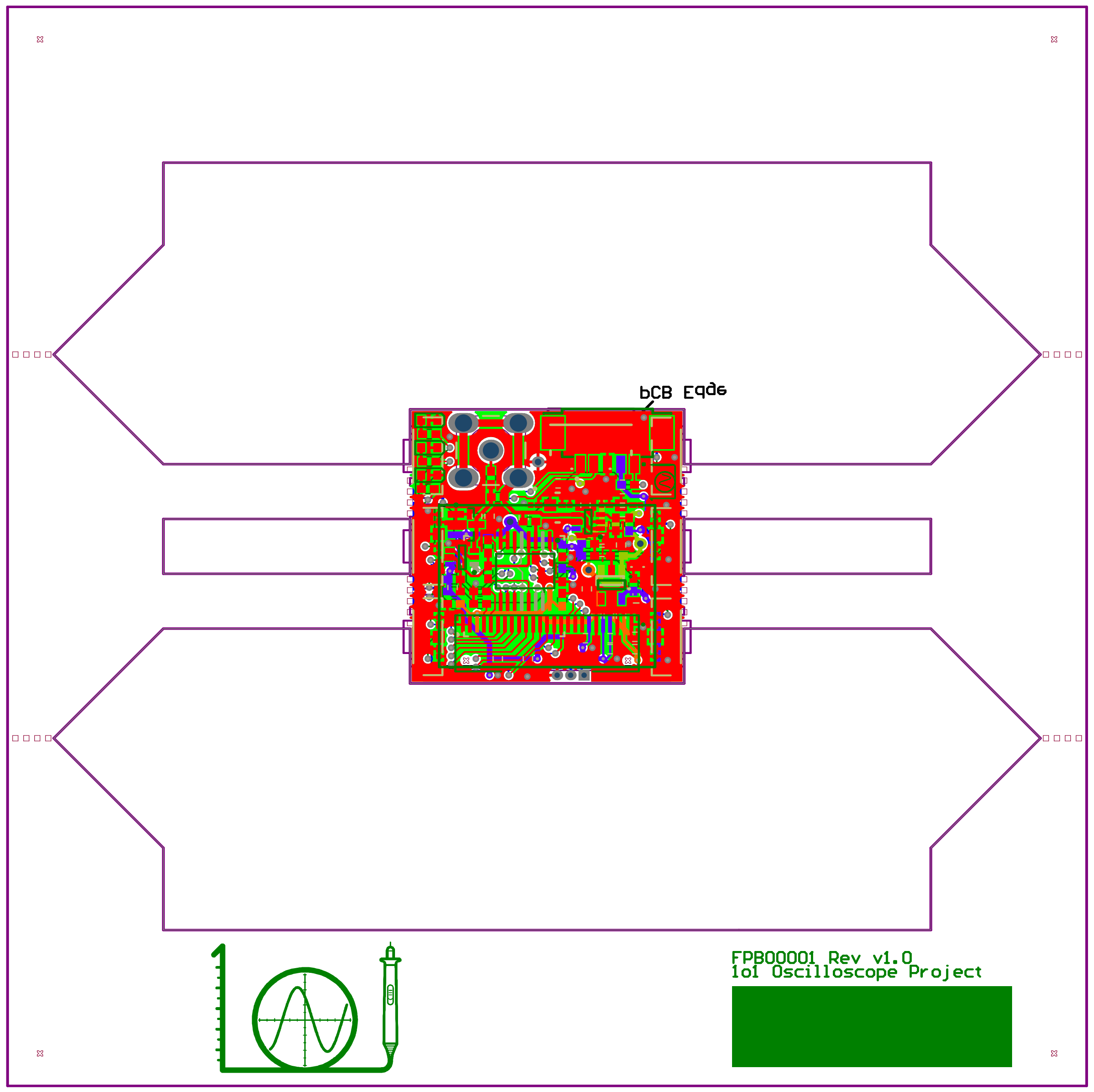
1o1-Icon-Font must be installed for some graphical elements to display properly.



