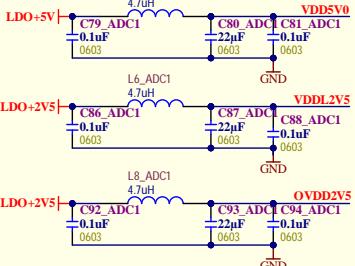


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

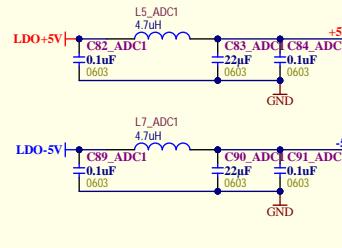
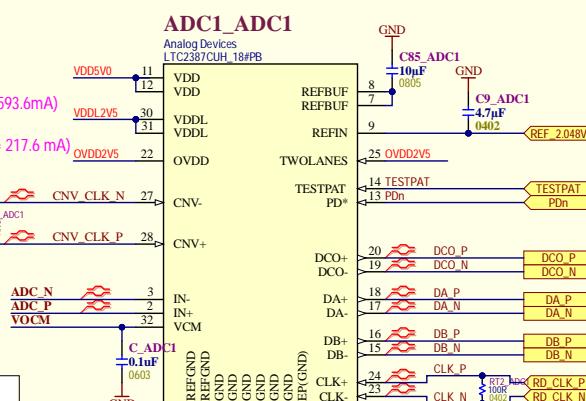
TOTAL POWER =  $0.32 + 0.72 + 2.03 = 3.07\text{W}$



## **POWER REQUIREMENTS**

The  $\bullet$  denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

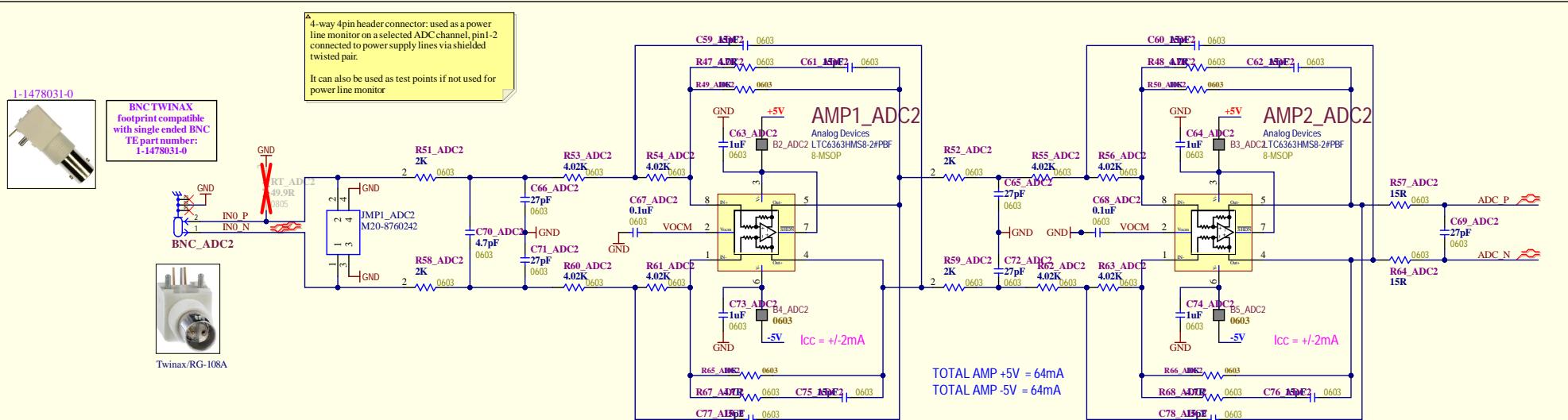
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$i_{VDDP}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$i_{VDD}$	Supply Current	15Msps Sample Rate	5	6	mA	
$i_{VDDL}$	Supply Current	15Msps Sample Rate	31.4	35	mA	
$i_{VDD}$	Supply Current	15Msps Sample Rate	8.8	10.3	mA	
$i_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD}$ )	1	20	μA	
$i_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD} + i_{VDDP}$ )	2	250	μA	



*Single Channel Filter & ADC*

Revision <b>O</b>	Drawing #: 3	<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2	 <i>University of Manitoba</i>
Sheet #: 3 of 16	Size: B		
Drawn by: JP.DB	Date: 7/22/2021		

File: C:\Users\JPDB\OneDrive - University of Manitoba\10C-01-Nut\1-MOLDED 10 Channel ADC and Fetal Endotracheal Tube.dwg [10.0M]

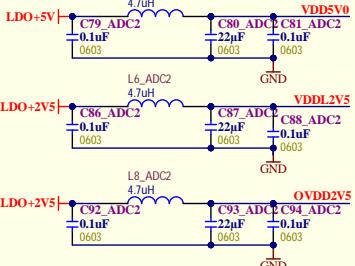


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

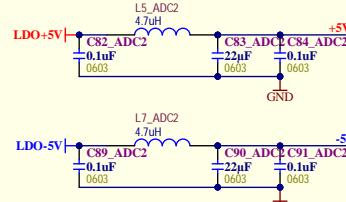
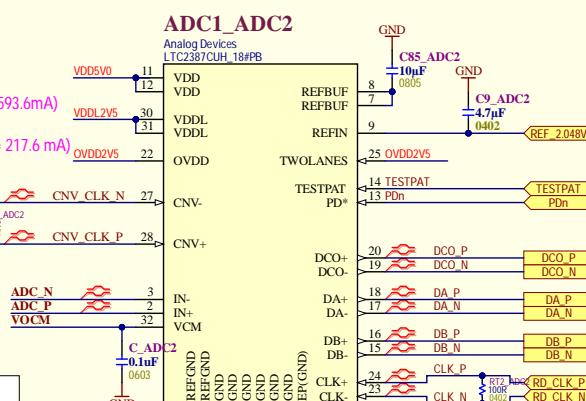
TOTAL POWER =  $0.32 + 0.72 + 2.03 = 3.07\text{W}$



## **POWER REQUIREMENTS**

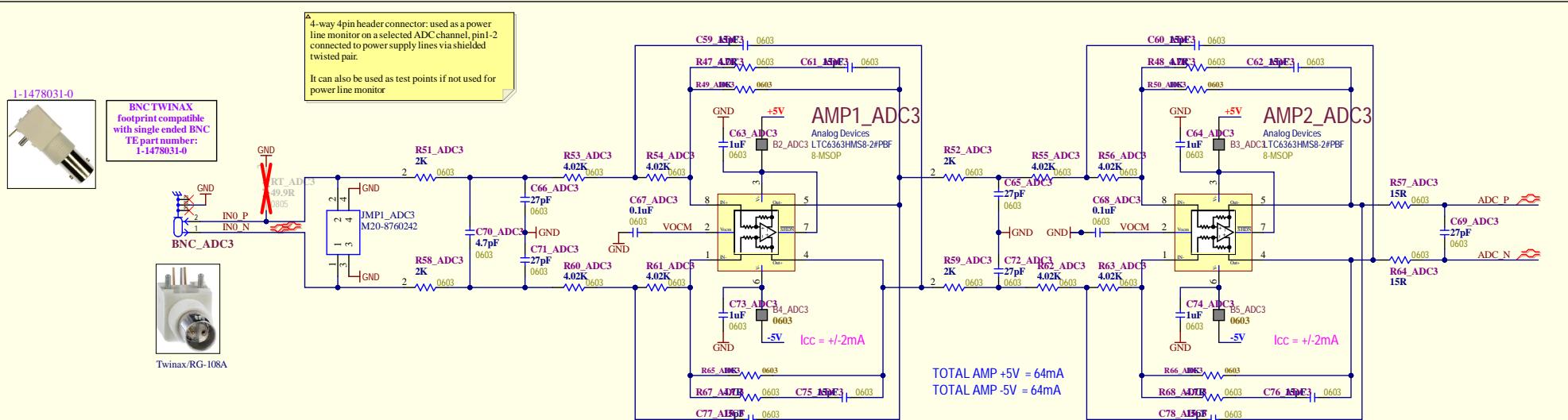
The  $\bullet$  denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$OV_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{VDD}$	Supply Current	15Msps Sample Rate	5	6	mA	
$i_{VDDL}$	Supply Current	15Msps Sample Rate	31.4	35	mA	
$i_{VDD}$	Supply Current	15Msps Sample Rate	8.8	10.3	mA	
$i_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DDP}$ )	1	20	μA	
$i_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $i_{VDD} + i_{VDDP}$ )	2	250	μA	



*Single Channel Filter & AD*

Revision <b>0</b>	<b>Drawing #:</b> 3	<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2	 <b>University</b> <b>of Manitoba</b>	
	Sheet #:	3 of 16	Size:	B
	Drawn by:	JP.DB	Date:	7/22/2021

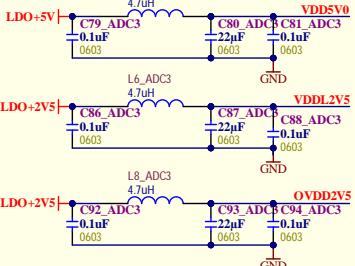


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

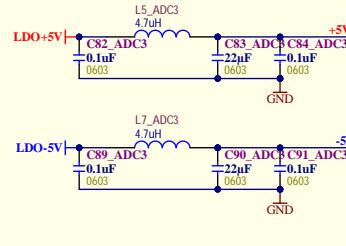
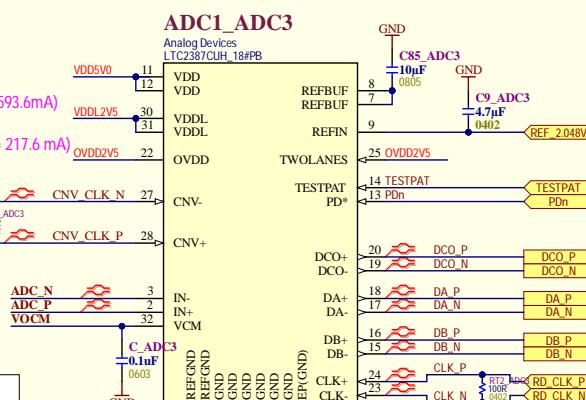
$$\text{TOTAL POWER} = 0.32 + 0.72 + 2.03 = 3.07\text{W}$$



## **POWER REQUIREMENTS**

The  $\bullet$  denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

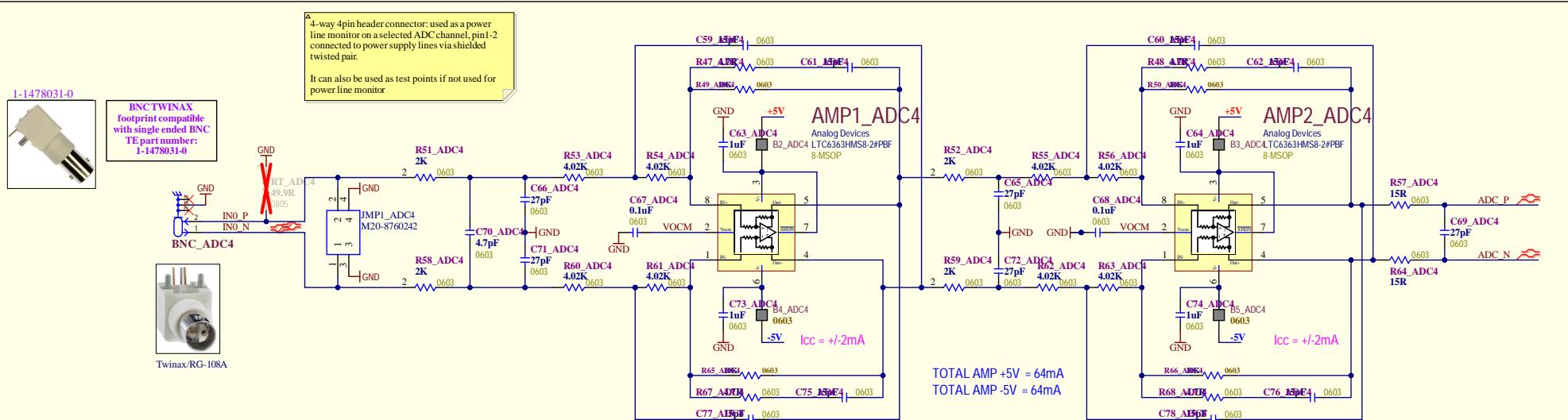
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$OV_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{VDD}$	Supply Current	15Msps Sample Rate	5	6	mA	
$i_{VDDL}$	Supply Current	15Msps Sample Rate	31.4	35	mA	
$i_{VDD}$	Supply Current	15Msps Sample Rate	8.8	10.3	mA	
$i_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DDP}$ )	1	20	μA	
$i_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $i_{VDD} + i_{VDDP}$ )	2	250	μA	



*Single Channel Filter & AD*

Revision	Drawing #:	3	<i>University of Manitoba</i>
<b>0</b>	Sheet #:	3 of 16	Winnipeg, MB
	Size:	B	Canada
	Drawn by:	JP, DB	R3T 2N2
	Date:	7/22/2021	

Filings.California.ca.gov/

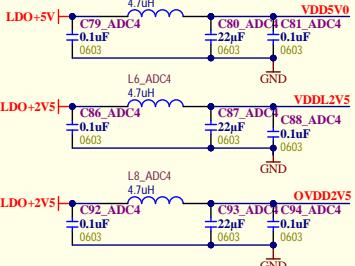


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

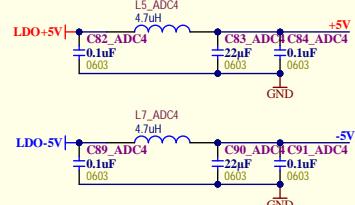
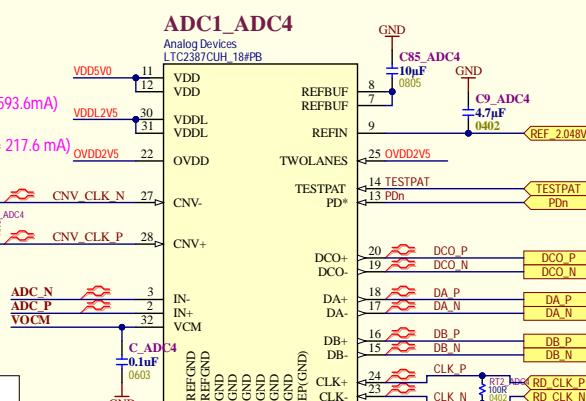
TOTAL POWER =  $0.32 + 0.72 + 2.03 = 3.07\text{W}$



## **POWER REQUIREMENTS**

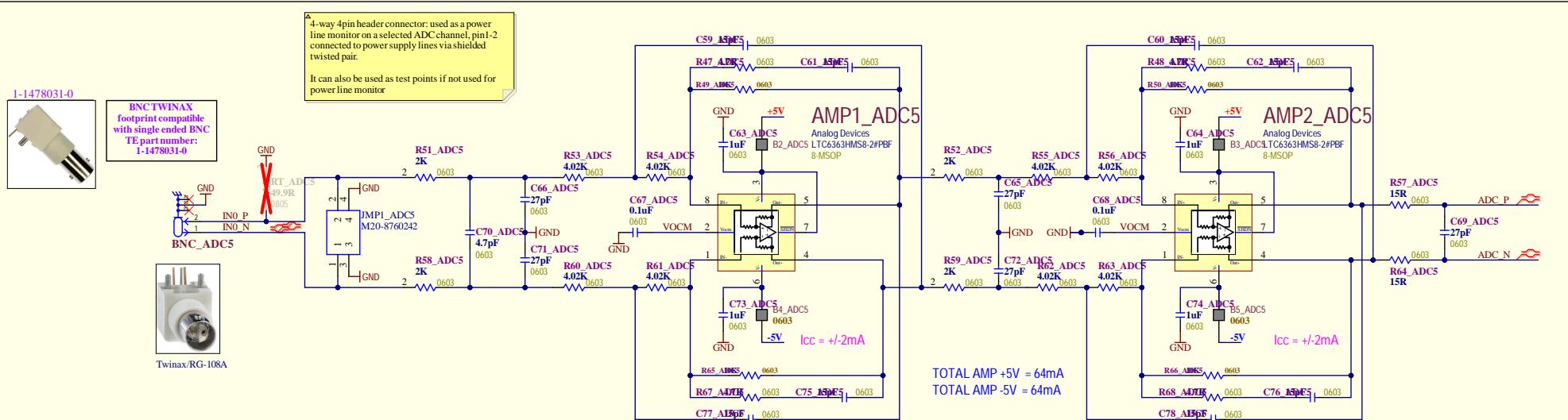
The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V <sub>DD</sub>	Supply Voltage	(Note 6)	4.75	5	5.25	V
V <sub>DOL</sub>	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
I <sub>VDD</sub>	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
I <sub>DOL</sub>	Supply Current	15Msps Sample Rate	5	6	mA	
I <sub>DOL</sub>	Supply Current	15Msps Sample Rate	31.4	35	mA	
I <sub>DOL</sub>	Supply Current	15Msps Sample Rate	8.8	10.3	mA	
I <sub>PPOWERDOWN</sub>	Power-Down Mode Current	Power-Down Mode (I <sub>VDD</sub> )	1	20	μA	
I <sub>PPOWERDOWN</sub>	Power-Down Mode Current	Power-Down Mode (I <sub>VDD</sub> + I <sub>VDDO</sub> )	2	250	μA	



