

Sheet: /

File: VFD\_Clock.sch

Title:

Size: A

Date:

KiCad E.D.A. kicad (5.1.0)-1

Rev:

Id: 1/14

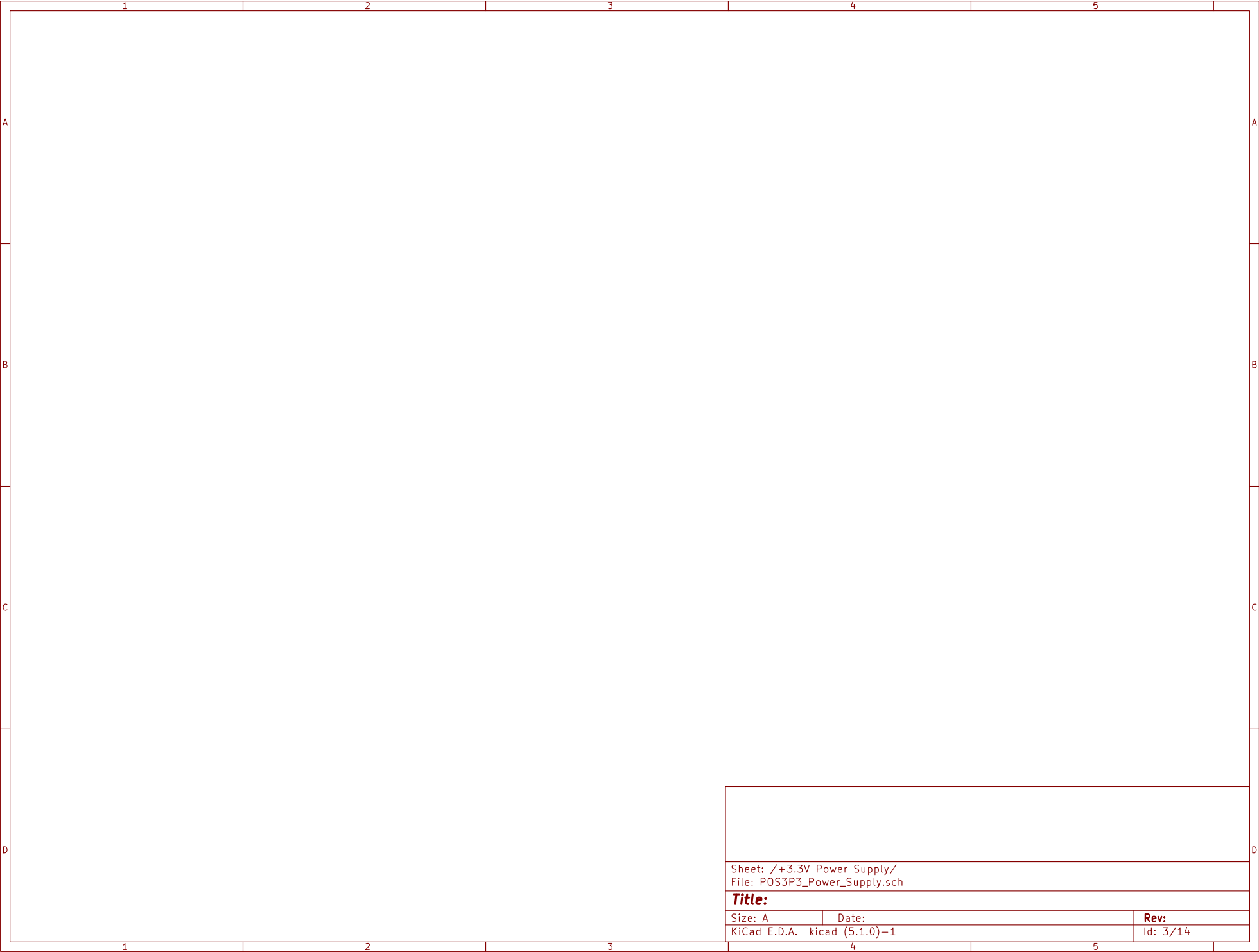
	1	2	3	4	5
A					
B					
C					
D					

	30	14	37	46	62	74	83	93		
17	RA0/TMS/EBIA16/AN24	VDD	VDD	VDD	VDD	VDD	VDD	VDD	RD0/EMDIO/AEMDIO/RPD0/RTCC/INT0	71
38	RA1/TCK/EBIA19/AN29								RD1/RPD1/SCK1	76
59	RA2/EBIC50/SCL2								RD2/EBID14/ETXEN/RPD2/PMD14	77
60	RA3/EBIRDY1/SDA2								RD3/EBID15/ETXCLK/RPD3/PMD15	78
61	RA4/EBIA14/PMCS1/PMA14								RD4/SQIC50/RPD4	81
2	RA5/EBIA5/AN34/PMA5								RD5/SQIC51/RPD5	82
89	RA6/TRCLK/SQICLK								RD9/EBIA15/RPD9/PMCS2/PMA15	68
90	RA7/TRD3/SQID3								RD10/RPD10/SCK4	69
28	RA9/VREF-/CVREF-/AN27/AERXD2								RD11/EMDC/AEMDC/RPD11	70
29	RA10/VREF+/CVREF+/AN28/AERXD3								RD12/EBID12/ETXD2/RPD12/PMD12	79
66	RA14/AETXCLK/RPA14/SCL1								RD13/EBID13/ETXD3/PMD13	80
67	RA15/AETXEN/RPA15/SDA1								RD14/AN32/AETXD0/RPD14	47
									RD15/AN33/AETXD1/RPD15/SCK6	48
25	RB0/PGED1/AN0/RPB0									
24	RB1/PGEC1/AN1/RPB1								RE0/EBID0/PMD0	91
23	RB2/AN2/C2INB/RPB2								RE1/EBID1/PMD1	94
22	RB3/AN3/C2INA/RPB3								RE2/EBID2/PMD2	98
21	RB4/AN4/C1INB	PIC32MZ2048EFH100_IPF							RE3/EBID3/RPE3/PMD3	99
20	RB5/AN45/C1INA/RPB5								RE4/EBID4/AN18/PMD4	100
26	RB6/PGEC2/AN46/RPB6								RE5/EBID5/AN17/RPE5/PMD5	3
27	RB7/PGED2/AN47/RPB7								RE6/EBID6/AN16/PMD6	4
32	RB8/EBIA10/AN48/RPB8/PMA10								RE7/EBID7/AN15/PMD7	5
