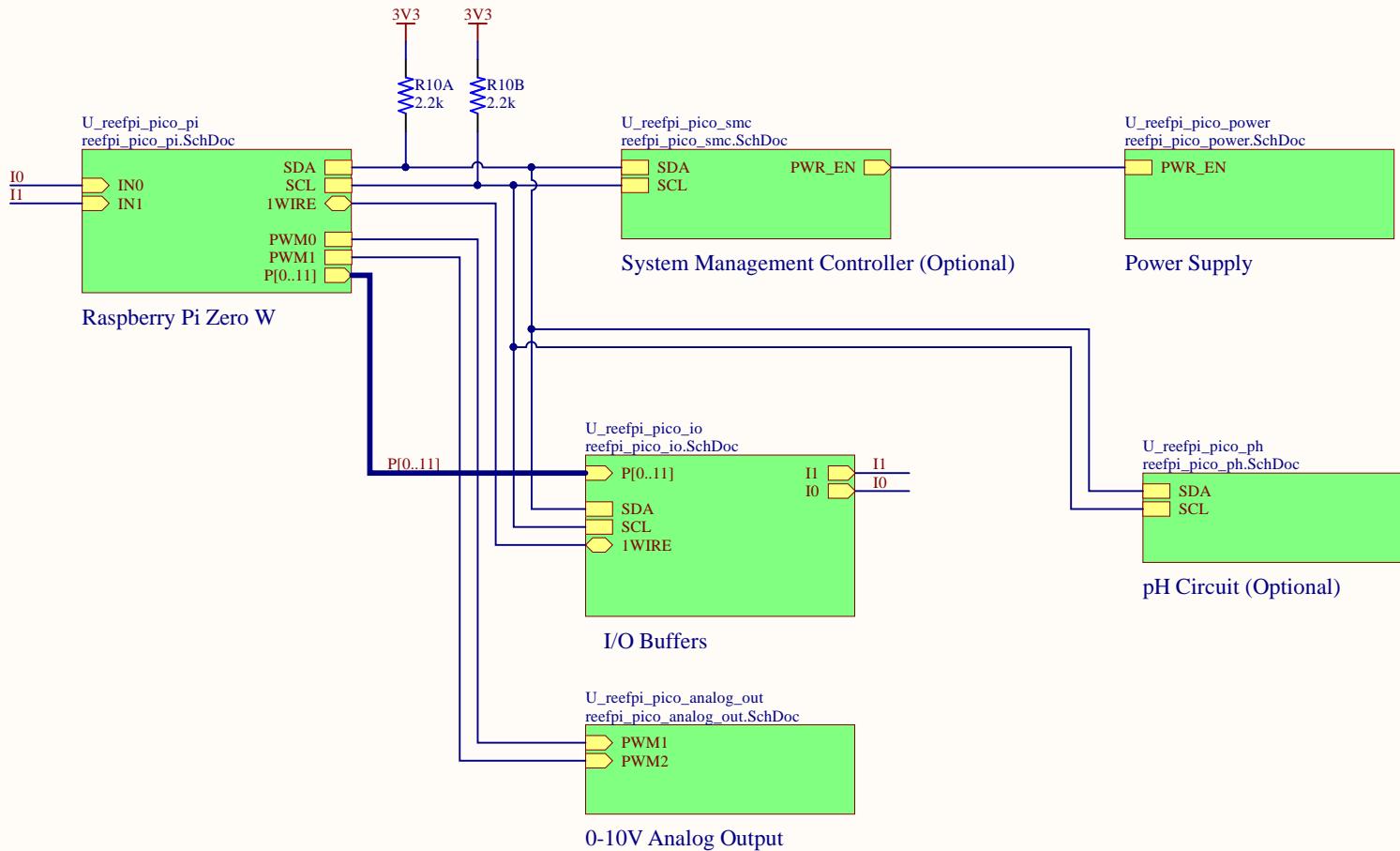


A



B

C

D



open source  
hardware

Board Symbols, Fiducials, Logos

FID1 FID2 FID3 LOGO1

FID FID FID BlueAcro Logo

Title **reef-pi Pico Top Level**

Size: A4 Number: 1 Revision: A

Date: 11/24/2018 Time: 9:52:31 PM Sheet 1 of 8

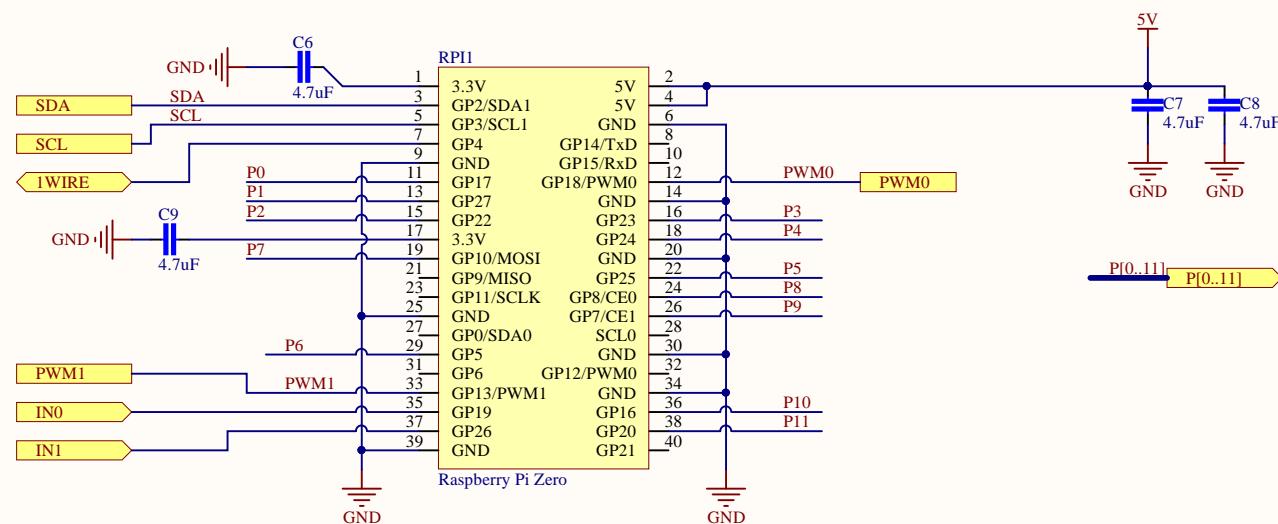
File: reefpi\_pico\_toplevel.SchDoc

\*  
\*  
\*  
\*  
\*

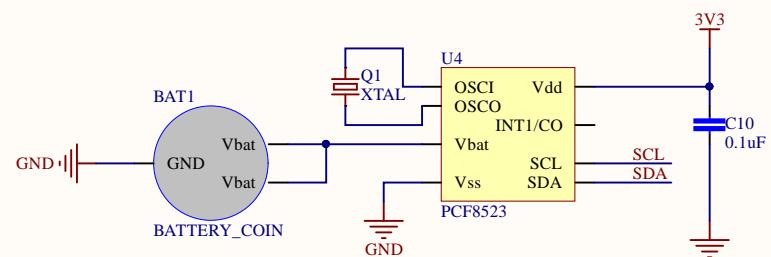
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[blueacro.com](http://blueacro.com)  
[github.com/blueacro](http://github.com/blueacro)

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A



## RTC for Raspberry Pi

Title *reef-pi Pico - Pi Interface*

Size: A4 Number:2 Revision:A

Date: 11/24/2018 Time: 9:52:31 PM Sheet2 of 8

File: reefpi\_pico\_pi.SchDoc

\*  
\*  
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\*  
