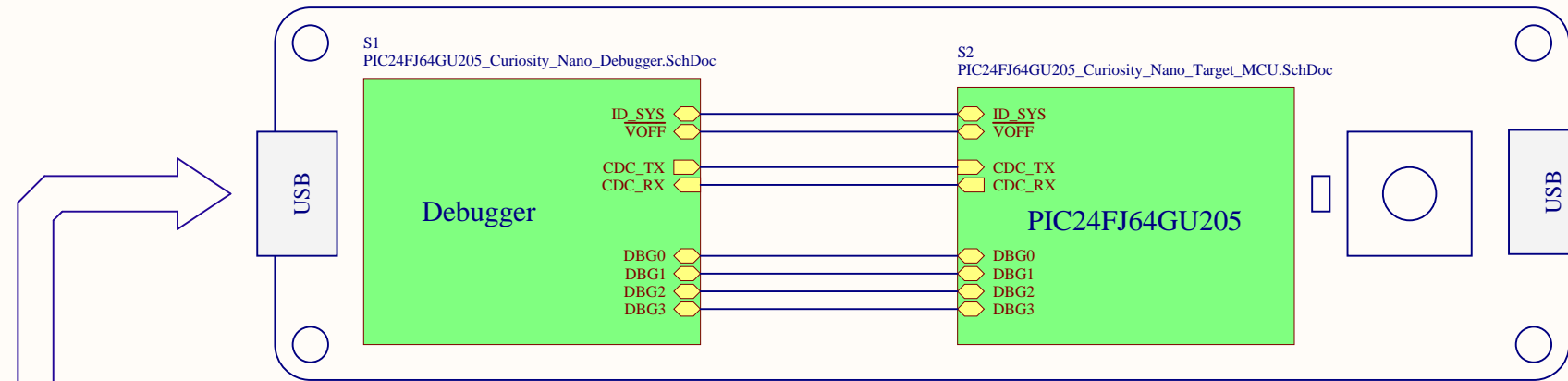
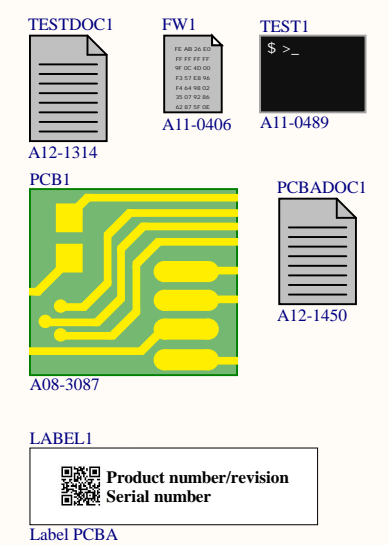
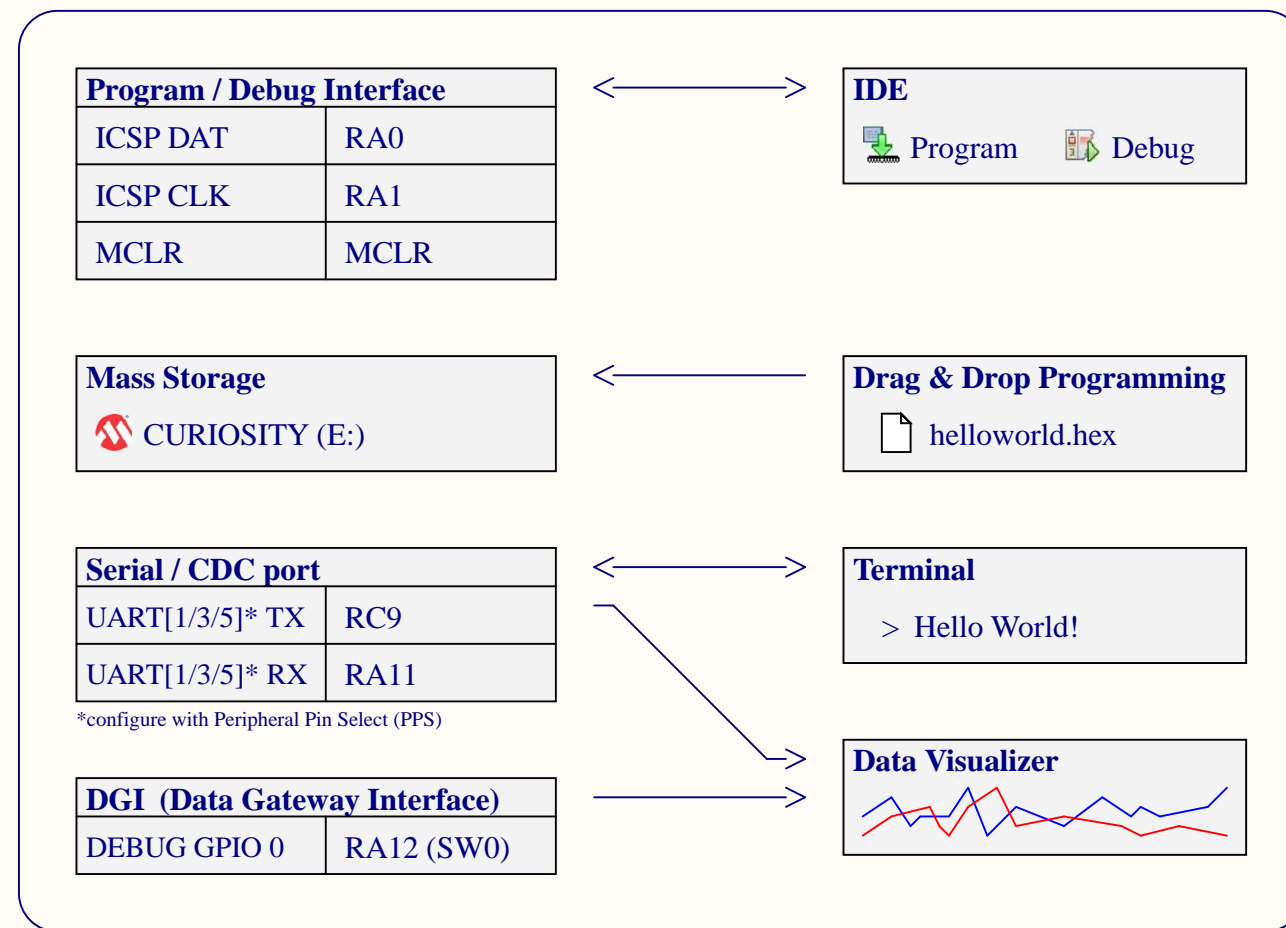