*Single Channel Filter & AD*

Revision <b>0</b>	Drawing #:	3	<i>University of Manitoba</i>
	Sheet #:	3 of 16	Winnipeg, MB
	Size:	B	Canada
Drawn by:	JP, DB	Date:	7/22/2021
Flo.:	Ground	Comp.:	Architectural

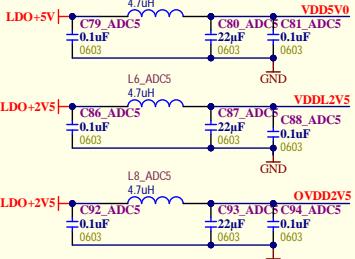


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

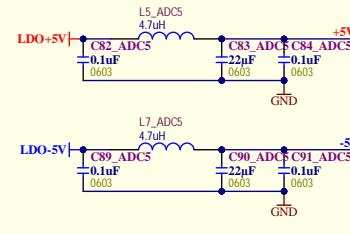
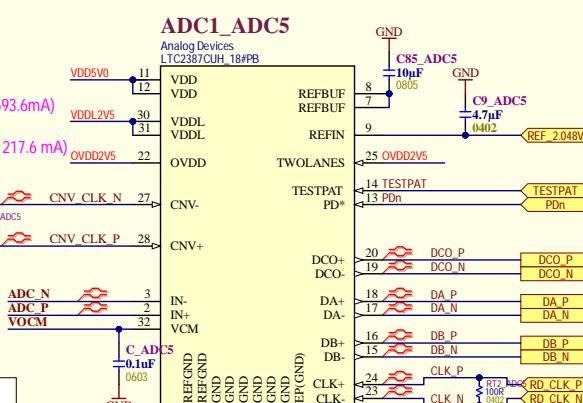
TOTAL POWER =  $0.32 + 0.72 + 2.03 = 3.07\text{W}$



#### **POWER REQUIREMENTS**

**POWER REQUIREMENTS** The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

range, otherwise specifications are at $T_A = 25^\circ\text{C}$ . (Note 5)						
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DOL}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$V_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{DD}$	Supply Current	15Msps Sample Rate	5	6		mA
$I_{DOL}$	Supply Current	15Msps Sample Rate	31.4	35		mA
$I_{DD}$	Supply Current	15Msps Sample Rate	8.8	10.3		mA
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DDP}$ )	1	20		$\mu\text{A}$
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DOLP} + V_{DDP}$ )	2	250		$\mu\text{A}$



Single Channel Filter & ADC

Revision <b>0</b>	Drawing #:	3	<i>University of Manitoba</i>
	Sheet #:	3 of 16	Winnipeg, MB
	Size:	B	Canada
Drawn by:	JP, DB	Date:	7/22/2021
Flo.:	Ground	Comp.:	Architectural



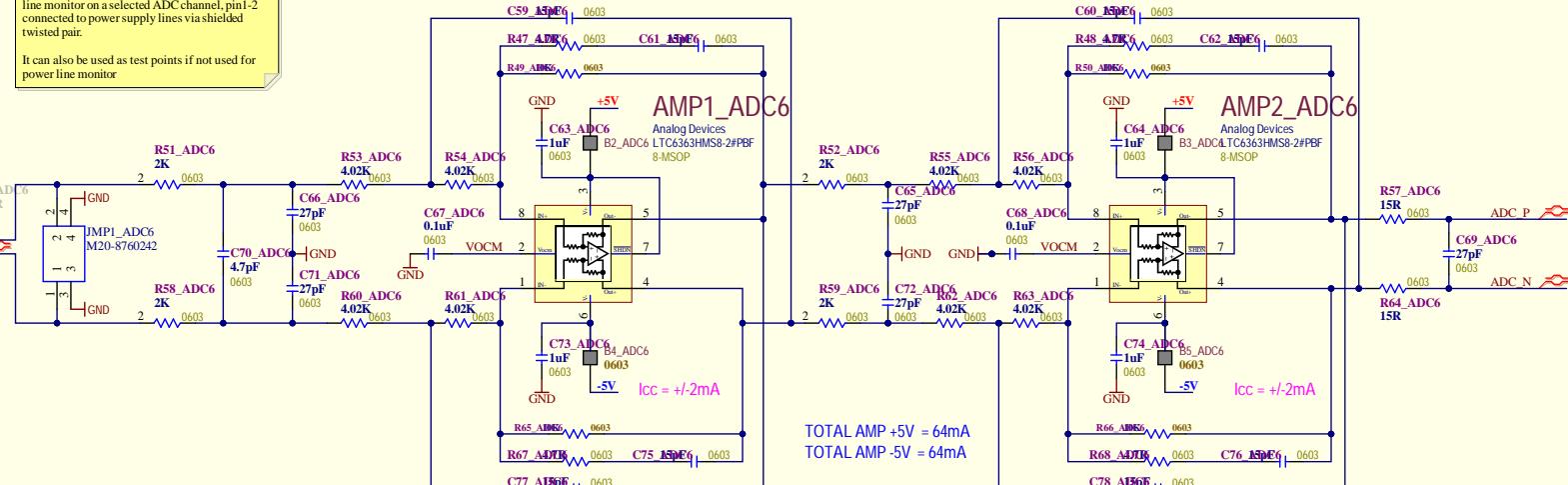
**BNC TWINAX  
footprint compatible  
with single ended BNC  
TE part number:  
1-1478031-0**



Twinax/RG-108A

▲ 4-way 4pin header connector: used as a power line monitor on a selected ADC channel, pin1-2 connected to power supply lines via shielded twisted pair.

It can also be used as test points if not used for power line monitor

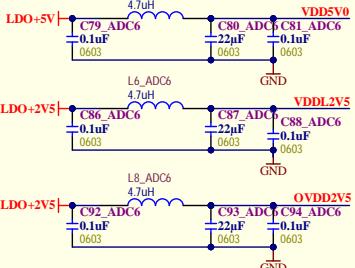


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

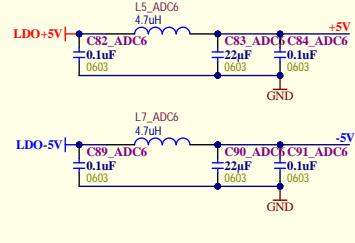
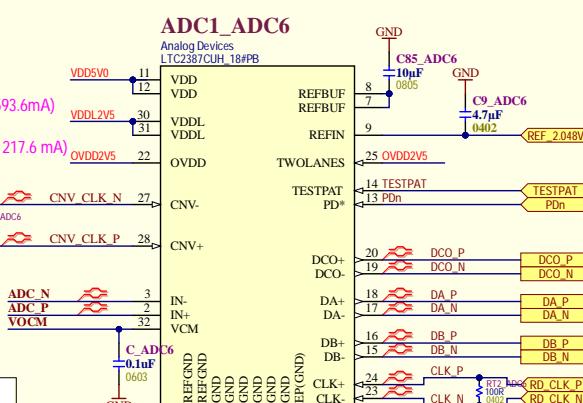
TOTAL POWER = 0.32 + 0.72 + 2.03 = 3.07W



## **POWER REQUIREMENTS**

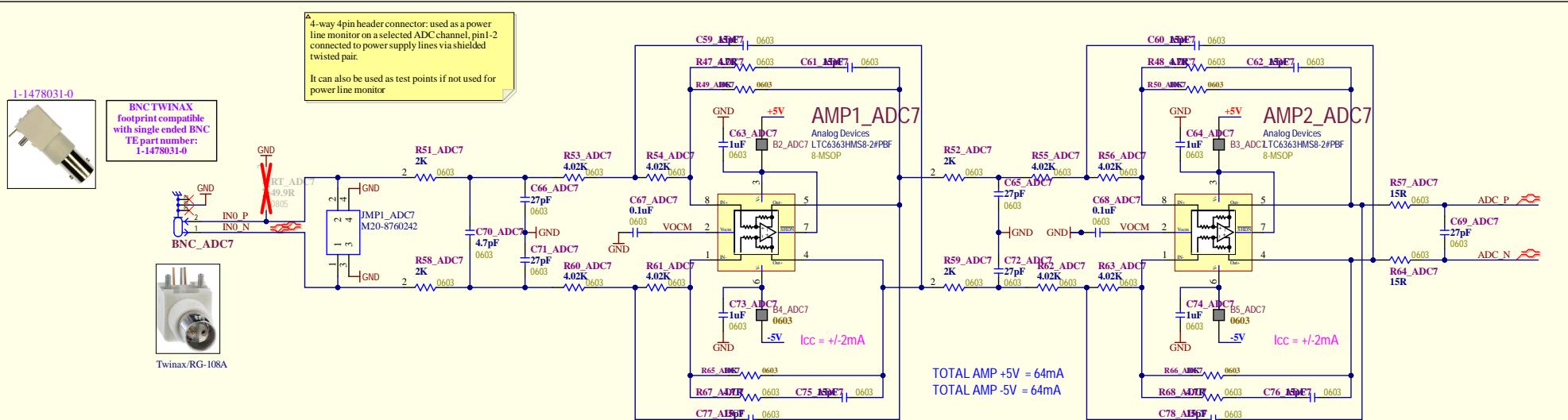
**POWER REQUIREMENTS** The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_{A} = 25^{\circ}\text{C}$ . (Note 5)

Range, otherwise specifications are at $T_A = 25^\circ\text{C}$ . (Note 5)						
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DOL}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$OV_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{VDD}$	Supply Current	15Msps Sample Rate	5	6		mA
$I_{VDDL}$	Supply Current	15Msps Sample Rate	31.4	35		mA
$I_{VDD0}$	Supply Current	15Msps Sample Rate	8.8	10.3		mA
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD}$ )	1	20		$\mu\text{A}$
$I_{POWERDOWN0}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD0} + I_{OVDD}$ )	2	250		$\mu\text{A}$



Single Channel Filter & AD

Revision <b>0</b>	Drawing #: 3 Sheet #: 3 of 16 Size: B Drawn by: JP, DB Date: 7/22/2021	<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2	 <b>University of Manitoba</b>
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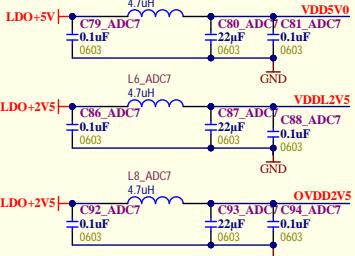


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

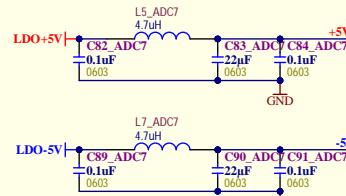
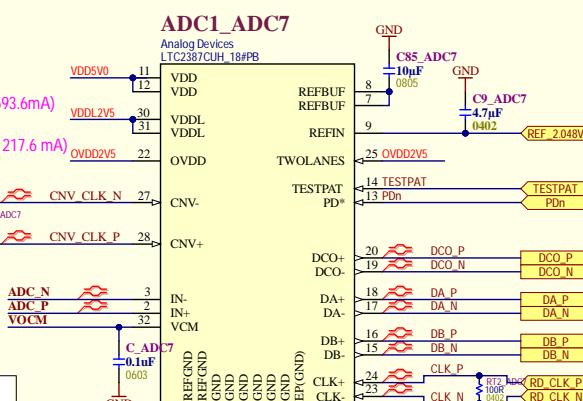
TOTAL POWER =  $0.32 \pm 0.72 \pm 2.03 = 3.07\text{W}$



#### **POWER REQUIREMENTS**

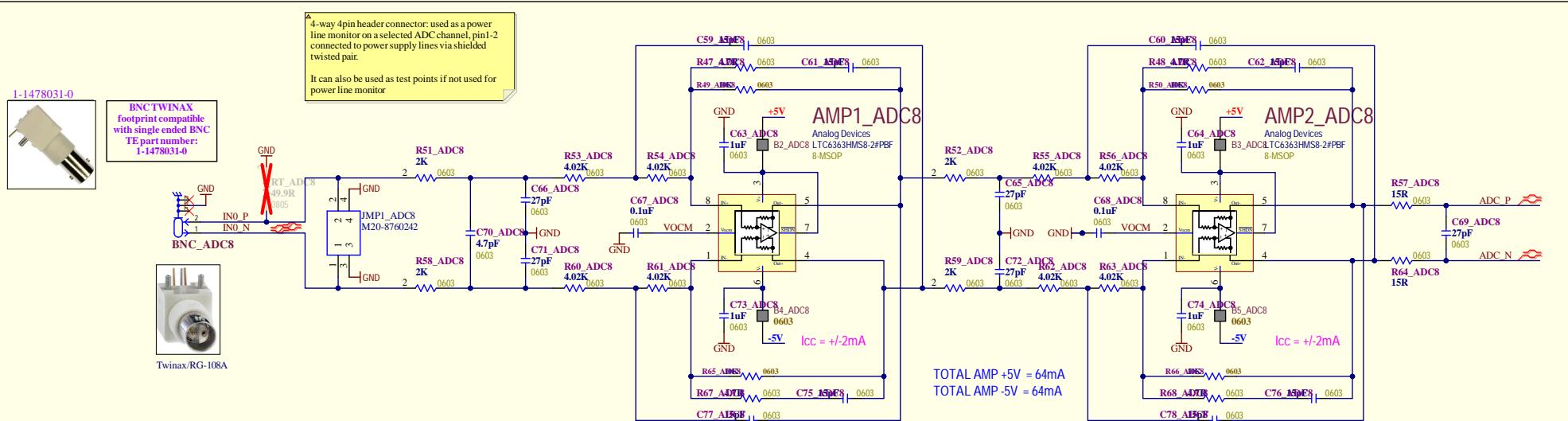
**POWER REQUIREMENTS** The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

range, otherwise specifications are at $T_A = 25^\circ\text{C}$ . (note 5)						
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DOL}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$V_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{DD}$	Supply Current	15Msps Sample Rate	5	6		mA
$I_{DOL}$	Supply Current	15Msps Sample Rate	31.4	35		mA
$I_{DD}$	Supply Current	15Msps Sample Rate	8.8	10.3		mA
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DDP}$ )	1	20		$\mu\text{A}$
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DOLP} + V_{DDP}$ )	2	250		$\mu\text{A}$



Single Channel Filter & ADC

Revision <b>0</b>	Drawing #:	3	<i>University of Manitoba</i>
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	Size:	B	Canada
Drawn by:	JP, DB	Date:	7/22/2021
Flo.:	Ground	Comp.:	Architectural

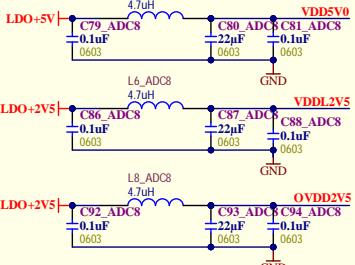


TOTAL  $\pm 5V$  (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

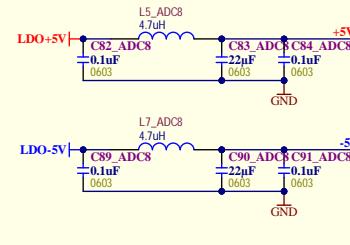
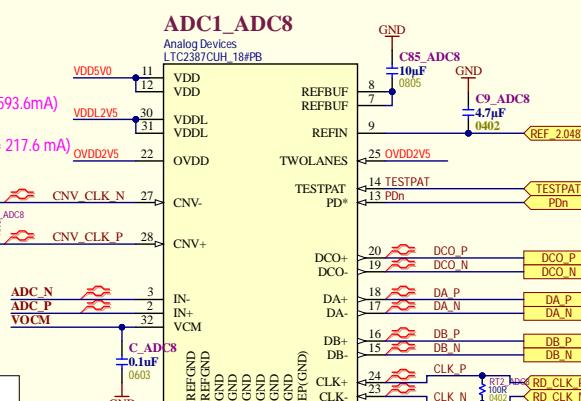
TOTAL POWER =  $0.32 \pm 0.72 \pm 2.03 = 3.07$