Notes:
1. Base material is 0.062 thick FR4
2. Foils to finish at 1oz
3. All hole sizes are after plating
4. Soldermask with L.P.I, Color is Green
5. Soldercoat after soldermask
6. Silkscreen with white epoxy
7. Holes with zero diameter pads are unplated

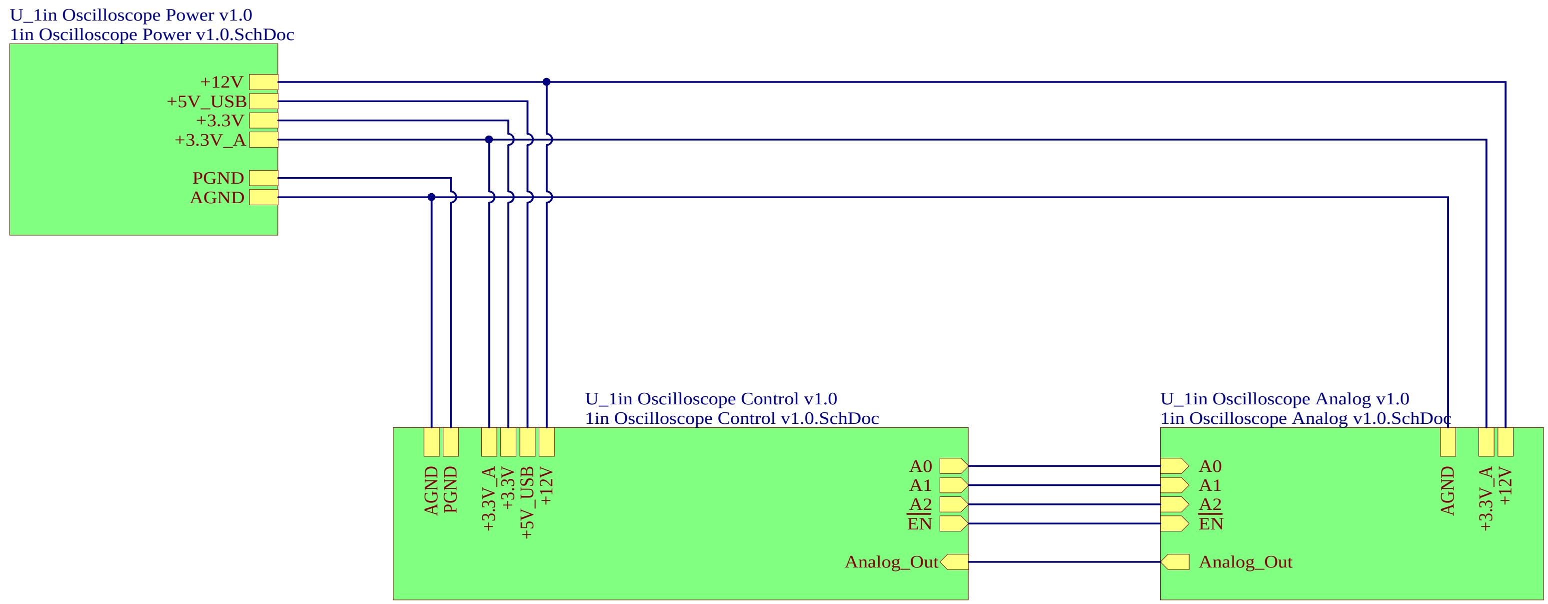
Top Overlay

Top Layer
Mid-Layer 1
Mid-Layer 2
Bottom Layer

Bottom Overlay
Board Outline

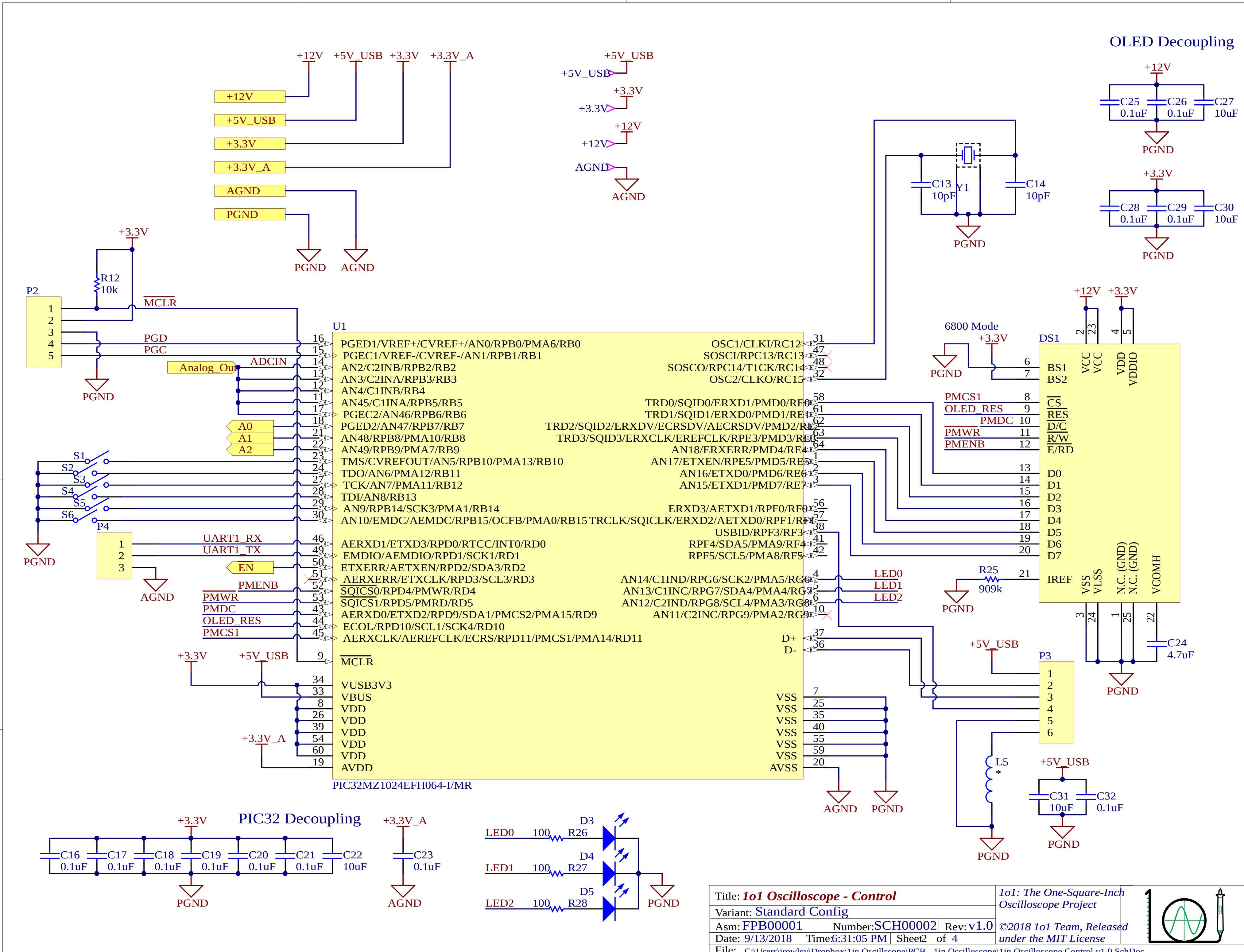
ENGINEER: James Rowley, Mark Omo	TITLE: 1o1 Oscilloscope PCB		
PCB DESIGNER: Kemton Hall			
DATE: 9/13/2018	PART NO.: FPB00001		REV: v1.0
SHEET SIZE: LETTER	DWG NO: CAD00001		SCALE: NONE

FILE PATH: C:\Users\jrowley\Dropbox\1in Oscilscope\PCB - 1in Oscilloscope\1in Oscilloscope v1.0.PCBDOC



With big thanks to Marcus Engineering, LLC for allowing us the use of Altium and the company library!

Title: ***1o1 Oscilloscope - Overview***			*1o1: The One-Square-Inch Oscilloscope Project*
Variant: Standard Config			
Asm: FPB00001	Number: SCH00001	Rev: v1.0	
Date: 9/13/2018 Time: 6:31:04 PM	Sheet 1 of 4		
File: C:\Users\jrowley\Dropbox\1in Oscillscope\PCB - 1in Oscilloscope\1in Oscilloscope v1.0.SchDoc			



OLED Decoupling
+12V
+5V_USB
+3.3V
+3.3V_A
AGND
PGND
C25 0.1uF
C26 0.1uF
C27 10uF
C28 0.1uF
C29 0.1uF
C30 10uF
Y1
C13 10pF
C14 10pF
P2
R12 10k
MCLR
PGD
PGC
Analog_Out
ADCIN
A0
A1
A2
S1
S2
S3
S4
S5
S6
P4
UART1_RX
UART1_TX
EN
PMENB
PMWR
PMDC
OLED_RES
PMCS1
U1
PGED1/VREF+/CVREF+/AN0/RPB0/PMA6/RB0