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[blueacro.com](http://blueacro.com)  
[github.com/blueacro](http://github.com/blueacro)

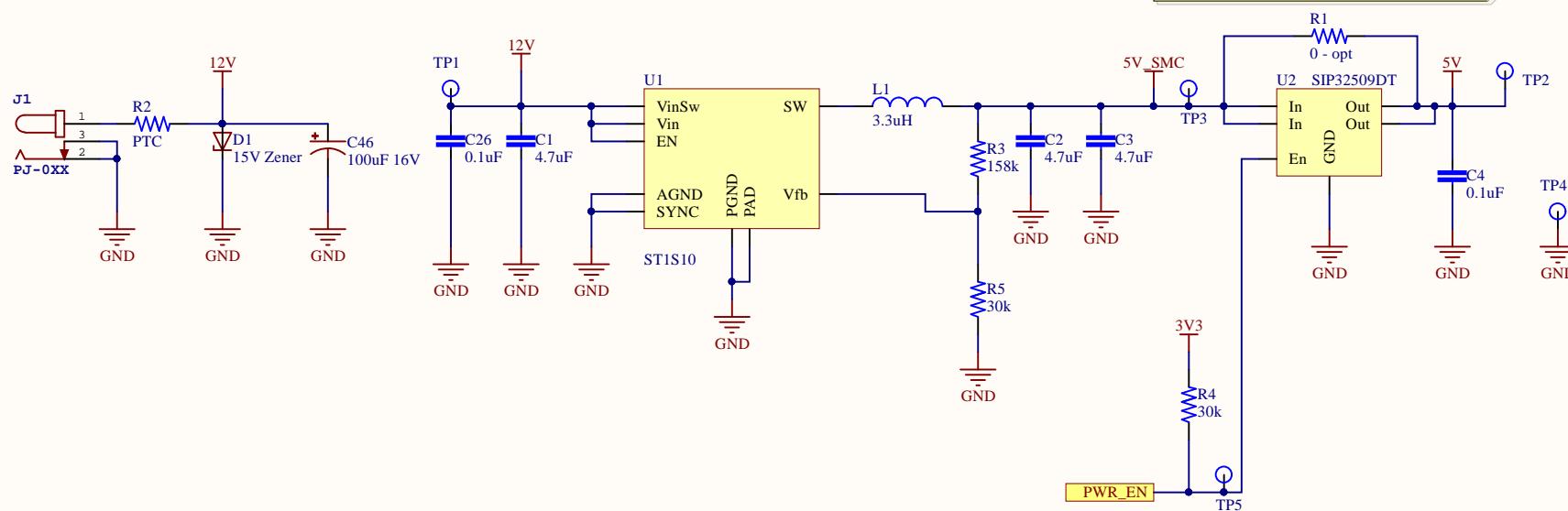
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open source  
hardware

A

Input Enable switch is used to power cycle the 5V and 3.3V rails if the system management controller watch expires.

The Enable input is pulled high to prevent loss of power to the Pi when the SMC firmware is updated (fail-on)



B

C

D



open  
source  
hardware

Title *reef-pi Pico - Power*

Size: A4 Number: 3 Revision: A

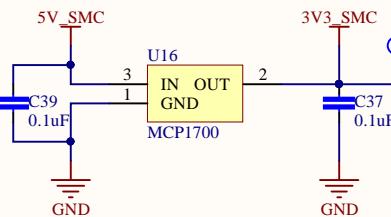
Date: 11/24/2018 Time: 9:52:31 PM Sheet 3 of 8

File: reefpi\_pico\_power.SchDoc

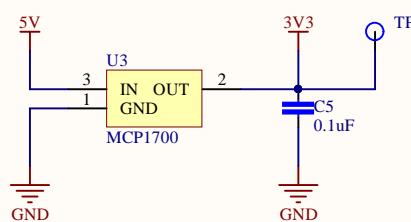
\*  
\*  
\*  
\*  
\*

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[github.com/blueacro](https://github.com/blueacro)