33	RB9/EBIA7/AN49/RPB9/PMA7								RE8/AN25/AERXD0/RPE8	18
34	RB10/EBIA13/CVREFOUT/AN5/RPB10/PMA13								RE9/AN26/AERXD1/RPE9	19
35	RB11/AN6/EXRERR/AETXERR									
41	RB12/EBIA11/AN7/ERXD0/AECRS/PMA11									
42	RB13/AN8/ERXD1/AECOL									
43	RB14/EBIA1/AN9/ERXD2/AETXD3/RPB14/SCK3/PMA1								RF0/EBID11/ETXD1/RPF0/PMD11	85
44	RB15/EBIA0/AN10/ERXD3/AETXD2/RPB15/OCFB/PMA0								RF1/EBID10/ETXD0/RPF1/PMD10	86
									RF2/EBIRDY3/RPF2/SDA3	57
									RF3/RPF3/USBID	56
6	RC1/EBIA6/AN22/RPC1/PMA6								RF4/EBIA9/RPF4/SDA5/PMA9	64
7	RC2/EBIA12/AN21/RPC2/PMA12								RF5/EBIA8/RPF5/SCL5/PMA8	65
8	RC3/EBIWE/AN20/RPC3/PMWR								RF8/EBIRDY2/RPF8/SCL3	58
9	RC4/EBIOE/AN19/RPC4/PMRD								RF12/TD0/EBIA17/AN31/RPF12	40
49	RC12/OSC1/CLKI								RF13/TDI/EBIA18/AN30/RPF13/SCK5	39
72	RC13/SOSCI/RPC13									
73	RC14/SOSCO/RPC14/T1CK									
50	RC15/OSC2/CLKO								RG0/EBID8/RPG0/PMD8	88
									RG1/EBID9/ETXERR/RPG1/PMD9	87
									RG6/AN14/C1IND/ECOL/RPG6/SCK2	10
51	VBUS	RG7/EBIA4/AN13/C1INC/ECRS/RPG7/SDA4/PMA4								11
52	VBUS3V3	RG8/EBIA3/AN12/C2IND/ERXDV/ECRS/SDV/AERXDV/AECRS/SDV/RPG8/SCL4/PMA3								12
54	D-	RG9/EBIA2/AN11/C2INC/ERXCLK/EREFCCLK/AERXCLK/AEREFCLK/RPG9/PMA2								16
55	D+								RG12/TRD1/SQID1	96
									RG13/TRD0/SQID0	97
									RG14/TRD2/SQID2	95
15	MCLR	AVSS	VSS	VSS	VSS	VSS	VSS	VSS	RG15/AN23/AERXERR	1
		31	13	36	45	53	63	75	84	92
										U?