PGEC1/VREF-/CVREF-/AN1/RPB1/RB1
AN2/C2INB/RPB2/RB2
AN3/C2INA/RPB3/RB3
AN4/C1INB/RB4
AN45/C1INA/RPB5/RB5
PGEC2/AN46/RPB6/RB6
PGED2/AN47/RPB7/RB7
AN48/RPB8/PMA10/RB8
AN49/RPB9/PMA7/RB9
TMS/CVREFOUT/AN5/RPB10/PMA13/RB10
TDO/AN6/PMA12/RB11
TCK/AN7/PMA11/RB12
TDI/AN8/RB13
AN9/RPB14/SCK3/PMA1/RB14
AN10/EMDC/AEMDC/RPB15/OCFB/PMA0/RB15
AERXD1/ETXD3/RPD0/RTCC/INT0/RD0
EMDIO/AEMDIO/RPD1/SCK1/RD1
ETXERR/AETXEN/RPD2/SDA3/RD2
AERXERR/ETXCLK/RPD3/SCL3/RD3
SQICS0/RPD4/PMWR/RD4
SQICS1/RPD5/PMRD/RD5
AERXD0/ETXD2/RPD9/SDA1/PMCS2/PMA15/RD9
ECOL/RPD10/SCL1/SCK4/RD10
AERXCLK/AEREFCLK/ECRS/RPD11/PMCS1/PMA14/RD11
MCLR
VUSB3V3
VBUS
VDD
AVDD
OSC1/CLKI/RC12
SOSCI/RPC13/RC13
SOSCO/RPC14/T1CK/RC14
OSC2/CLKO/RC15
TRD0/SQID0/ERXD1/PMD0/RE0
TRD1/SQID1/ERXD0/PMD1/RE1
TRD2/SQID2/ERXDV/ECRSDV/AECRSDV/PMD2/RE2
TRD3/SQID3/ERXCLK/EREFCLK/RPE3/PMD3/RE3
AN18/ERXERR/PMD4/RE4
AN17/ETXEN/RPE5/PMD5/RE5
AN16/ETXD0/PMD6/RE6
AN15/ETXD1/PMD7/RE7
ERXD3/AETXD1/RPF0/RF0
TRCLK/SQICLK/ERXD2/AETXD0/RPF1/RF1
USBID/RPF3/RF3
RPF4/SDA5/PMA9/RF4
RPF5/SCL5/PMA8/RF5
AN14/C1IND/RPG6/SCK2/PMA5/RG6
AN13/C1INC/RPG7/SDA4/PMA4/RG7
AN12/C2IND/RPG8/SCL4/PMA3/RG8
AN11/C2INC/RPG9/PMA2/RG9
D+
D-
VSS
AVSS
PIC32MZ1024EFH064-I/MR
6800 Mode
DS1
BS1
BS2
CS
RES
D/C
R/W
E/RD
D0
D1
D2
D3
D4
D5
D6
D7
IREF
VCC
VDD
VDDIO
VSS
VLSS
N.C. (GND)
VCOMH
R25 909k
C24 4.7uF
LED0
LED1
LED2
P3
L5
C31 10uF
C32 0.1uF
PIC32 Decoupling
C16 0.1uF
C17 0.1uF
C18 0.1uF
C19 0.1uF
C20 0.1uF
C21 0.1uF
C22 10uF
C23 0.1uF
D3
D4