PIC24FJ64GU205 Curiosity Nano



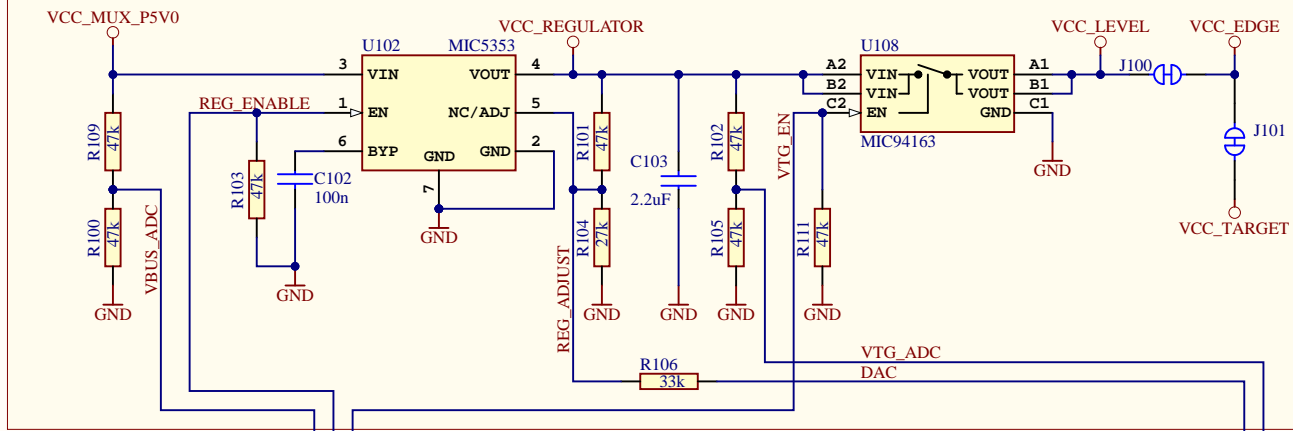
On-Board Peripherals		
LED0	RC1	Active Low
SW0	RA12	Active Low



S3
 PIC24FJ64GU205_Curiosity_Nano_Revision_History.SchDoc

Drawn By: ML		
Engineer: AH		
Project Title PIC24FJ64GU205 Curiosity Nano	 Designed with Altium.com	
Sheet Title Top Level		
Size A3	PCB Assembly Number: A09-3379	PCBA Revision: 2
	PCB Number: A08-3087	PCB Revision: 2
File: PIC24FJ64GU205_Curiosity_Nano_TopLevel.SchDoc		Date: 1/27/2021
		Page: 1 of 4

TARGET ADJUSTABLE REGULATOR



Adjustable output and limitations:

- The debugger can adjust the output voltage of the regulator between 1.25V and 5.1V to the target.
- The level shifters have a minimal voltage level of 1.65V and will limit the minimum operating voltage allowed for the target to still allow communication.
- The output switch has a minimal voltage level of 1.70V and will limit the minimum voltage delivered to the target.
- Firmware configuration will limit the voltage range to be within the target specification.
- Firmware feedback loop will adjust the output voltage accuracy to within 0.5%.