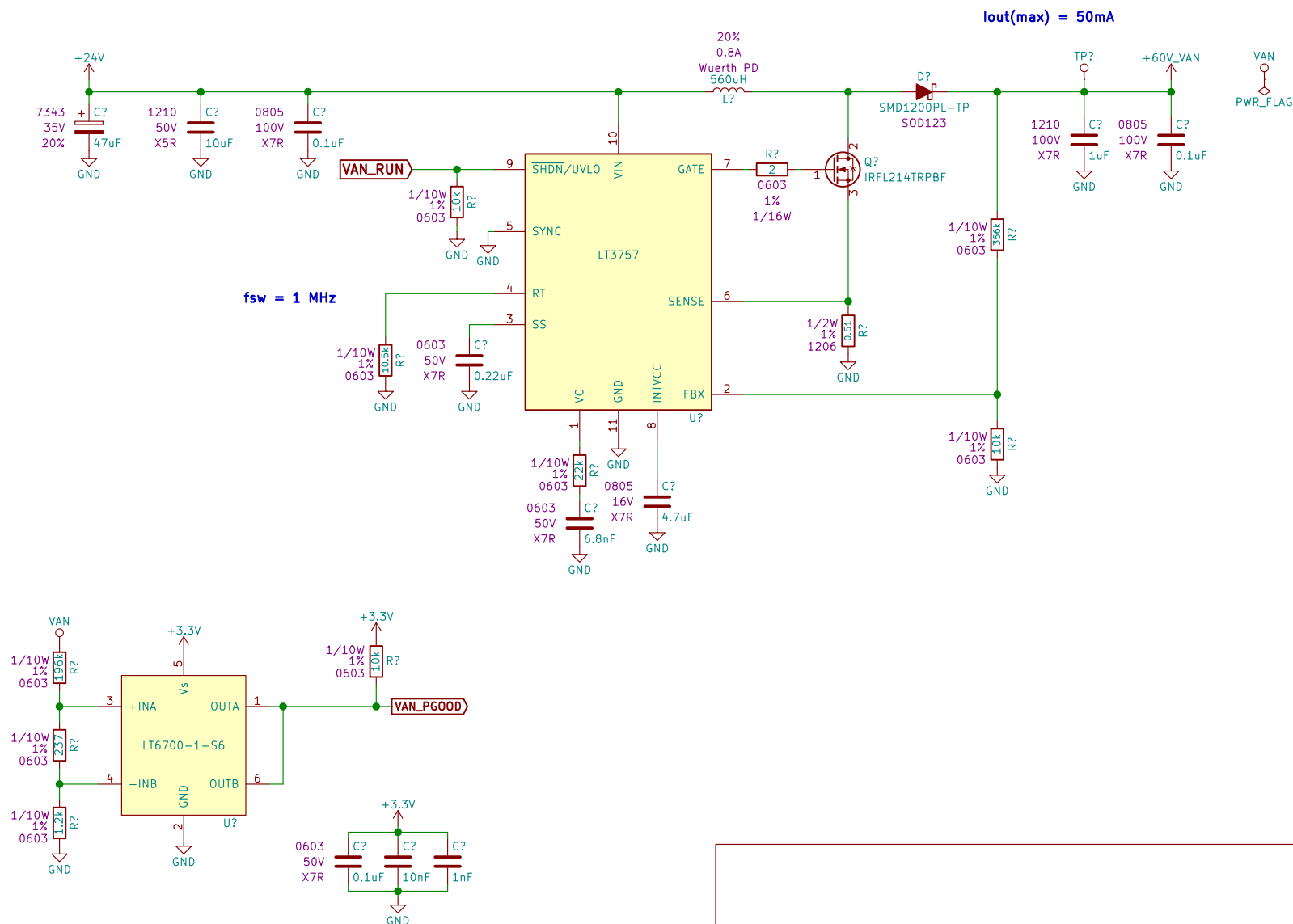
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File: Microcontroller.sch

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Size: ADate:Rev:KiCad E.D.A. kicad (5.1.0)-1Id: 2/14



**Anode/Grid +60V, 50mA Power Supply**



Sheet: /+60V VAN Power Supply/  
File: POS60\_VAN\_Power\_Supply.sch

**Title:**

Size: A

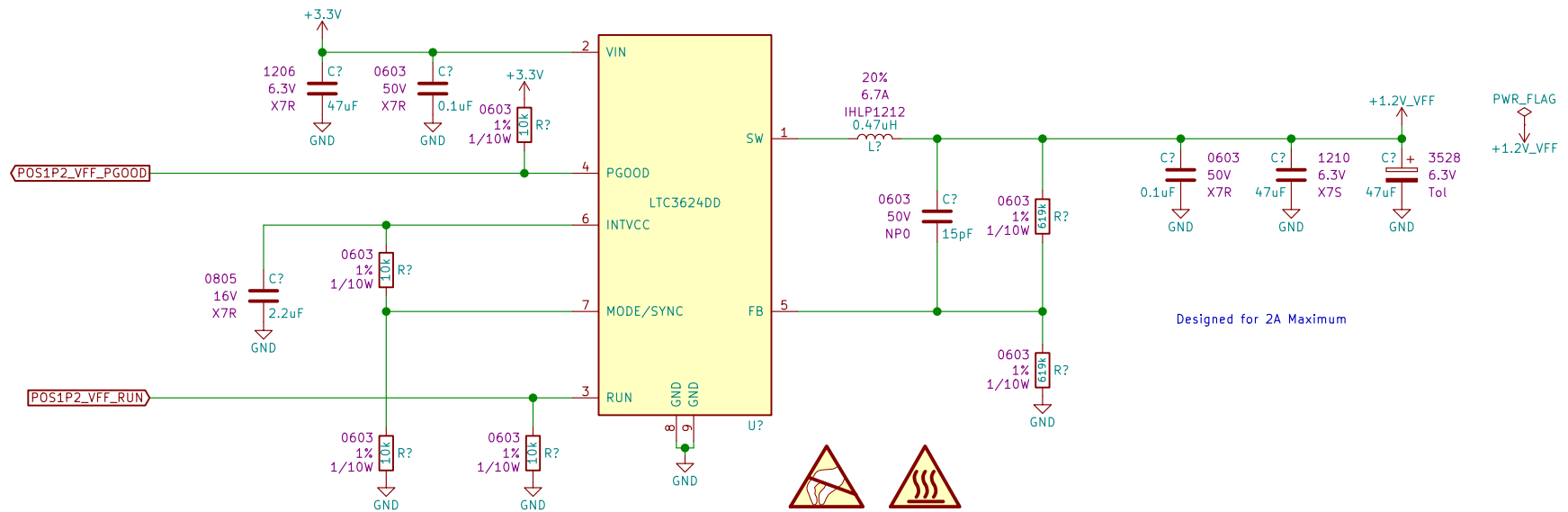
Date:

KiCad E.D.A.	kiCad (5.1.0)-1
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Rev:

Id: 4/14

# +1.2V VFF Power Supply



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Sheet: /+1.2V VFF Power Supply/  
File: POS1P2\_VFF\_Power\_Supply.sch

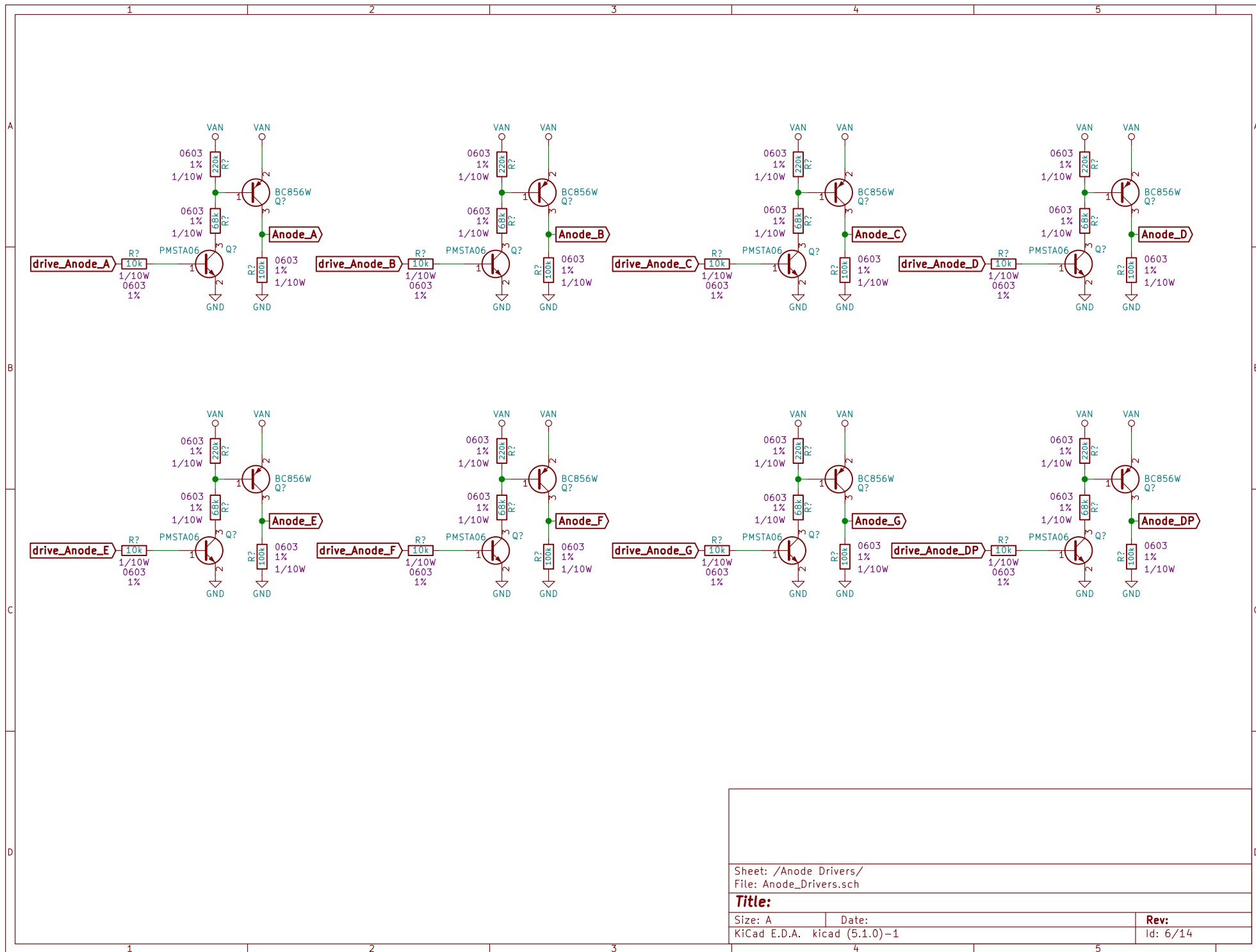
**Title: Electronic Display Logic Board**

