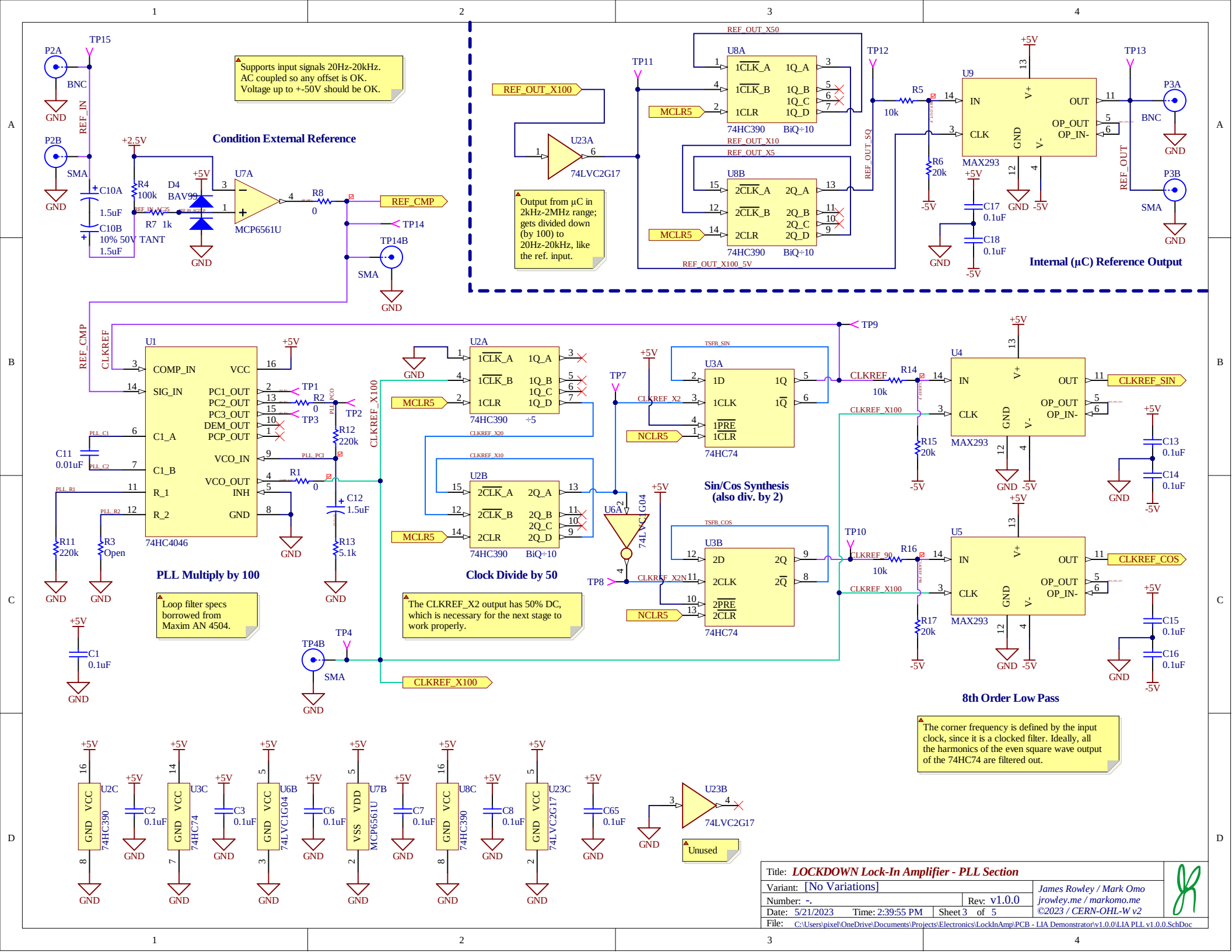




A

B

C

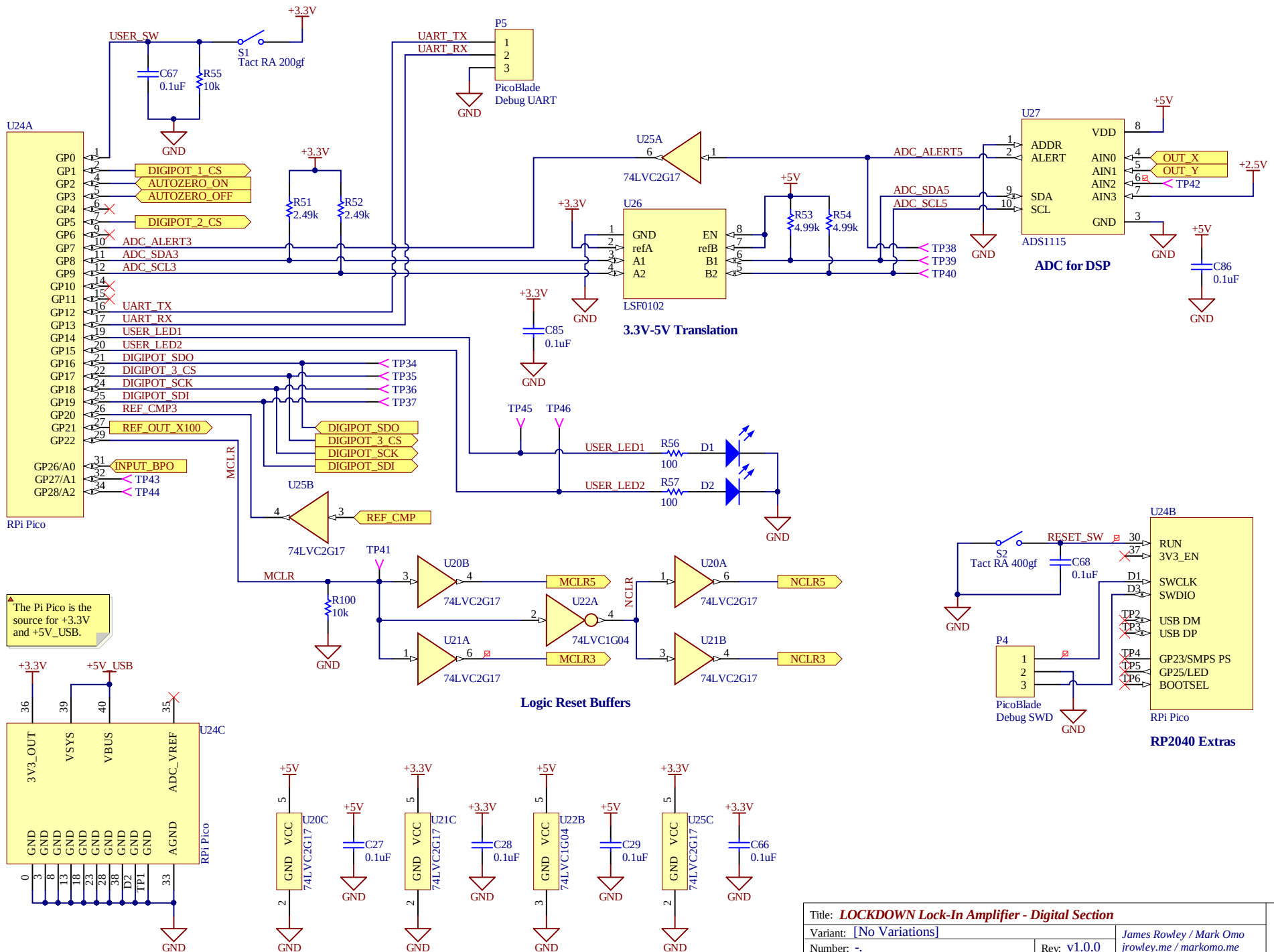