J100:

- Cut-strap used for full separation of target power from the level shifters and on-board regulators.
- For current measurements using an external power supply, this strap could be cut for more accurate measurements. Leakage back through the switch is in the micro ampere range.

J101:

- For current measurements using the on-board power supply, this strap must be cut and an ammeter connected across.

MIC5353:

Vin: 2.6V to 6V
 Vout: 1.25V to 5.1V
 Imax: 500mA
 Dropout (typical): 50mV@150mA, 160mV @ 500mA
 Accuracy: 2% initial
 Thermal shutdown and current limit

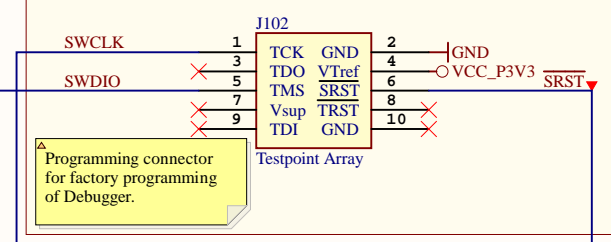
Maximum output voltage is limited by the input voltage and the dropout voltage in the regulator. ($V_{max} = V_{in} - \text{dropout}$)

Interface	ICSP TARGET	UPDI TARGET	SWD TARGET
CDC TX	UART RX	UART RX	UART RX
CDC RX	UART TX	UART TX	UART TX
DBG0	DAT	UPDI	SWDAT
DBG1	CLK	GPIO	SWCLK
DBG2	GPIO	GPIO	SWO/GPIO
DBG3	MCLR	RESET	RESET
VCC	-	-	-

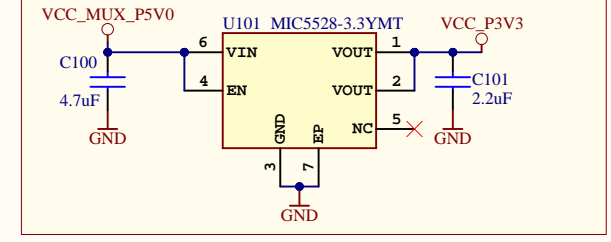
MIC5528:

Vin: 2.5V to 5.5V
 Vout: Fixed 3.3V
 Imax: 500mA
 Dropout: 260mV @ 500mA

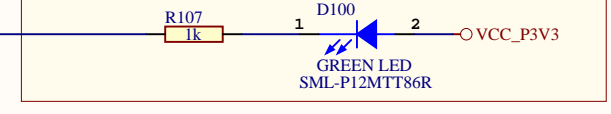
DEBUGGER TESTPOINT



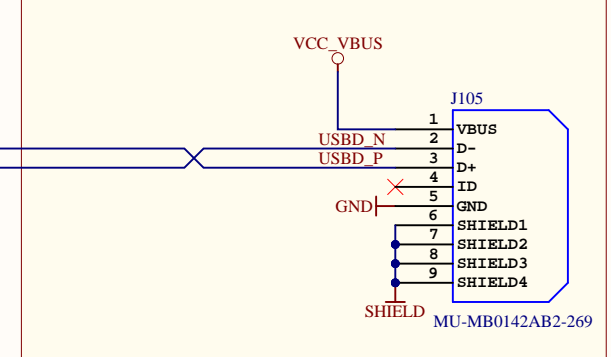
DEBUGGER REGULATOR



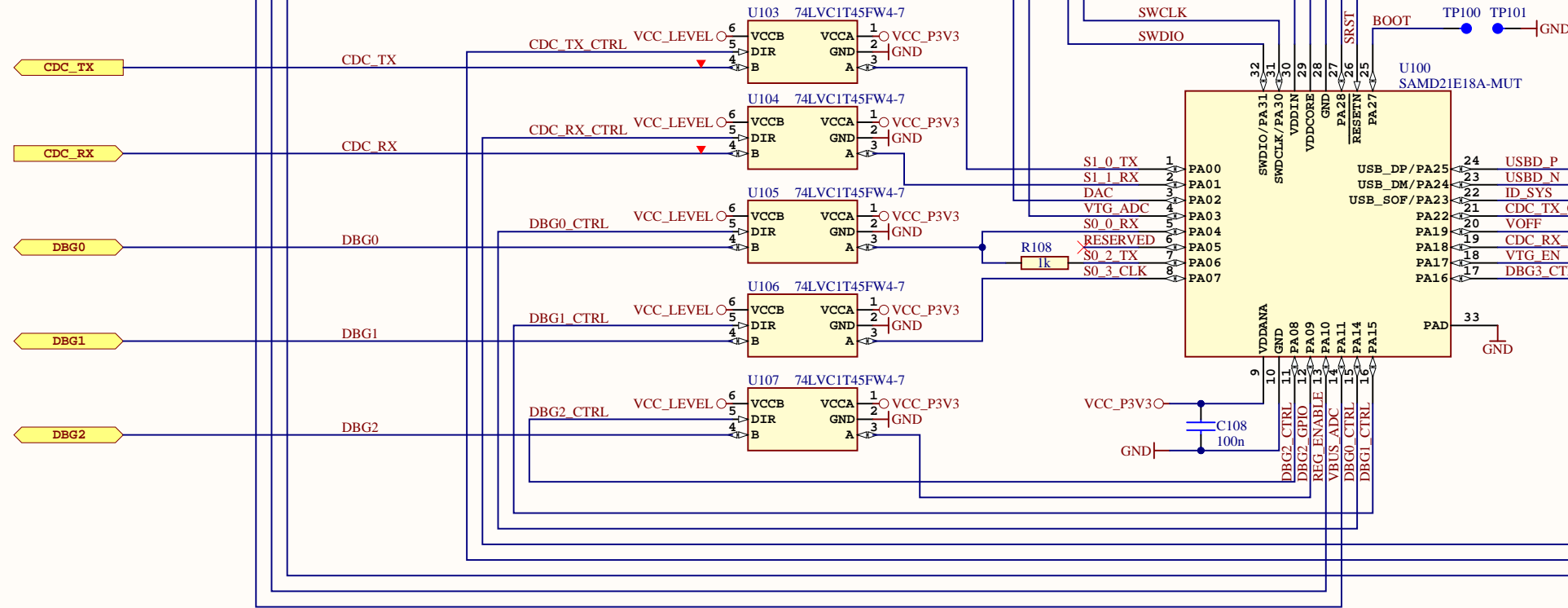
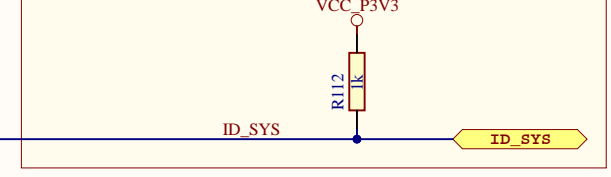
DEBUGGER POWER/STATUS LED



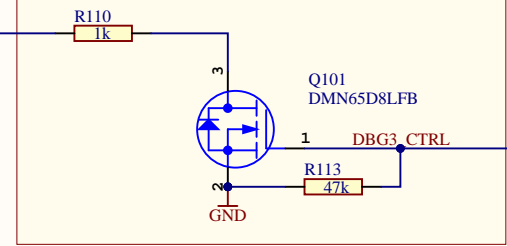
DEBUGGER USB MICRO-B CONNECTOR



ID PIN



DBG3 OPEN DRAIN



R113:

Pull down is to avoid 12V on reset line destroying R110 during power-on sequence, when DBG3_CTRL is floating.

Drawn By: ML			Designed with
Engineer: AH			
Project Title PIC24FJ64GU205 Curiosity Nano			
Sheet Title Debugger			
Size A3	PCB Assembly Number: A09-3379	PCBA Revision: 2	Date: 1/27/2021
	PCB Number: A08-3087	PCB Revision: 2	
File: PIC24FJ64GU205_Curiosity_Nano_Debugger.SchDoc			Page: 3 of 4

Revision History

PCB Assembly Rev 1:



Design Changes:
Initial Design

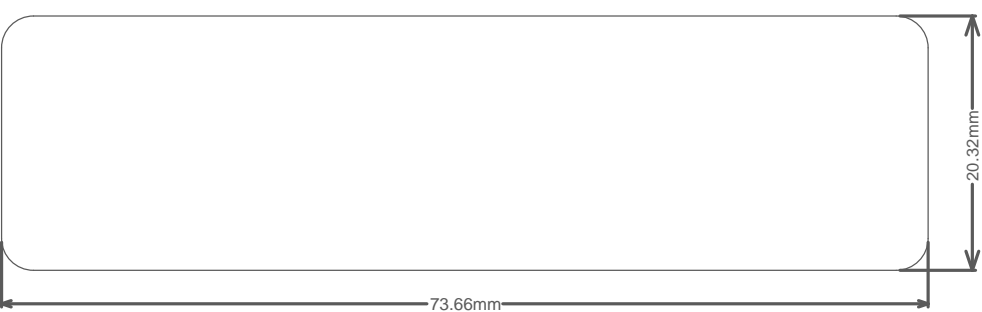
PCB:
PCB revision 1

PCB Assembly Rev 2:

Design Changes:
Added L200 to AVDD to filter out frequencies that affected ADC measurements stability.

