Analog Clock

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Sheet: Mechanical
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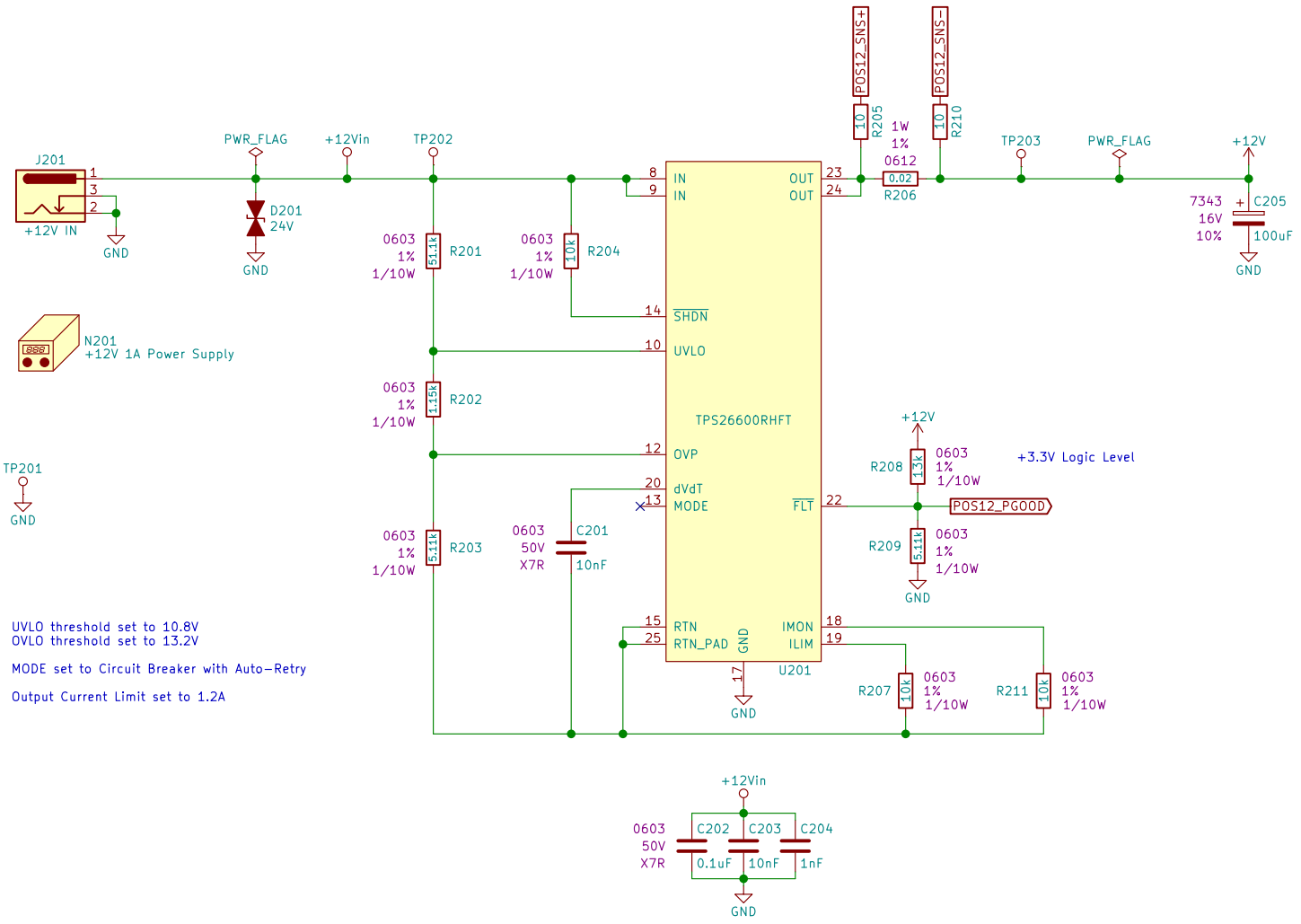
Drew Maatman

Sheet: /
File: Analog_Clock.sch

Title: Analog Clock

Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 1/25



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Sheet: /+12V Input/		
File: POS12_Input.sch		
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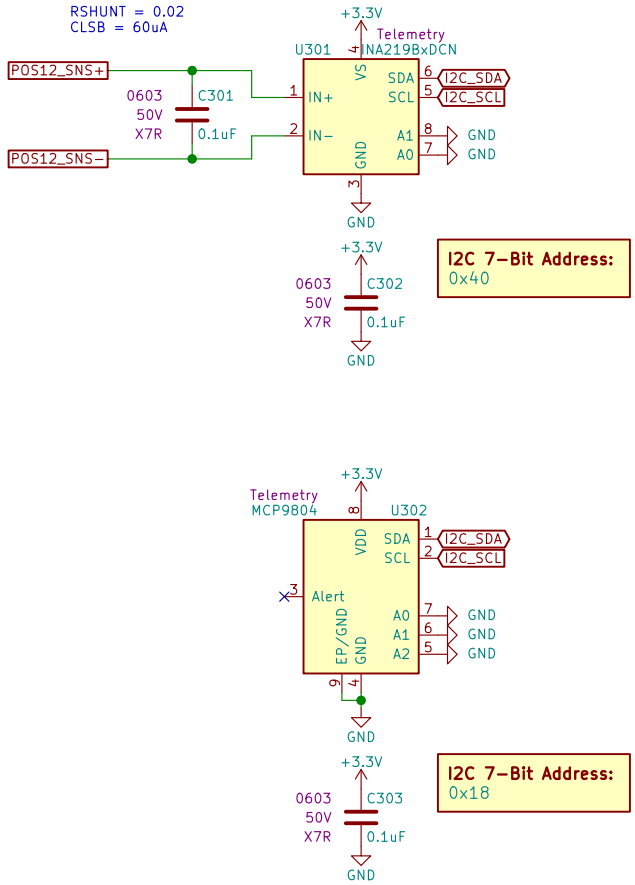
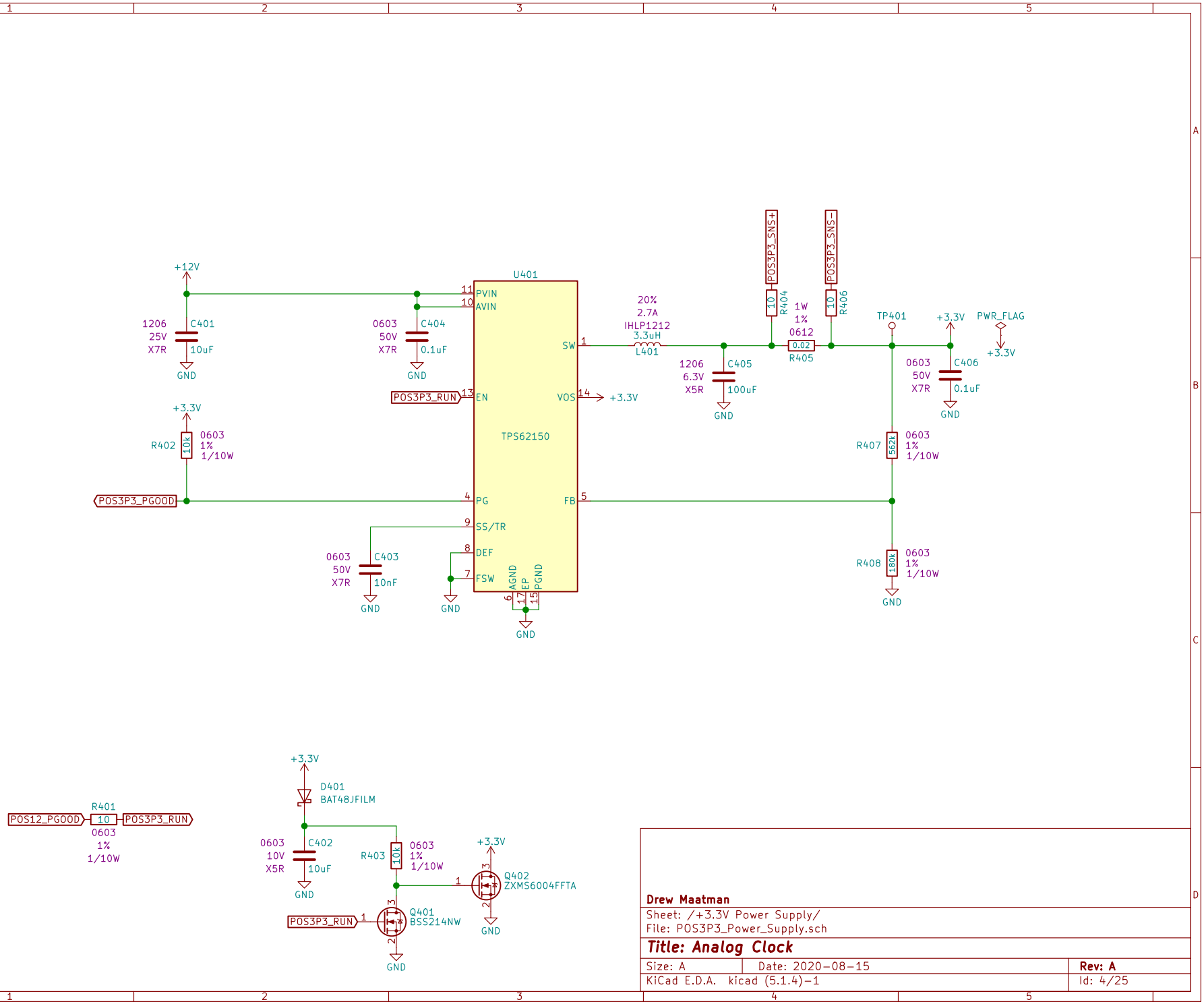
KiCad E.D.A. kicad (5.1.4)-1		Id: 2/25