D

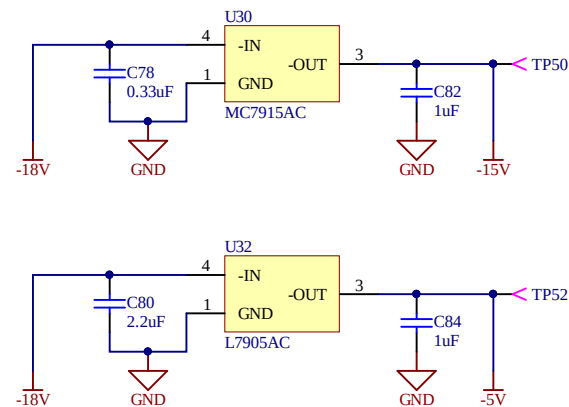
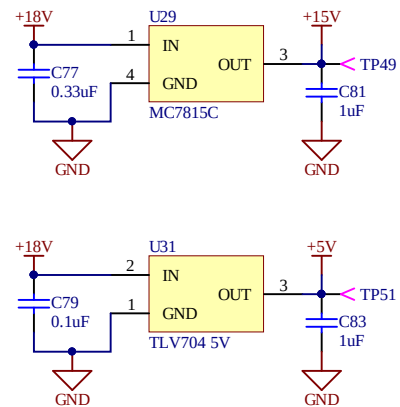
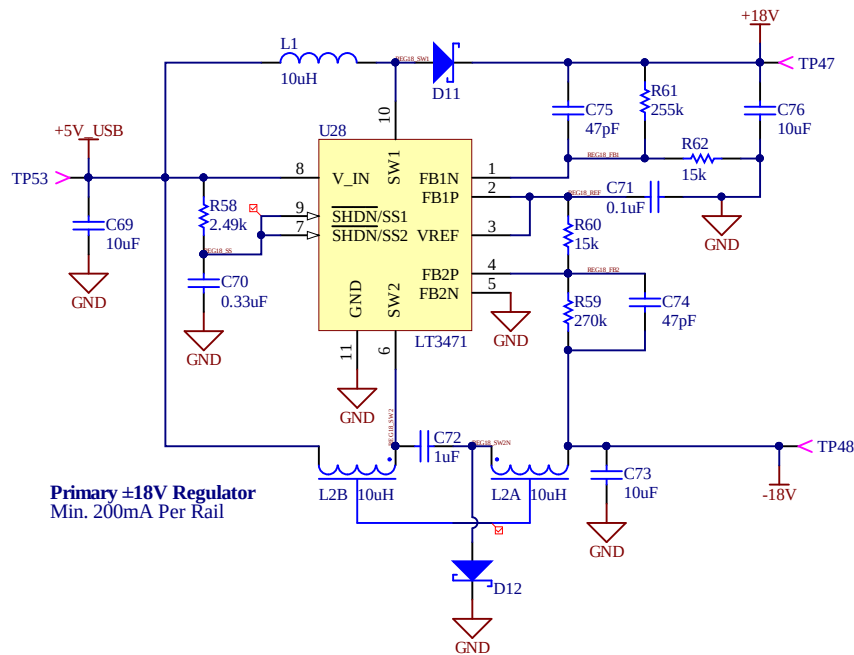
A