PCB:
PCB revision 2

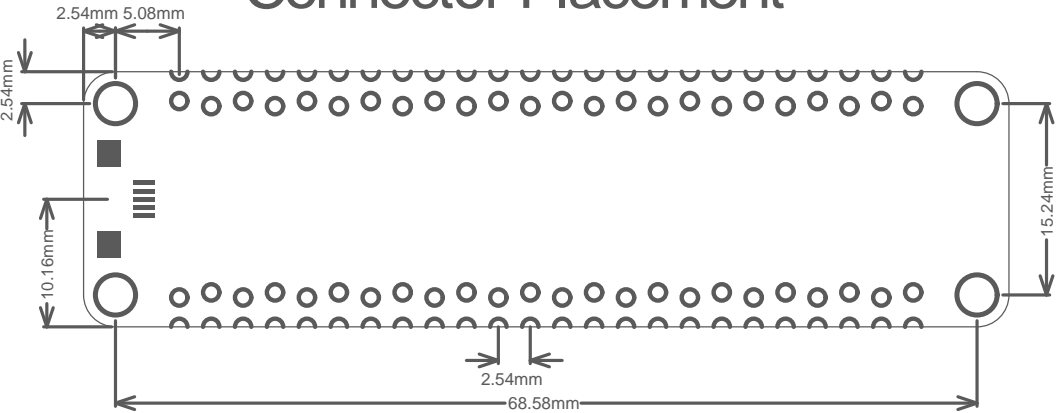
Drawn By: ML			
Engineer: AH			
Project Title PIC24FJ64GU205 Curiosity Nano	Sheet Title Revision History		Designed with  Altium.com
Size A3	PCB Assembly Number: A09-3379	PCBA Revision: 2	Date: 1/27/2021
	PCB Number: A08-3087	PCB Revision: 2	Page: 4 of 4
File: PIC24FJ64GU205_Curiosity_Nano_Revision_History.SchDoc			