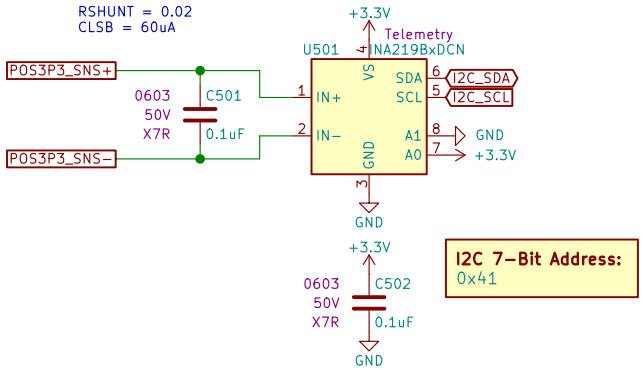


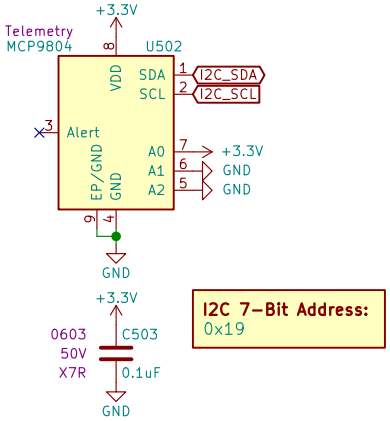
Drew Maatman		
Sheet: /+12V Telemetry/		
File: POS12_Telemetry.sch		
Title: Analog Clock		
Size: A	Date: 2020−08−15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)−1		Id: 3/25



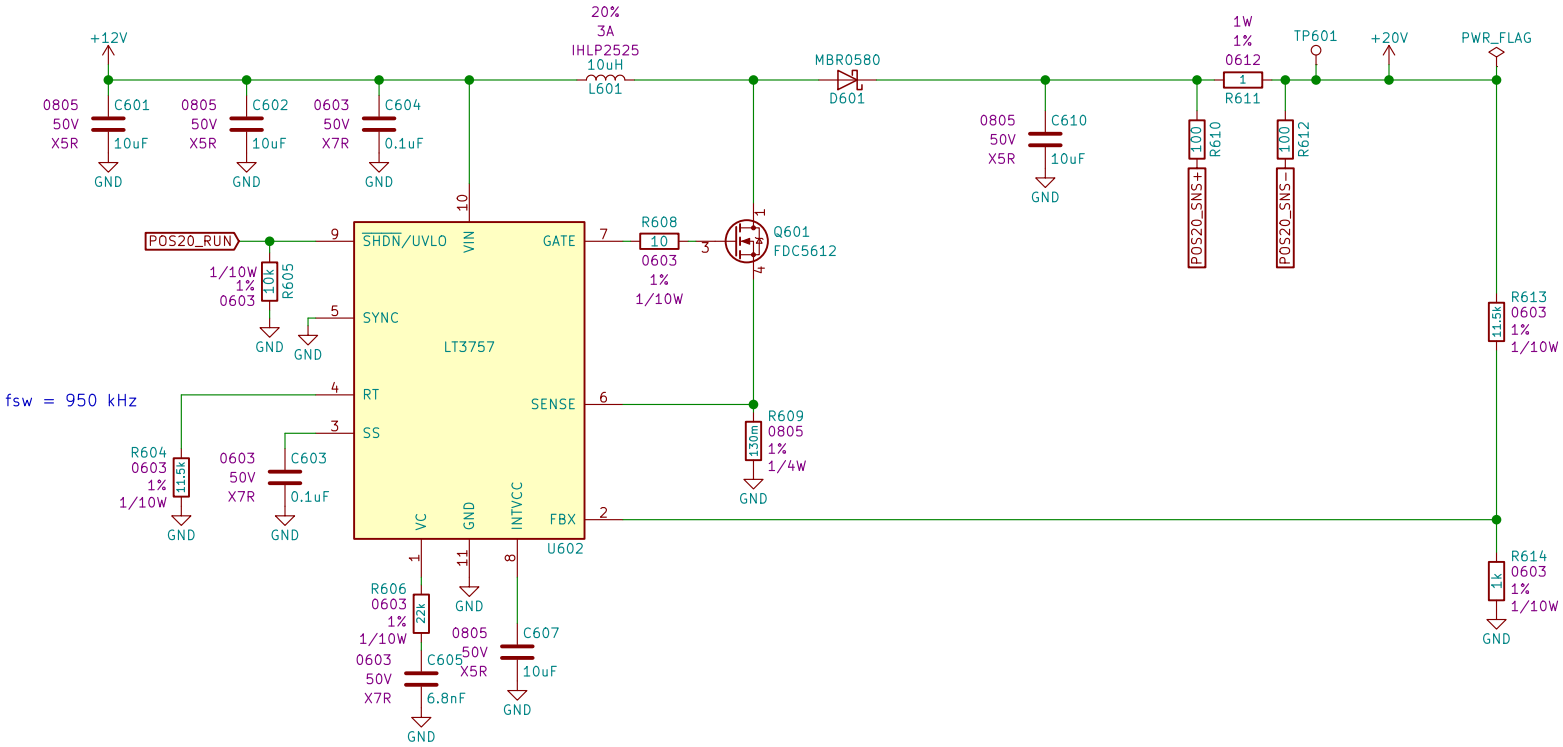
Drew Maatman	
Sheet: /+3.3V Power Supply/	
File: POS3P3_Power_Supply.sch	
Title: Analog Clock	
Size: A	Date: 2020-08-15
KiCad E.D.A. kicad (5.1.4)-1	Id: 4/25

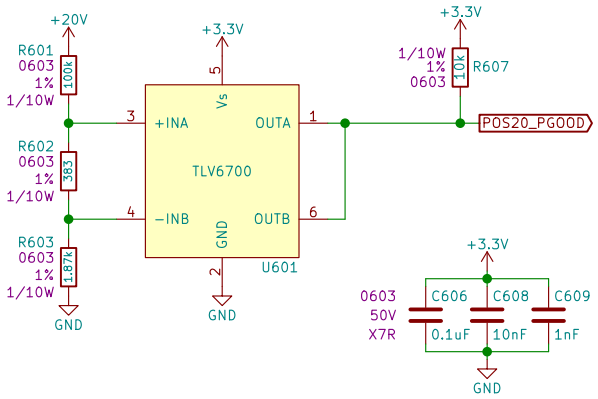
Rev: A





Drew Maatman		
Sheet: /+3.3V Telemetry/		
File: POS3P3_Telemetry.sch		
Title: Analog Clock		
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 5/25





Drew Maatman		
Sheet: /+20V Power Supply/		
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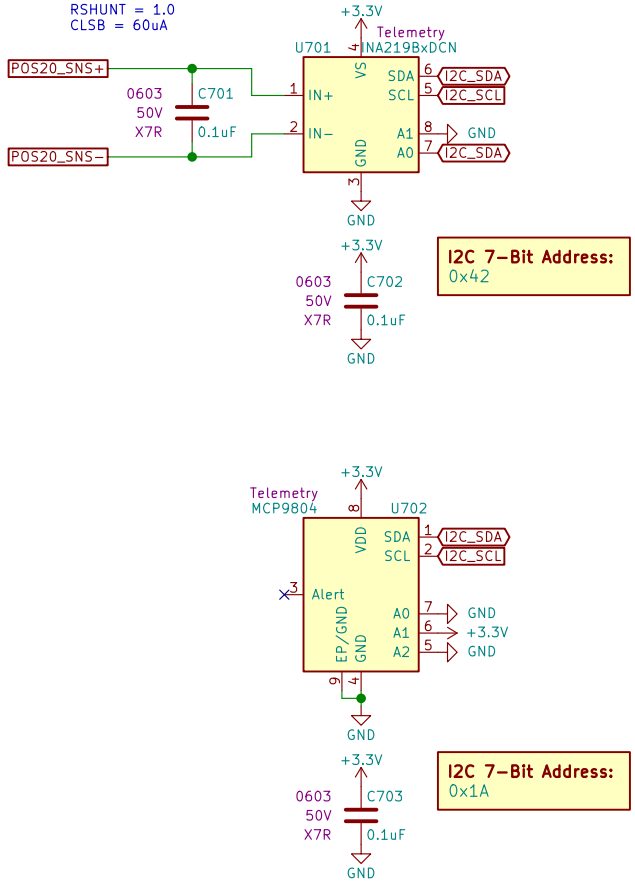
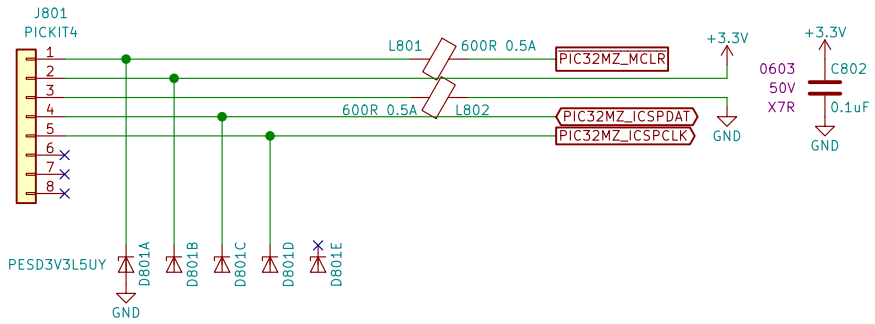
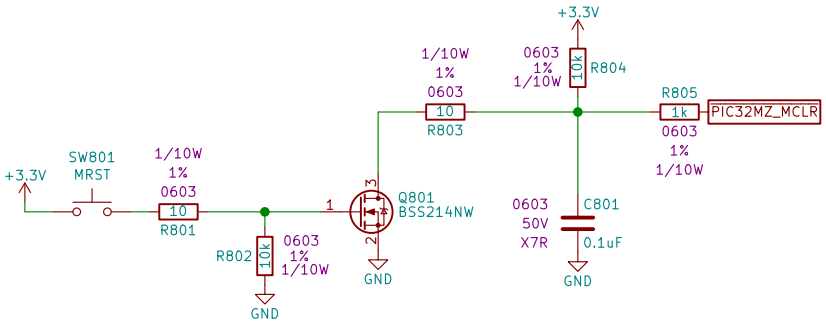
Title: Analog Clock		
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 6/25



