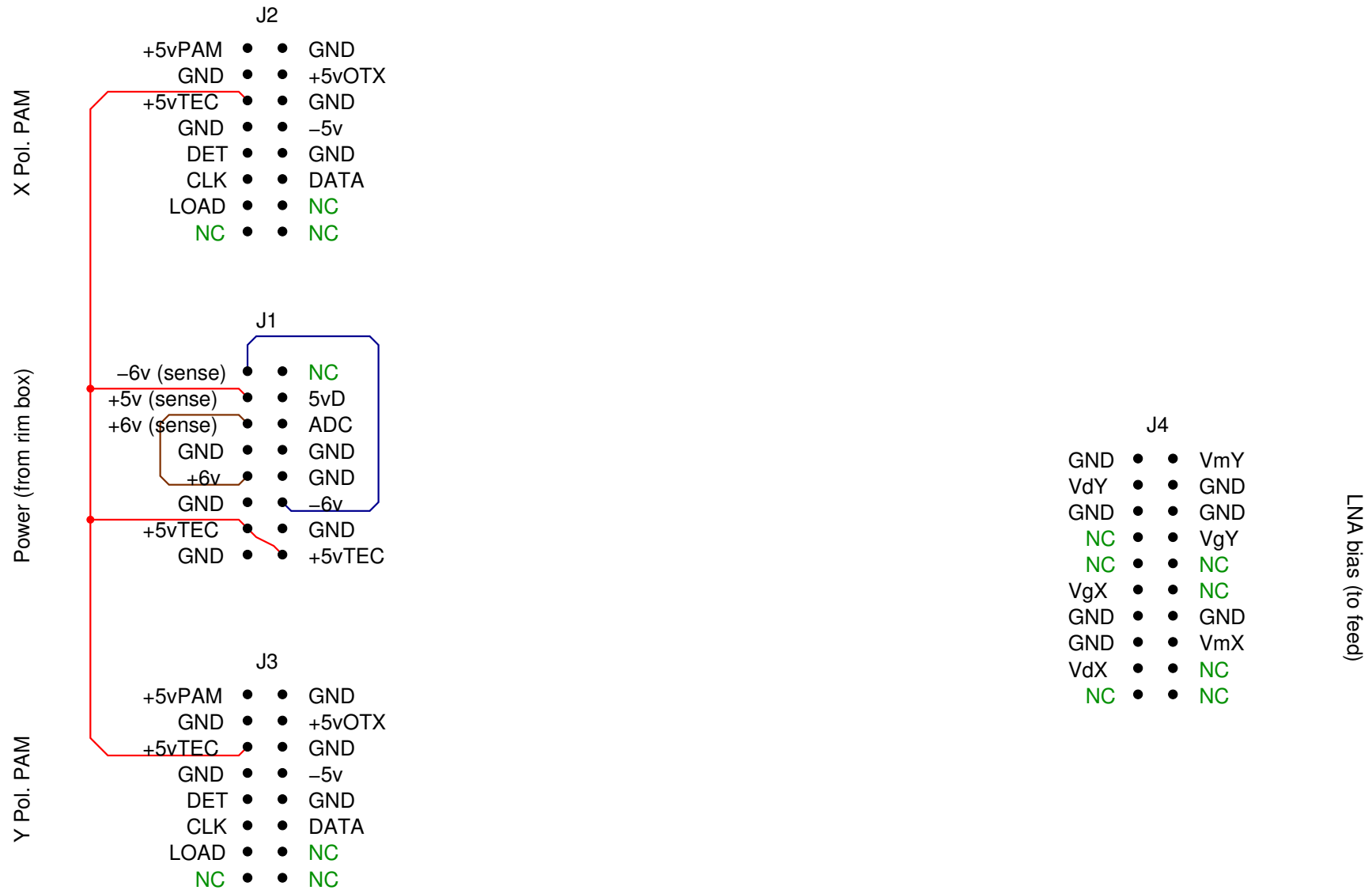
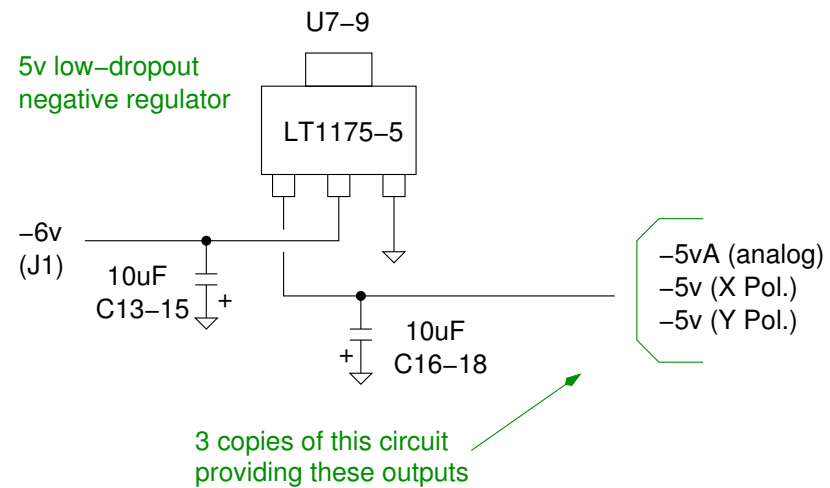
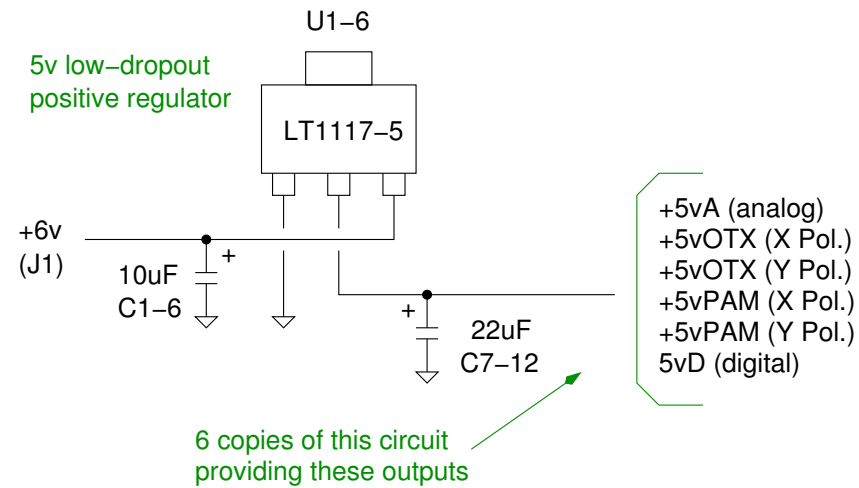