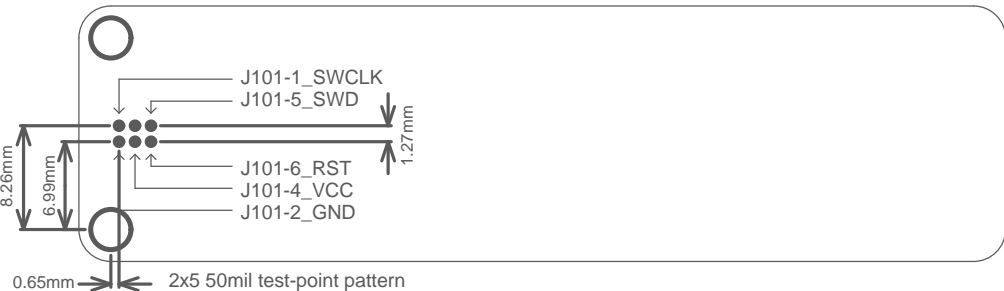
73.66mm

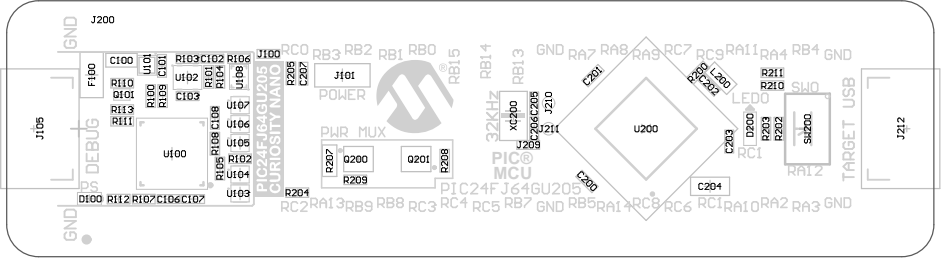
20.32mm

Connector Placement



Test Point Placement





GND

J102

GND

GND RB4 RA4 RA11 RC9 RC7 RA9 RA8 RA7 GND

RB13

RB14

RB15

RB0

RB1

RB2

RB3

RC0

UTG

GND

D0

D3

VOFF

VBUS

VBUS

LABEL1

J208 RB4
J207 RA4

A08-3087 Rev2
Microchip © 2020

4

CONNECTIONS

MCLR	J202	D3	CDC DEBUGGER
RA12	J206	D2	
RA1	J205	D1	
RA0	J204	D0	
RC9	J201	RX	
RA11	J203	TX	

TARGET



TP101 GND

TP100 00T

GND RA3 RA2 RA10 RC1 RC6 RC8 RA14 RB5 GND RB7 RC5 RC4

RC3

RB8

RB9

RA13

RC2

D2

D1

TX

RX

ID

NC

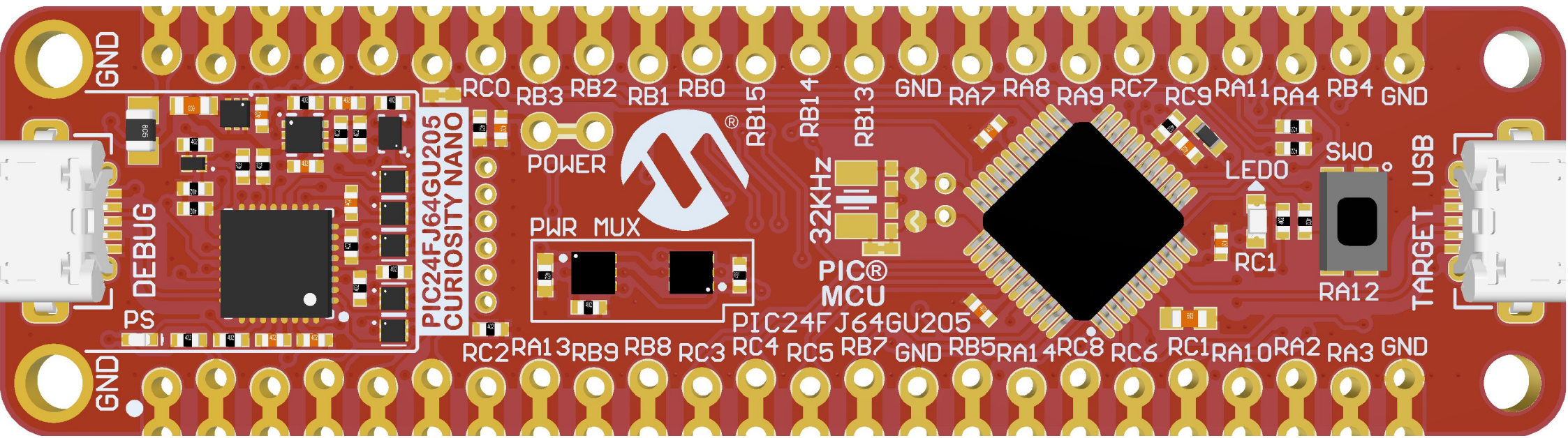
CDC

TX

RX

ID

NC



GND

GND

PS DEBUG

PIC24FJ64GU205
CURIOSITY NANO

POWER

PWR MUX



32KHZ

PIC®
MCU

PIC24FJ64GU205

LEDO

SWO

TARGET USB

RC0 RB3 RB2 RB1 RB0 RB15 RB14 RB13 GND RA7 RA8 RA9 RC7 RC9 RA11 RA4 RB4 GND
RC2 RA13 RB9 RB8 RC3 RC4 RC5 RB7 GND RB5 RA14 RC8 RC6 RC1 RA10 RA2 RA3 GND