Drew Maatman		
Sheet: /+20V Telemetry/		
File: POS20_Telemetry.sch		
Title: Analog Clock		
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 7/25





Drew Maatman		
Sheet: /PIC32MZ Programming/		
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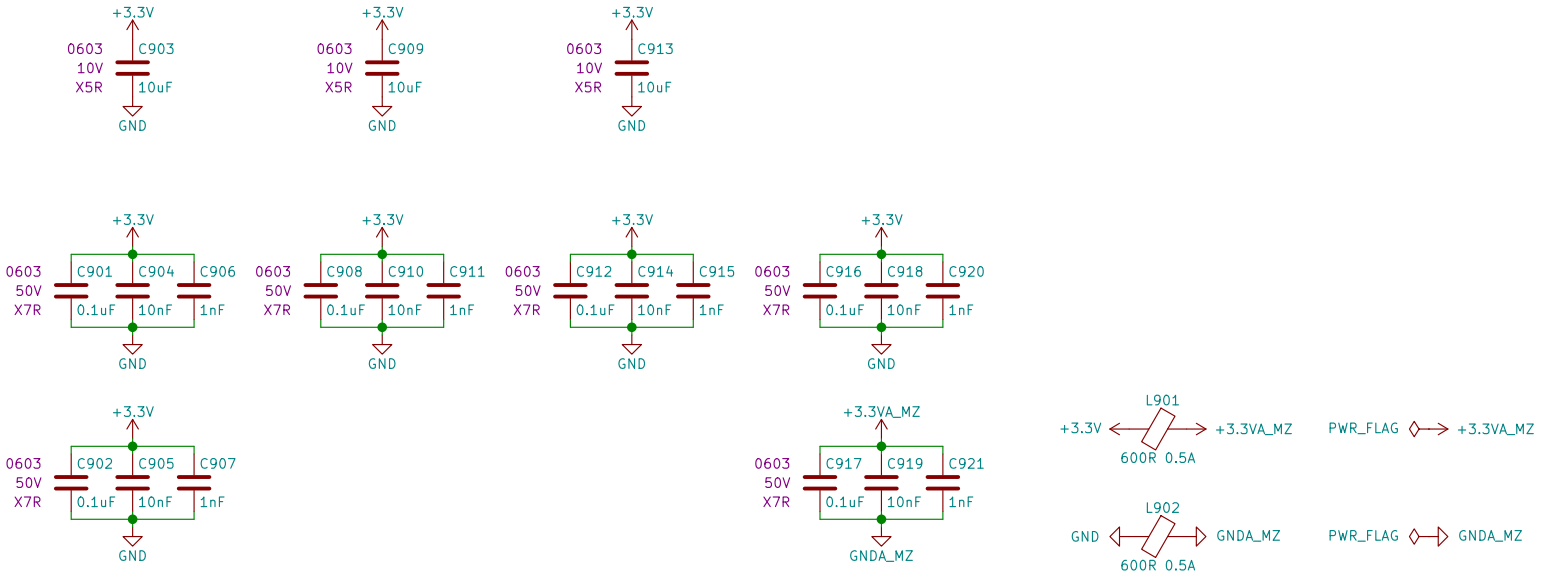
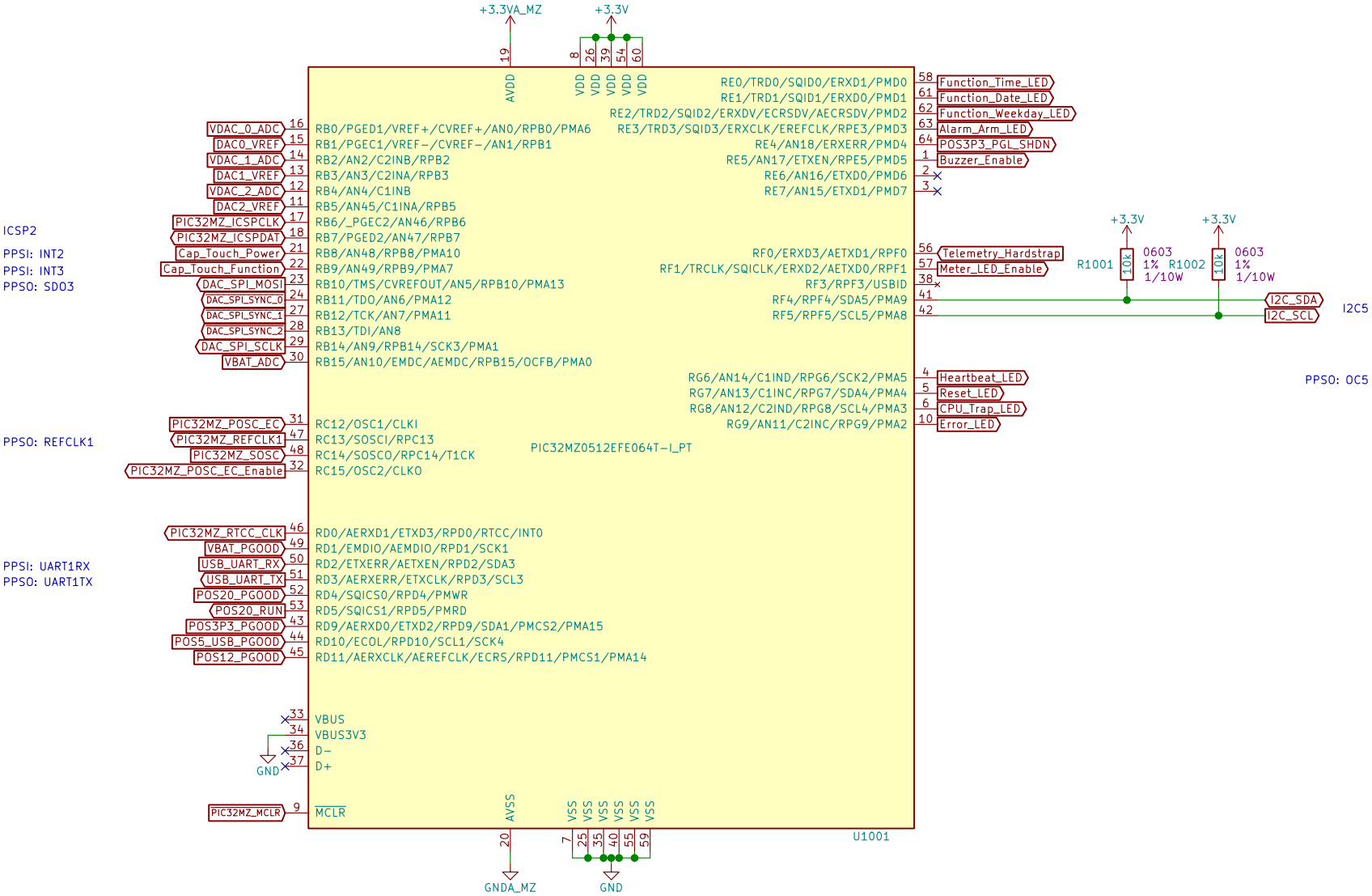
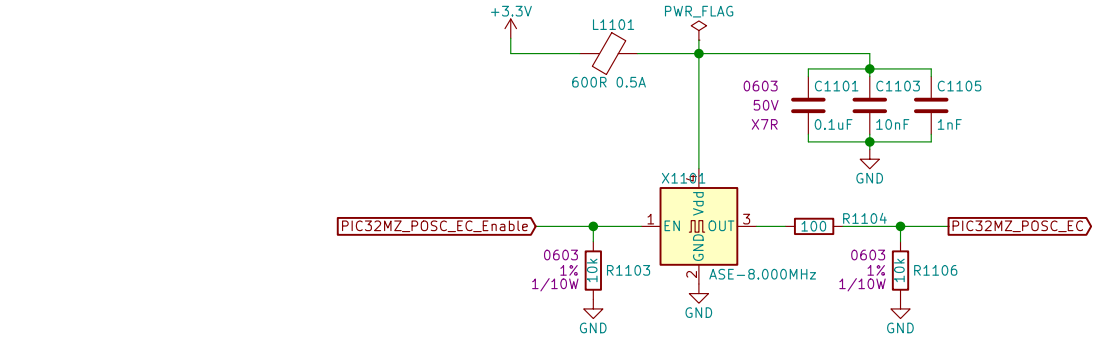
Title: Analog Clock		
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 8/25