## **POWER REQUIREMENTS**

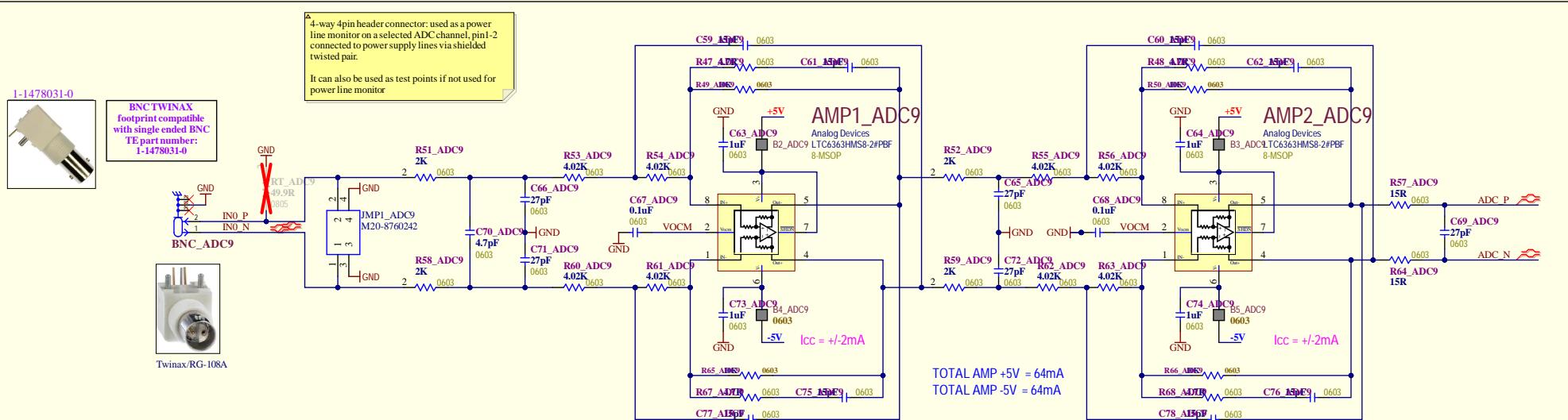
The  $\bullet$  denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$OV_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{VDD}$	Supply Current	15Msps Sample Rate	5	6	6	mA
$I_{VDDL}$	Supply Current	15Msps Sample Rate	31.4	35	35	mA
$I_{VDD}$	Supply Current	15Msps Sample Rate	8.8	10.3	10.3	mA
$I_{PDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DDP}$ )	1	20	20	µA
$I_{PDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DDP} + I_{VDDP}$ )	2	250	250	µA



Single Channel Filter & AD

Revision <b>O</b>	Drawing #: 3 Sheet #: 3 of 16 Size: B Drawn by: JP; DB Date: 7/22/2021	<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2	 <b>University of Manitoba</b>
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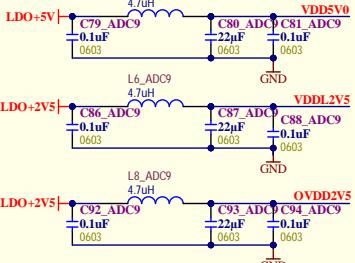


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

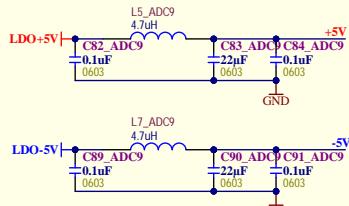
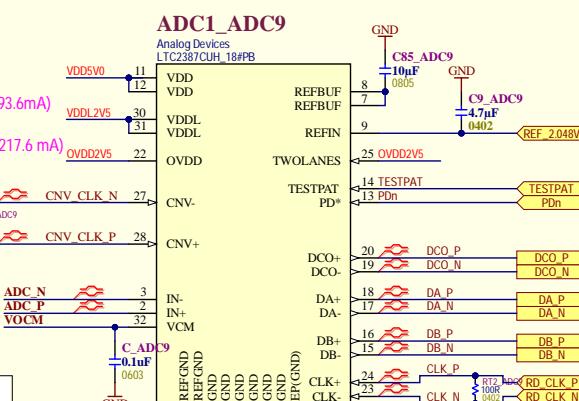
TOTAL POWER =  $0.32 \pm 0.72 \pm 2.03 = 3.07\text{W}$



## **POWER REQUIREMENTS**

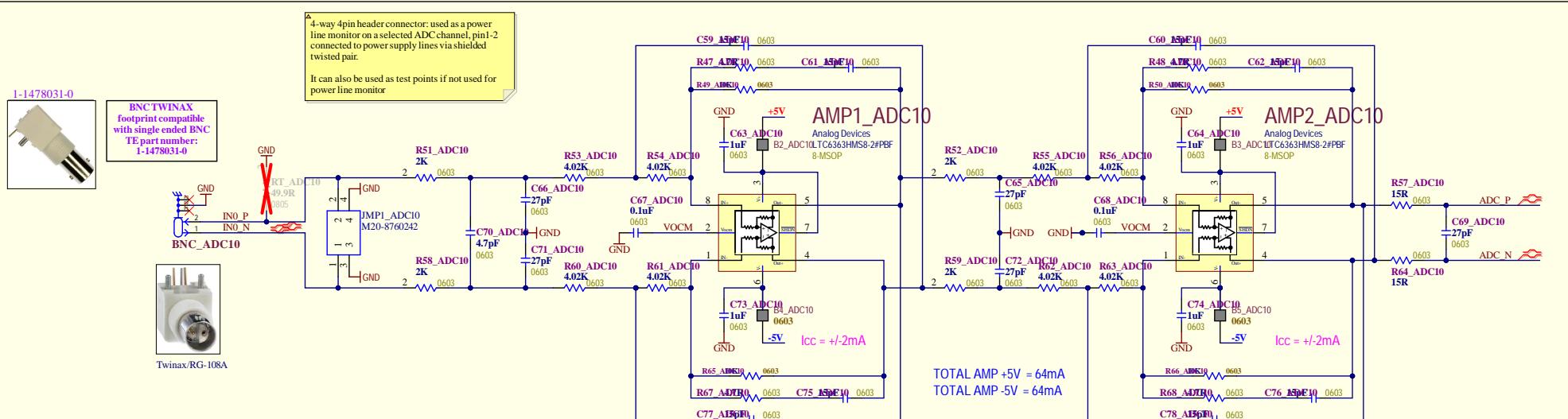
**Power Requirements** The  $\bullet$  denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V <sub>D0</sub>	Supply Voltage	(Note 6)	4.75	5	5.25	V
V <sub>DOL</sub>	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
O <sub>VDD</sub>	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
I <sub>D0</sub>	Supply Current	15Msps Sample Rate	5	6	mA	
I <sub>DOL</sub>	Supply Current	15Msps Sample Rate	31.4	35	mA	
I <sub>D0VDD</sub>	Supply Current	15Msps Sample Rate	8.8	10.3	mA	
I <sub>PDOWN0</sub>	Power-Down Mode Current	Power-Down Mode (I <sub>VDD</sub> )	1	20	μA	
I <sub>PDOWN0</sub>	Power-Down Mode Current	Power-Down Mode (I <sub>VDD</sub> + I <sub>VDDOL</sub> )	2	250	μA	



*Single Channel Filter & ADC*

Revision <b>O</b>	Drawing #: 3	<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2	 University of Manitoba
	Sheet #: 3 of 16   Size: B		
	Drawn by: JP,DB   Date: 7/22/2021		

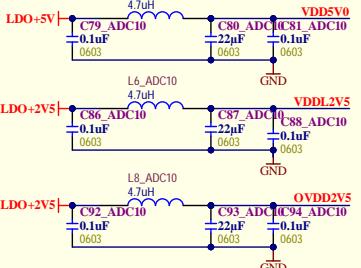


TOTAL  $\pm 5V$  (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

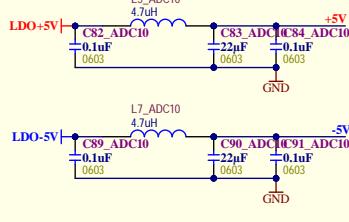
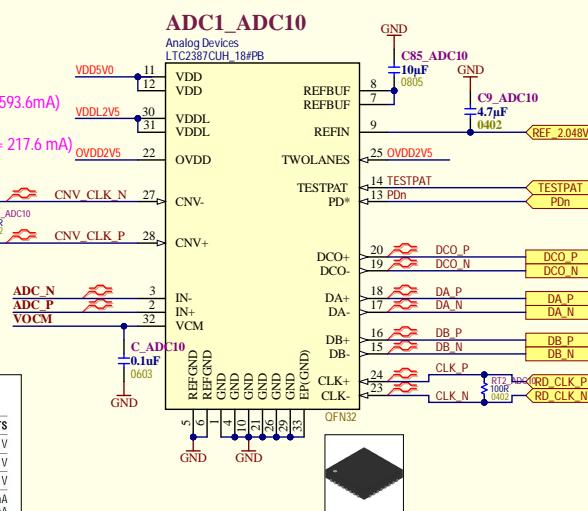
TOTAL POWER =  $0.32 + 0.72 + 2.03 = 3.07\text{W}$



## **POWER REQUIREMENTS**

The  $\bullet$  denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

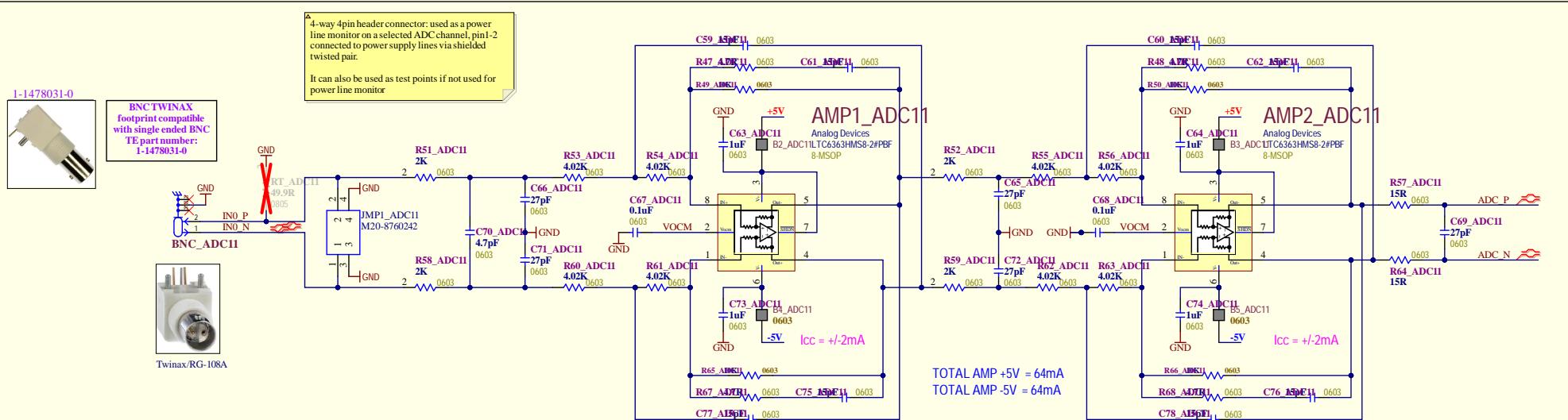
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$IV_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{VDD}$	Supply Current	15Msps Sample Rate	5	6	mA	
$I_{VDDL}$	Supply Current	15Msps Sample Rate	31.4	35	mA	
$I_{VDD}$	Supply Current	15Msps Sample Rate	8.8	10.3	mA	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD} = 1.25$ )	1	20	μA	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD} = 1.0VDD_0$ )	2	250	μA	



*Single Channel Filter & AD*

Revision <b>0</b>	Drawing #: 3	<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2		<i>University of Manitoba</i>
Sheet #: 3 of 16	Size: B			
Drawn by: JP, DB	Date: 7/22/2021			

File: C:\Users\CM\OneDrive - MOL\2021-22\MOLE\15\_Charter, ADC and Forest Fort\01-Charter\01-Charter.dwg Date: 07/22/2021

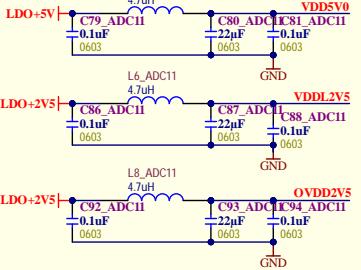


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

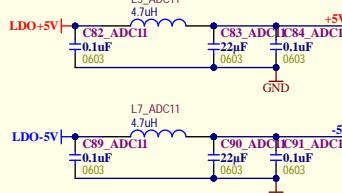
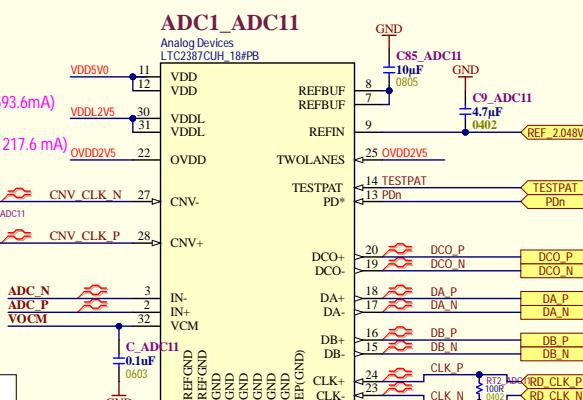
$$\text{TOTAL POWER} = 0.32 + 0.72 + 2.03 = 3.07\text{W}$$



## **POWER REQUIREMENTS**

**Touch Requirements** The  $\bullet$  denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$IV_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{VDD}$	Supply Current	15Msps Sample Rate	5	6	mA	
$I_{VDDL}$	Supply Current	15Msps Sample Rate	31.4	35	mA	
$I_{VDD}$	Supply Current	15Msps Sample Rate	8.8	10.3	mA	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD} = 1.25$ )	1	20	μA	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD} = 1.0VDD_0$ )	2	250	μA	



*Single Channel Filter & ADC*

Revision <b>O</b>	Drawing #: 3	<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2	 University of Manitoba
	Sheet #: 3 of 16   Size: B		
	Drawn by: JP,DB   Date: 7/22/2021		



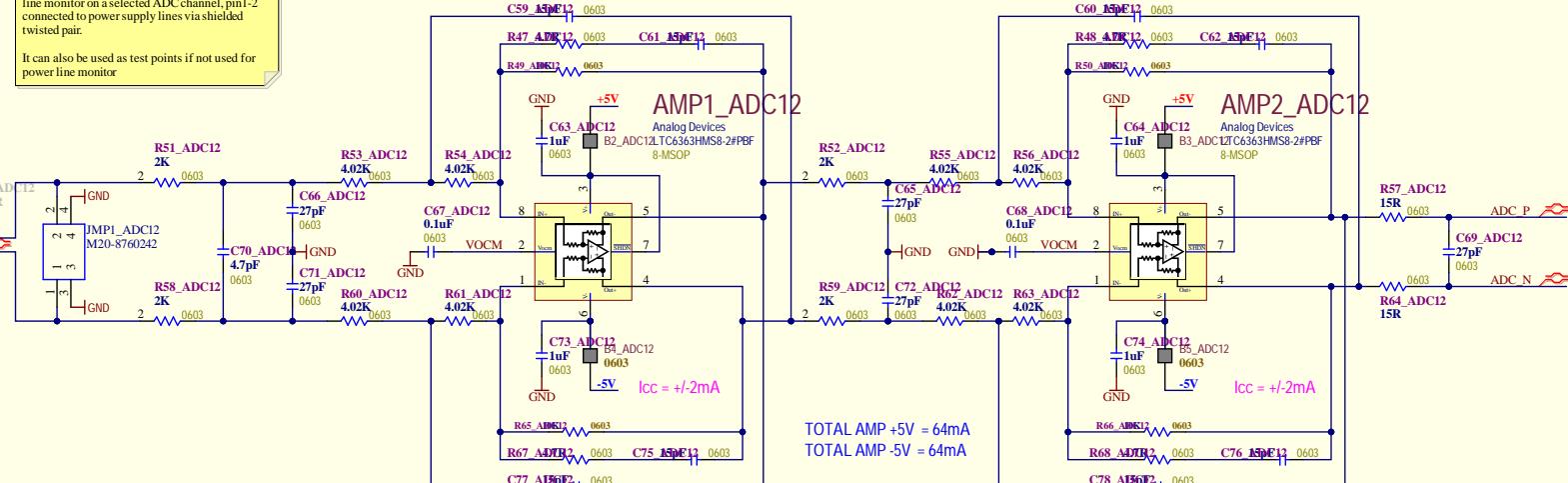
**BNCTWINAX**  
footprint compatible  
with single ended BNC  
TE part number:  
**1-1478031-0**



Twinax/RG-108A

▲ 4-way 4pin header connector: used as a power line monitor on a selected ADC channel, pin1-2 connected to power supply lines via shielded twisted pair