Size: A Date: 2018-12-15

KiCad E.D.A. kicad (5.1.0)-1

Rev: A

Id: 5/14



### Grid Drivers

Sheet: /Grid Drivers/  
File: Grid\_Drivers.sch

**Title:**

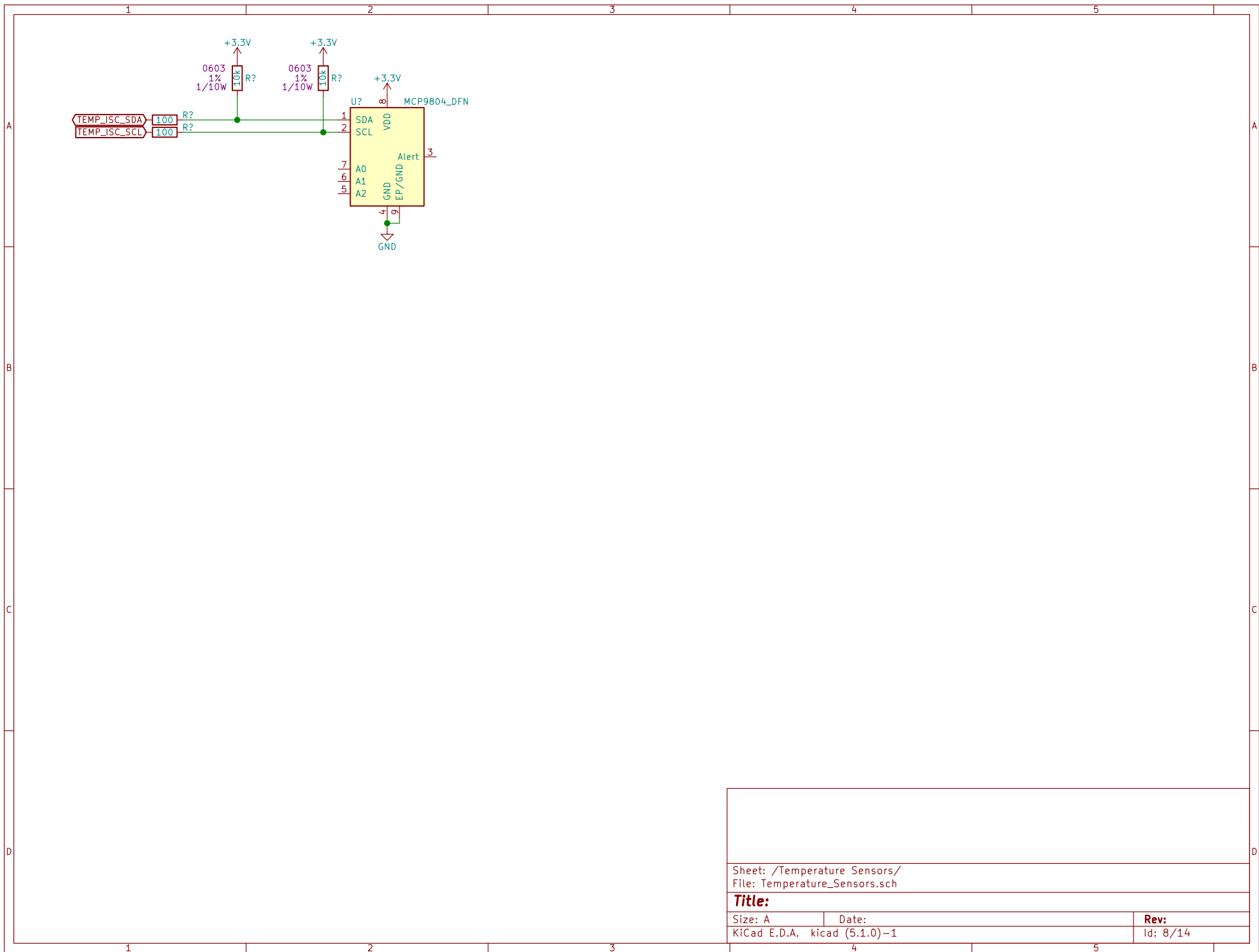
Size: A	Date:	Rev:
KiCad E.D.A.	kicad (5.1.0)-1	Id: 7/14

<b>Title:</b>		
Size: A	Date:	<b>Rev:</b>
KiCad E.D.A.    kicad (5.1.0)–1		Id: 7/14

Size: A	Date:	Rev:
KiCad E.D.A.    kicad (5.1.0)–1		Id: 7/14

KiCad E.D.A. kicad (5.1.0)-1	Id: 7/14
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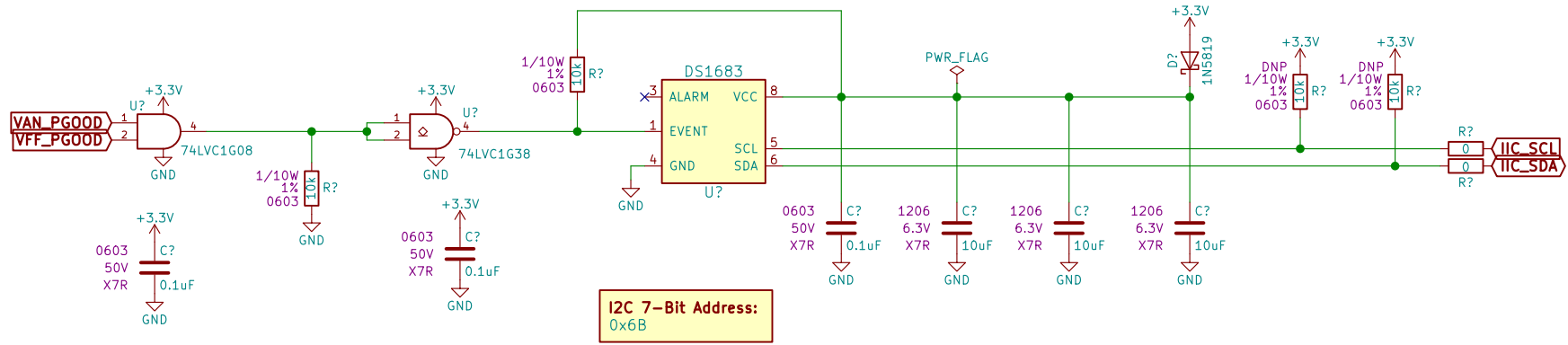
KiCad E.D.A. kicad (5.1.0)-1	Id: 7/14
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Sheet: /Temperature Sensors/ File: Temperature_Sensors.sch		
<b>Title:</b>		
Size: A	Date:	Rev:
KiCad E.D.A. kicad (5.1.0)-1		Id: 8/14