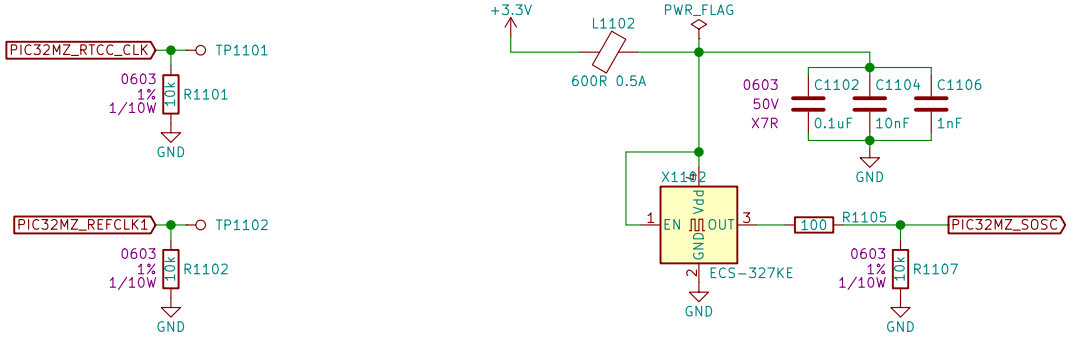


Drew Maatman		
Sheet: /PIC32MZ Bypass/		
File: PIC32MZ_Bypass.sch		
Title: Analog Clock		
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 9/25

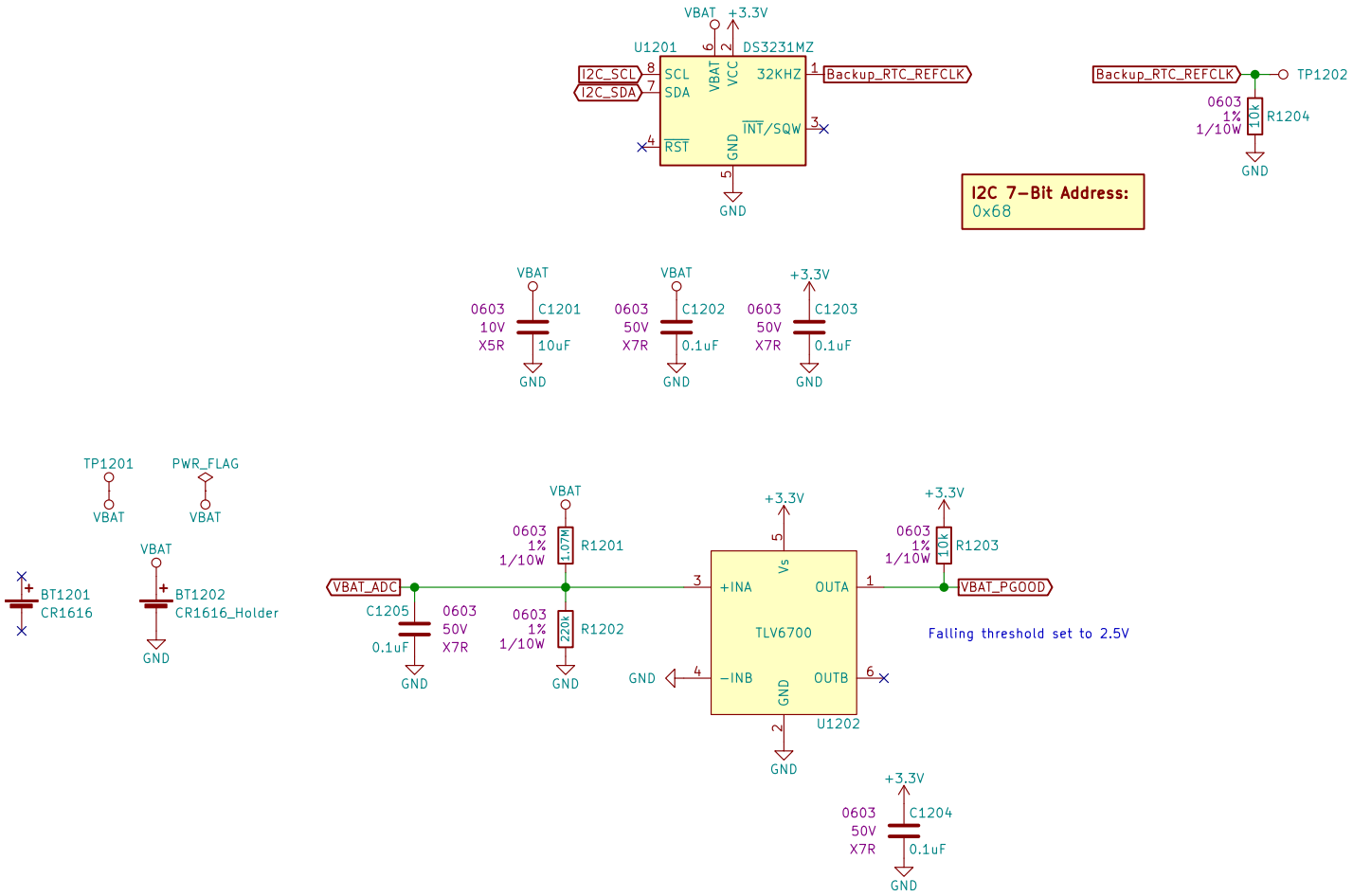


Drew Maatman		
Sheet: /PIC32MZ/		
File: PIC32MZ.sch		
Title: Analog Clock		
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 10/25

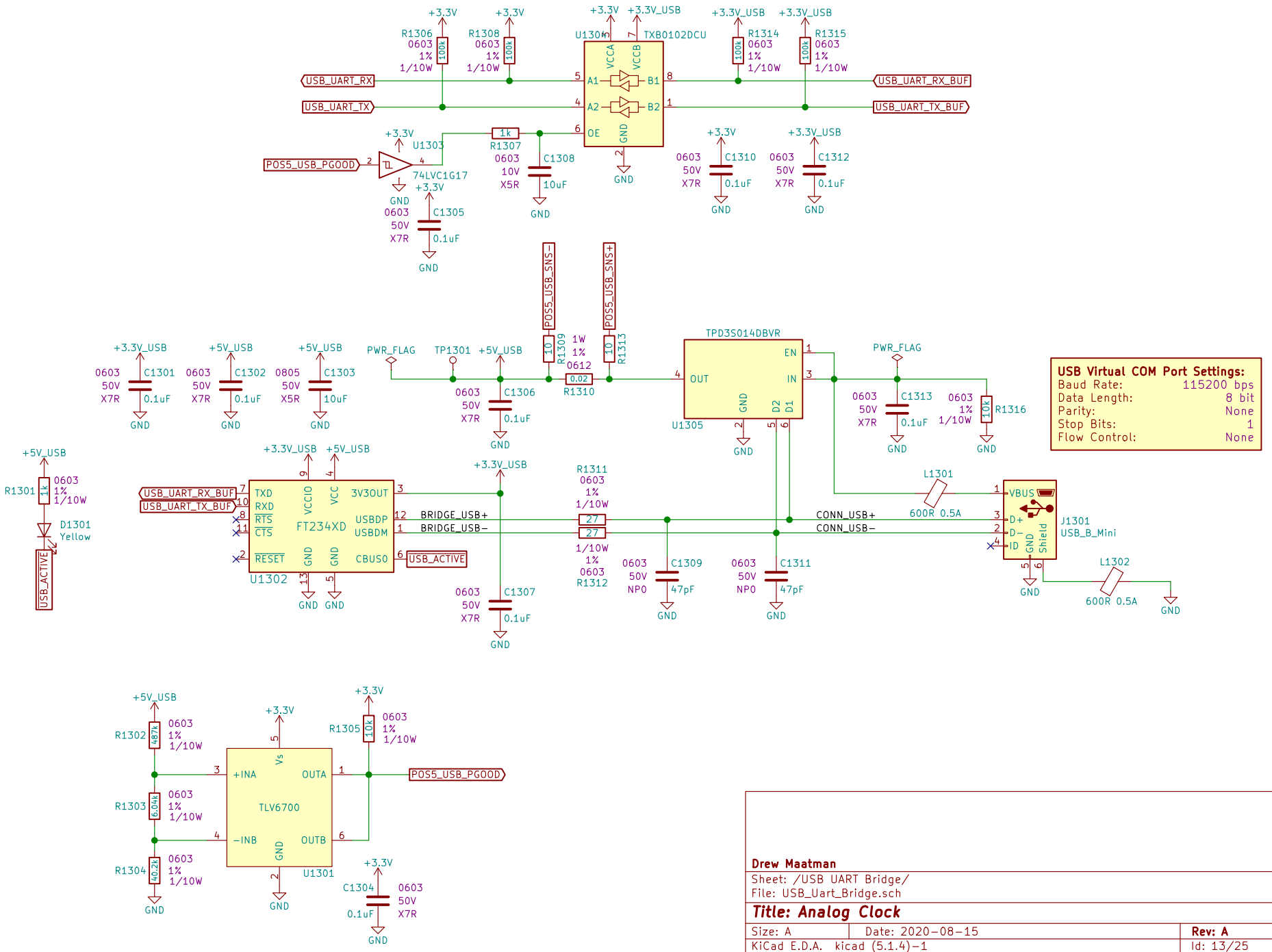


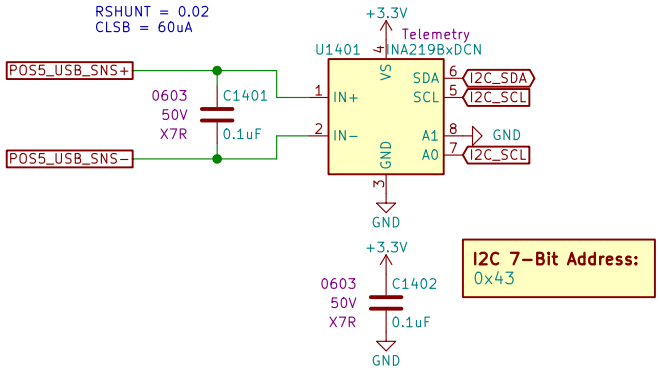


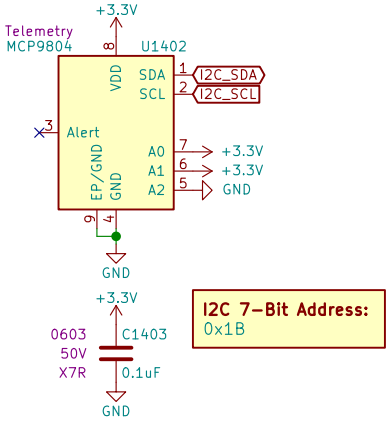
Drew Maatman		
Sheet: /PIC32MZ Clocking/		
File: PIC32MZ_Clocking.sch		
Title: Analog Clock		
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 11/25