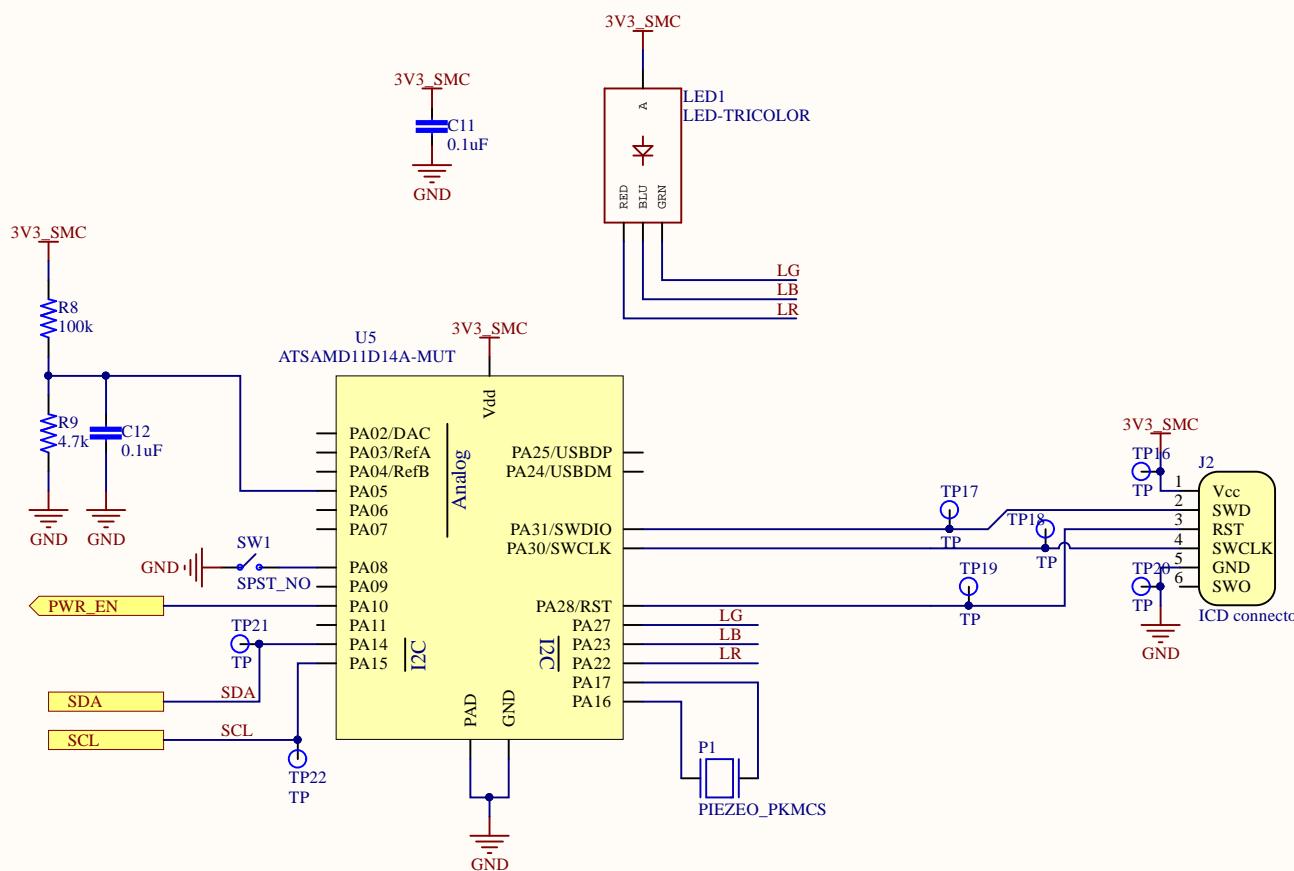
### 3.3V System Management Controller



### 3.3V System Rail



A



B

C

D



open  
source  
hardware

Title **reef-pi Pico - System Controller**

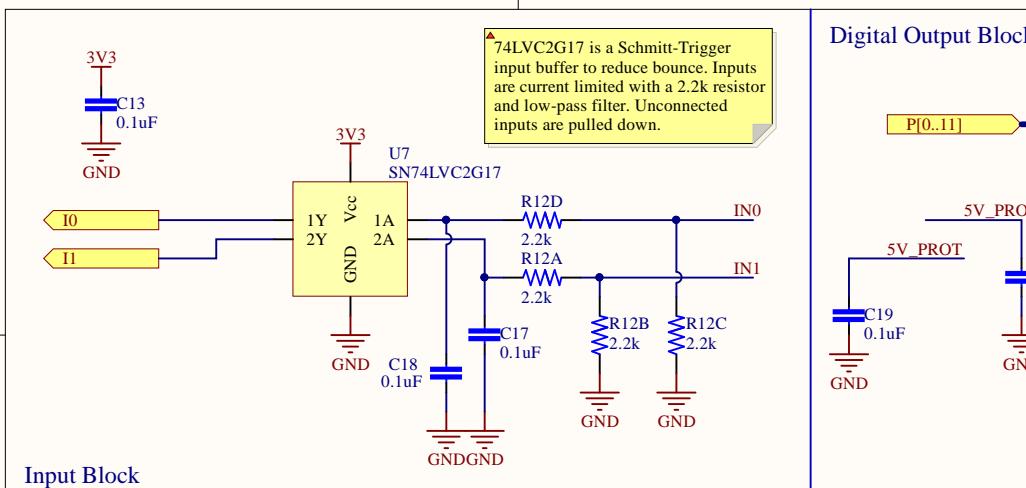
Size: **A4** Number:**4** Revision:**A**