# Tube Life Timer



I2C 7-Bit Address:  
0x6B

Sheet: /Tube Life Timer/  
File: Tube\_Life\_Timer.sch

## Title:

Size: A

Date:

KiCad E.D.A. kicad (5.1.0)-1

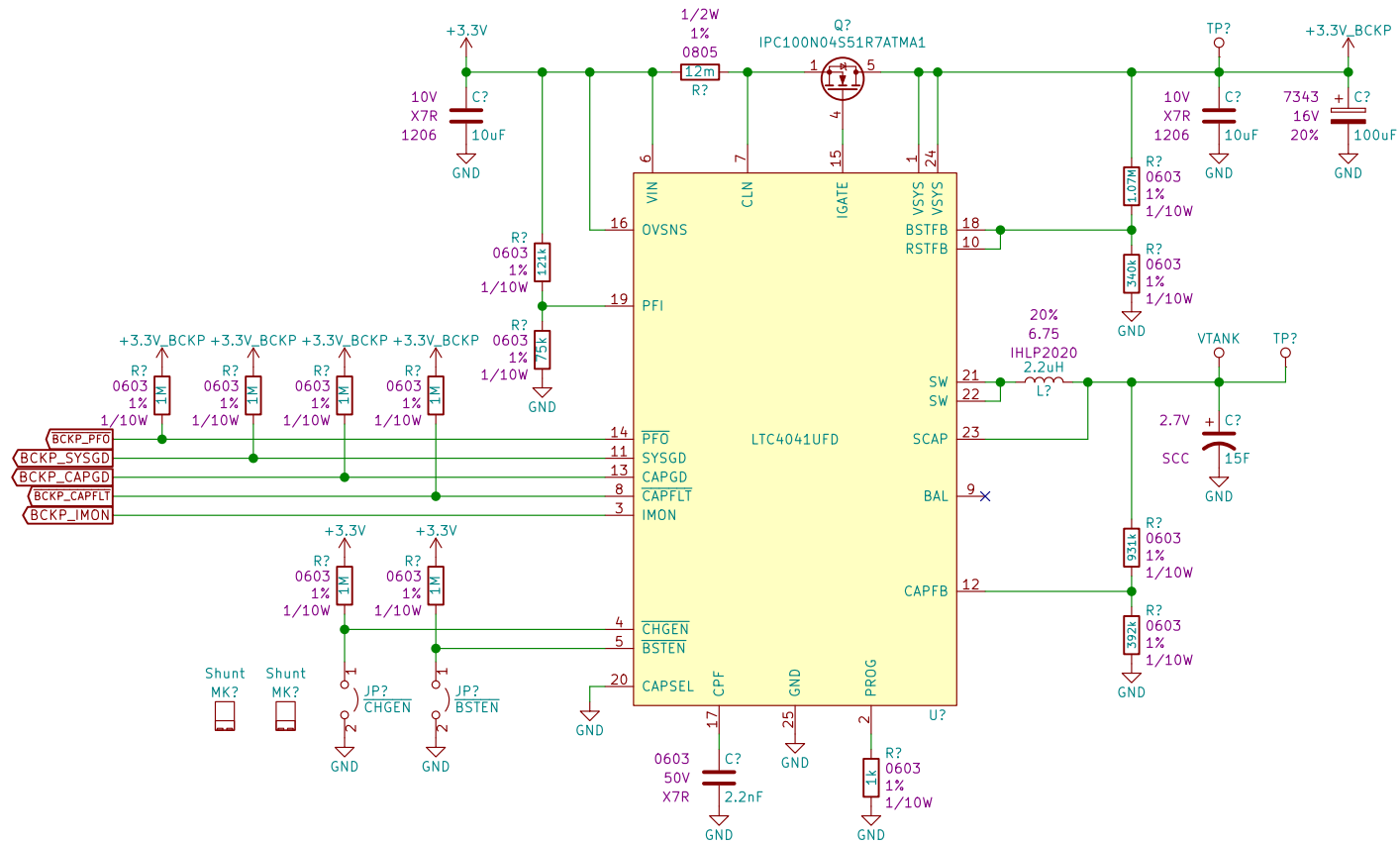
Rev:

Id: 9/14

1	2	3	4	5	
Mechanical Components					
A					A
B					B
C					C
D					D
1	2	3	4	5	

Sheet: /Mechanical/ File: Mechanical.sch		
Title:		
Size: A	Date:	Rev:
KiCad E.D.A. kicad (5.1.0)-1		Id: 10/14