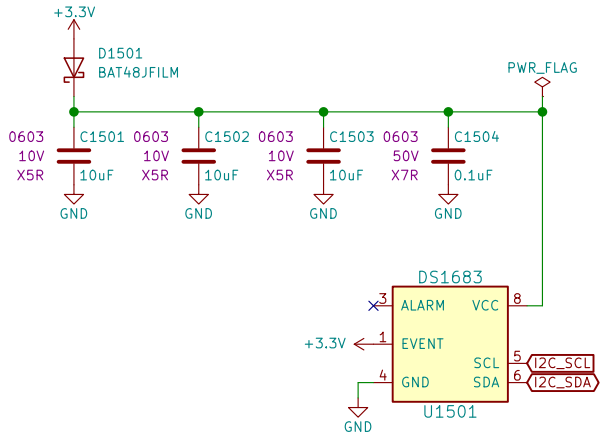
Drew Maatman		
Sheet: /Backup RTC/		
File: Backup_RTC.sch		
Title: Analog Clock		
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 12/25


USB_UART_RX
USB_UART_TX
USB_UART_RX_BUF
USB_UART_TX_BUF
U1306
TXB0102DCU
POS5_USB_PGOOD
U1303
74LVC1G17
U1305
TPD3S014DBVR
POS5_USB_SNS-
POS5_USB_SNS+
U1302
FT234XD
BRIDGE_USB+
BRIDGE_USB-
CONN_USB+
CONN_USB-
USB_ACTIVE
J1301
USB_B_Mini
U1301
TLV6700
USB Virtual COM Port Settings:
Baud Rate: 115200 bps
Data Length: 8 bit
Parity: None
Stop Bits: 1
Flow Control: None
Drew Maatman
Sheet: /USB UART Bridge/
File: USB_Uart_Bridge.sch
Title: Analog Clock
Size: A
Date: 2020-08-15
Rev: A
KiCad E.D.A. kicad (5.1.4)-1
Id: 13/25





Drew Maatman		
Sheet: /USB Telemetry/		
File: USB_Telemetry.sch		
Title: Analog Clock		
Size: A	Date: 2020−08−15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)−1		Id: 14/25



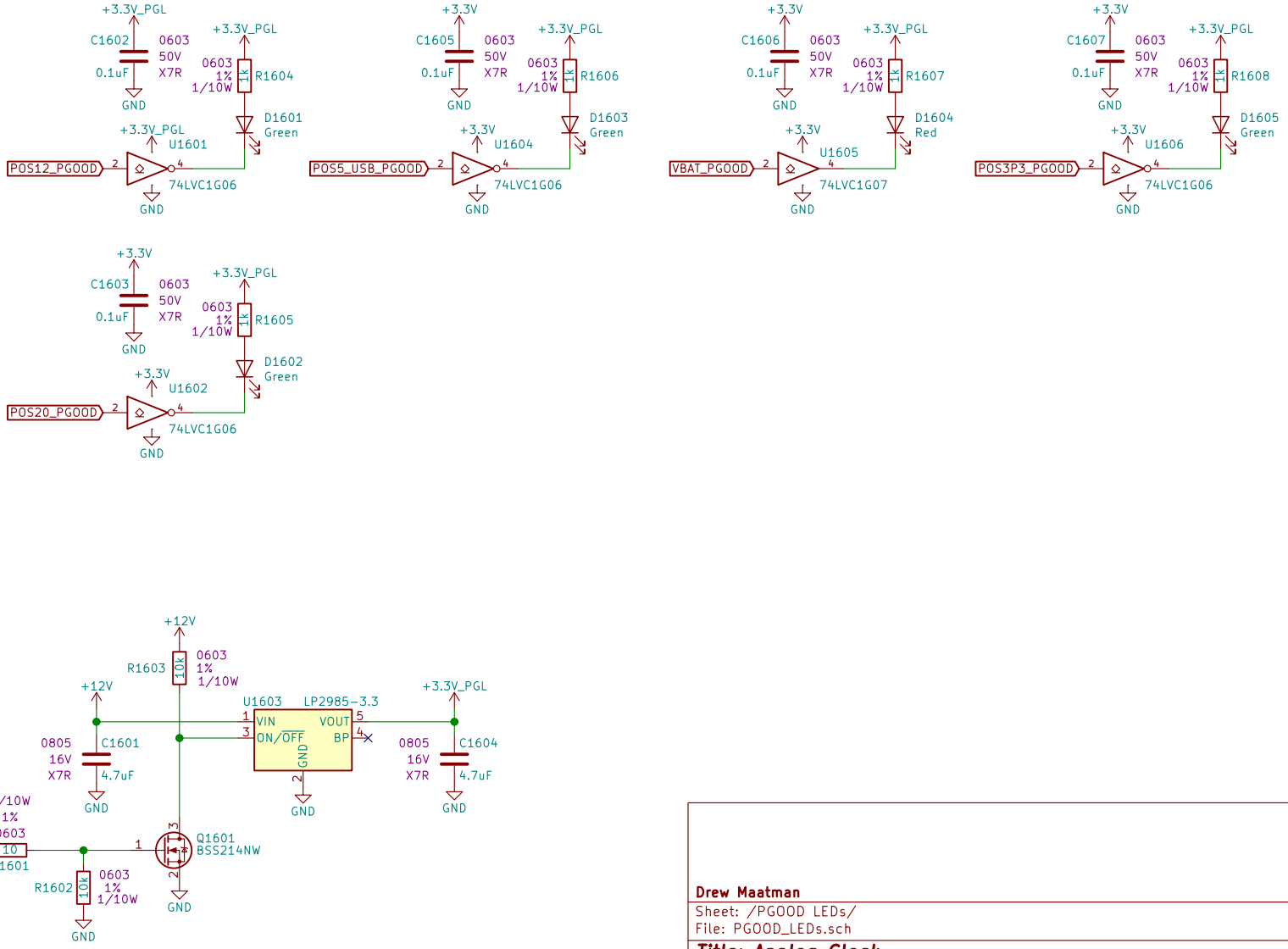
I2C 7-Bit Address:
0x6B

Drew Maatman

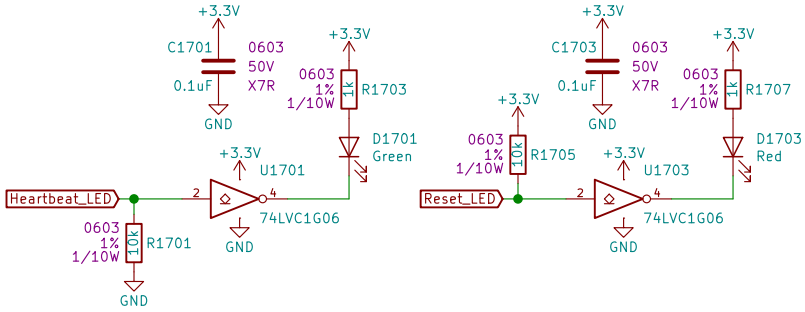
Sheet: /Time of Flight/
File: Time_of_Flight.sch

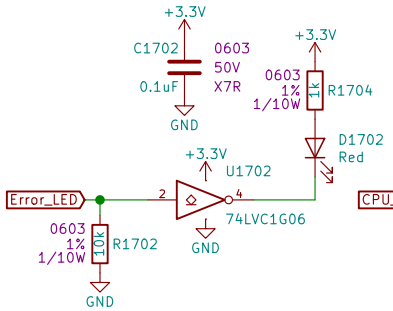
Title: Analog Clock

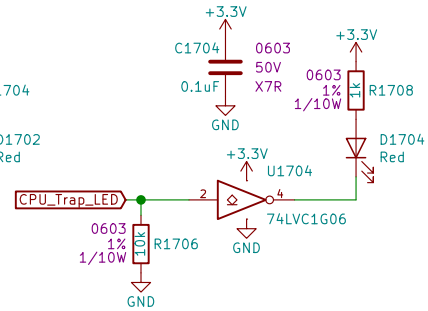
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 15/25



Drew Maatman		
Sheet: /PGOOD LEDs/		
File: PGOOD_LEDs.sch		
Title: Analog Clock		
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 16/25