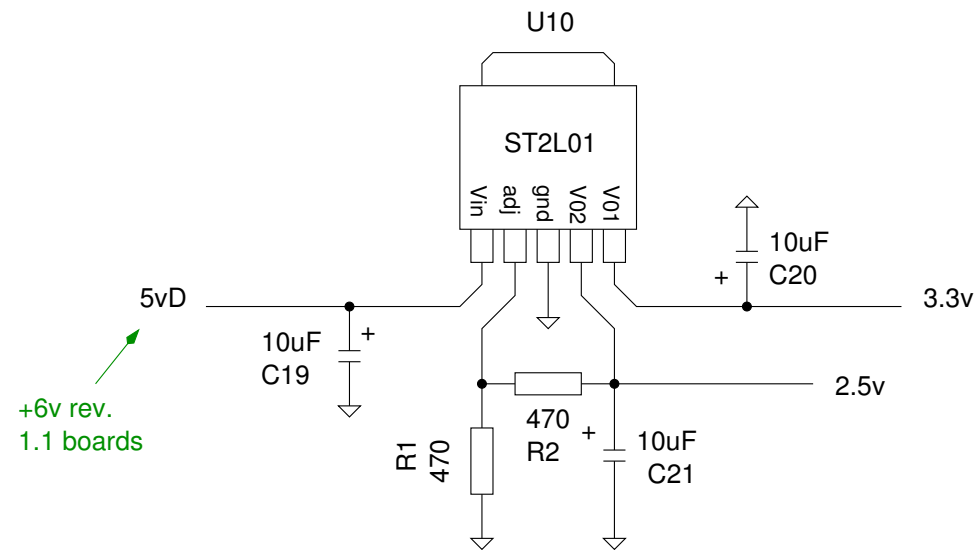
PAX Controller – Connectors (1)

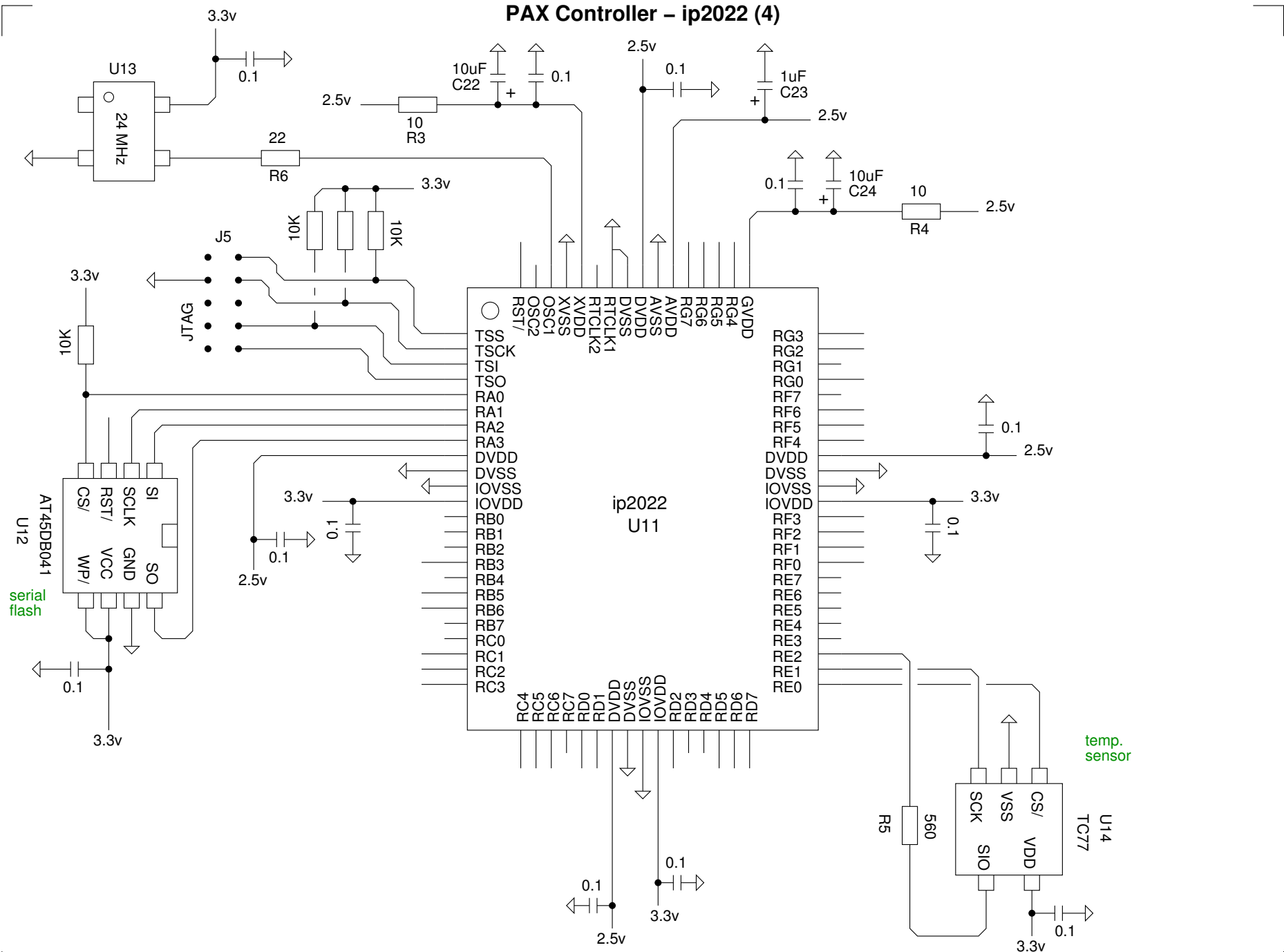