B

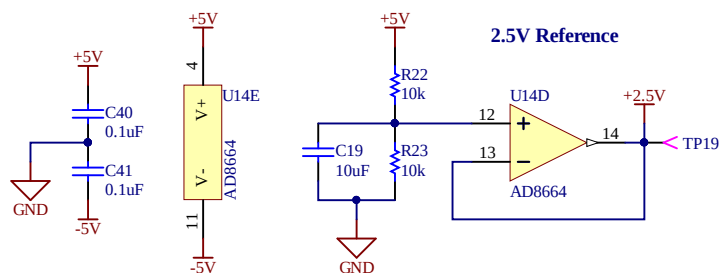
C

D

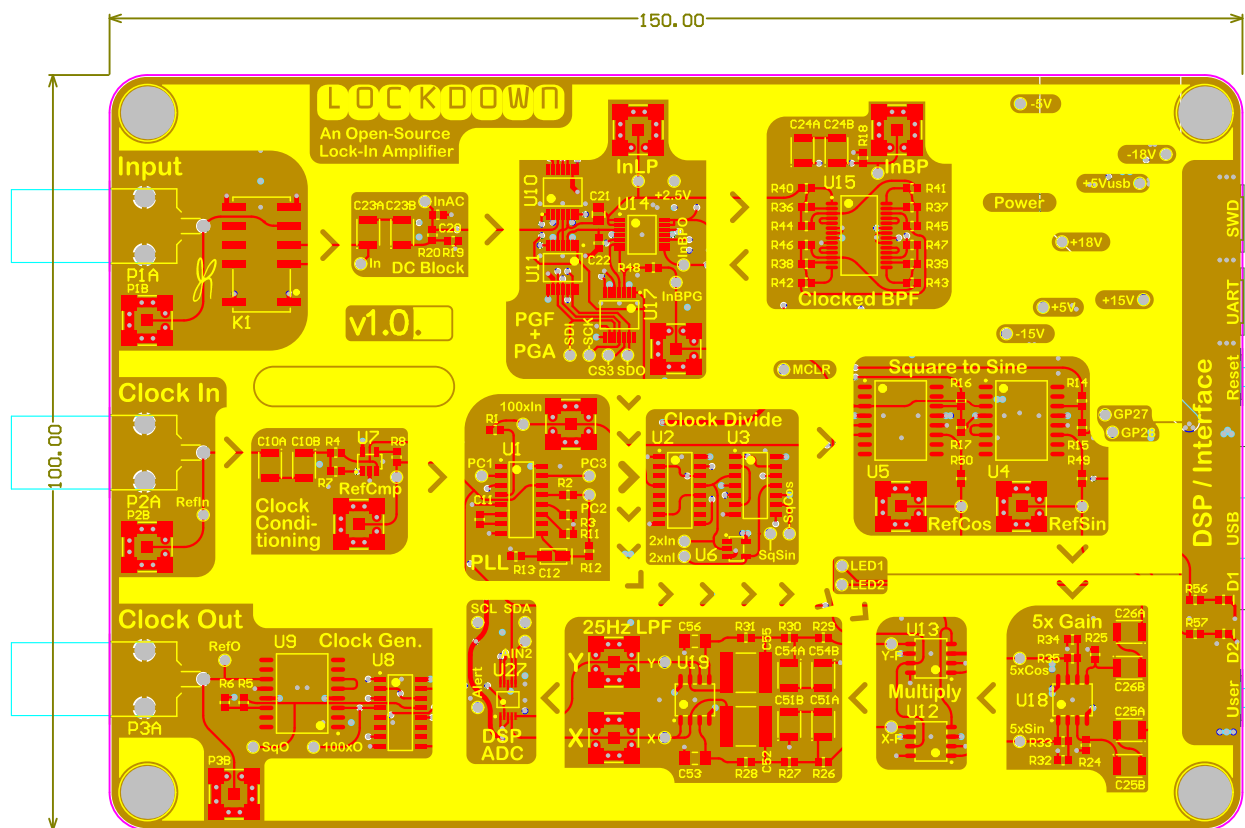




Layout: Utilize parasitic inductance of supply trace to LDOs to improve PSRR.



- ✗ M1 M4 Tight
- ✗ M2 M4 Tight
- ✗ M3 M4 Tight
- ✗ M4 M4 Tight



Top Overlay

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

Bottom Overlay

Board Outline
Component Bodies
Court yard

Notes:

1. Base material is FR4; final thickness 1.6mm
2. Foils to finish at 1oz
3. All hole sizes are after plating
4. Soldermask with L.P.I., Color per order
5. Soldercoat after soldermask
6. Silkscreen with white epoxy
7. Holes with zero diameter pads are unplated

James Rowley / Mark Omo
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FILE PATH: C:\Users\pixel\OneDrive\Documents\Projects\Electronics\LockInAmp\PCB - LIA Demonstrator\v1.0.0\LOCKDOWN v1.0.PCBDoc

ENGINEER:
James Rowley / Mark OmoPCB DESIGNER:
James RowleyDATE:
5/21/2023SHEET SIZE:
LETTERTITLE:
LOCKDOWN:
Lock-In Amplifier DemonstratorPART NO.:
—DWG NO:
—REV:
v1.0UNITS:
MM

- Notes:
1. Base material is FR4; final thickness 1.6mm
 2. Foils to finish at 1oz
 3. All hole sizes are after plating
 4. Soldermask with L.P.I. Color per order
 5. Soldercoat after soldermask
 6. Silkscreen with white epoxy
 7. Holes with zero diameter pads are unplated