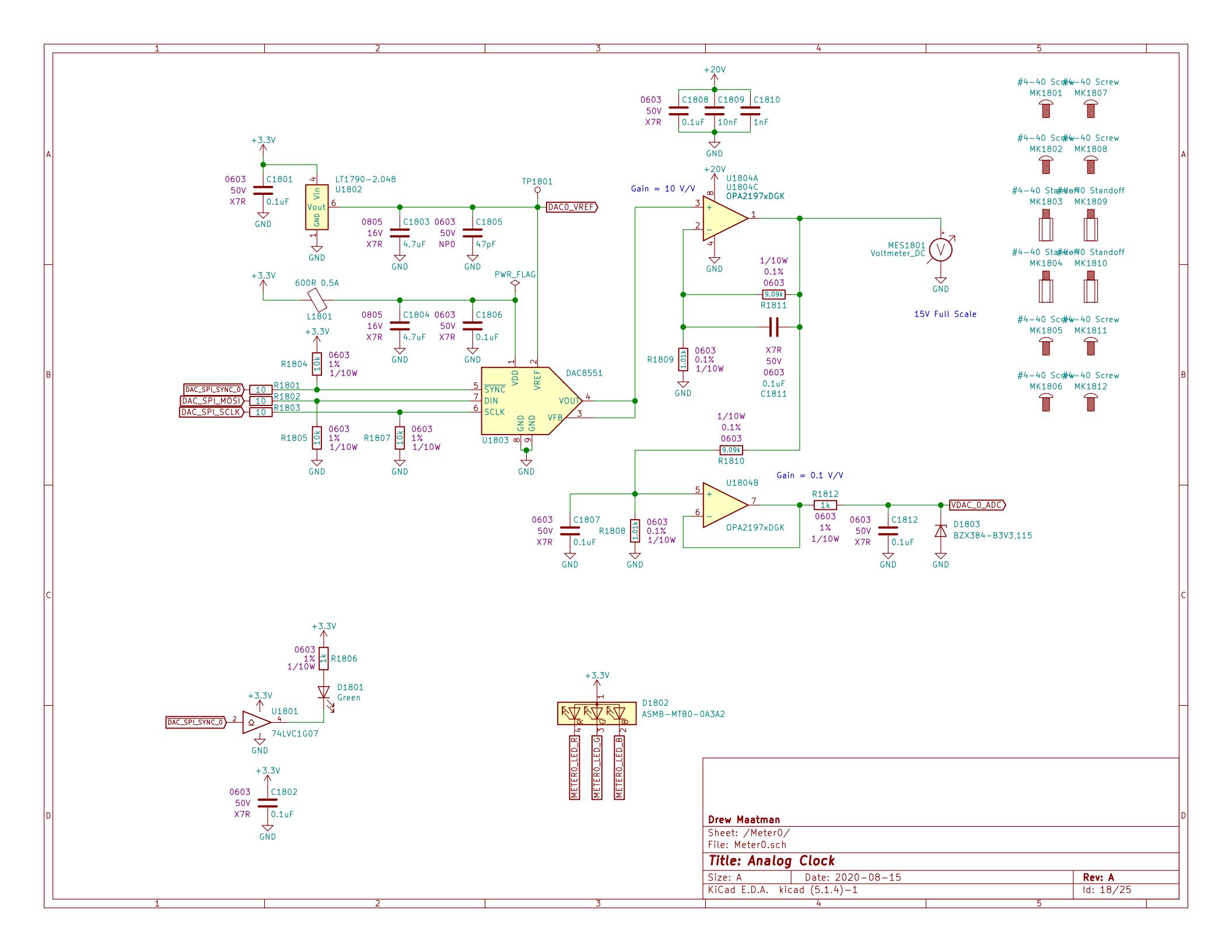


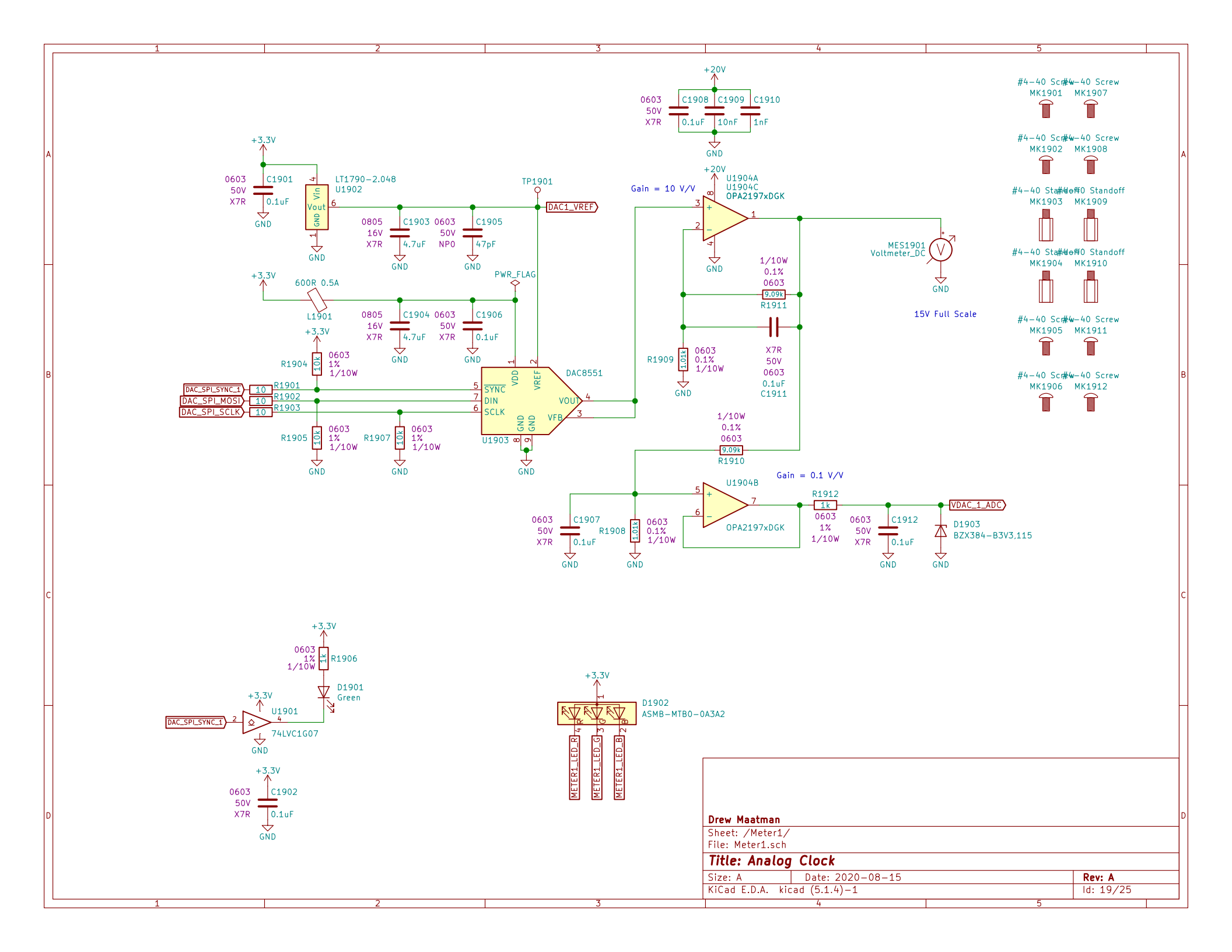
Drew Maatman

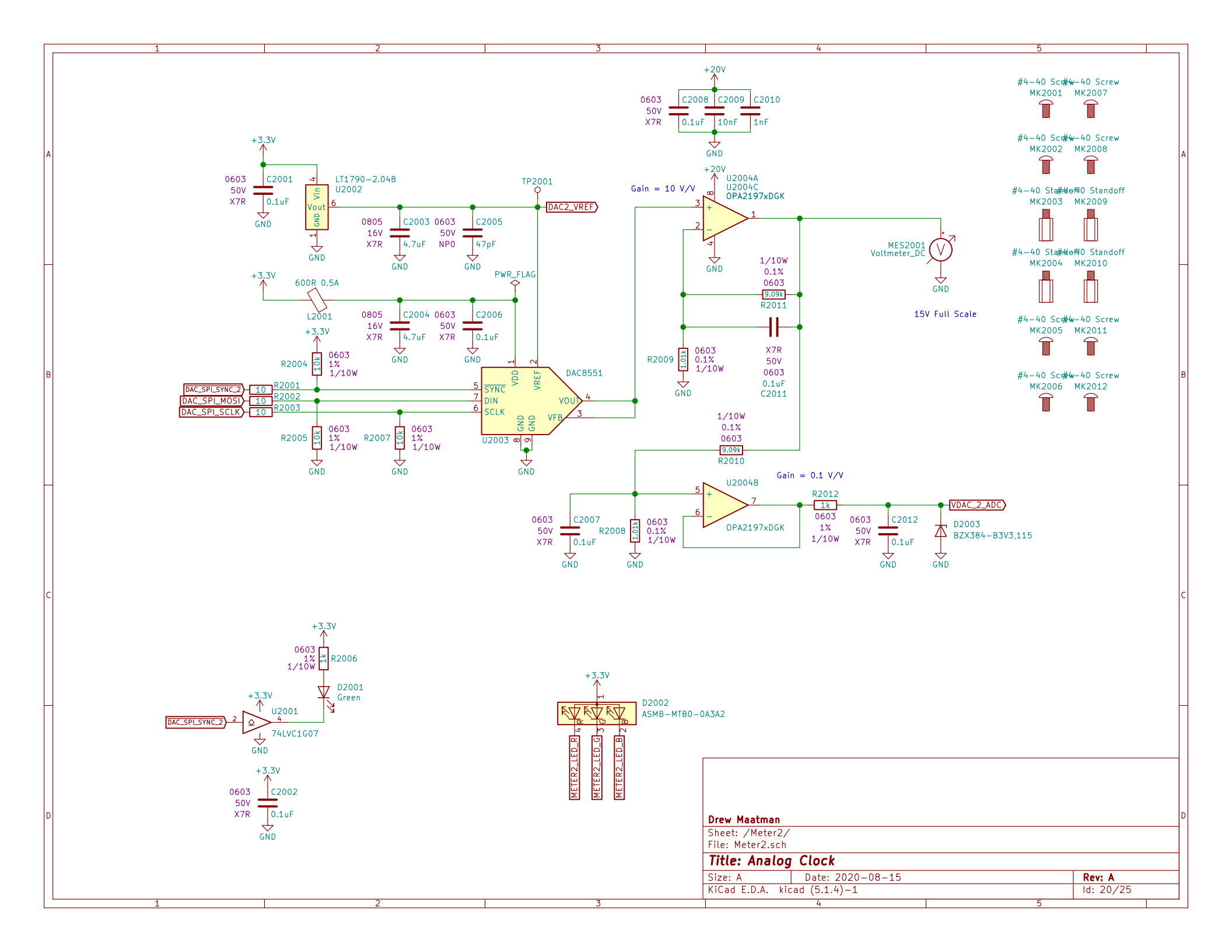
Sheet: /Status LEDs/
File: Status_LEDs.sch