## Supercap Backup Circuit



Sheet: /+3.3V BCKP Supply/  
File: POS3P3\_BCKP\_Supply.sch

**Title:**

Size: A

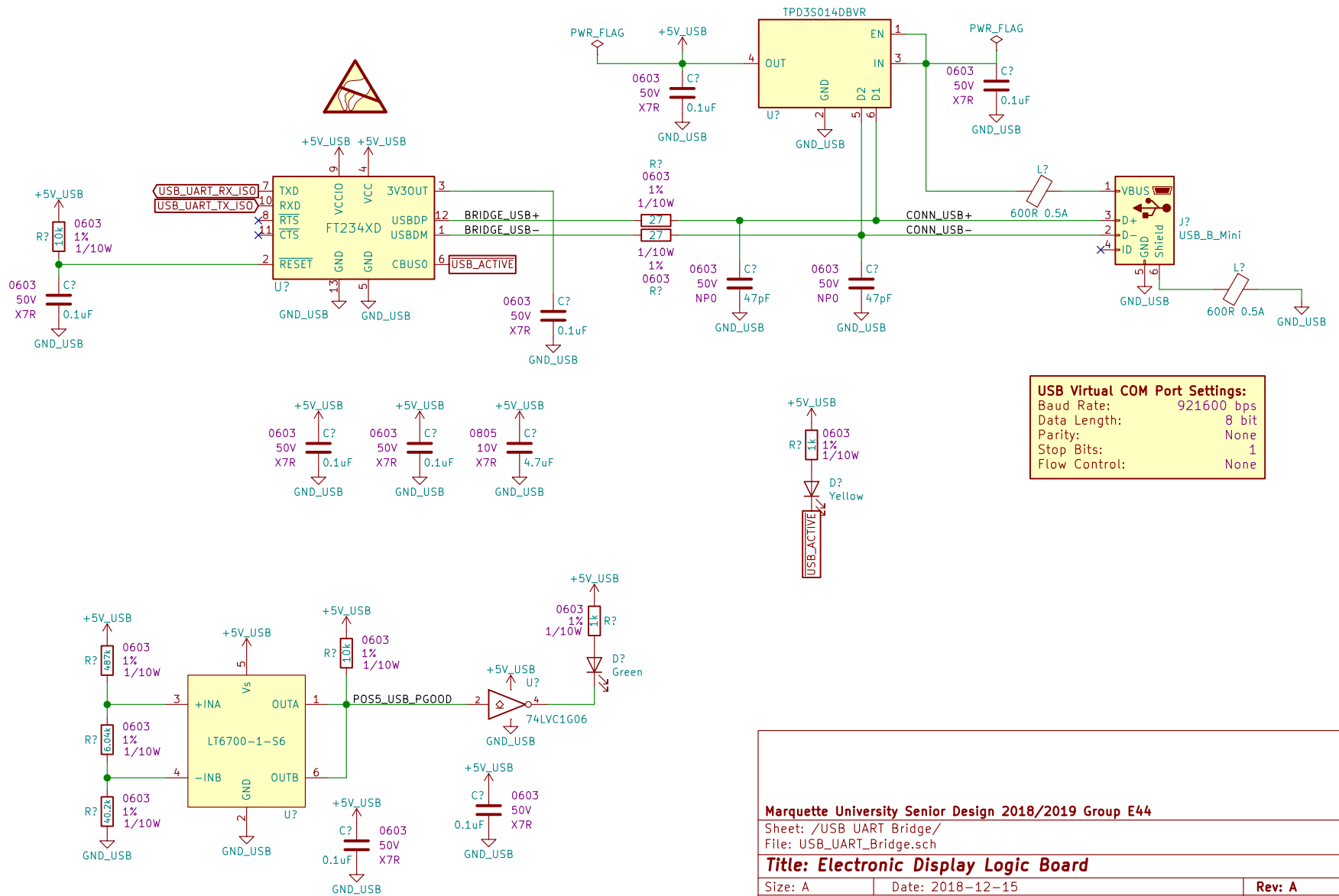
Date:

KiCad E.D.A.	kiCad (5.1.0)-1
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Rev:

Id: 11/14

## 11. USB UART Bridge



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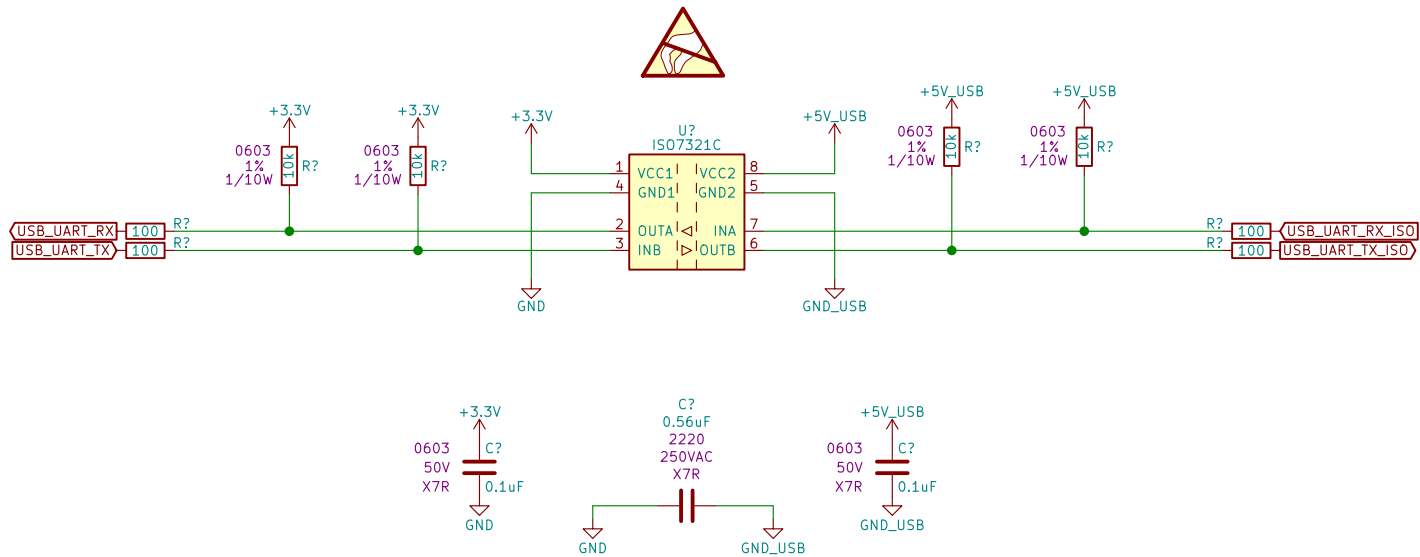
Sheet: /USB UART Bridge/  
File: USB\_UART\_Bridge.sch