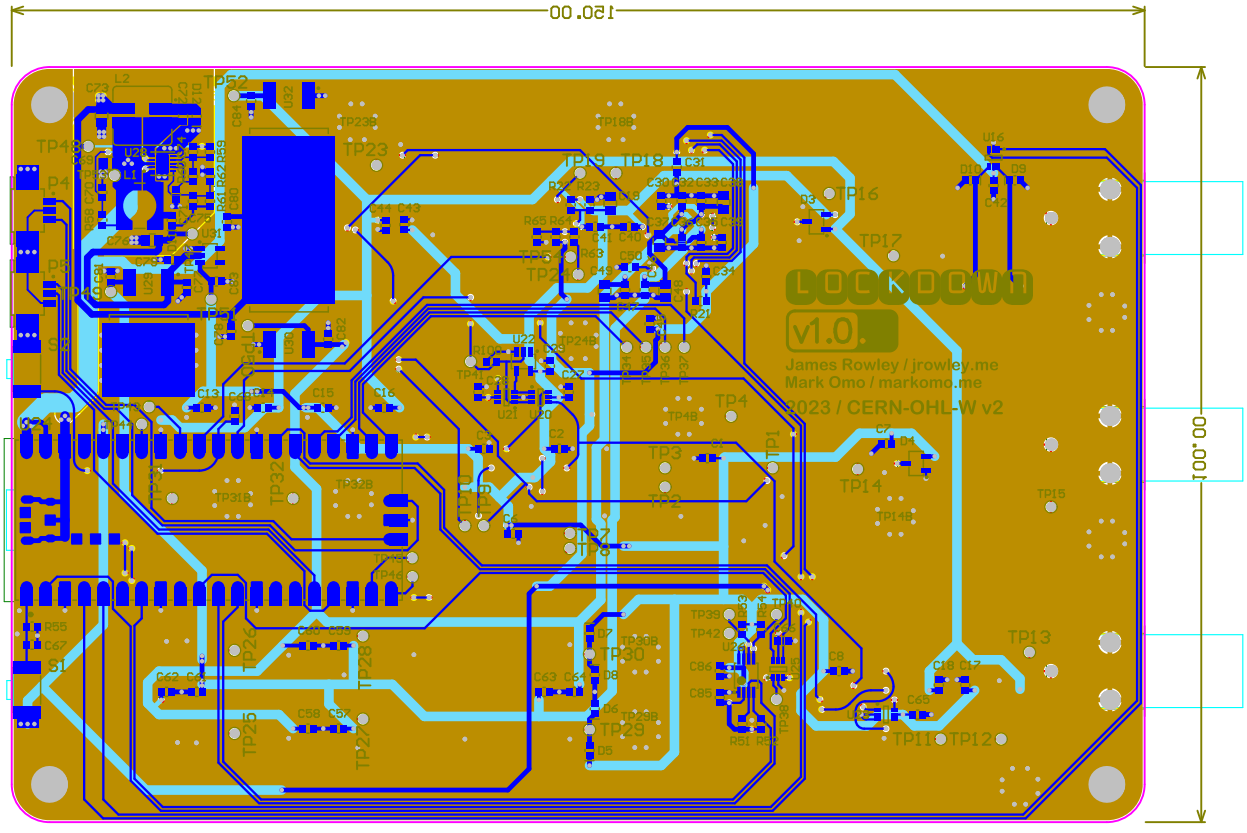


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LETTER		SHEET SIZE:	DWG NO:	—
DATE:		5/21/2023	PART NO:	—
PCB DESIGNER:		James Rowley	LOCKDOWN: In Amplifier Demonstrator	
ENGINEER:		James Rowley \ Mark Omo		
TITLE:				

UNITS:	MM
REV:	v1.0

Board Outline
Component Bodies
Bottom Overlay
Mid-Layer 2
Mid-Layer 1
Top Layer
Top Overlay