It can also be used as test points if not used for power line monitor

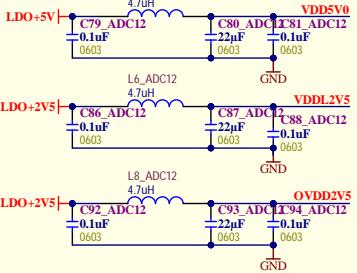


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

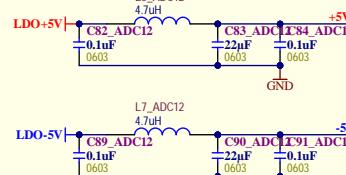
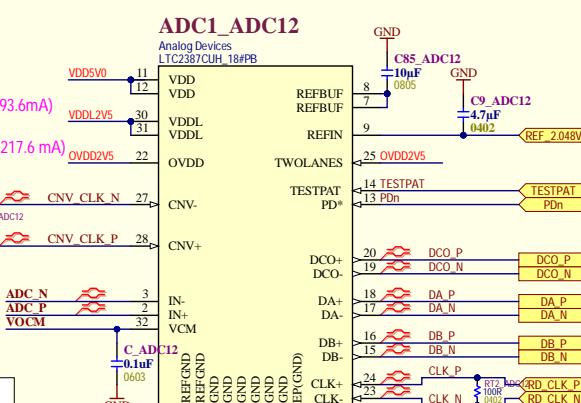
TOTAL POWER = 0.32 + 0.72 + 2.03 = 3.07W



## **POWER REQUIREMENTS**

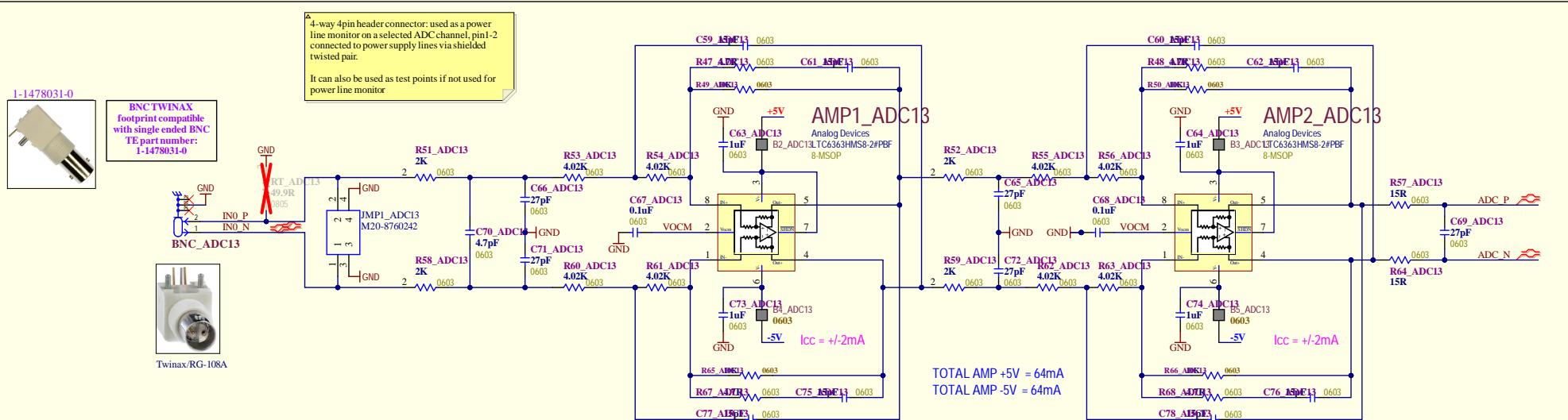
**POWER REQUIREMENTS** The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$  (Note 5)

Range, otherwise specifications are at $T_A = 25^\circ\text{C}$ . (Note 5)						
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DOL}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$OV_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{VDD}$	Supply Current	15Msps Sample Rate	5	6		mA
$I_{VDDL}$	Supply Current	15Msps Sample Rate	31.4	35		mA
$I_{VDD}$	Supply Current	15Msps Sample Rate	8.8	10.3		mA
$POWERDOWN$	Power-Down Mode Current	Power-Down Mode ( $V_{DD}$ )	1	20		$\mu\text{A}$
$POWERDOWN$	Power-Down Mode Current	Power-Down Mode ( $V_{DD} + I_{OVDD}$ )	2	250		$\mu\text{A}$



*Single Channel Filter & AD*

Revision <b>0</b>	Drawing #:	3	<i>University of Manitoba</i>
	Sheet #:	3 of 16	Winnipeg, MB
	Size:	B	Canada
Drawn by:	JP, DB	Date:	7/22/2021
Flo.:	Ground	Comp.:	Architectural

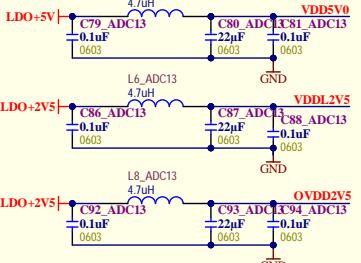


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

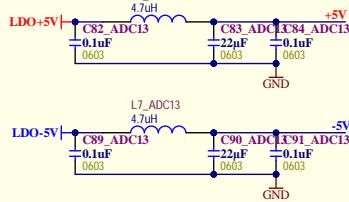
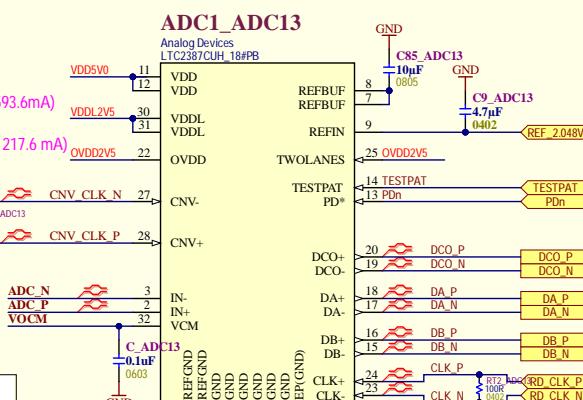
$$\text{TOTAL POWER} = 0.32 + 0.72 + 2.03 = 3.07\text{W}$$



## **POWER REQUIREMENTS**

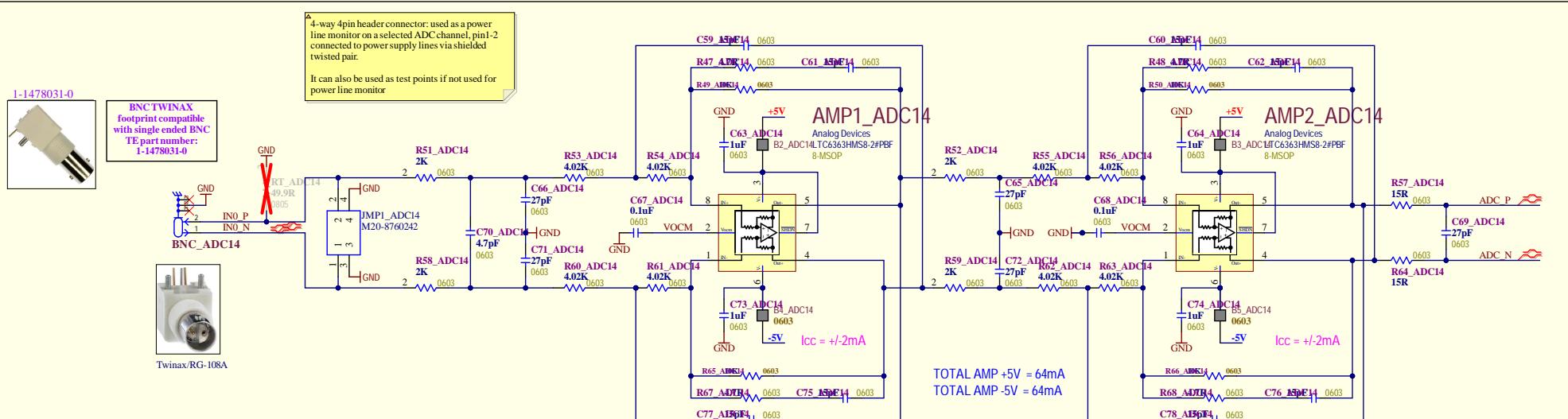
**Touch Requirements** The  $\bullet$  denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$IV_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{VDD}$	Supply Current	15Msps Sample Rate	5	6	mA	
$I_{VDDL}$	Supply Current	15Msps Sample Rate	31.4	35	mA	
$I_{VDD}$	Supply Current	15Msps Sample Rate	8.8	10.3	mA	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD}$ )	1	20	μA	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD} + I_{VDDP}$ )	2	250	μA	



*Single Channel Filter & ADC*

Revision <b>O</b>	Drawing #: 3	<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2	 University of Manitoba
	Sheet #: 3 of 16   Size: B		
	Drawn by: JP,DB   Date: 7/22/2021		

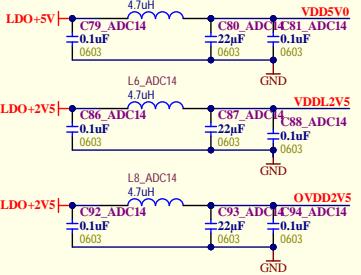


TOTAL  $\pm 5V$  (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

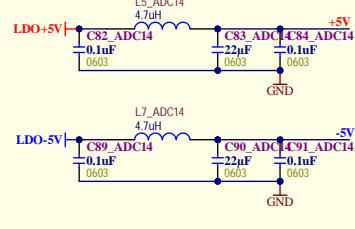
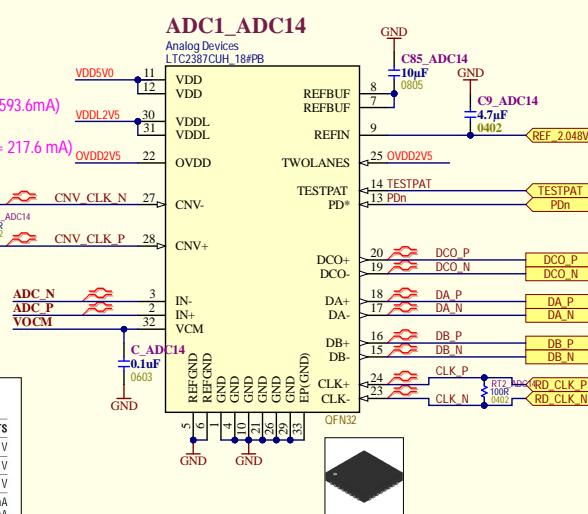
TOTAL POWER = 0.32 + 0.72 + 2.03 = 3.07W



## **POWER REQUIREMENTS**

The  $\bullet$  denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$IV_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{VDD}$	Supply Current	15Msps Sample Rate	5	6	mA	
$I_{VDDL}$	Supply Current	15Msps Sample Rate	31.4	35	mA	
$I_{VDD}$	Supply Current	15Msps Sample Rate	8.8	10.3	mA	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD} = 1.0V$ )	1	20	μA	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD} = 1.0VDD$ )	2	250	μA	



*Single Channel Filter & AD*

Revision <b>0</b>	Drawing #: 3	<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2	 University of Manitoba
Sheet #: 3 of 16	Size: B		
Drawn by: JP, DB	Date: 7/22/2021		

File: C:\Users\CM\OneDrive - MOLY-16\1-Chemical ADC and Fossil Fuel Projects\3-D\3D-123.DWG



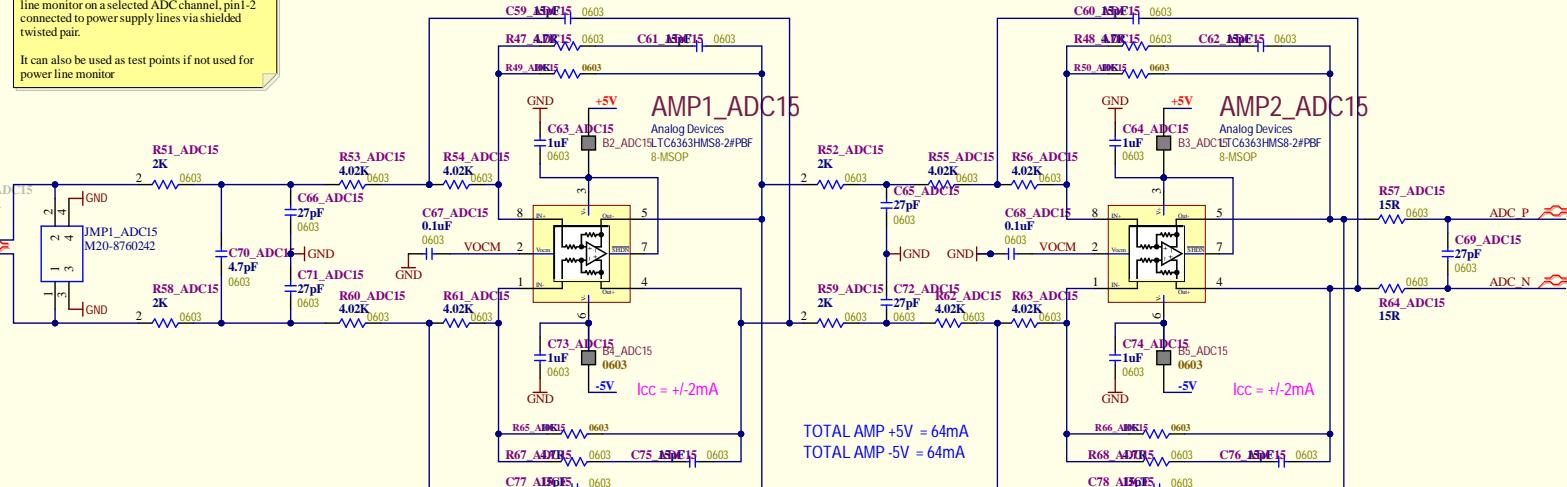
**BNCTWINAX  
footprint compatible  
with single ended BNC  
TE part number:  
1-1478031-0**



Twinax/RG-108A

▲ 4-way 4pin header connector: used as a power line monitor on a selected ADC channel, pin1-2 connected to power supply lines via shielded twisted pair

It can also be used as test points if not used for power line monitor

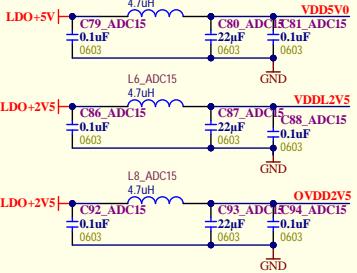


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

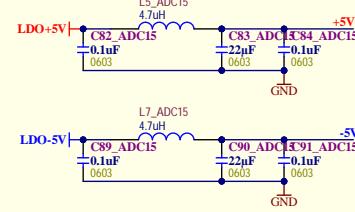
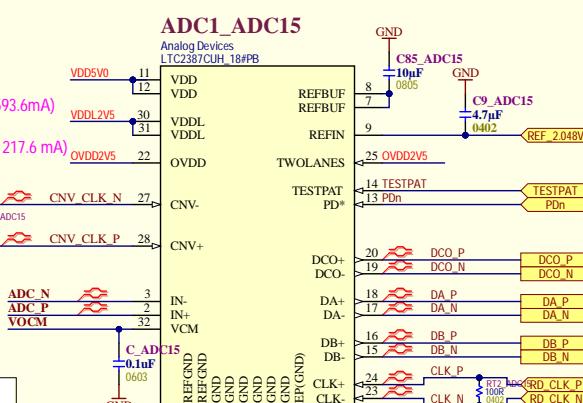
TOTAL POWER =  $0.32 \pm 0.72 \pm 2.03 = 3.07\text{W}$



## **POWER REQUIREMENTS**

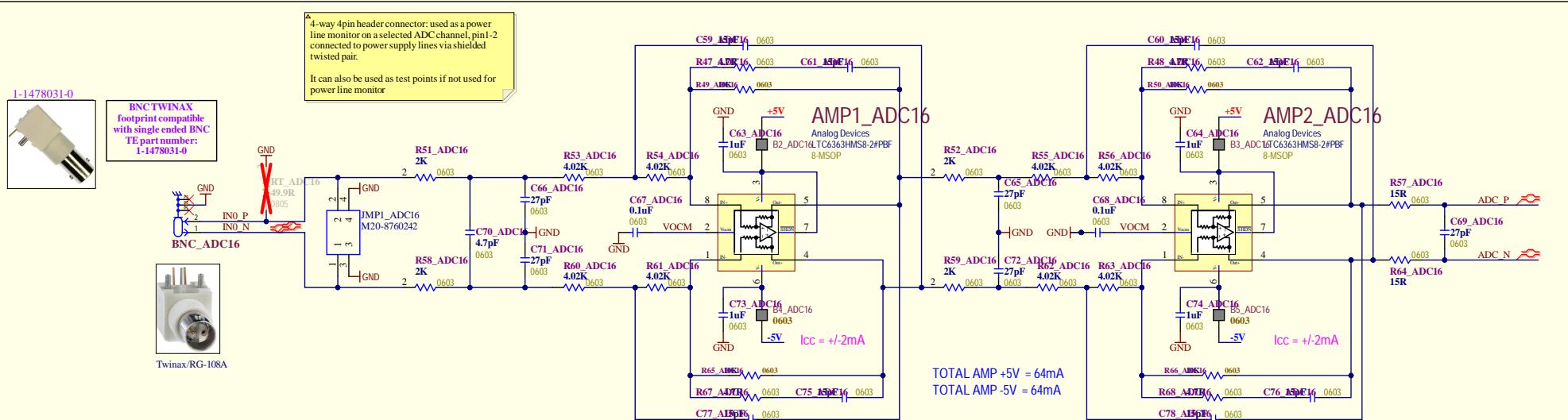
**POWER REQUIREMENTS** The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = -25^\circ\text{C}$ . (Note 5)

range, otherwise specifications are at $T_A = 25^\circ\text{C}$ . (Note 5)						
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DOL}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$V_{OOL}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{VDD}$	Supply Current	15Mps Sample Rate	5	6	mA	
$I_{VDSL}$	Supply Current	15Mps Sample Rate	31.4	35	mA	
$I_{VOOL}$	Supply Current	15Mps Sample Rate	8.8	10.3	mA	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DDP}$ )	1	20	$\mu\text{A}$	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DDP} + V_{OOL}$ )	2	250	$\mu\text{A}$	