PAX Controller – Regulators (2)



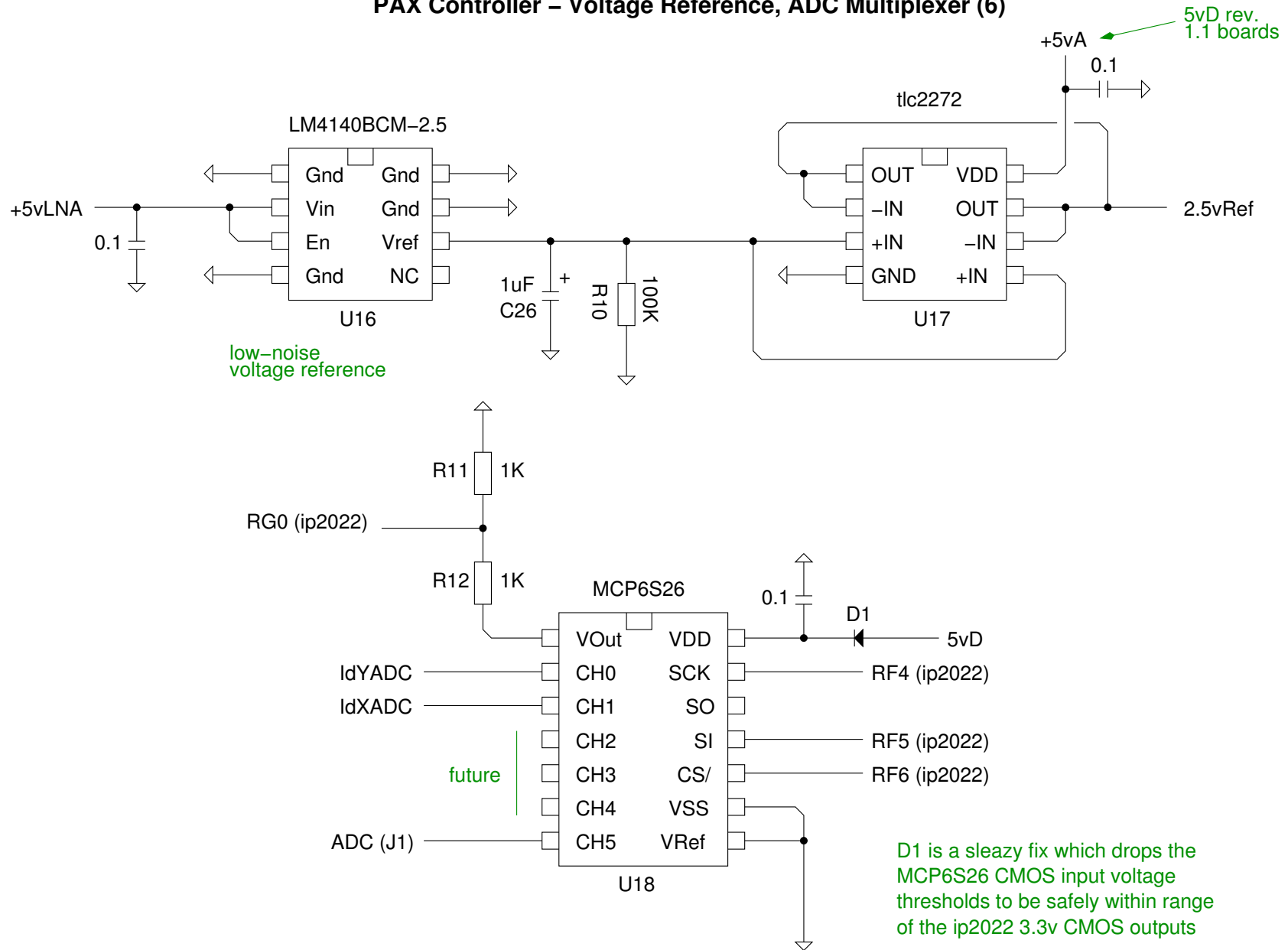
PAX Controller – Microcontroller Regulator (3)