D5
R26 100
R27 100
R28 100
Title: 1o1 Oscilloscope - Control
Variant: Standard Config
Asm: FPB00001
Number: SCH00002
Rev: v1.0
Date: 9/13/2018
Time: 6:31:05 PM
Sheet 2 of 4
File: C:\Users\jrowley\Dropbox\1in Oscillscope\PCB - 1in Oscilloscope\1in Oscilloscope Control v1.0.SchDoc
1o1: The One-Square-Inch Oscilloscope Project
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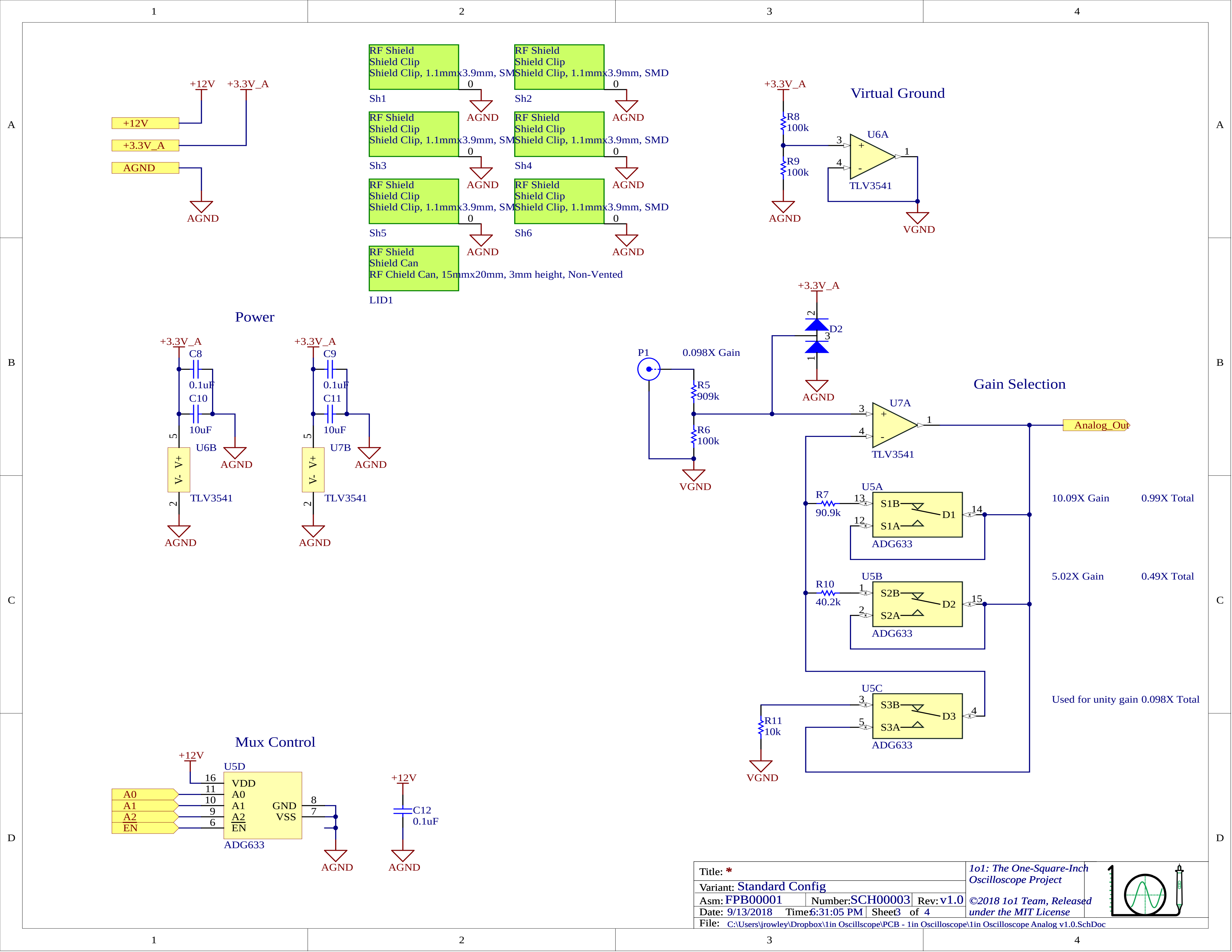
Virtual Ground
+3.3V_A
R8 100k
R9 100k
U6A
TLV3541
AGND
VGND
+12V
+3.3V_A
AGND
RF Shield
Shield Clip
Shield Clip, 1.1mmx3.9mm, SMD
Sh1
Sh2
Sh3
Sh4
Sh5
Sh6
RF Shield
Shield Can
RF Chield Can, 15mmx20mm, 3mm height, Non-Vented
LID1
Power
C8 0.1uF
C10 10uF
U6B
TLV3541
C9 0.1uF
C11 10uF
U7B
TLV3541
D2
P1
0.098X Gain
R5 909k
R6 100k
Gain Selection
U7A
TLV3541
Analog_Out
U5A
R7 90.9k
S1B
S1A
D1
ADG633
10.09X Gain
0.99X Total
U5B
R10 40.2k
S2B
S2A
D2
ADG633
5.02X Gain
0.49X Total
U5C
R11 10k
S3B
S3A
D3
ADG633
Used for unity gain 0.098X Total
Mux Control
+12V
U5D
VDD
A0
A1
A2
EN
GND
VSS
ADG633
C12 0.1uF
Title: *
Variant: Standard Config
Asm: FPB00001
Number: SCH00003
Rev: v1.0
Date: 9/13/2018
Time: 6:31:05 PM
Sheet 3 of 4
File: C:\Users\jrowley\Dropbox\1in Oscillscope\PCB - 1in Oscilloscope\1in Oscilloscope Analog v1.0.SchDoc
1o1: The One-Square-Inch Oscilloscope Project
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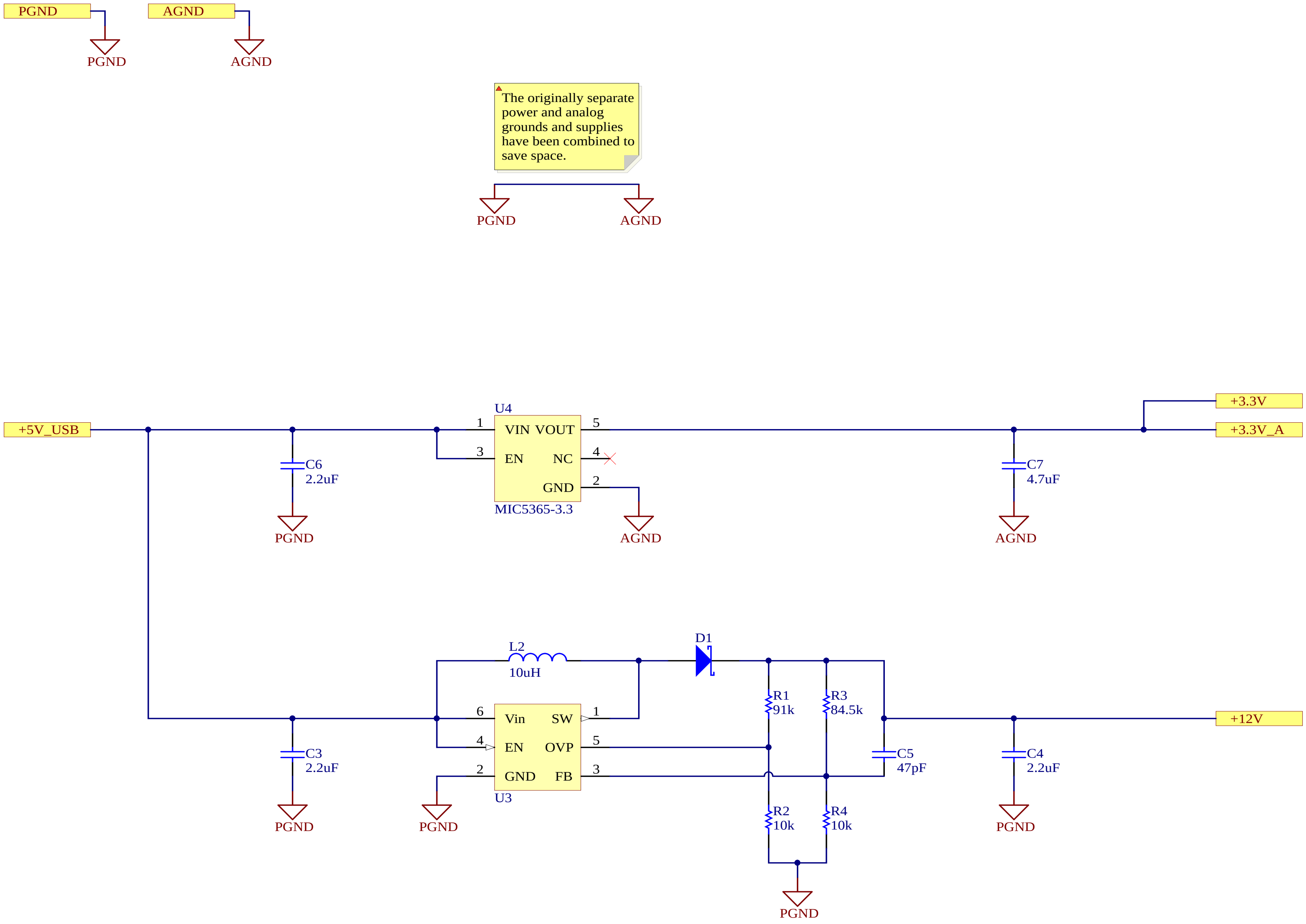
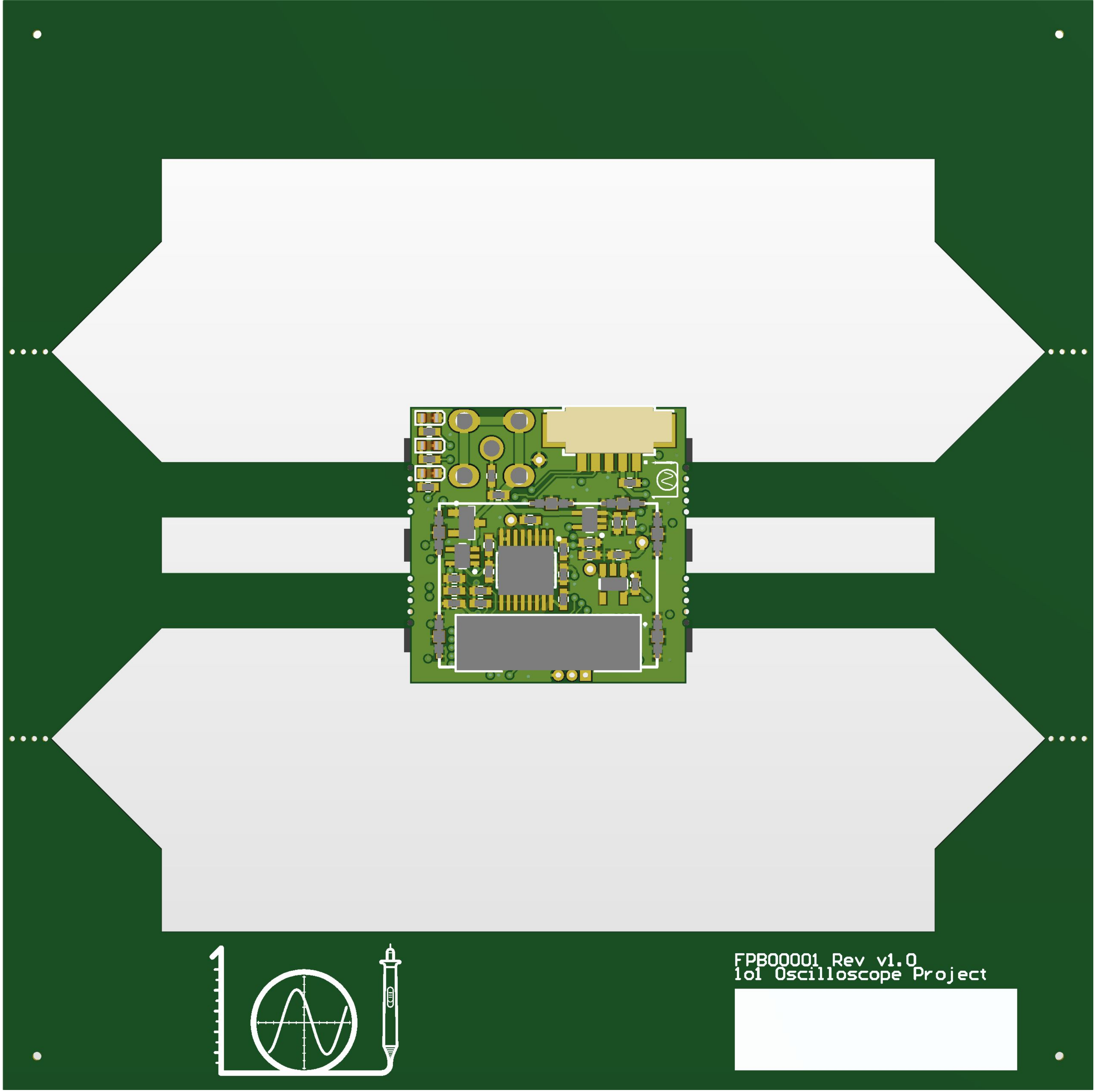