Single Channel Filter & AD

Revision <b>O</b>	Drawing #: 3 Sheet #: 3 of 16 Drawn by: JP, DB	<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2	 University of Manitoba
		Date: 7/22/2021	

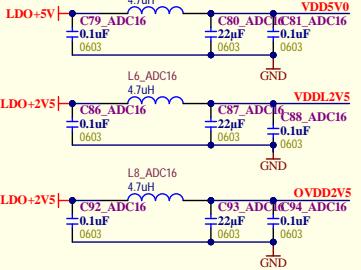


TOTAL +5V (AMP + ADC) = 144mA

TOTAL -5V (AMP) = -64mA

TOTAL 2.5V (ADC) = 811.2mA

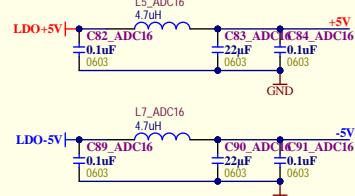
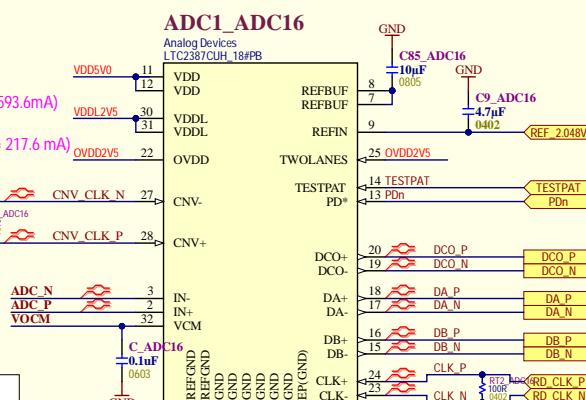
TOTAL POWER =  $0.32 \pm 0.72 \pm 2.03 = 3.07\text{W}$



## **POWER REQUIREMENTS**

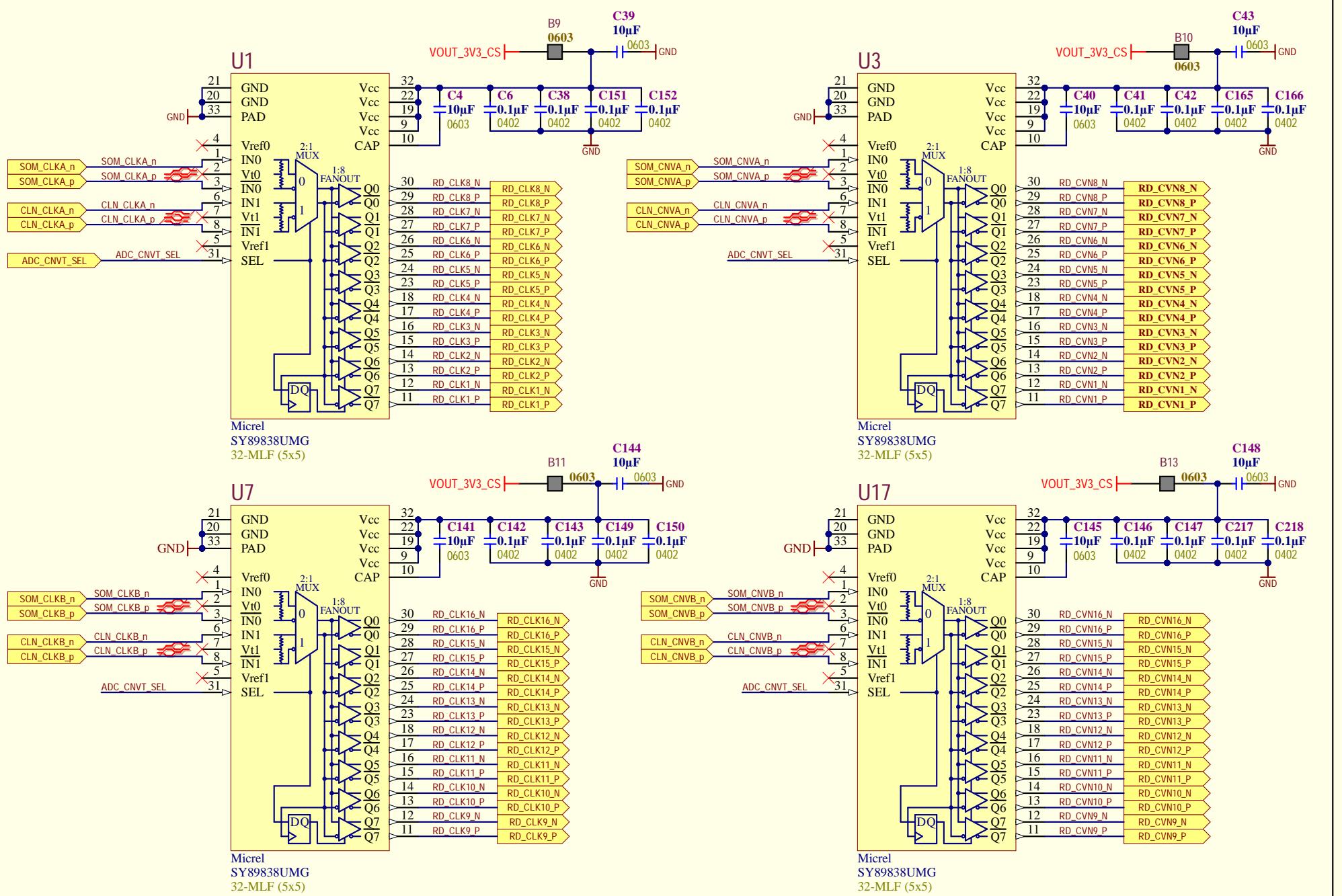
**Touch Requirements** The  $\bullet$  denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ . (Note 5)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
$V_{DD}$	Supply Voltage	(Note 6)	4.75	5	5.25	V
$V_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$IV_{DD}$	Supply Voltage	(Note 6)	2.375	2.5	2.625	V
$I_{VDD}$	Supply Current	15Msps Sample Rate	5	6	mA	
$I_{VDDL}$	Supply Current	15Msps Sample Rate	31.4	35	mA	
$I_{VDD}$	Supply Current	15Msps Sample Rate	8.8	10.3	mA	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD}$ )	1	20	μA	
$I_{POWERDOWN}$	Power-Down Mode Current	Power-Down Mode ( $V_{DD} + I_{VDDP}$ )	2	250	μA	



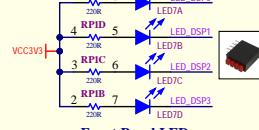
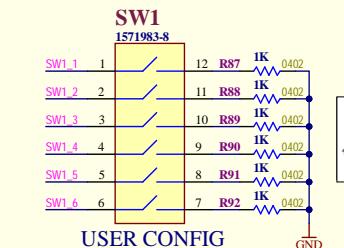
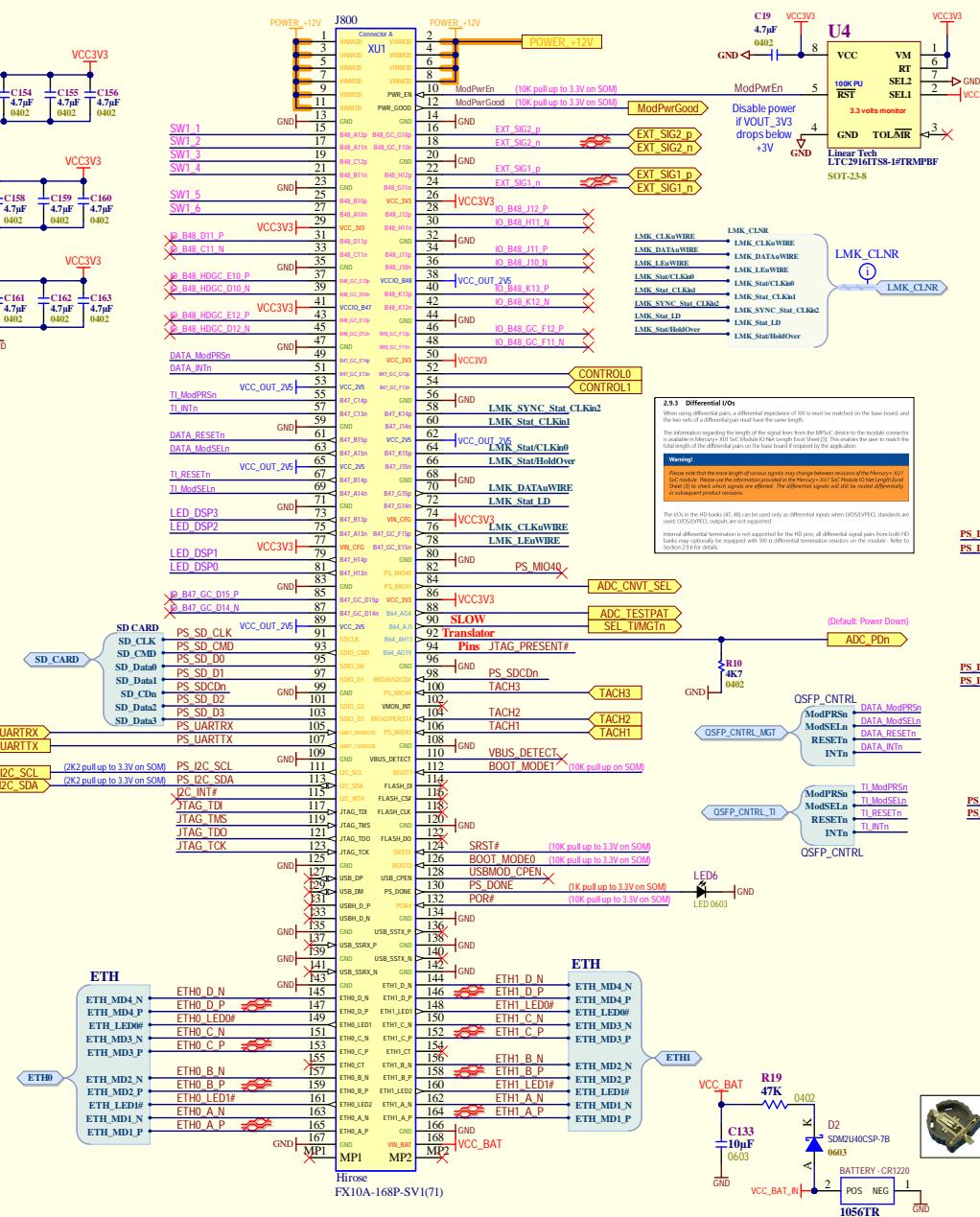
*Single Channel Filter & ADC*

Revision <b>0</b>	Drawing #:	3	<i>University of Manitoba</i>
	Sheet #:	3 of 16	Winnipeg, MB
	Size:	B	Canada
Drawn by:	JP, DB	Date:	7/22/2021
Flo.:	Ground	Comp.:	Architectural

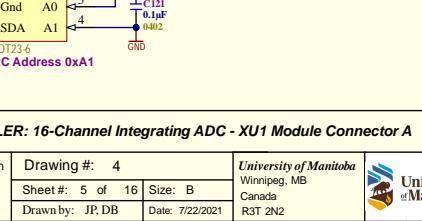
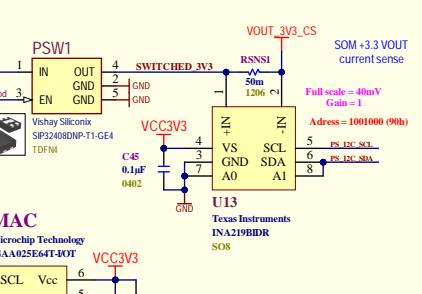
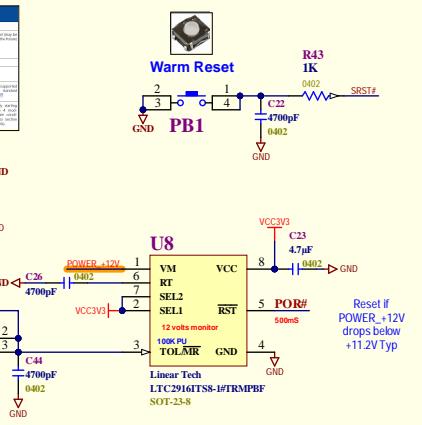
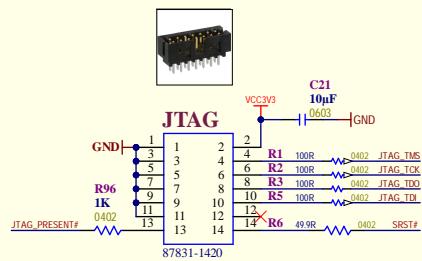
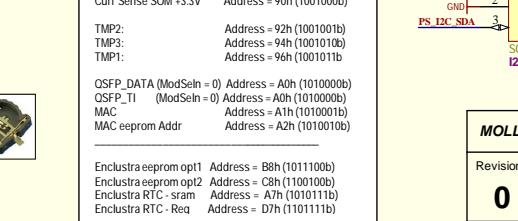
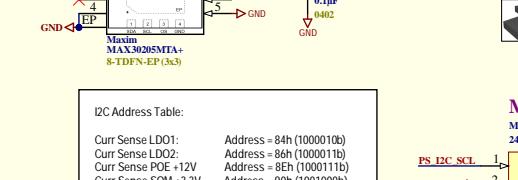
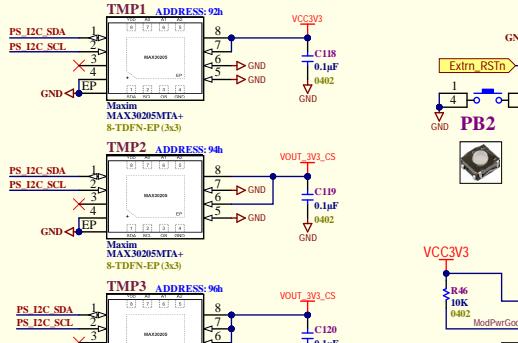


#### MOLLER: 16-Channel Integrating ADC - Clock and Convert Buffers

Revision	Drawing #:	8	University of Manitoba
0	Sheet #:	4 of 16	Winnipeg, MB
		Size: A	Canada
	Drawn by:	JP, DB	R3T 2N2
	Date:	7/22/2021	



Book	Sheet	PYING	INF	Mark	Description	Notes/Ref
Model	Model			Series	(EWS)	
C	1			CEW	From Intel Data Pack	
C	1	1		CEW	From Intel - 12 Card with 1 external port and 1 internal port only. (ACPI, WOL, PCIe, S-ATA, SAS)	Not supported by legacy BIOS
C	0	1		CEW	From C2D Ram	
C	1	1		CEW	From C2D Ram (not tested)	
T	1	0		888	WHD-based model	No BIOS
T	0	-		0000	EMC based model	Another version of the WHD model also in work but not finished