Description	Designator	Quantity	MANF	MANF_PN	VENDOR	VENDOR_PN
CAP CER 0.1UF 25V X7R 0603	C1, C2, C3, C6, C7, C8, C13, C14, C15, C16, C17, C18, C27, C28, C29, C31, C32, C33, C34, C35, C36, C40, C41, C42, C43, C44, C45, C46, C47, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C71, C79, C85, C86	45	Samsung Electro-Mechanics	CL10B104K8BNNNC	DigiKey	1276-1006-1-ND
CAP TANT 1.5UF 10% 50V 1411	C10A, C10B, C23A, C23B, C24A, C24B, C25A, C25B, C26A, C26B, C51A, C51B, C54A, C54B	14	KYOCERA AVX	TAJB155K050RNJ	DigiKey	478-6928-1-ND
CAP CER 10000PF 25V COG/NPO 0603	C11	1	Samsung Electro-Mechanics	GRT1885C1E103JA02J	DigiKey	490-GRT1885C1E103JA02JCT-ND
CAP TANT 1.5UF 10% 16V 1206	C12	1	AVX Corporation	TAJA155K016RNJ	DigiKey	478-3860-1-ND
CAP CER 10UF 25V X5R 0805	C19, C37, C38, C48, C49, C69, C73, C76	8	Samsung Electro-Mechanics	CL21A106KAYNNNE	DigiKey	1276-2891-1-ND
CAP CER 10000PF 50V COG 0603	C20, C22	2	TDK Corporation	CL108C0G1H103J080AA	DigiKey	445-7404-1-ND
CAP CER 0.022UF 50V COG 0805	C21	1	TDK Corporation	C2012C0G1H223J125AA	DigiKey	445-7522-1-ND
CAP CER 1UF 10V X7R 0603	C30, C39, C50	3	Samsung Electro-Mechanics	CL10B105KP8NFNC	DigiKey	1276-1945-1-ND
CAP CER 0.33UF 50V COG/NPO 2220	C52, C55	2	KEMET	C2220C334J5GAC7800	DigiKey	399-C2220C334J5GAC7800CT-ND
CAP CER 0.047UF 50V COG/NPO 1206	C53, C56	2	Murata Electronics	GRM31M5C1H473JA01L	DigiKey	490-1764-1-ND
CAP CER 0.33UF 25V X7R 0603	C70, C77, C78	3	Samsung Electro-Mechanics	CL10B334KA8VPNC	DigiKey	1276-CL10B334KA8VPNCCT-ND
CAP CER 1UF 50V X5R 0603	C72, C81, C82, C83, C84	5	Samsung Electro-Mechanics	CL10A105K8BNNNC	DigiKey	1276-1860-1-ND
CAP CER 47PF 50V COG/NPO 0603	C74, C75	2	Samsung Electro-Mechanics	CL10C470JB81PNC	DigiKey	1276-2295-1-ND
CAP CER 2.2UF 35V X5R 0603	C80	1	Samsung Electro-Mechanics	CL10A225KL8NNNC	DigiKey	1276-6726-1-ND
LED GREEN CLEAR SMD 0603	D1, D2	2	Lite-On Inc.	LTST-C191KGKT	DigiKey	160-1446-1-ND
DIODE ARRAY GP 75V 300MA SOT23-3	D3, D4	2	Diodes Incorporated	BAV99-7-F	DigiKey	BAV99-FDICT-ND
DIODE SCHOTTKY 40V 1A SMA	D5, D6, D7, D8, D9, D10, D11, D12	8	Diodes Incorporated	B140-13-F	DigiKey	B140-FDICT-ND
TXS RELAY 2 FORM C 4.5V (Latching)	K1	1	Panasonic Electric Works	TXS2SA-L2-4.5V	DigiKey	255-2348-5-ND
FIXED IND 10UH 1.5A 70 MOHM SMD	L1	1	Bourns Inc.	SRR5028-100Y	DigiKey	118-SRR5028-100YCT-ND