Date: **11/24/2018** Time: **9:52:32 PM** Sheet**4** of **8**

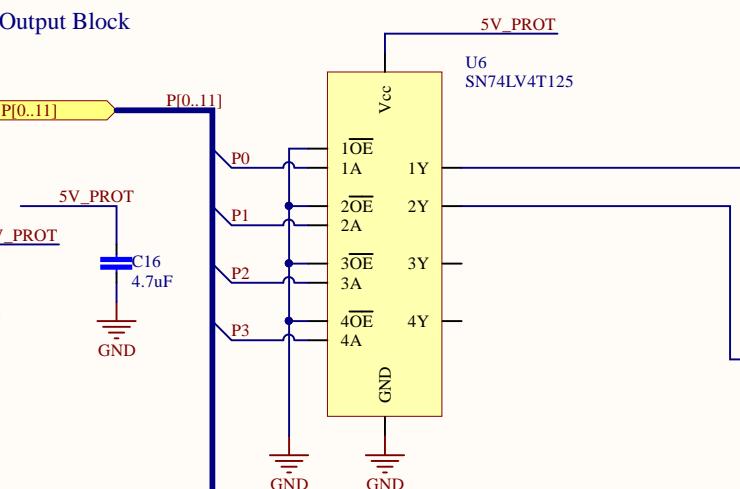
File: **reefpi\_pico\_smc.SchDoc**

\*  
\*  
\*  
\*  
\*

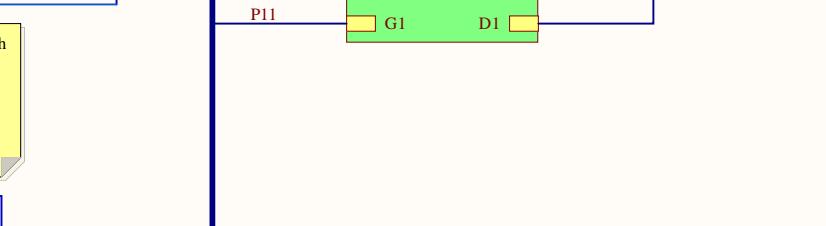
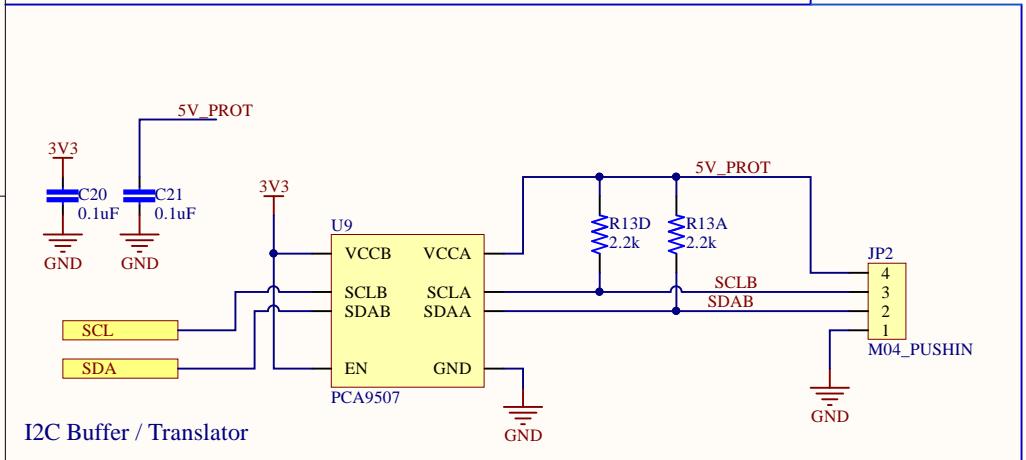
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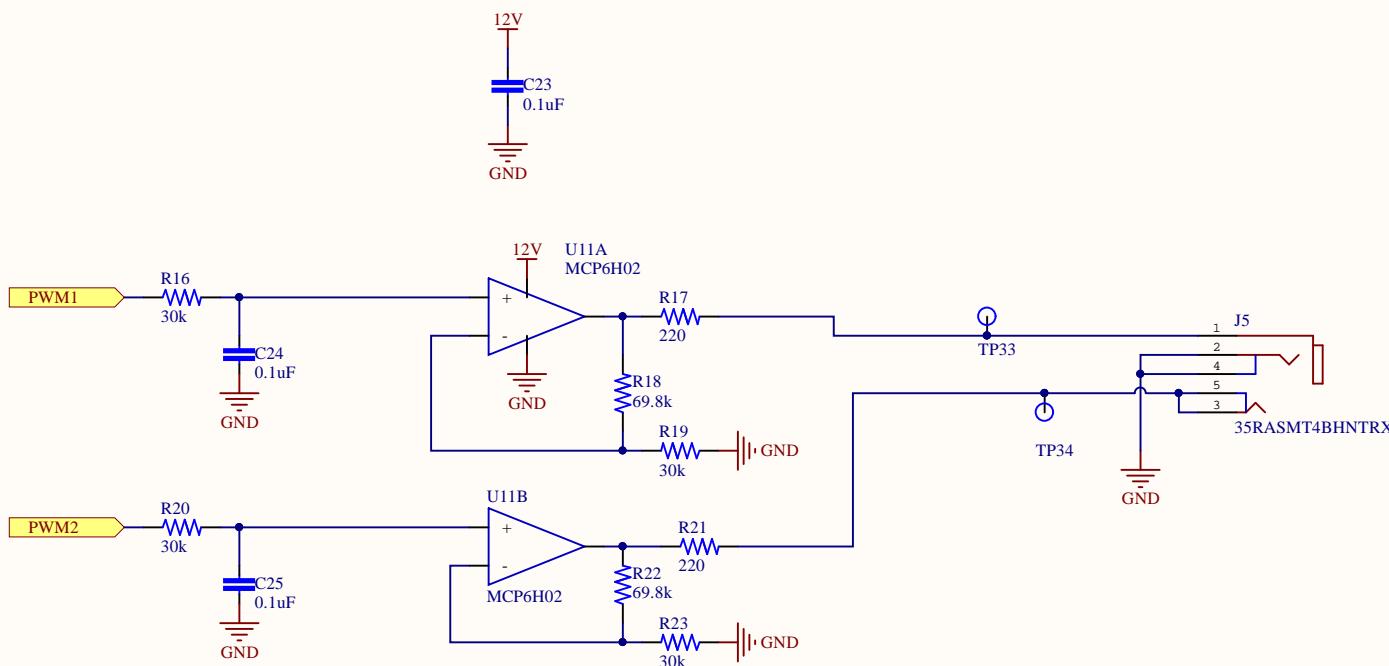
## Digital Output Block