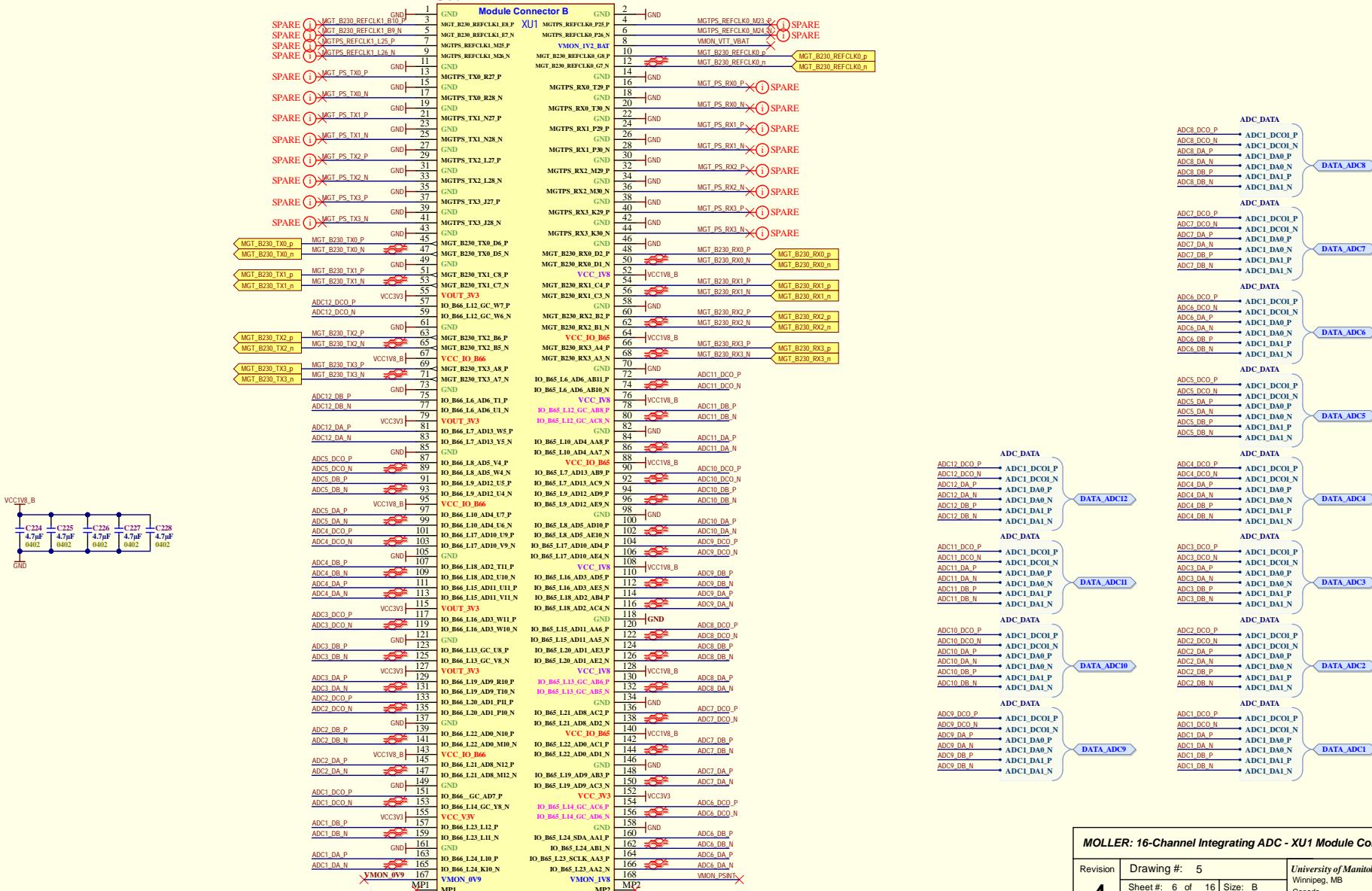


MOLLER: 16-Channel Integrating ADC - XU1 Module Connector A

Revision <b>0</b>	Drawing #: 4	<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2	 Uni of Ma
Sheet #:	5 of 16	Size: B	
Drawn by:	JP, DB	Date: 7/22/2021	

# Mercury Module Connector B

J801 FX10A-168P-SV1(7)

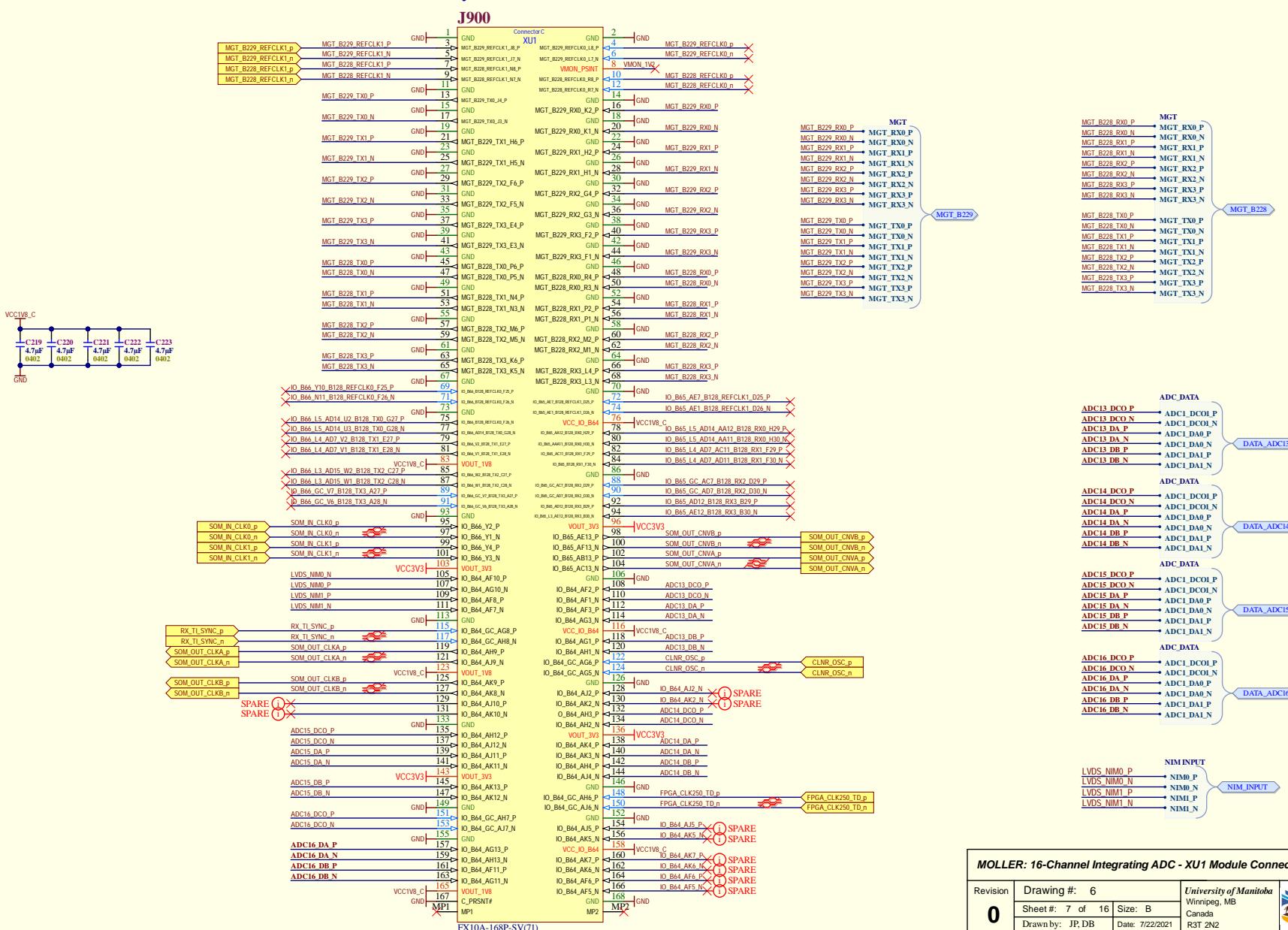


MOLLER: 16-Channel Integrating ADC - XU1 Module Connector B

Revision	Drawing #:	5	University of Manitoba Winnipeg, MB Canada R3T 2N2
4	Sheet #: 6 of 16	Size: B	Date: 7/22/2021

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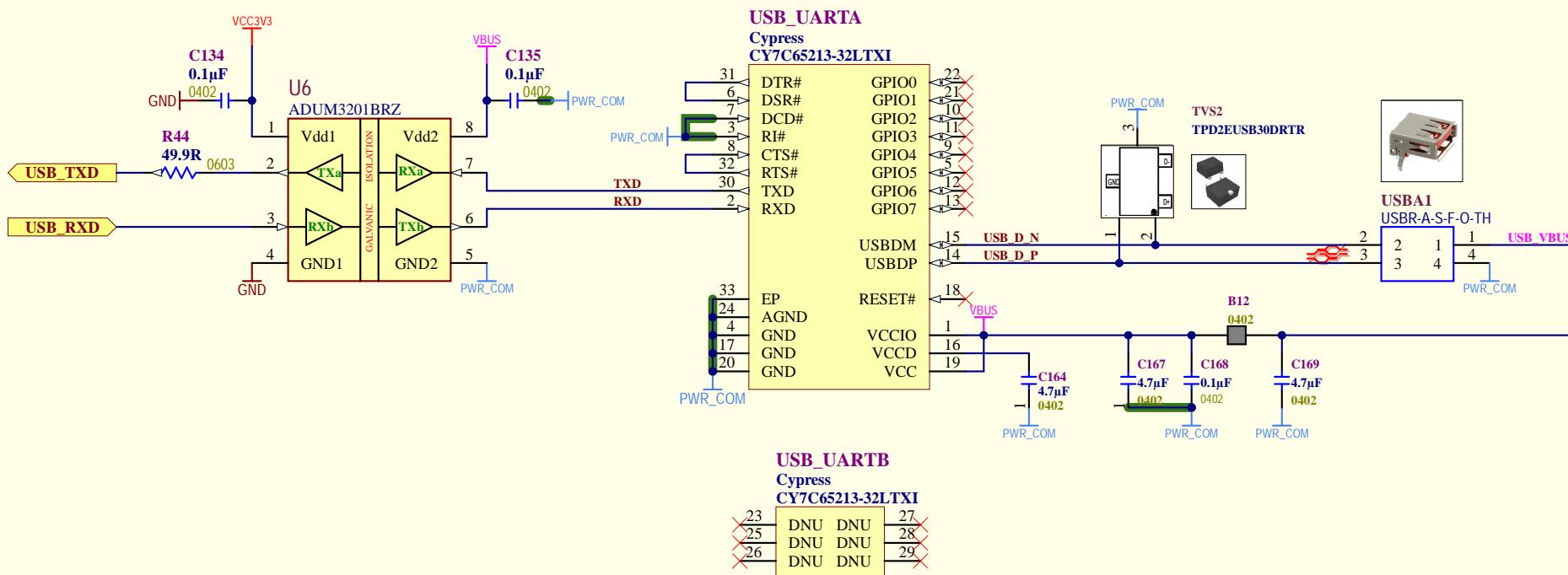
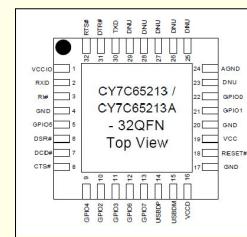
# Mercury Module Connector C



**MOLLER: 16-Channel Integrating ADC - XU1 Module Connector C**

Revision	Drawing #:	6	University of Manitoba Winnipeg, MB Canada R3T 2N2
0	Sheet #: 7 of 16	Size: B	
	Drawn by: JP; DB	Date: 7/22/2021	

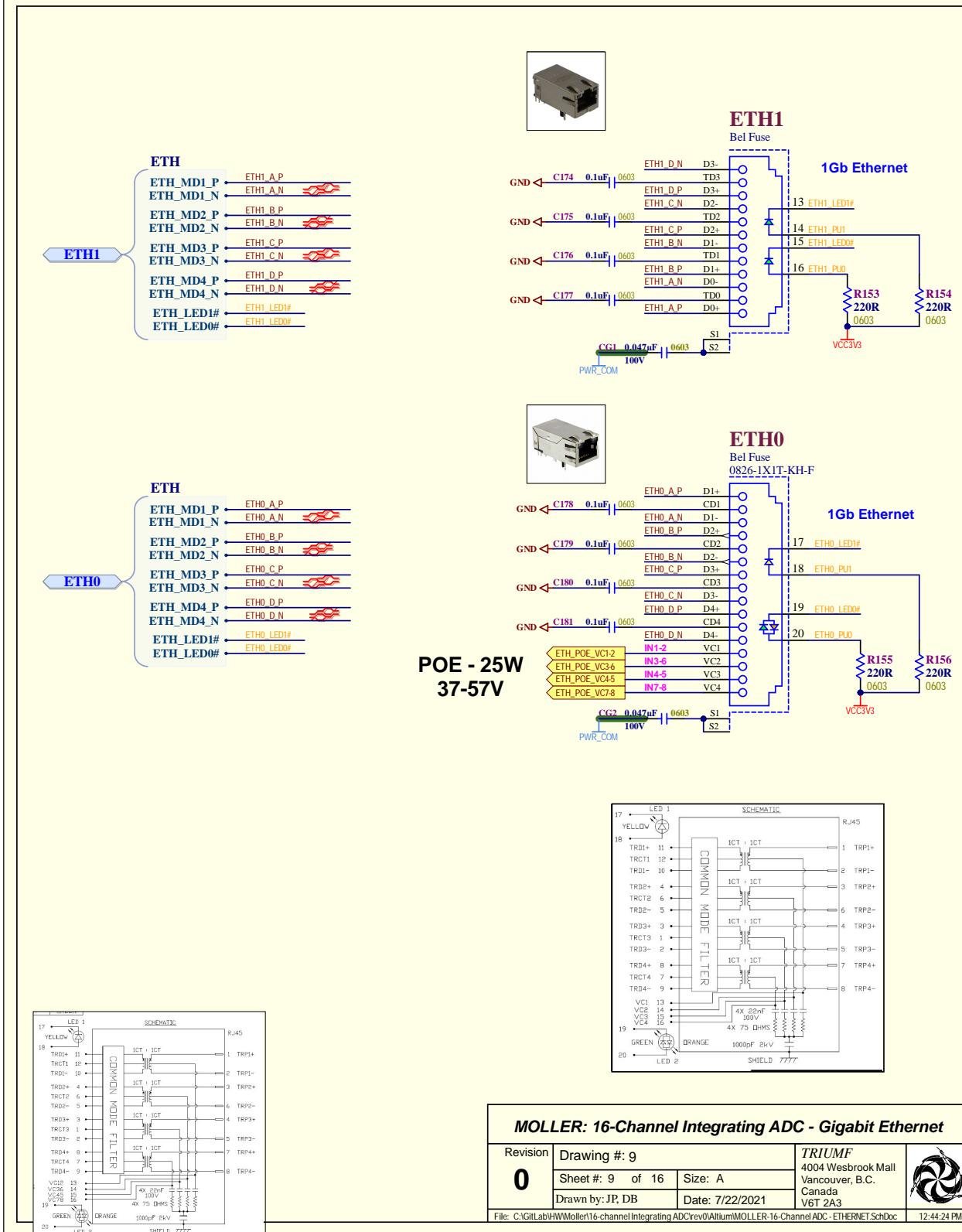
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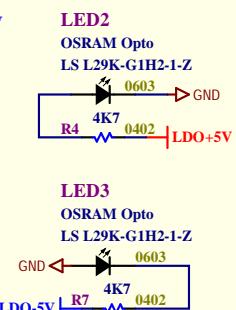
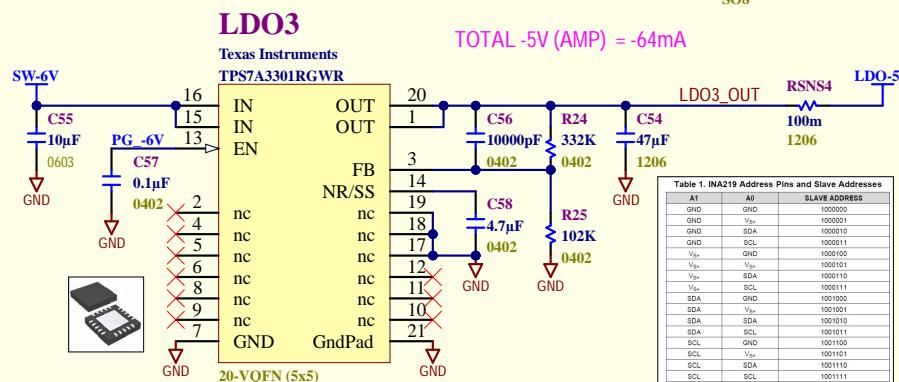
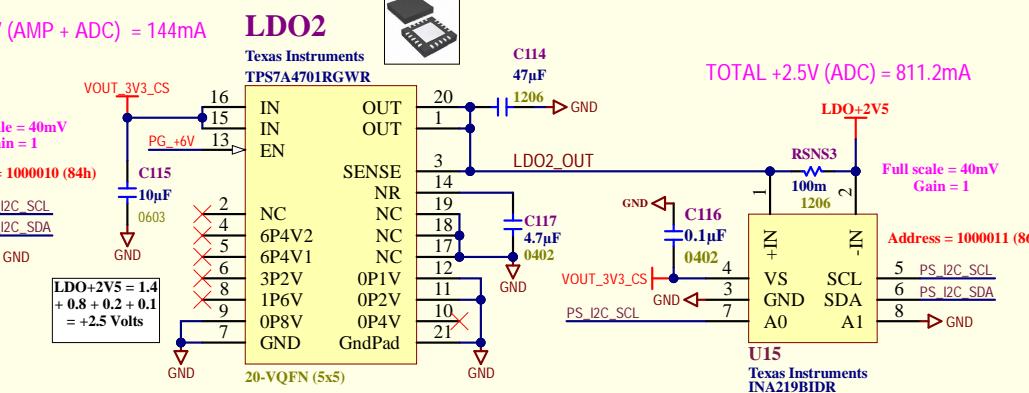
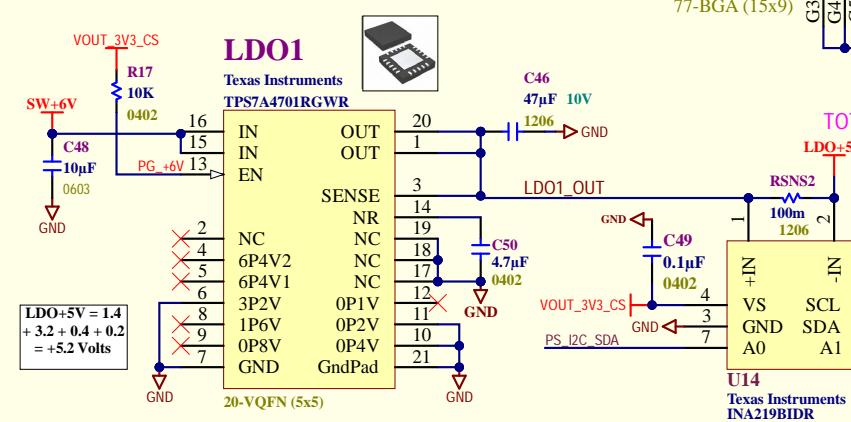
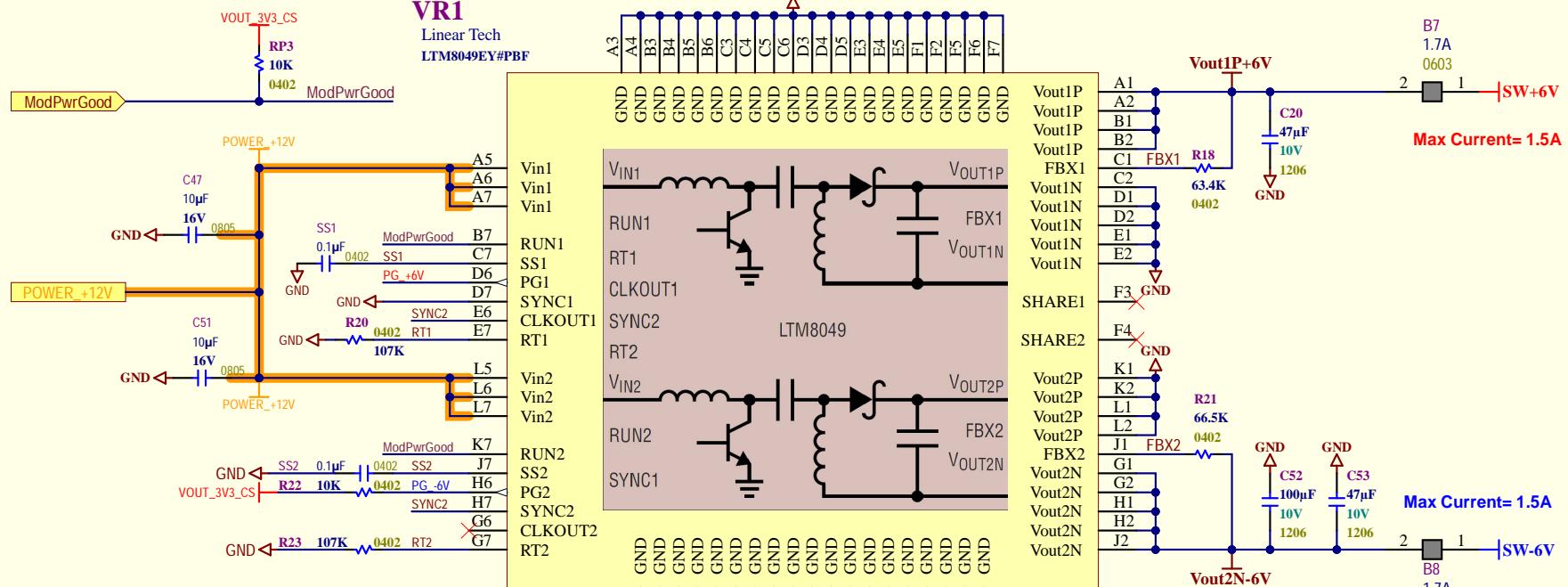