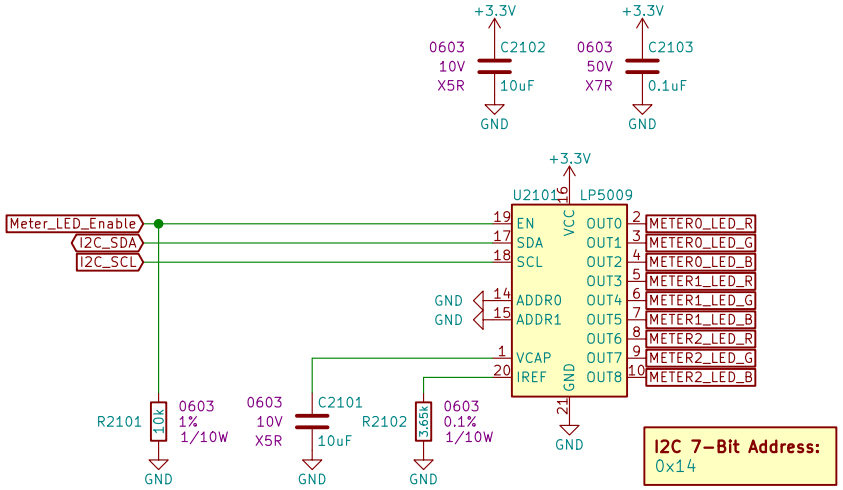
Title: Analog Clock

Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 17/25

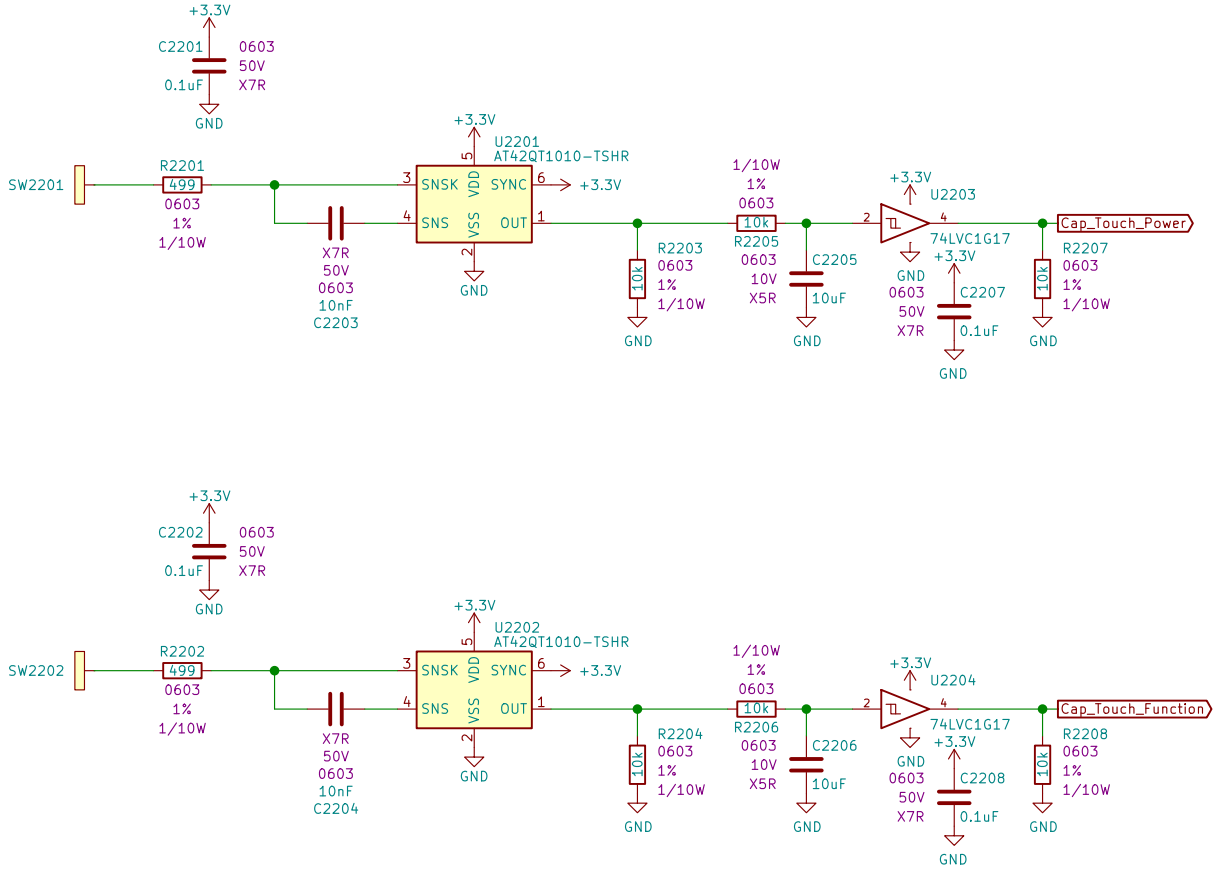

+20V
0603
50V
X7R
C1808
0.1uF
C1809
10nF
C1810
1nF
GND
#4-40 Screw
MK1801
#4-40 Screw
MK1807
#4-40 Screw
MK1802
#4-40 Screw
MK1808
#4-40 Standoff
MK1803
#4-40 Standoff
MK1809
#4-40 Standoff
MK1804
#4-40 Standoff
MK1810
#4-40 Screw
MK1805
#4-40 Screw
MK1811
#4-40 Screw
MK1806
#4-40 Screw
MK1812
+3.3V
C1801
0.1uF
LT1790-2.048
U1802
Vin
Vout
GND
TP1801
DAC0_VREF
0805
16V
X7R
C1803
4.7uF
0603
50V
NP0
C1805
47pF
600R 0.5A
L1801
PWR_FLAG
C1804
4.7uF
C1806
0.1uF
R1804
10k
0603
1%
1/10W
DAC_SPI_SYNC_0
DAC_SPI_MOSI
DAC_SPI_SCLK
10
R1801
R1802
R1803
R1805
R1807
DAC8551
SYNC
DIN
SCLK
VDD
VREF
VOUT
VFB
GND
U1803
Gain = 10 V/V
U1804A
U1804C
OPA2197xDGK
MES1801
Voltmeter_DC
15V Full Scale
1/10W
0.1%
0603
9.09k
R1811
R1809
1.01k
X7R
50V
0.1uF
C1811
R1810
Gain = 0.1 V/V
U1804B
R1812
1k
VDAC_0_ADC
C1807
R1808
C1812
D1803
BZX384-B3V3,115
R1806
D1801
Green
U1801
74LVC1G07
C1802
D1802
ASMB-MTB0-0A3A2
METER0_LED_R
METER0_LED_G
METER0_LED_B
Drew Maatman
Sheet: /Meter0/
File: Meter0.sch
Title: Analog Clock
Size: A
Date: 2020-08-15
Rev: A
KiCad E.D.A. kicad (5.1.4)-1
Id: 18/25


+20V
C1908
C1909
C1910
0603
50V
X7R
0.1uF
10nF
1nF
GND
#4-40 Screw
MK1901
#4-40 Screw
MK1907
#4-40 Screw
MK1902
#4-40 Screw
MK1908
#4-40 Standoff
MK1903
#4-40 Standoff
MK1909
#4-40 Standoff
MK1904
#4-40 Standoff
MK1910
#4-40 Screw
MK1905
#4-40 Screw
MK1911
#4-40 Screw
MK1906
#4-40 Screw
MK1912
+3.3V
C1901
0603
50V
X7R
0.1uF
LT1790-2.048
U1902
Vin
Vout
GND
TP1901
DAC1_VREF
0805
16V
X7R
C1903
4.7uF
0603
50V
NP0
C1905
47pF
600R 0.5A
L1901
PWR_FLAG
0805
16V
X7R
C1904
4.7uF
0603
50V
X7R
C1906
0.1uF
R1904
10k
0603
1%
1/10W
DAC_SPI_SYNC_1
DAC_SPI_MOSI
DAC_SPI_SCLK
10
R1901
R1902
R1903
R1905
R1907
DAC8551
SYNC
DIN
SCLK
VDD
VREF
VOUT
VFB
GND
U1903
Gain = 10 V/V
U1904A
U1904C
OPA2197xDGK
1/10W
0.1%
0603
9.09k
R1911
R1909
1.01k
X7R
50V
0.1uF
C1911
MES1901
Voltmeter_DC
15V Full Scale
R1910
Gain = 0.1 V/V
U1904B
R1912
1k
VDAC_1_ADC
C1907
R1908
C1912
D1903
BZX384-B3V3,115
+3.3V
0603
1%
1/10W
R1906
1k
D1901
Green
U1901
74LVC1G07
C1902
0.1uF
D1902
ASMB-MTB0-0A3A2
METER1_LED_R
METER1_LED_G
METER1_LED_B
Drew Maatman
Sheet: /Meter1/
File: Meter1.sch
Title: Analog Clock
Size: A
Date: 2020-08-15
Rev: A
KiCad E.D.A. kicad (5.1.4)-1
Id: 19/25