**Output buffers can sink and source 16mA per channel. Do not exceed 5.5V input to the buffer referenced to ground. The buffer does not provide current limiting. ESD protected from human body model to 2kV.**



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## Analog Output (0-10V)



open source  
hardware

Title <b>reef-pi Pico Analog Output</b>		
Size: A4	Number:6	Revision*:
Date: 11/24/2018	Time: 9:52:32 PM	Sheet 6 of 8
File: reefpi_pico_analog_out.SchDoc		

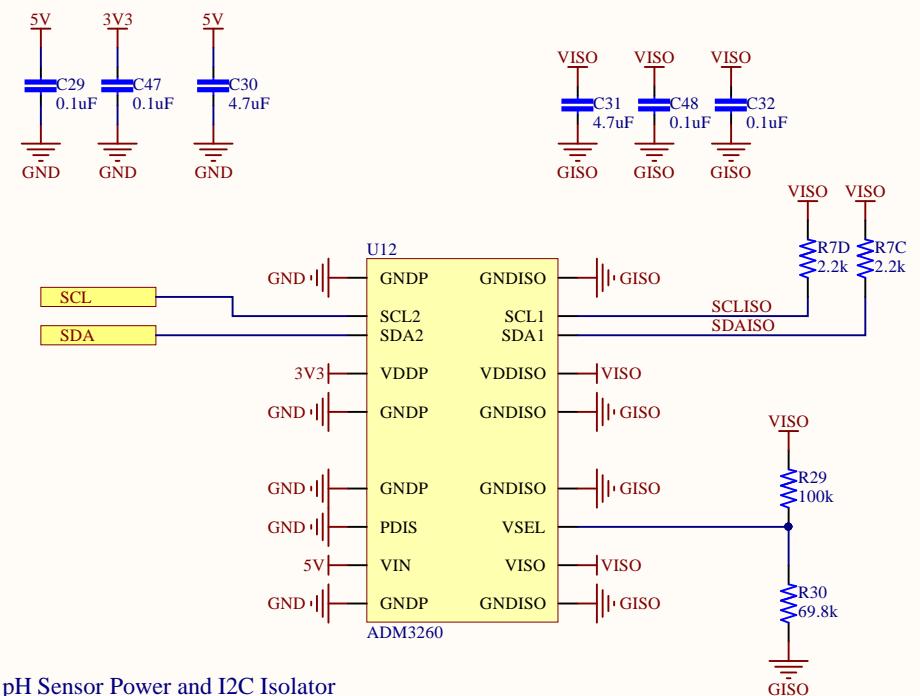
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1