#### MOLLER: 16-Channel Integrating ADC - USB UART

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	Drawn by:	JP, DB	Date: 7/22/2021

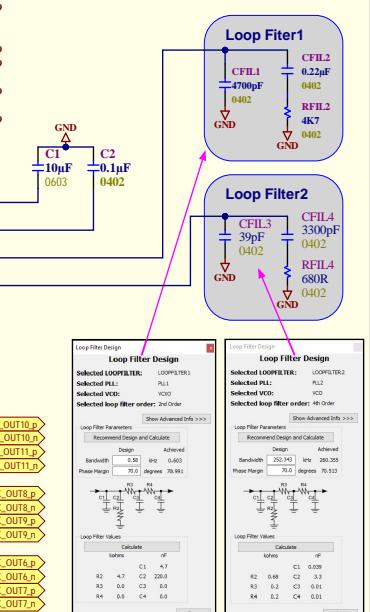
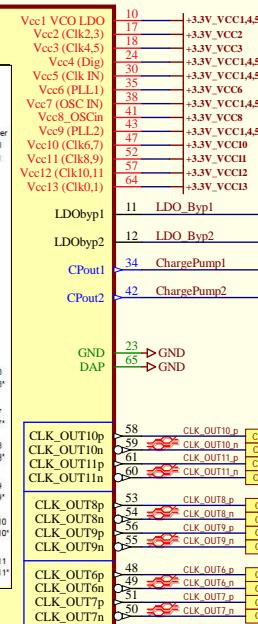
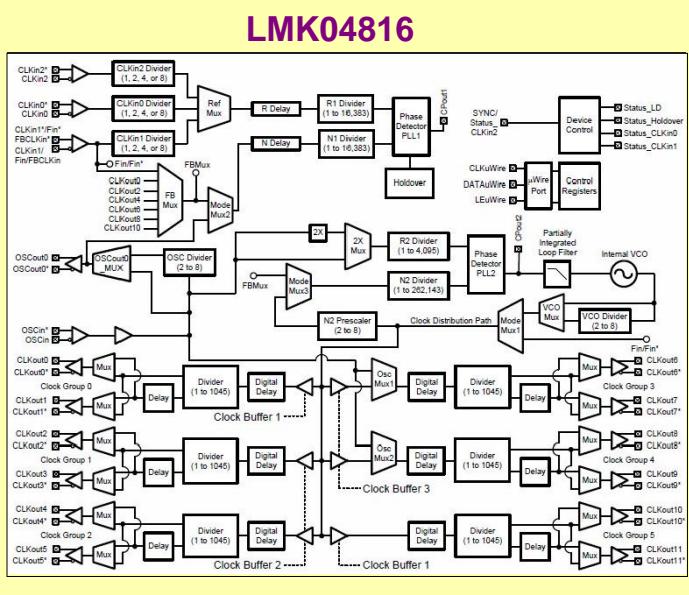
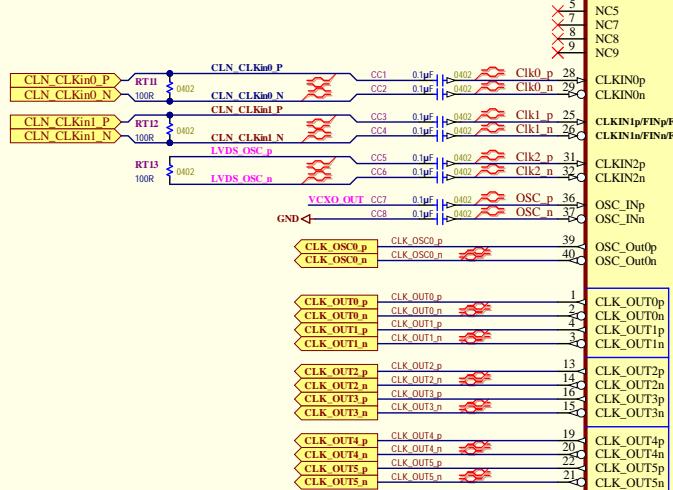
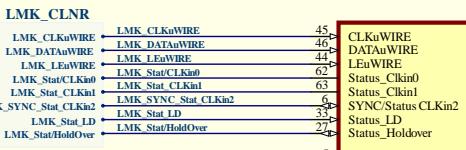




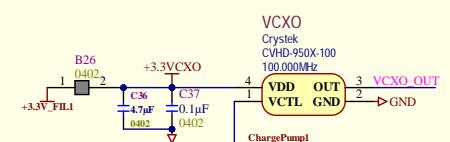
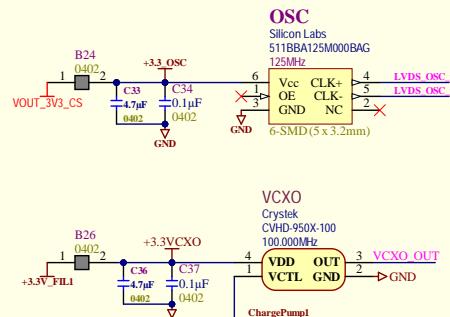
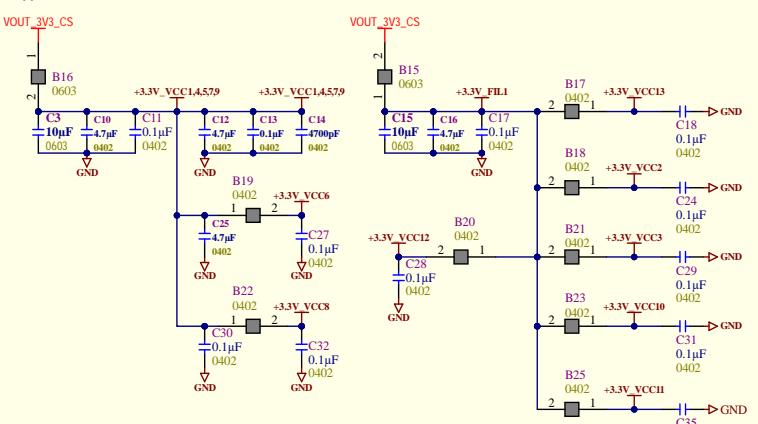


### MOLLER: 16-Channel Integrating ADC - Power Regulators

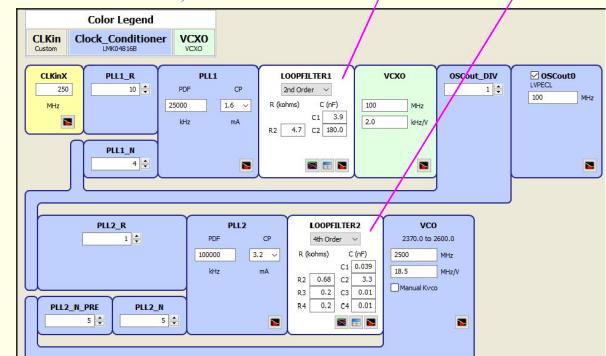
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	Date:	7/22/2021	
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Current approx 550mA

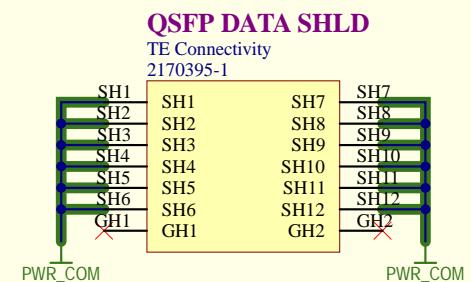
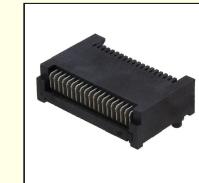
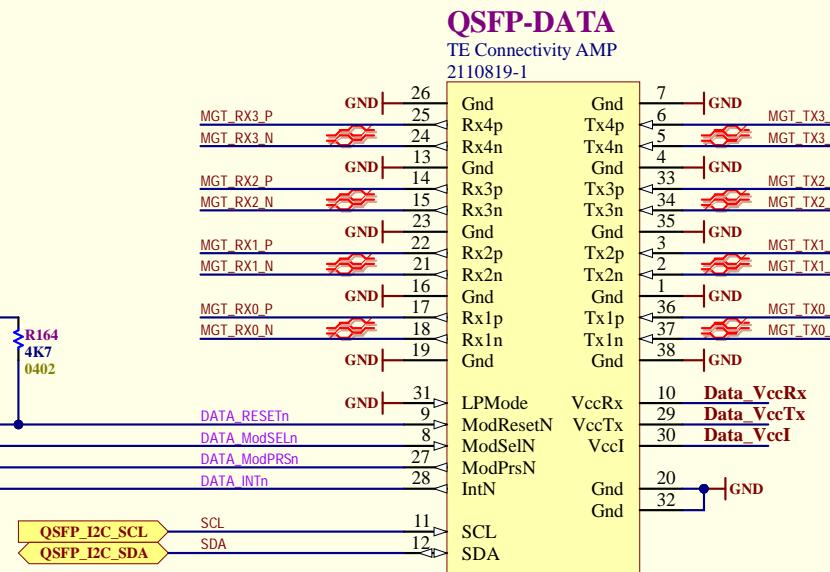
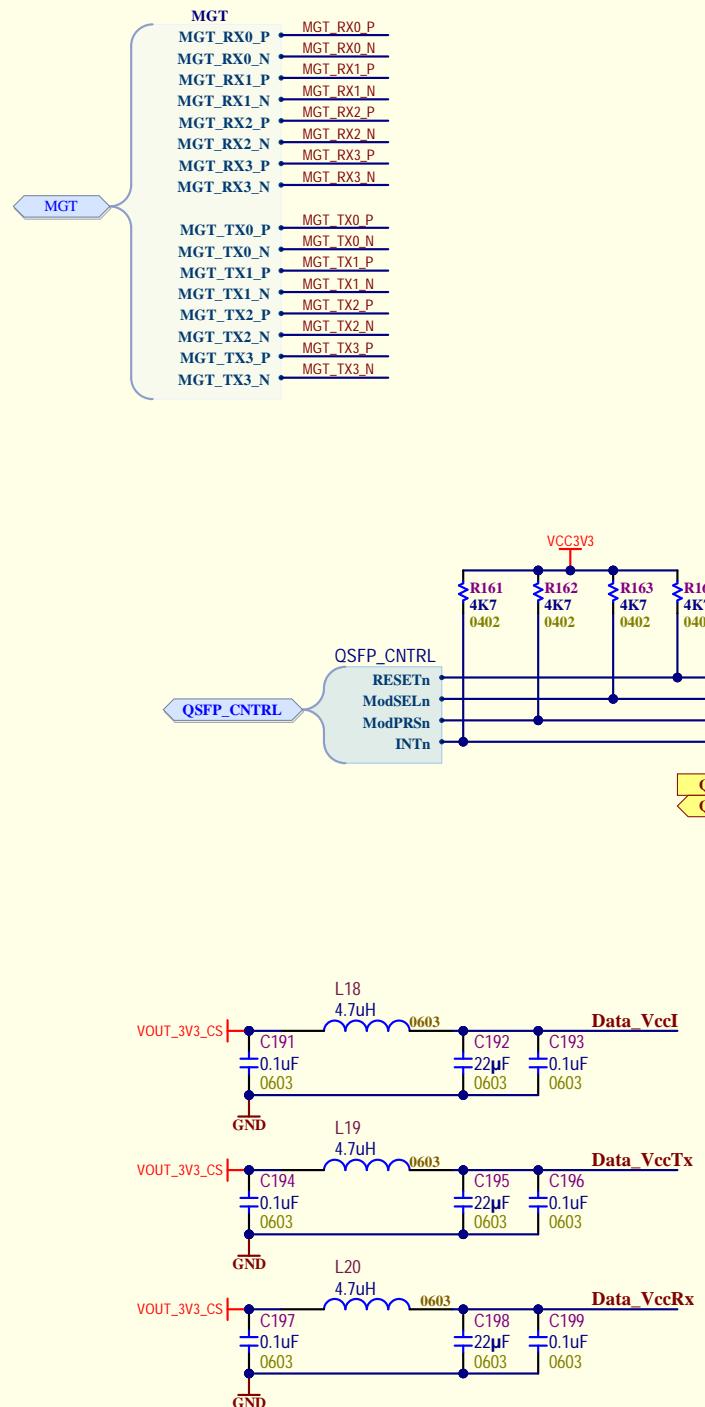