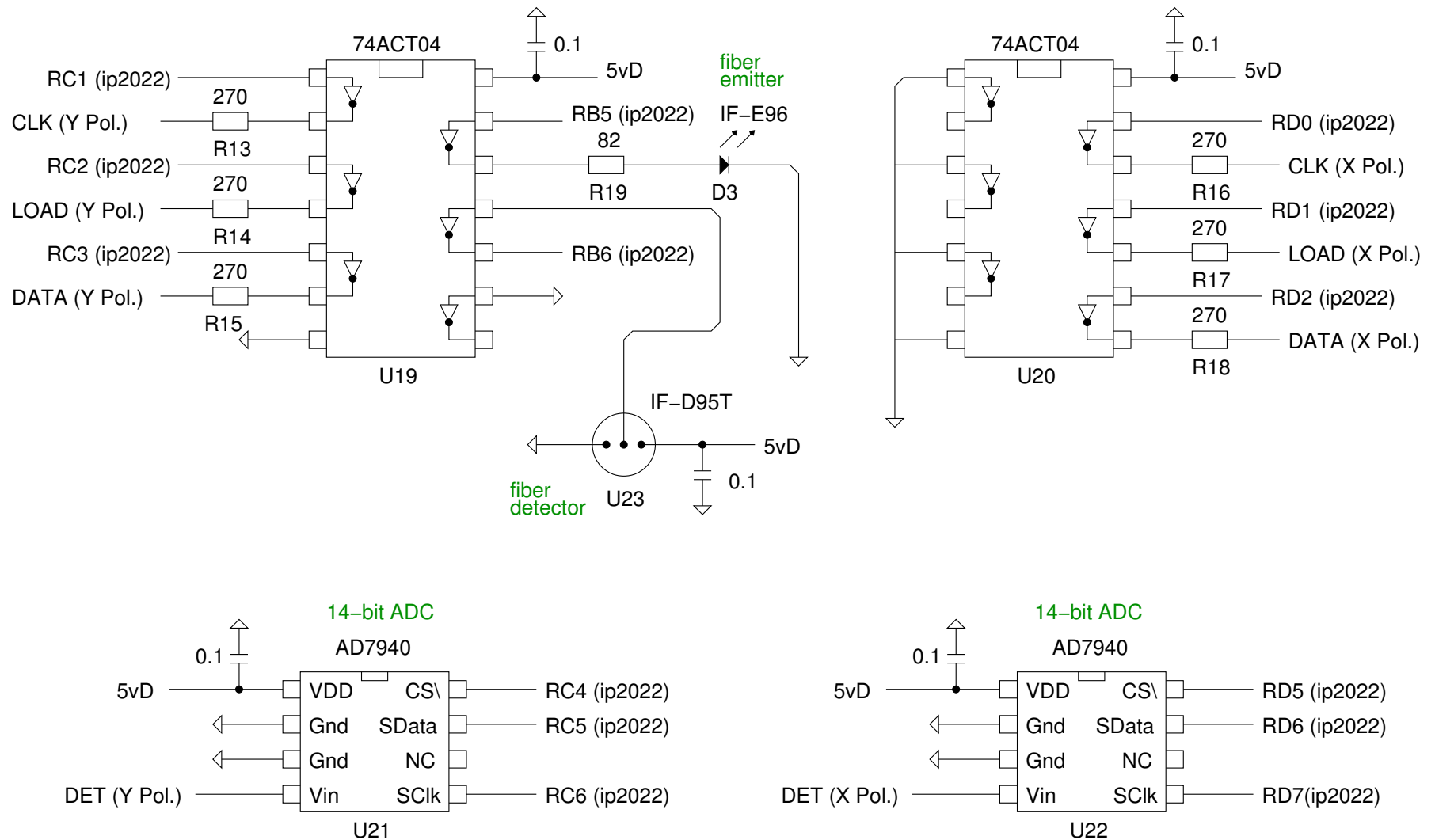




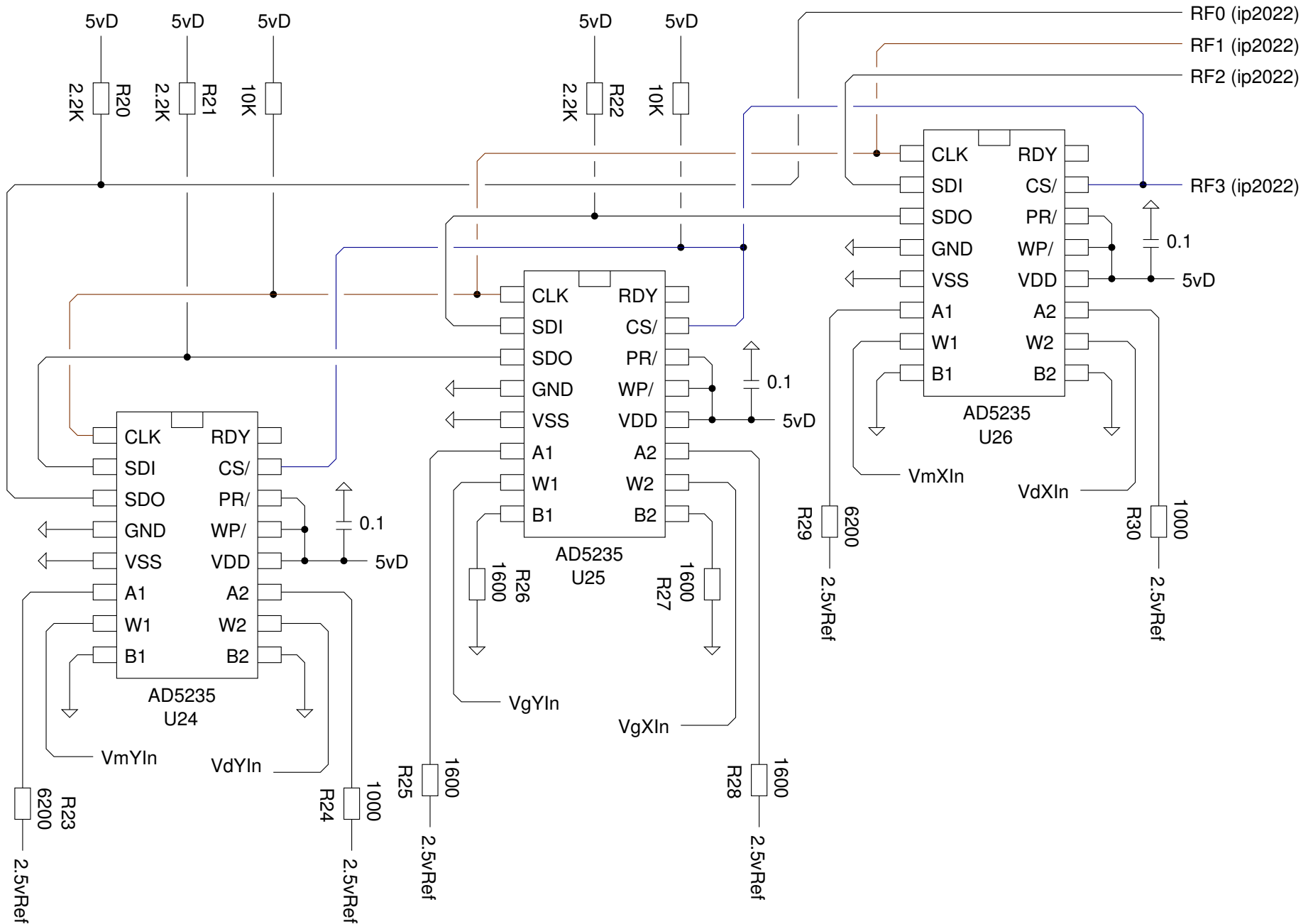
PAX Controller – Voltage Reference, ADC