INDUCT ARRAY 2 COIL 10UH SMD	L2	1	TDK	SRF0703-100M	DigiKey	SRF0703-100MCT-ND
CONN BNC RCPT R/A 50 OHM PCB	P1A, P2A, P3A	3	Molex	73100-0105	DigiKey	WM5524-ND
CONN SMA JACK STR 50 OHM SMD	P1B, P2B, P3B, TP4B, TP14B, TP18B, TP23B, TP24B, TP29B, TP30B, TP31B, TP32B	12	Molex	73251-1350	DigiKey	WM9357-ND
CONN HEADER SMD R/A 3POS 1.25MM	P4, P5	2	Molex	S3261-0371	DigiKey	WM7621CT-ND
RES SMD 0 OHM JUMPER 1/10W 0603	R1, R2, R8, R48, R49, R50	6	Yageo	RC0603FR-070RL	DigiKey	311-0.0HRCT-ND
RES SMD 100K OHM 1% 1/10W 0603	R4, R18, R19, R24, R25	5	Yageo	RC0603FR-07100KL	DigiKey	311-100KHRCT-ND
RES SMD 10K OHM 1% 1/10W 0603	R5, R14, R16, R21, R22, R23, R33, R35, R36, R37, R38, R39, R55, R100	14	Yageo	RC0603FR-0710KL	DigiKey	311-10.0KHRCT-ND
RES SMD 20K OHM 1% 1/10W 0603	R6, R15, R17	3	Yageo	RC0603FR-0720KL	DigiKey	311-20.0KHRCT-ND
RES SMD 1K OHM 1% 1/10W 0603	R7	1	Yageo	RC0603FR-071KL	DigiKey	311-1.00KHRCT-ND
RES SMD 220K OHM 1% 1/10W 0603	R11, R12	2	Yageo	RC0603FR-07220KL	DigiKey	311-220KHRCT-ND
RES SMD 5.1K OHM 1% 1/10W 0603	R13	1	Yageo	RC0603FR-075K1L	DigiKey	311-5.10KHRCT-ND
RES SMD 160 OHM 1% 1/10W 0603	R20	1	Yageo	RC0603FR-07160RL	DigiKey	311-160HRCT-ND
RES SMD 9.1K OHM 1% 1/10W 0603	R26, R29	2	Yageo	RC0603FR-079K1L	DigiKey	311-9.10KHRCT-ND
RES SMD 91K OHM 1% 1/10W 0603	R27, R30	2	Yageo	RC0603FR-0791KL	DigiKey	311-91.0KHRCT-ND
RES SMD 27K OHM 1% 1/10W 0603	R28, R31	2	Yageo	RC0603FR-0727KL	DigiKey	311-27.0KHRCT-ND
RES SMD 2.49K OHM 1% 1/10W 0603	R32, R34, R51, R52, R58	5	Yageo	RC0603FR-072K49L	DigiKey	311-2.49KHRCT-ND
RES SMD 340K OHM 1% 1/10W 0603	R40, R41, R42, R43, R44, R45, R46, R47	8	Yageo	RC0603FR-07340KL	DigiKey	311-340KHRCT-ND
RES SMD 4.99K OHM 1% 1/10W 0603	R53, R54, R63	3	Yageo	RC0603FR-074K99L	DigiKey	311-4.99KHRCT-ND
RES SMD 100 OHM 1% 1/10W 0603	R56, R57	2	Yageo	RC0603FR-07100RL	DigiKey	311-100HRCT-ND
RES SMD 270K OHM 1% 1/10W 0603	R59	1	Yageo	RC0603FR-07270KL	DigiKey	311-270KHRCT-ND
RES SMD 15K OHM 1% 1/10W 0603	R60, R62	2	Yageo	RC0603FR-0715KL	DigiKey	311-15.0KHRCT-ND
RES SMD 255K OHM 1% 1/10W 0603	R61	1	Yageo	RC0603FR-07255KL	DigiKey	311-255KHRCT-ND
RES SMD 3.09K OHM 1% 1/10W 0603	R64	1	Yageo	RC0603FR-073K09L	DigiKey	311-3.09KHRCT-ND
RES SMD 8.06K OHM 1% 1/10W 0603	R65	1	Yageo	RC0603FR-078K06L	DigiKey	311-8.06KHRCT-ND
SWITCH TACTILE SPST-NO 0.05A 50V	S1	1	C&K	KSS321GLFS	DigiKey	401-1100-1-ND