GND RB4 RA4 RA11 RC9 RC7 RA9 RA8 RA7 GND RB13 RB14 RB15 RB0 RB1 RB2 RB3 RC0 UTG GND D0 D3 VOFF VBUS GND

GND RA3 RA2 RA10 RC1 RC6 RC8 RA14 RB5 GND RB7 RC5 RC4 RC3 RB8 RB9 RA13 RC2 D2 D1 TX RX ID NC GND

A08-3087 Rev2
Microchip © 2020



CONNECTIONS

MCLR	D3
RA12	D2
RA1	D1
RA0	D0
RC9	RX
RA11	TX
	CDC

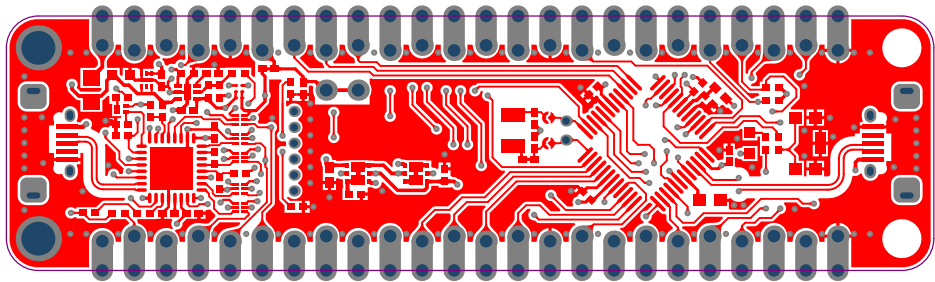


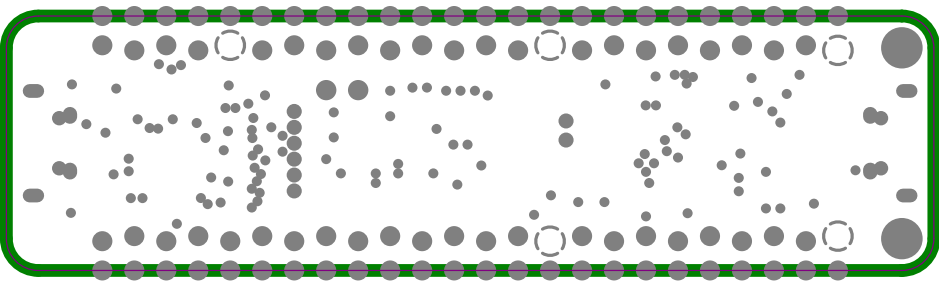
TARGET

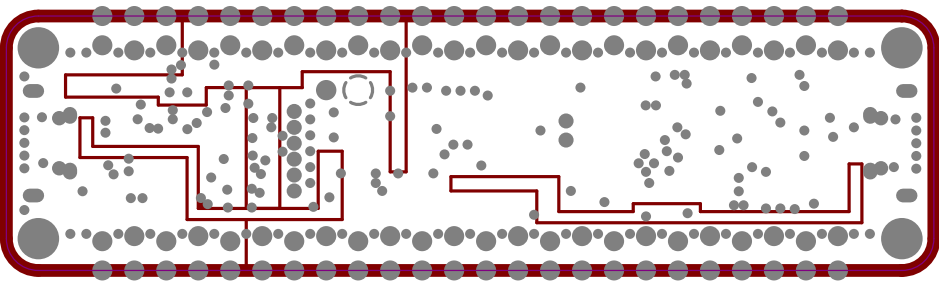
DEBUGGER

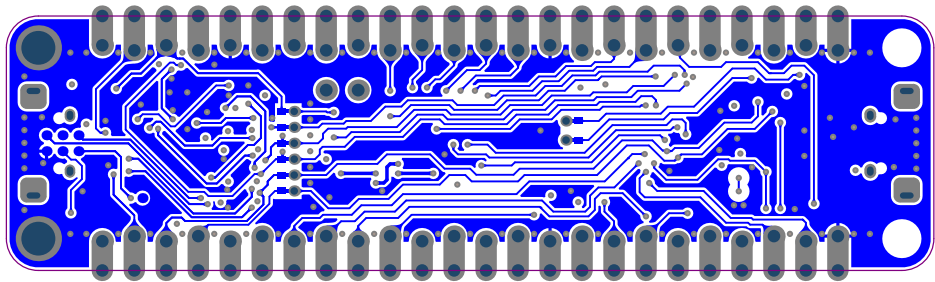


GND GND









Component list

Bill of Materials Fitted for Variant [Default Assembly] of Project [PIC24FJ64GU205_Curiosity_Nano.PrjPcb] (No PCB Document Selected)

Source Data From: PIC24FJ64GU205_Curiosity_Nano.PrjPcb
 Project: PIC24FJ64GU205_Curiosity_Nano.PrjPcb
 Variant: Default Assembly