Multiplexer (6)



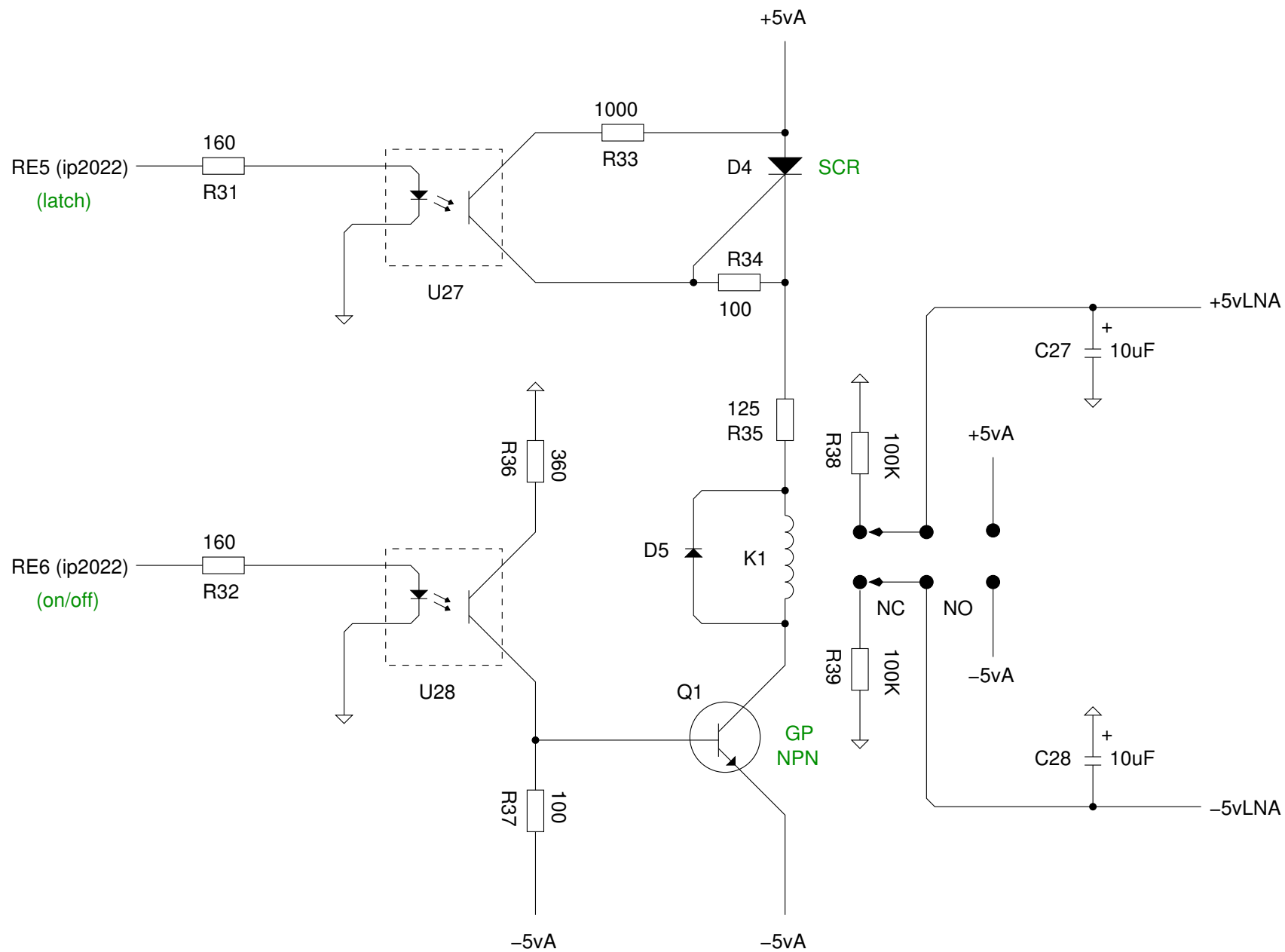
PAX Controller – Buffers, Detector ADCs (7)