SWITCH TACTILE SPST-NO 0.05A 50V	S2	1	C&K	KSS341GLFS	DigiKey	401-1102-1-ND
TEST POINT TH	TP1, TP2, TP3, TP4, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP23, TP24, TP25, TP26, TP27, TP28, TP29, TP30, TP31, TP32, TP34, TP35, TP36, TP37, TP38, TP39, TP40, TP41, TP42, TP43, TP44, TP45, TP46, TP47, TP48, TP49, TP50, TP51, TP52, TP53, TP54	48	Keystone Electronics	1998-3	DigiKey	1998-3K-ND
IC PHASE LOCK LOOP 16SOIC	U1	1	Texas Instruments	296-14528-1-ND	DigiKey	CD74HC4046AM96
IC DECADE COUNTR DL 4BIT 16SOIC	U2, U8	2	Texas Instruments	CD74HC390M96	DigiKey	296-14526-1-ND
IC FF D-TYPE DUAL 1BIT 14SOIC	U3	1	Texas Instruments	SN74HC74DR	DigiKey	296-1204-1-ND
IC FILTER 25KHZ LOWPASS 16SOIC	U4, U5, U9	3	Maxim Integrated	MAX293CWE+	DigiKey	MAX293CWE+ -ND
IC INVERTER 1CH 1-INP SOT25	U6, U22	2	Diodes Incorporated	74LVC1G04W5-7	DigiKey	74LVC1G04W5-7DICT-ND
IC COMPARATOR 1 GEN PUR SOT23-5	U7	1	Microchip Technology	MCP6561UT-E/OT	DigiKey	MCP6561UT-E/OTCT-ND
IC DGT POT 20KOHM 1024TP 14TSSOP	U10, U11, U17	3	Analog Devices Inc.	AD5293BRUZ-20-RL7	DigiKey	AD5293BRUZ-20-RL7CT-ND
IC MULTIPLIER ANALOG 8-SOIC	U12, U13	2	Analog Devices Inc.	AD633JRZ-R7	DigiKey	505-AD633JRZ-R7CT-ND
IC CMOS 4 CIRCUIT 14TSSOP	U14	1	Analog Devices Inc.	AD8664ARUZ	DigiKey	AD8664ARUZ-ND
IC FILTER 50KHZ SWITCHED 28SSOP	U15	1	Analog Devices Inc.	LTC1068CG#PBF	DigiKey	LTC1068CG#PBF-ND
IC BUF NON-INVERT 5.5V 6TSSOP	U16, U20, U21, U23, U25	5	Nexperia USA Inc.	74LVC2G17GW.125	DigiKey	1727-4218-1-ND
IC AUDIO 2 CIRCUIT 8SOIC	U18, U19	2	Texas Instruments	OPA1602AIDR	DigiKey	296-44357-1-ND
RASPBERRY PI PICO RP2040 BOARD	U24	1	Raspberry Pi	SC0915	DigiKey	2648-SC0915CT-ND
IC TRANSLTR BIDIRECTIONAL 8TSSOP	U26	1	Nexperia USA Inc.	LSF0102DPH	DigiKey	1727-LSF0102DPHCT-ND
IC ADC 16BIT SIGMA-DELTA 10VSSOP	U27	1	Texas Instruments	ADS1115BQDGSRQ1	DigiKey	296-45221-1-ND
IC REG MULT CONFG ADJ DL 10DFN	U28	1	Analog Devices Inc.	LT3471EDD#TRPBF	DigiKey	LT3471EDD#TRPBFCT-ND
IC REG LINEAR 15V 1A D2PAK	U29	1	onsemi	MC7815CD2TG	DigiKey	MC7815CD2TGOS-ND
IC REG LINEAR -15V 1A D2PAK	U30	1	onsemi	MC7915ACD2TG	DigiKey	MC7915ACD2TGOS-ND
IC REG LINEAR 5V 150MA SOT23-5	U31	1	Texas Instruments	TLV70450DBVR	DigiKey	296-39287-1-ND
IC REG LINEAR -5V 1.5A D2PAK	U32	1	STMicroelectronics	L7905ACD2T-TR	DigiKey	497-7292-1-ND