Title: **_1o1 Oscilloscope - Power_**			*1o1: The One-Square-Inch Oscilloscope Project*
Variant: Standard Config			
Asm: FPB00001	Number: SCH00004	Rev: v1.0	
Date: 9/13/2018	Time: 6:31:05 PM	Sheet 4 of 4	
File: C:\Users\jrowley\Dropbox\1in Oscillscope\PCB - 1in Oscilloscope\1in Oscilloscope Power v1.0.SchDoc			

Comment	Designator	Footprint	MANF	MANF_PN	P&V Description	Quantity	VENDOR	VENDOR_PN
TP	+3.3V, +5V_USB, +12V, AGND	TESTPOINT024	Keystone Electronics	1998-3	Connector, Test Point, 1 Positions, Male, Small, 0.27" Straight Pin, 0.02" dia	4	Digikey	1998-3K-ND
Cap	C3, C4, C6	0402(1005)	Taiyo Yuden	EMK105CC6225MV-F	Capacitor, Ceramic, 2.2uF, 16V, 20% Tol, 105C, X6S, 0402, SMD	3	Digikey	587-5052-1-ND
Cap	C5	0402(1005)	Kemet	C0402C470K5GACTU	Capacitor, Ceramic, 47pF, 50V, 10% Tol, 125C, C0G/NP0, 0402, SMD	1	Digikey	399-7796-1-ND
Cap	C7, C24	0402(1005)	Murata	GRM155R60J475ME87D	Capacitor, Ceramic, 4.7uF, 6.3V, 20% Tol, 85C, 0402, SMD, Capacitor, Ceramic, 4.7uF, 6.3V, 20% Tol, X5R, 0402, SMD	2	Digikey	490-5408-1-ND
Cap	C8, C9, C12, C16, C17, C18, C19, C20, C21, C23, C25, C26, C28, C29 C32	0402(1005)	Samsung Electro-Mechanics	CL05A104MP5NNNC	Capacitor, Ceramic, 0.1uF, 10V, 20% Tol, 85C, X5R, 0402, SMD	15	Digikey	1276-1443-1-ND
25V, Cap	C10, C11, C22, C27, C30, C31	0402(1005)	Taiyo Yuden	GRJ155R60J106ME11D	Capacitor, Ceramic, 10uF, 6.3V, 20% Tol, 85C, 10µF 6.3V Ceramic Capacitor X5R 0402 (1005 Metric) 0.020" W (1.00mm x 0.50mm), 0402, SMD	6	Digikey	490-13211-1-ND