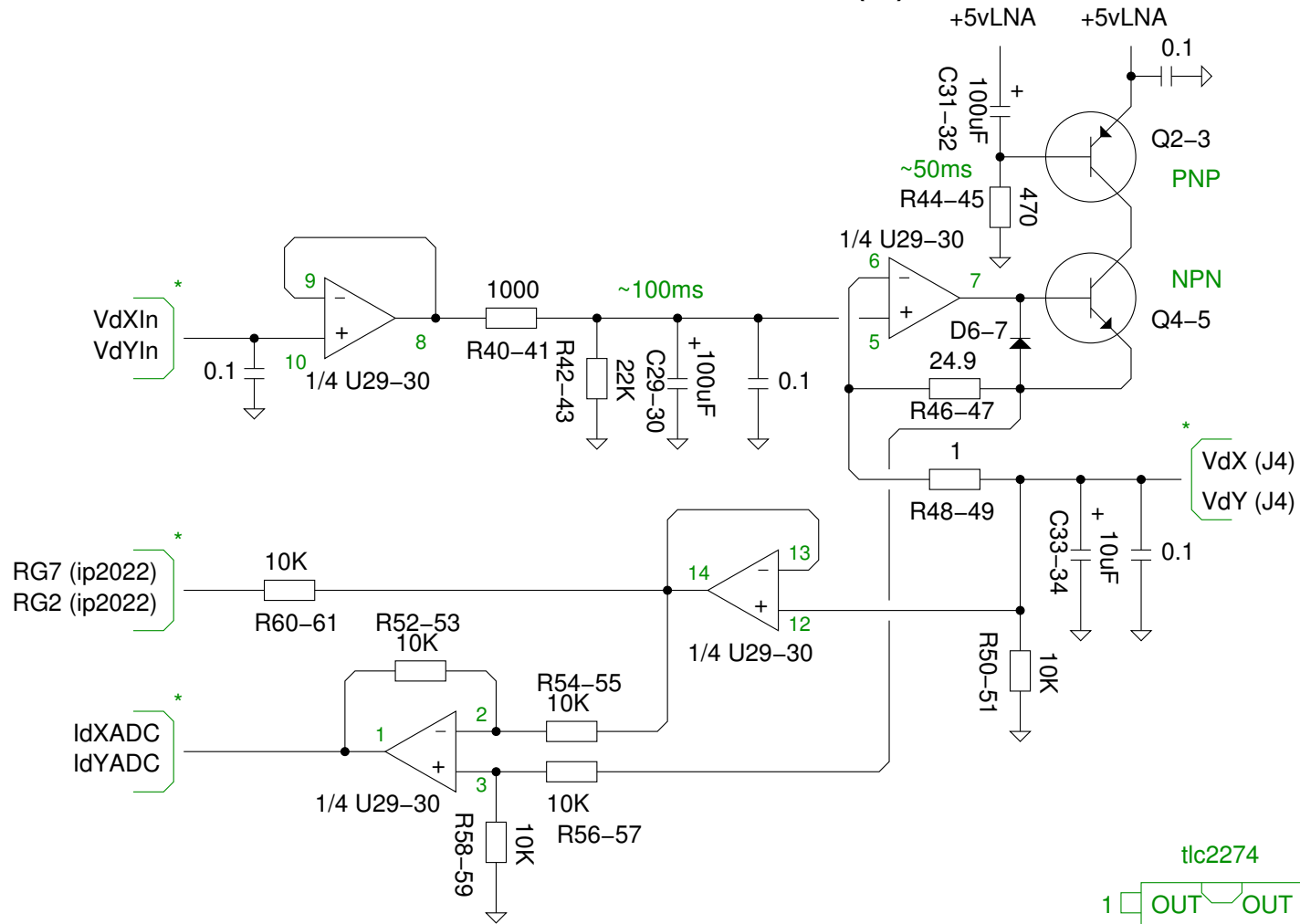
PAX Controller – Digital Potentiometers (8)



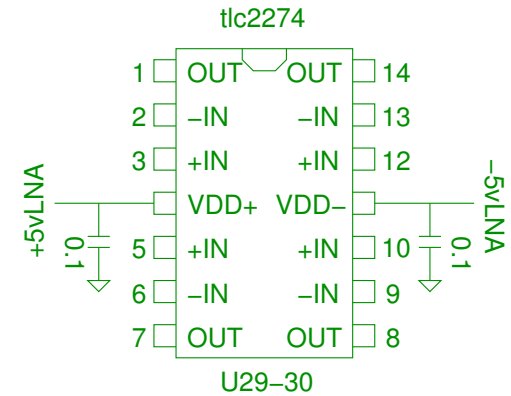