2

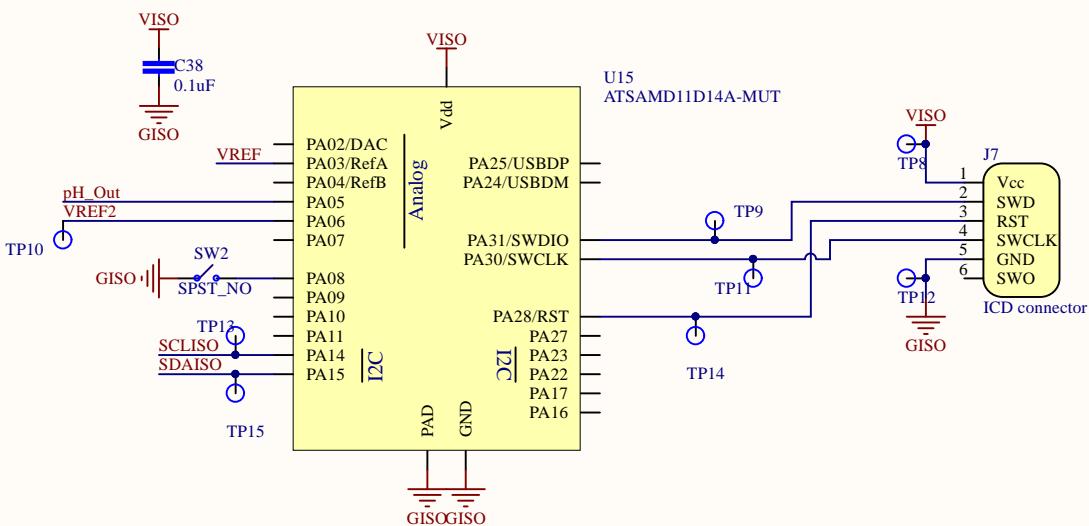
3

4

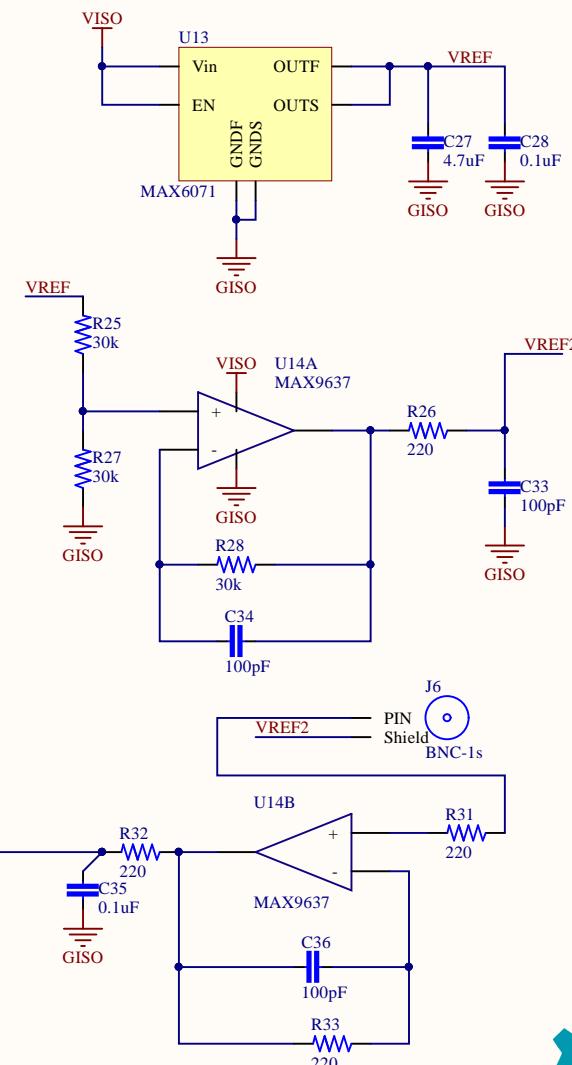


pH Sensor Power and I2C Isolator

## pH Sensor Worker MCU



## pH Sensor Reference, Split Rail, Amplifier

open source  
hardwareTitle *reef-pi isolated pH*

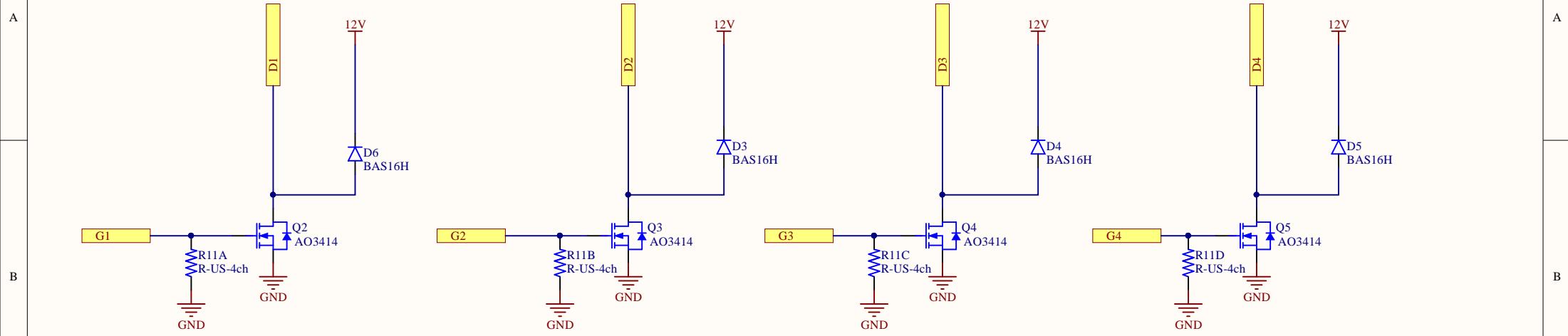
Size: A4 Number: 7 Revision: \*

Date: 11/24/2018 Time: 9:52:32 PM Sheet 7 of 8

File: reefpi\_pico\_ph.SchDoc

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open  
source  
hardware

Title <b><i>reef-pi Pico FET output block</i></b>			*	Made available under the CERN OHL v1.2
Size: A4	Number: 8	Revision: *	*	<a href="http://blueacro.com">blueacro.com</a>
Date: 11/24/2018	Time: 9:52:32 PM	Sheet 8 of 8	*	<a href="https://github.com/blueacro">github.com/blueacro</a>
File: reefpi_pico_fet.SchDoc			*	© 2018 StackFoundry LLC. All Rights Reserved.

**reef-pi**  
[reef-pi.com](http://reef-pi.com)

**pico** controller

**blueAcro**  
[blueAcro.com](http://blueAcro.com)

2x 0-10V

1-Wire

CERN Open Hardware License v1.2  
[github.com/blueacro](https://github.com/blueacro)