Configuration: LMK04816B  
REFIN: 250MHz, VCXO: 100MHz



MOLLER: 16-Channel Integrating ADC - Clock Cleaner

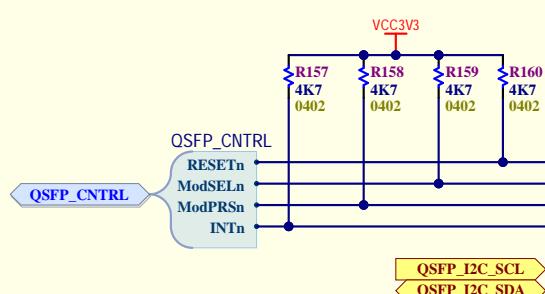
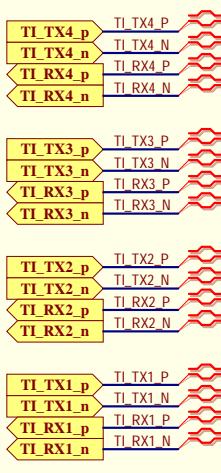
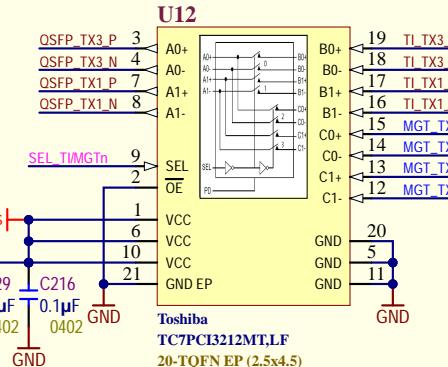
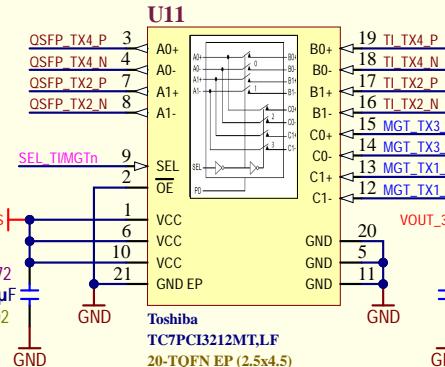
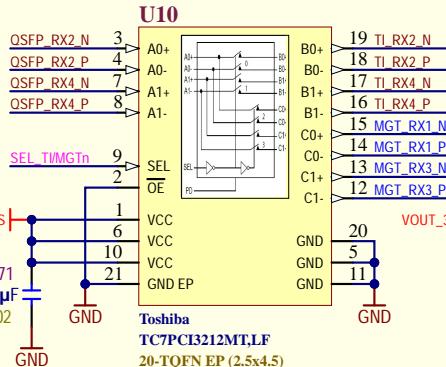
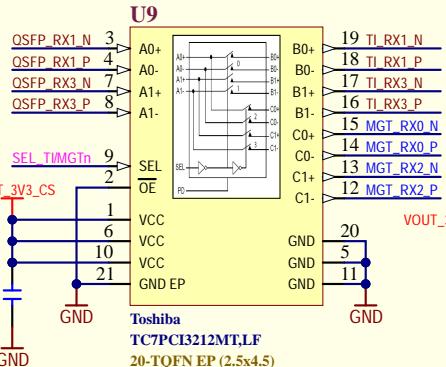
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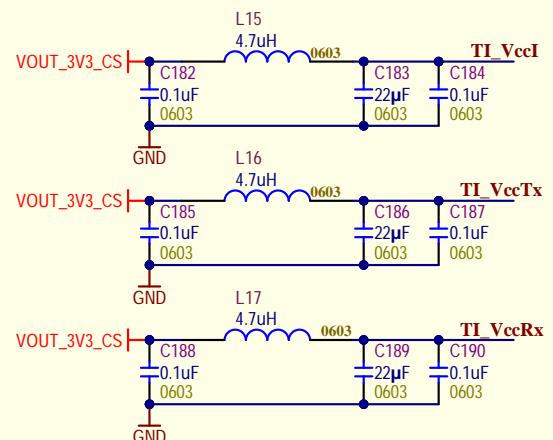
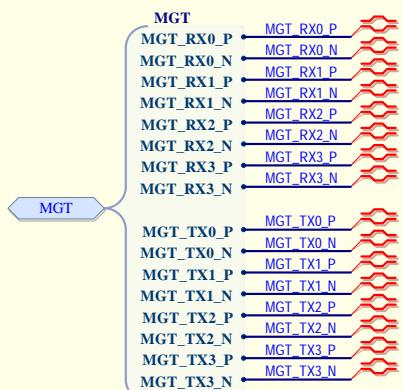
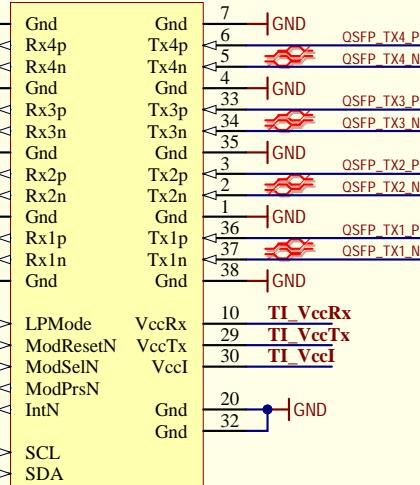
#### MOLLER: 16-Channel Integrating ADC - QSFP Data Interface

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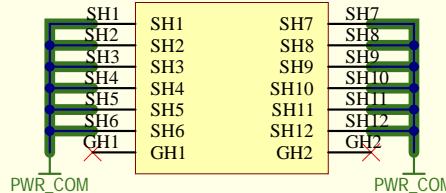




**QSFP-TI**  
TE Connectivity AMP  
2110819-1

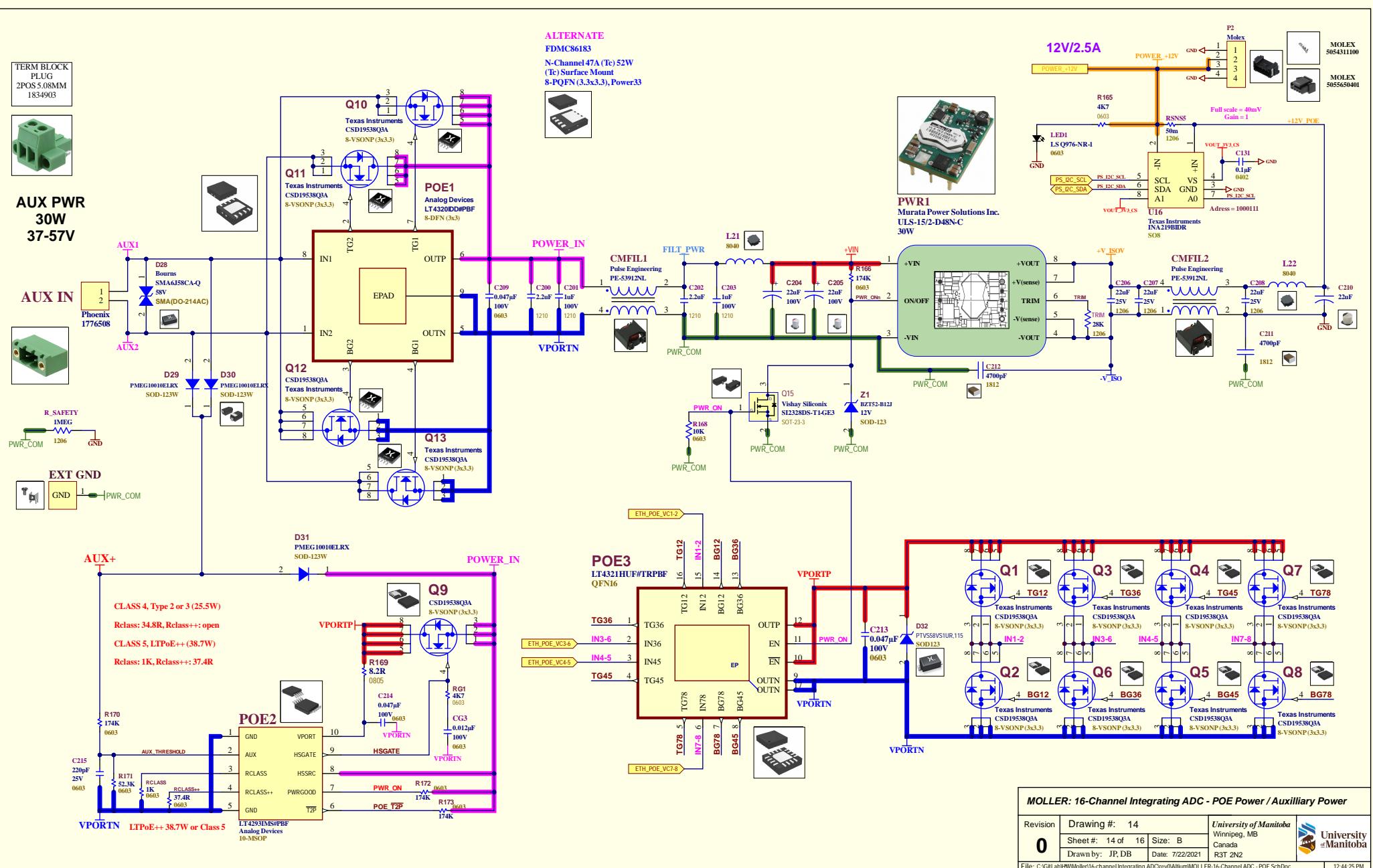


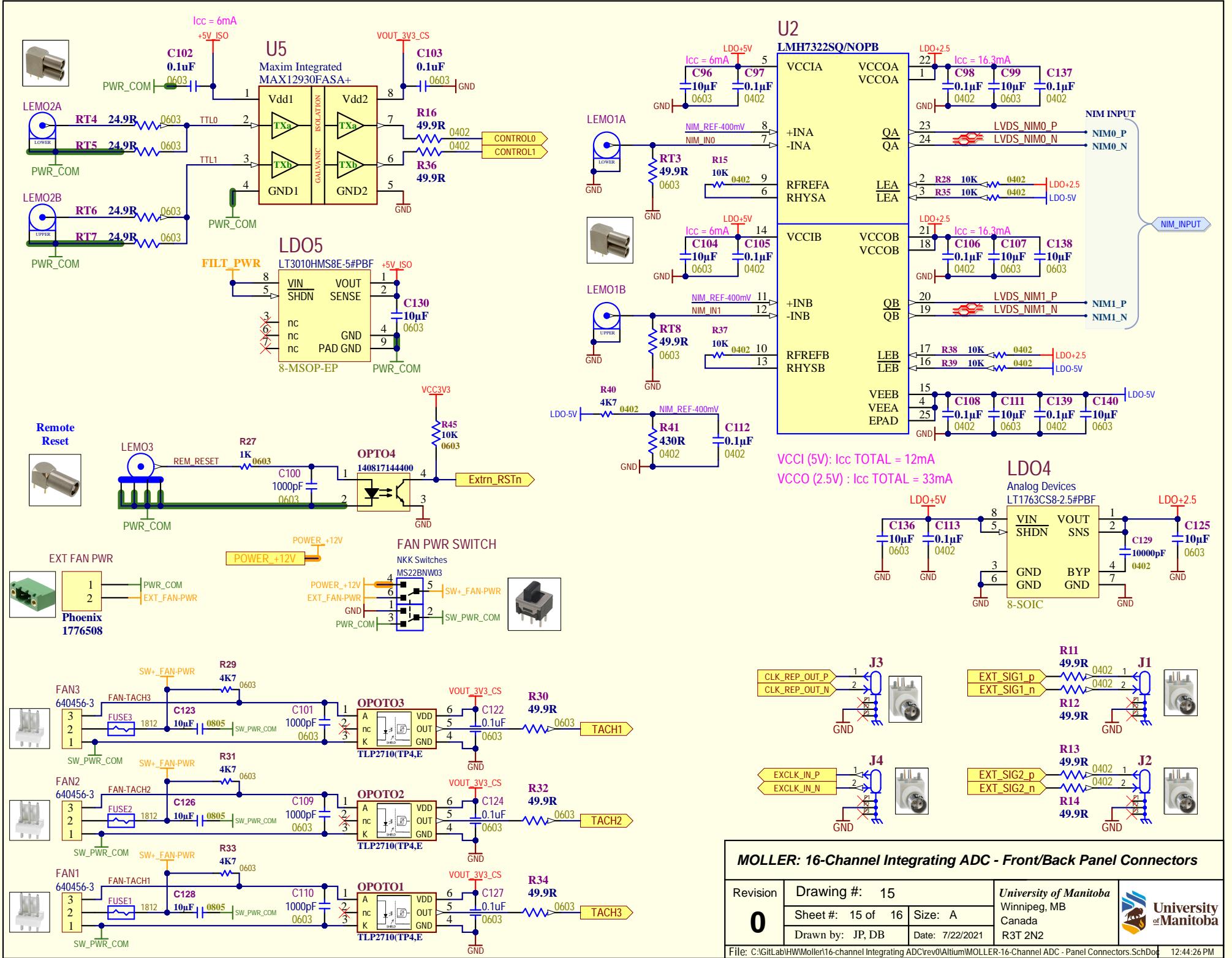
**QSFP TI SHLD**  
TE Connectivity  
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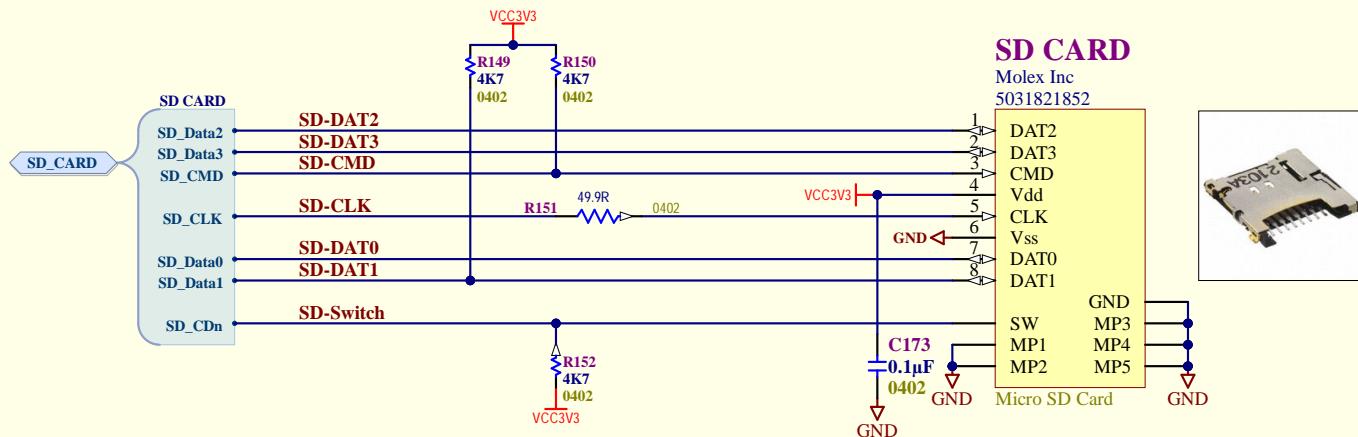


**MOLLER: 16-Channel Integrating ADC - QSFP TI Interface**

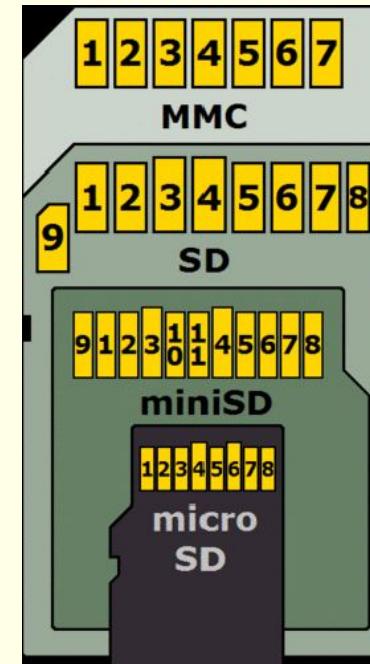
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Four-Bit SD Bus Mode							
MMC Pin	SD Pin	miniSD Pin	microSD Pin	Name	I/O	Logic	Description
.	1	1	2	DAT3	I/O	PP	SD Serial Data 3
.	2	2	3	CMD	I/O	PP, OD	Command, Response
.	3	3		VSS	S	S	Ground
.	4	4	4	VDD	S	S	Power
.	5	5	5	CLK	I	PP	Serial Clock
.	6	6	6	VSS	S	S	Ground
.	7	7	7	DAT0	I/O	PP	SD Serial Data 0
	8	8	8	DAT1	I/O	PP	SD Serial Data 1 (memory cards)
				nIRQ	O	OD	Interrupt Period (SDIO cards share pin via protocol)
9	9	1	DAT2	I/O	PP		SD Serial Data 2
	10		NC	.	.		Reserved
	11		NC	.	.		Reserved



#### MOLLER: 16-Channel Integrating ADC - Micro SD Card

Revision <b>0</b>	Drawing #: 16		<i>University of Manitoba</i> Winnipeg, MB Canada R3T 2N2
	Sheet #:	16 of 16	
	Drawn by: JP, DB	Date: 7/22/2021	

MOLLER  
16- Channel Integrating ADC  
7/22/2021  
REV0