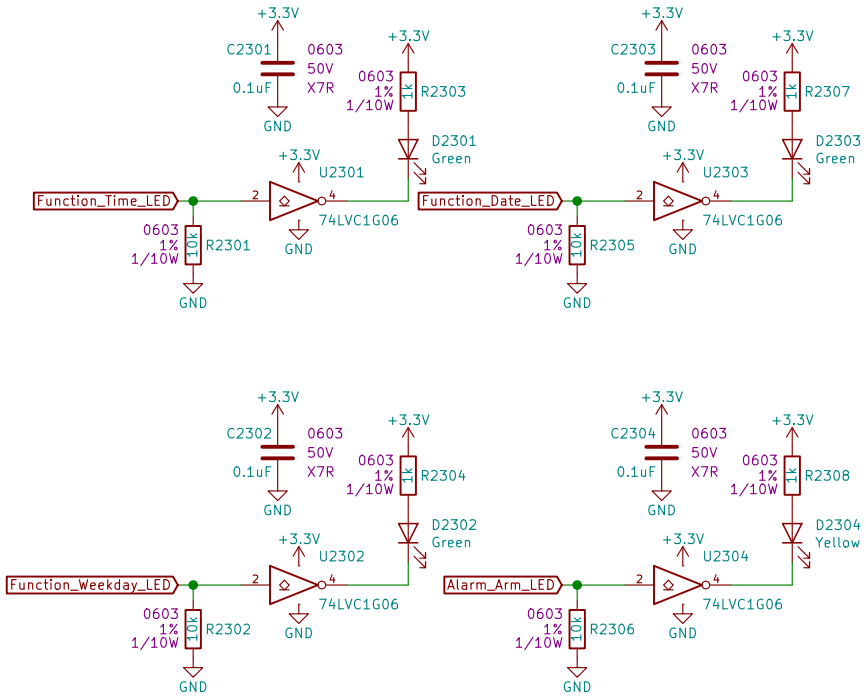

+20V
0603
50V
X7R
C2008
0.1uF
C2009
10nF
C2010
1nF
GND
#4-40 Screw
MK2001
#4-40 Screw
MK2007
#4-40 Screw
MK2002
#4-40 Screw
MK2008
#4-40 Standoff
MK2003
#4-40 Standoff
MK2009
#4-40 Standoff
MK2004
#4-40 Standoff
MK2010
#4-40 Screw
MK2005
#4-40 Screw
MK2011
#4-40 Screw
MK2006
#4-40 Screw
MK2012
+3.3V
C2001
0.1uF
LT1790-2.048
U2002
Vin
Vout
GND
TP2001
DAC2_VREF
0805
16V
X7R
C2003
4.7uF
0603
50V
NP0
C2005
47pF
600R 0.5A
L2001
PWR_FLAG
C2004
4.7uF
C2006
0.1uF
R2004
10k
0603
1%
1/10W
R2001
R2002
R2003
10
DAC_SPI_SYNC_2
DAC_SPI_MOSI
DAC_SPI_SCLK
R2005
R2007
DAC8551
SYNC
DIN
SCLK
VDD
VREF
VOUT
VFB
U2003
Gain = 10 V/V
U2004A
U2004C
OPA2197xDGK
1/10W
0.1%
0603
9.09k
R2011
MES2001
Voltmeter_DC
15V Full Scale
R2009
1.01k
X7R
50V
C2011
0.1uF
R2010
Gain = 0.1 V/V
U2004B
R2012
1k
VDAC_2_ADC
C2007
R2008
C2012
D2003
BZX384-B3V3,115
R2006
D2001
Green
U2001
74LVC1G07
C2002
D2002
ASMB-MTB0-0A3A2
METER2_LED_R
METER2_LED_G
METER2_LED_B
Drew Maatman
Sheet: /Meter2/
File: Meter2.sch
Title: Analog Clock
Size: A
Date: 2020-08-15
Rev: A
KiCad E.D.A. kicad (5.1.4)-1
Id: 20/25



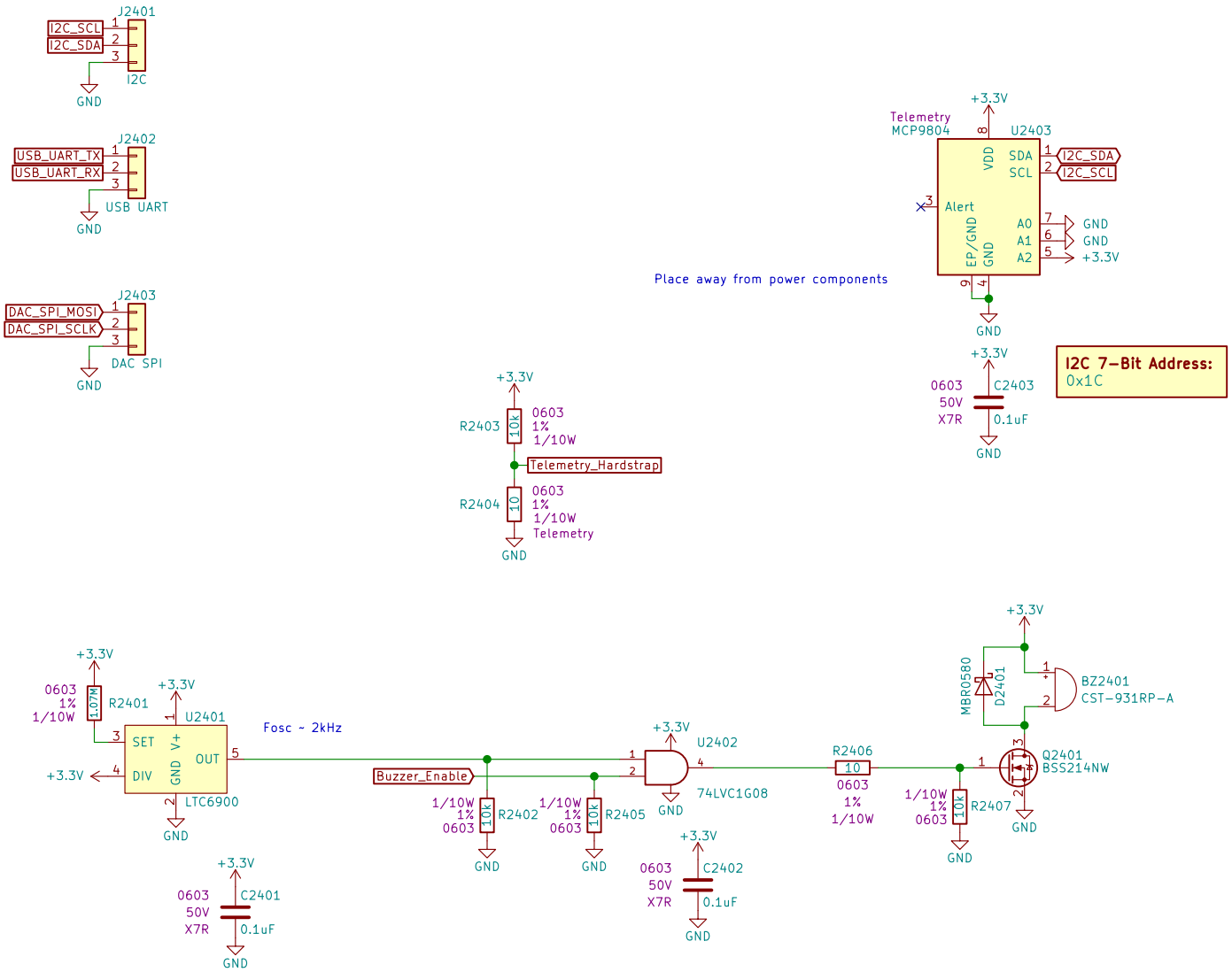
Drew Maatman	
Sheet: /LED Driver/	
File: LED_Driver.sch	
Title: Analog Clock	
Size: A | Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1	Id: 21/25



Drew Maatman		
Sheet: /Pushbuttons/		
File: Pushbuttons.sch		
Title: Analog Clock		
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 22/25



Drew Maatman		
Sheet: /Function LEDs/		
File: Function_LEDs.sch		
Title: Analog Clock		
Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 23/25



Drew Maatman	
Sheet: /Misc Circuits/	
File: Misc_Circuits.sch	
Title: Analog Clock	
Size: A	Date: 2020-08-15
KiCad E.D.A. kicad (5.1.4)-1	Id: 24/25

Rev: A

H2501
3mm Mounting Hole

H2503
3mm Mounting Hole

H2502
3mm Mounting Hole

H2504
3mm Mounting Hole

#4-40 Screw
MK2501

#4-40 Screw
MK2507

#4-40 Screw
MK2502

#4-40 Screw
MK2508

#4-40 Standoff
MK2503

#4-40 Standoff
MK2505

#4-40 Standoff
MK2504

#4-40 Standoff
MK2506

Drew Maatman

Sheet: /Mechanical/
File: Mechanical.sch

Title: Analog Clock

Size: A	Date: 2020-08-15	**Rev: A**
KiCad E.D.A. kicad (5.1.4)-1		Id: 25/25