**Title: Electronic Display Logic Board**

Size: A	Date: 2018-12-15
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Rev: A  
Id: 12/14

## 10. USB UART Digital Isolation



Marquette University Senior Design 2018/2019 Group E44

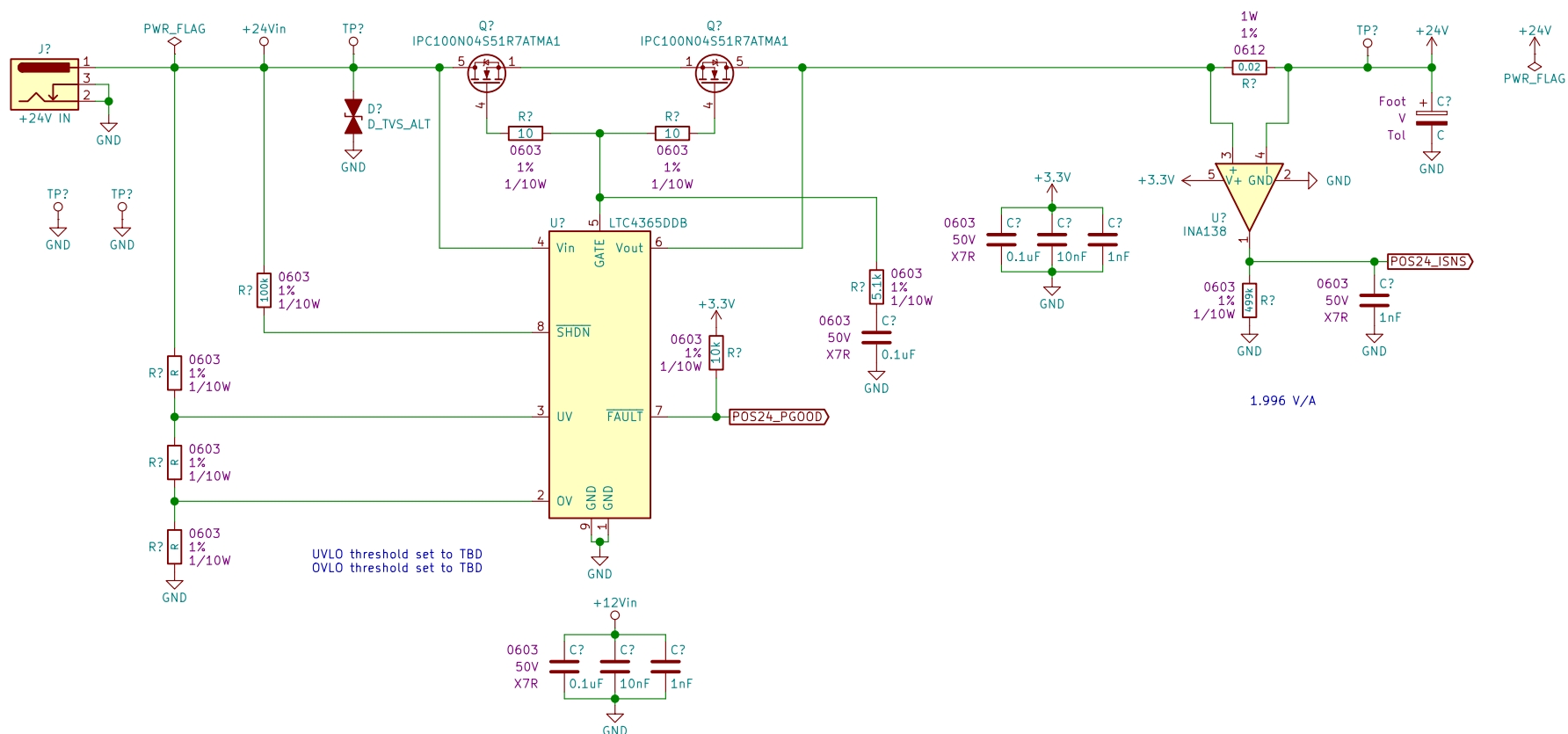
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File: USB\_UART\_Isolation.sch

**Title: Electronic Display Logic Board**

Size: A Date: 2018-12-15  
KiCad E.D.A. kicad (5.1.0)-1

Rev: A  
Id: 13/14

## 02. +12V Input



Sheet: /+24V Input/  
File: POS24\_Input.sch

**Title: QI Charger**

Size: A	Date: 2019-01-03
KiCad E.D.A. kicad (5.1.0)-1	

Rev: A  
Id: 14/14