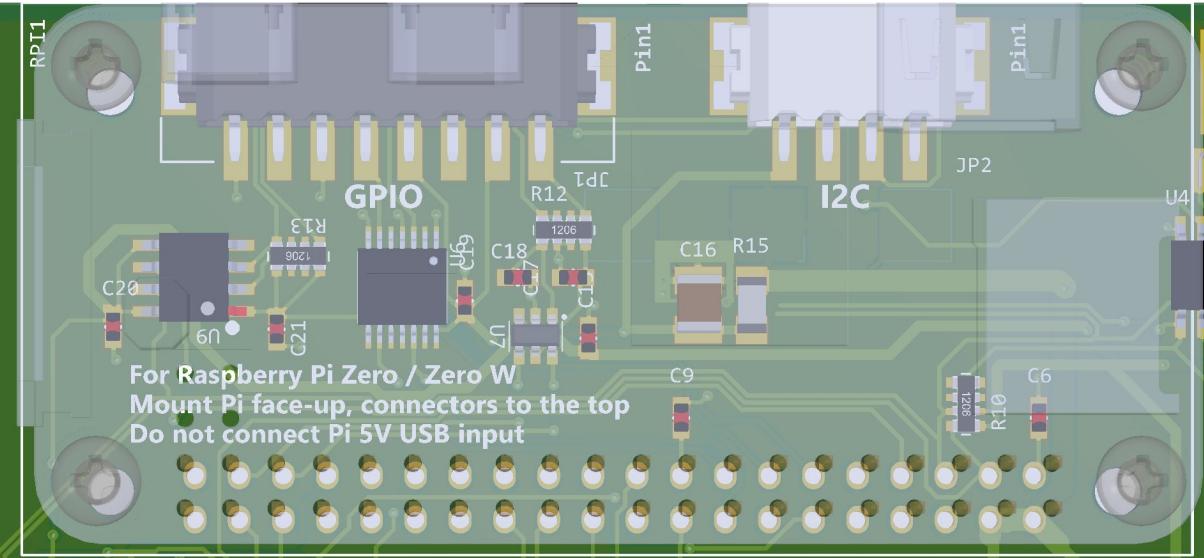
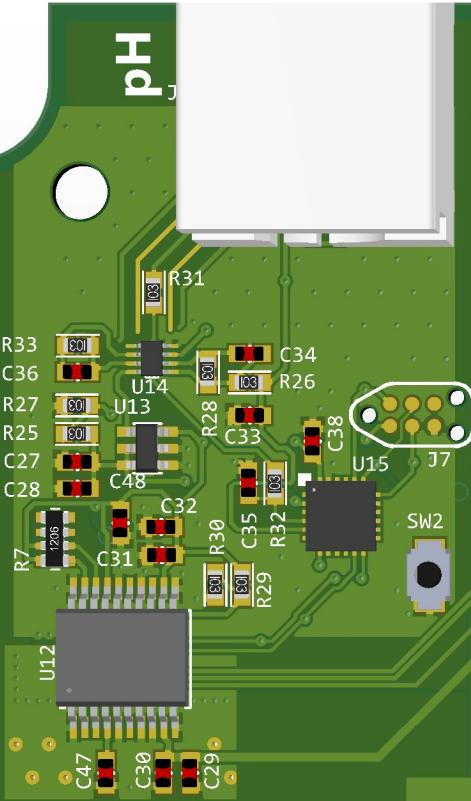
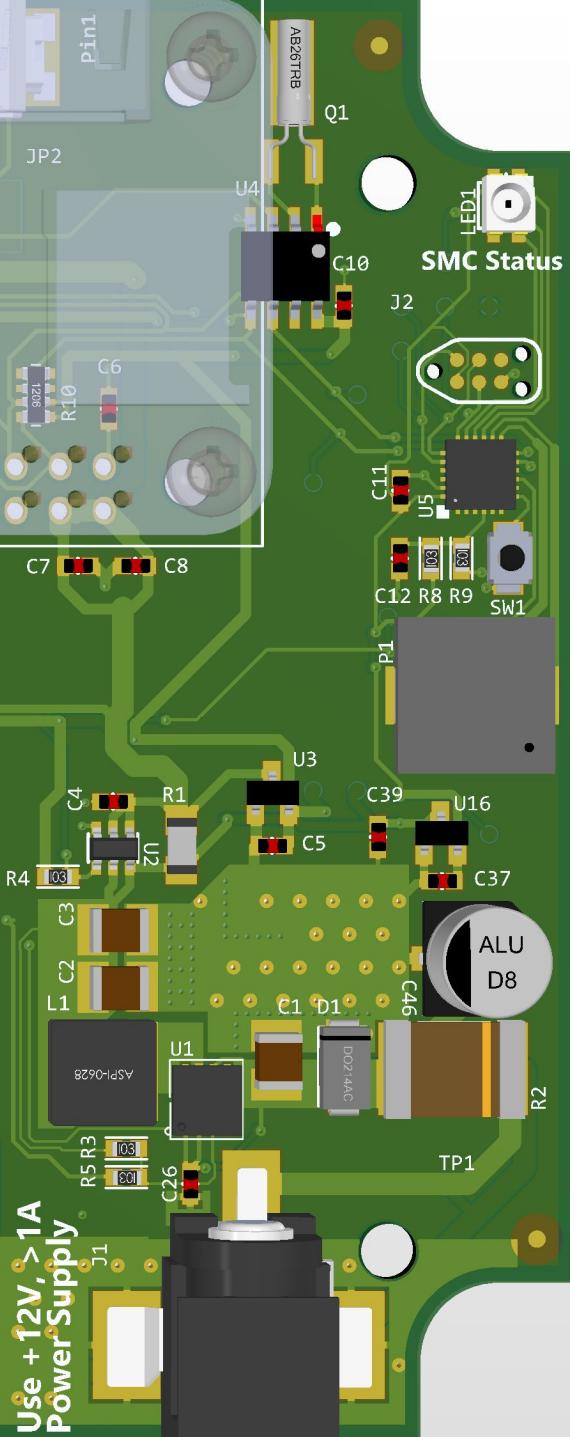
J3



Pin1	GP24
Pin2	GP25
Pin3	GP5
Pin4	GP10
Pin5	+12V
Pin6	GP8
Pin7	GP7
Pin8	GP16
Pin9	GP20

Pin19	GP19 5V Out	Output	Pin17	GP17 GND	I2C	Pin1	GND	SDA	SCL	5V Out
Terminal Header Outputs: 16mA max each, 5V										