Report Date: 1/27/2021 8:40 AM
 Print Date: 1/27/2021 8:38:55 AM

Fitted	Designator	Quantity	Value	Manufacturer	MPN	Description
Fitted	C100	1	4.7uF	TDK	C1608X5R1A475K	Ceramic capacitor, SMD 0603, X5R, 10V, 10% (de31036)
Fitted	C101	1	2.2uF	Kemet	C0402C225M9PAC	Ceramic capacitor, SMD 0402, X5R, 6.3V, +/-20%
Fitted	C102, C107, C108, C200, C201, C202, C203	7	100n	Kemet	C0402C104K4RACTU	Ceramic capacitor, SMD 0402, X7R, 16V, +/-10%
Fitted	C103, C207	2	2.2uF	TDK	C1005X5R1A225K	CAP CER 2.2UF 10V 10% X5R 0402
Fitted	C106	1	1u	Kemet	C0402C105K9PAC	Ceramic capacitor, SMD 0402, X5R, 6.3V, +/-10% (de26942)
Fitted	C204	1	10uF	Murata	GRM188R61E106MA73D	Ceramic capacitor, SMD 0603, X5R, 25V, A±10 %
Fitted	D100	1	GREEN LED	ROHM	SML-P12MTT86R	LED, SMD 0402, Green, Wave length=569nm, 2.1mcd @ (1mA, 1.9Vf) rohm
Fitted	D200	1	YELLOW LED	ROHM	SML-D12Y1WT86	LED, SMD 0603, Yellow, Wave length=590nm, 100mcd @ (20mA, 2.2Vf) rohm
Fitted	F100	1	MC36213	Multicomp	MC36213	Resettable PTC fuse, Ih = 0.5A, It = 1.0A, 0805 package
Fitted	FW1	1	nEDBG firmw are			nEDBG firmw are
Fitted	J105, J212	2	MU-MB0142AB2-269	Allen Creations Corp.	MU-MB0142AB2-269	USB micro AB, Surface mount signals and DIP shield
Fitted	L200	1	BLM15BB221SN1	Murata	BLM15BB221SN1	SMD RF inductor 0402. Z=220Ohm (@100MHz), Max R(dc)=0.80Ohm, Max current=200mA
Fitted	LABEL1	1	Label PCBA	ACT Logimark AS	505462	PCBA identification label PP Top White Gloss
Fitted	PCB1	1	PIC24FJ64GU205 Curiosity Nano PCB Documentation			PIC24FJ64GU205 Curiosity Nano PCB Documentation
Fitted	PCBADOC1	1	PIC24FJ64GU205 Curiosity Nano PCBA Documentation			PIC24FJ64GU205 Curiosity Nano PCBA Documentation
Fitted	Q101	1	DMN65D8LFB	Diodes Incorporated	DMN65D8LFB-7	N-channel MOSFET, DFN1006-3 (SOT883), 60V, 330mA, 4Ohm
Fitted	Q200, Q201	2	PMDPB55XP	NXP	PMDPB55XP	Dual P-Channel MOSFET, -20V, RDS(ON) < 55 mOhm @-3.4A @-4.5V
Fitted	R100, R101, R102, R103, R105, R109, R111, R113, R200, R204, R205, R208, R209, R210, R211	15	47k	KOA	RK73H1ETTP4702F	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R104	1	27k	Yageo	RC0402FR-0727KL	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R106	1	33k	ASJ Holdings	CR10-3302-FK	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R107, R108, R110, R112, R202, R203	6	1k	Yageo	RC0402FR071KL	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	R207	1	1M	Yageo	RC0402FR-071ML	Thick film resistor, SMD 0402, 1/16W, 1%
Fitted	SW200	1	KMR221G	Cabcon A/S	L-KLS7-TS0304A-2-300-T	Microminiature Tact Sw itch for SMT
Fitted	TEST1	1	PIC24FJ64GU205 Curiosity Nano Test			Fixture test for PIC24FJ64GU205 Curiosity Nano
Fitted	TESTDOC1	1	Curiosity Nano Test Instructions			Generic Test Instructions for Curiosity Nano
Fitted	U100	1	SAMD21E18A-MUT	Microchip	ATSAMD21E18A-MUT	Atmel 32-bit RISC MCU 32pin
Fitted	U101	1	MIC5528-3.3YMT	Microchip	MIC5528-3.3YMT-T5	LDO 3.3V 0.5A 6TDFN
Fitted	U102	1	MIC5353	Microchip	MIC5353YMT-TR	500mA Ultra Low Dropout LDO regulator, 2% accuracy, 1.6x1.6mm MLF
Fitted	U103, U104, U105, U106, U107	5	74LVC1T45FW4-7	Diodes Incorporated	74LVC1T45FW4-7	Single-Bit Dual-Supply Transceiver, 1.65-5.5 Translation and 3-State Outputs
Fitted	U108	1	MIC94163	Microchip	MIC94163YCS-TR	Loadsw itch, Rds(on) = 14.5mohm, 1.0mm x 1.5mm WLCSP, reverse blocking
Fitted	U200	1	PIC24FJ64GU205	Microchip	PIC24FJ64GU205-IPT	16-Bit MCU 32MHz PIC24FJ64GU205-IPT TQFP-48 7mm x 7mm x 1mm
Not Fitted	C205	0	10p	AVX	04025A100JA T2A	Ceramic capacitor, SMD 0402, NPO, 50V, +/-5%
Not Fitted	C206	0	13pF	Murata	GRM1555C1H130JA01D	Ceramic capacitor, SMD 0402, NPO, 50V, +/-5%
Not Fitted	XC200	0	32.768kHz	Abrakon	ABS07-32.768kHz-7-T	Crystal, 32.768kHz, CL=7.0pF, ESR=70kOhm, SMD LxW=3.2 x 1.5mm, 20ppm
		63				

Approved	Notes