50V	C13, C14	0402(1005)	Kemet	C0402C100J3GACTU	Capacitor, Ceramic, 10pF, 25V, 5% Tol, 125C, C0G/NP0, 0402, SMD	2	Digikey	399-7746-1-ND
20V	D1	SOD882D	NXP Semiconductor	RB521S-30L2-TPMSCT-ND	Diode, Rectifier, 20V, 0.5A, Schottky, 0.500Vf, 7ns Reverse Recovery, SOD882D, SMD	1	Digikey	1727-5901-1-ND
Diode Dual 3 Center	D2	SOT23-12-3TOP	Fairchild Semiconductor	BAV99	Obsolete, Rectifier, 70V, 0.2A, Diode Array, SOT-23, SMD	1	Digikey	BAV99FSCT-ND
Green	D3, D4, D5	0603(1608) LED	OSRAM	LG L29K-F2J1-24	LED, 1.7V, 0.02A, Green, 570nm, diffused, 0603, SMD	3	Digikey	475-1193-1-ND
Display	DS1	EA W096064-XALG	Electronic Assembly GmbH	EA W096064-XALG	Display, OLED, 96x64, SSD1305, Yellow, 0.95", SMD	1	Digikey	1481-1278-ND
Inductor	L2	0805(2012)	TDK	MLZ2012M100WT000	Inductor, Shielded, 10uH, 0.35A, 0.611 Ohms, 0805, SMD	1	Digikey	445-6396-1-ND
Ferrite Bead	L5	0402(1005)	Murata	BLM15PX331SN1D	Inductor, Ferrite Bead, 1.2A, 330 Ohm at 100MHz, 0402, SMD	1	Digikey	490-11022-1-ND
Mechanical With Footprint	LID1	S02-20150300 UNATTACHED	Harwin	S02-20150300	RF Shield, Shield Can, RF Chield Can, 15mmx20mm, 3mm height, Non-Vented	1	Digikey	952-2632-ND
SMA	P1	TE SMA Stright	TE Connectivity	5-1814832-1	Connector, SMA, 1 Positions, Female, Vertical. 50 Ohm. 3 GHz.	1	Digikey	A97594-ND
PicoBlade 5	P2	MOLEX PICOBLADE 5 POS HORZ SMD	Molex	53261-0571	Connector, PicoBlade, 5 Positions, Male, 0.049" Spacing, 1A, 125V, Horz, SMD, Locking, Tin, SMD	1	Digikey	WM7623CT-ND