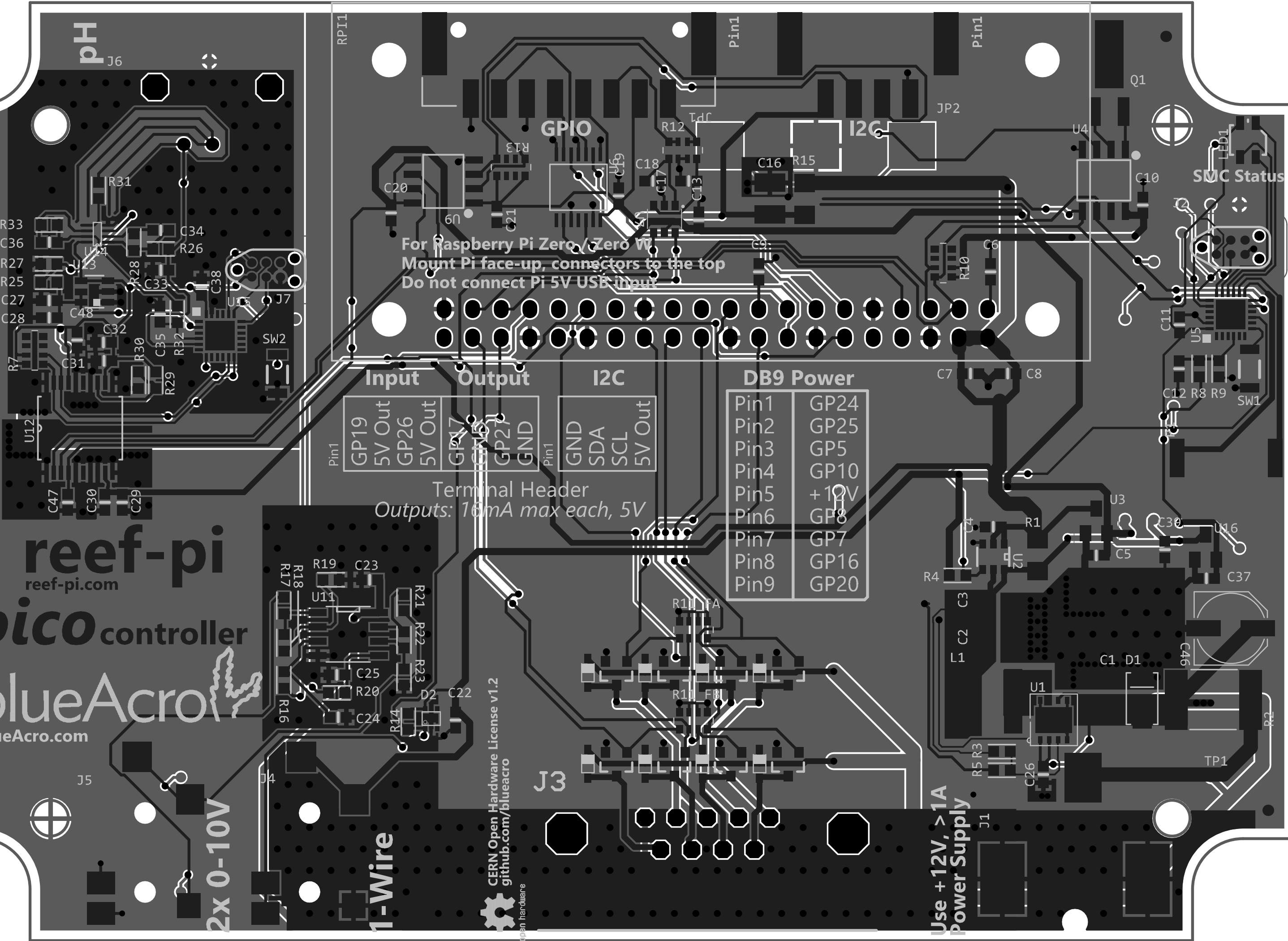
Use +12V, >1A  
PowerSupply



Bill of Materials					
Bill of Materials for Project [reefpi_pico_v2.PrjPcb] (No PCB Document Selected)					
Source Data From:	reefpi_pico_v2.PrjPcb				
Project:	reefpi_pico_v2.PrjPcb				
Variant:	None				
Creation Date:	11/24/2018 9:52 PM				
Print Date:	24-Nov-18 9:52:48 PM				
Footprint	Comment	LibRef	Designator	Description	Quantity
BK-885-1216	BATTERY_COIN	BATTERY_COIN	BAT1		1
C1210	4.7uF	C-EU	C1, C2, C3, C16		4
C0603	0.1uF	C-EU	C4, C5, C10, C11, C12, C13, C17, C18,		25
C0603	4.7uF	C-EU	C6, C7, C8, C9, C27, C30, C31		7
C0603	100pF	C-EU	C33, C34, C36		3
PANASONIC	100uF 16V	CPOL-US	C46		1
SMA	15V Zener	ZENER-DIODE	D1		1
SOT665	BZA956A,115	DIODE_TVS_4x	D2		1
SOD323R_IN	BAS16H	DIODE	D3_FA, D3_FB, D4_FA, D4_FB, D5_FA,		8
FIDUCIAL_1N	FID	FID	FID1, FID2, FID3		3
PJ-036AH	PJ-0XX	PJ-0XX	J1		1
D09S33E4GV	M09/DB9	M09/DB9	J3		1
35RASMT4BH	35RASMT4BHNT	35RASMT4BHNT	J4, J5		2
31-5431-10R	BNC-1s	BNC-1s	J6		1
PHOENIX_PT	M08_PUSHIN	M08_PUSHIN	JP1		1
PHOENIX_PT	M04_PUSHIN	M04_PUSHIN	JP2		1
ASPI_0628	3.3uH	L-US	L1		1
LED-TRICOLOR	LED-TRICOLOR	LED-TRICOLOR	LED1		1
BLUEACRO	BlueAcro Logo	BlueAcro Logo	LOGO1		1
PIEZOE_PKMC	PIEZOE_PKMC	PIEZOE_PKMC	P1		1
CRYSTAL-32	XTAL	CRYSTAL32-SM	Q1		1
SOT23-3	AO3414	NFET	Q2_FA, Q2_FB, Q3_FA, Q3_FB, Q4_FA,		8
R1206	0 - opt	R-US	R1		1
R2920	PTC	R-US	R2		1
R0603	158k	R-US	R3		1
R0603	30k	R-US	R4, R5, R16, R19, R20, R23, R25, R27,		9
R0603x4	2.2k	R-US-4ch	R7, R10, R12, R13		4
R0603	100k	R-US	R8, R29		2
R0603	4.7k	R-US	R9, R14		2
R0603x4	R-US-4ch	R-US-4ch	R11_FA, R11_FB		2
R1206	PTC 1A	R-US	R15		1
R0603	220	R-US	R17, R21, R26, R31, R32, R33		6
R0603	69.8k	R-US	R18, R22, R30		3
RPI_ZERO_W	Raspberry Pi Zero	RPI Zero	RPI1		1
B3U-1000P	SPST_NO	SPST_NO	SW1, SW2		2
TP_0.89mm	TP	TP	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8,		24
VFQFPN8	ST1S10	ST1S10	U1		1
SOT23-6	SIP32509DT	SIP32509DT	U2		1
SOT23	MCP1700	MCP1700	U3, U16		2
SO-8	PCF8523	PCF8523	U4		1
QFN24-4x4mm	ATSAMD11D14A	ATSAMD11D14A	U5, U15		2
PW14	SN74LV4T125	SN74LV4T125	U6		1
SOT23-6	SN74LVC2G17	SN74LVC2G17	U7		1
SO-8	PCA9507	PCA9507	U9		1
SO-08	MCP6H02	MCP6H02	U11		1
SSOP20	ADM3260	ADM3260	U12		1
SOT23-6L	MAX6071	MAX6071	U13		1
SC70-8	MAX9637	MAX9637	U14		1

147

Approved	Notes





# ROUTING LAYER / PANEL OUTLINE

## U-SCORE OUTLINE <INDIVIDUAL BOARD> REFERENCE ONLY