Micro USB	P3	USB Micro B ZX62	Amphenol FCI	10118192-0002LF	Connector, USB, 5 Positions, Female, 0.026" Spacing, 1.8A, 100V, USB - micro B USB 2.0 Receptacle Connector 5 Position Surface Mount, Right Angle, Without Flange, SMD	1	Digikey	609-5379-1-ND
PicoBlade 3	P4	MOLEX PICOBLADE 3 POS	Molex	53047-0310	Connector, PicoBlade, 3 Positions, Male, 0.049" Spacing, 1A, 125V, Vert, Through Hole, Locking, Tin	1	Digikey	WM1732-ND
Res1	R1	0402(1005)	Stackpole Electronics	RMCF0402FT91K0	Resistor, Thick Film, 91k Ohms, 0.0625W, 1% Tol, 100V, 0402, SMD	1	Digikey	RMCF0402FT91K0CT-ND
Res1, 0.1% 25ppm	R2, R4, R11, R12	0402(1005)	Stackpole Electronics	RMCF0402FT10K0	Resistor, Thick Film, 10k Ohms, 0.0625W, 1% Tol, 100V, 0402, SMD	4	Digikey	RMCF0402FT10K0CT-ND
Res1	R3	0402(1005)	Stackpole Electronics	RMCF0402FT84K5	Resistor, Thick Film, 84.5k Ohms, 0.0625W, 1% Tol, 100V, 0402, SMD	1	Digikey	RMCF0402FT84K5CT-ND
Res1	R5, R25	0402(1005)	Yageo	RC0402FR-07909KL	Resistor, Thick Film, 909k Ohms, 0.0625W, 1% Tol, 100V, 0402, SMD	2	Digikey	YAG2377CT-ND
Res1	R6, R8, R9	0402(1005)	Yageo	RC0402FR-07100KL	Resistor, Thick Film, 100k Ohms, 0.0625W, 1% Tol, 100V, 0402, SMD	3	Digikey	311-100KLRCT-ND
Res1	R7	0402(1005)	Yageo	AC0402FR-0790K9L	Resistor, Thick Film, 90.9k Ohms, 0.0625W, 1% Tol, 100V, 0402, SMD	1	Digikey	YAG5314CT-ND
Res1	R10	0402(1005)	Yageo	AC0402FR-0740K2L	Resistor, Thick Film, 40.2k Ohms, 0.0625W, 1% Tol, 100V, 0402, SMD	1	Digikey	YAG3486CT-ND
Res1	R26, R27, R28	0402(1005)	Yageo	RC0402FR-07100RL	Resistor, Thick Film, 100 Ohms, 0.0625W, 1% Tol, 100V, 0402, SMD	3	Digikey	311-100LRCT-ND
SW-SPST	S1, S2, S3, S4, S5, S6	TL3330A	E-Switch	TL3330AF130QG	Switch, SMD Right Angle, 3mm Button, 130gf, SMD	6	Digikey	EG4388CT-ND
Mechanical With Footprint	Sh1, Sh2, Sh3, Sh4, Sh5, Sh6	S0941-46R	Harwin	S0941-46R	RF Shield, Shield Clip, Shield Clip, 1.1mmx3.9mm, SMD, SMD	6	Digikey	952-2668-1-ND
PIC32MZ1024EFH064-I/MR	U1	QFN50P900X900-64N	Microchip	PIC32MZ1024EFH064-I/MR	IC, Microprocessor, PIC32MZ EF Series 64-Pin, QFN-64, SMD	1	Digikey	PIC32MZ1024EFH064-I/MR ND
3.3V	U3	SOT23-6	Microchip	MIC2619YD6-TR	IC, Voltage Regulator, Switching Regulator, Boost, Adjustable 350mA out, 2.8-6.5V in, 1.2MHz, SO SMD	1	Digikey	576-3655-1-ND
MIC5365-3.3	U4	SOT23-5	Micrel	MIC5365-3.3YD5-TR	IC, Voltage Regulator, 3.3V, 150 mA, SOT-23-5, SMD	1	Digikey	576-4085-1-ND
ADG633	U5	TSSOP-16	Analog Devices	ADG633YRUZ-REEL7	IC, Switch/Mux, 3 Circuit IC Switch 2:1 75 Ohm 2-12V, 16-VQFN, SMD	1	Digikey	ADG633YRUZ-REEL7CT-ND
TLV3541	U6, U7	SOT65P210X110-5N	Texas Instruments	TLV3541IDBVR	IC, Op Amp, 100MHz, 150V/us, 2.5-5.5V, SOT-23-5	2	Digikey	296-47220-1-ND
24.0MHz	Y1	TSX-3225	Epson	TSX-3225 24.0000MF20G-AC3	Crystal, Oscillator, 24.000MHz, -40 to 85 Degrees C, 10ppm, 9pF Load, 40 Ohm ESR, SMD	1	Digikey	SER3634CT-ND


FPB00001 Rev v1.0
1o1 Oscilloscope Project