PAX Controller – LNA Bias Latch (9)



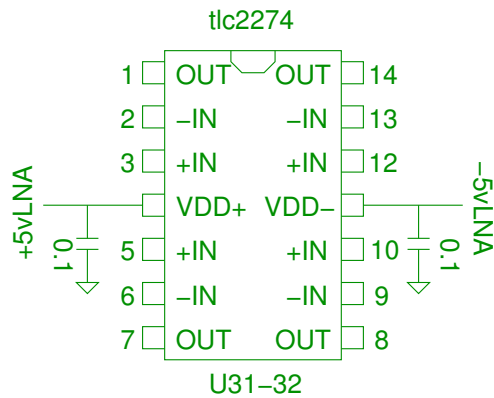
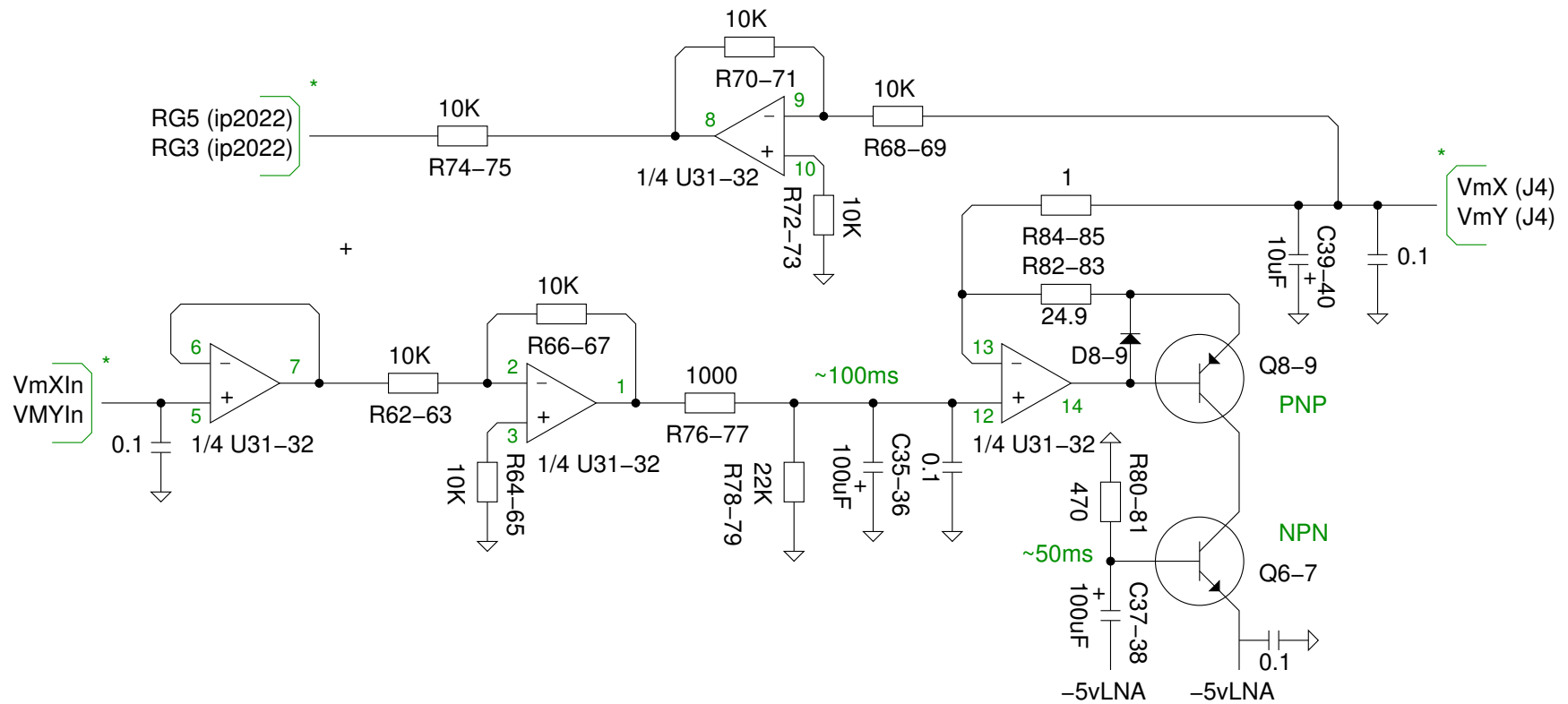
PAX Controller – Vd LNA Bias (10)



* two copies of this circuit: one for each polarization (multiple inputs and outputs shown)

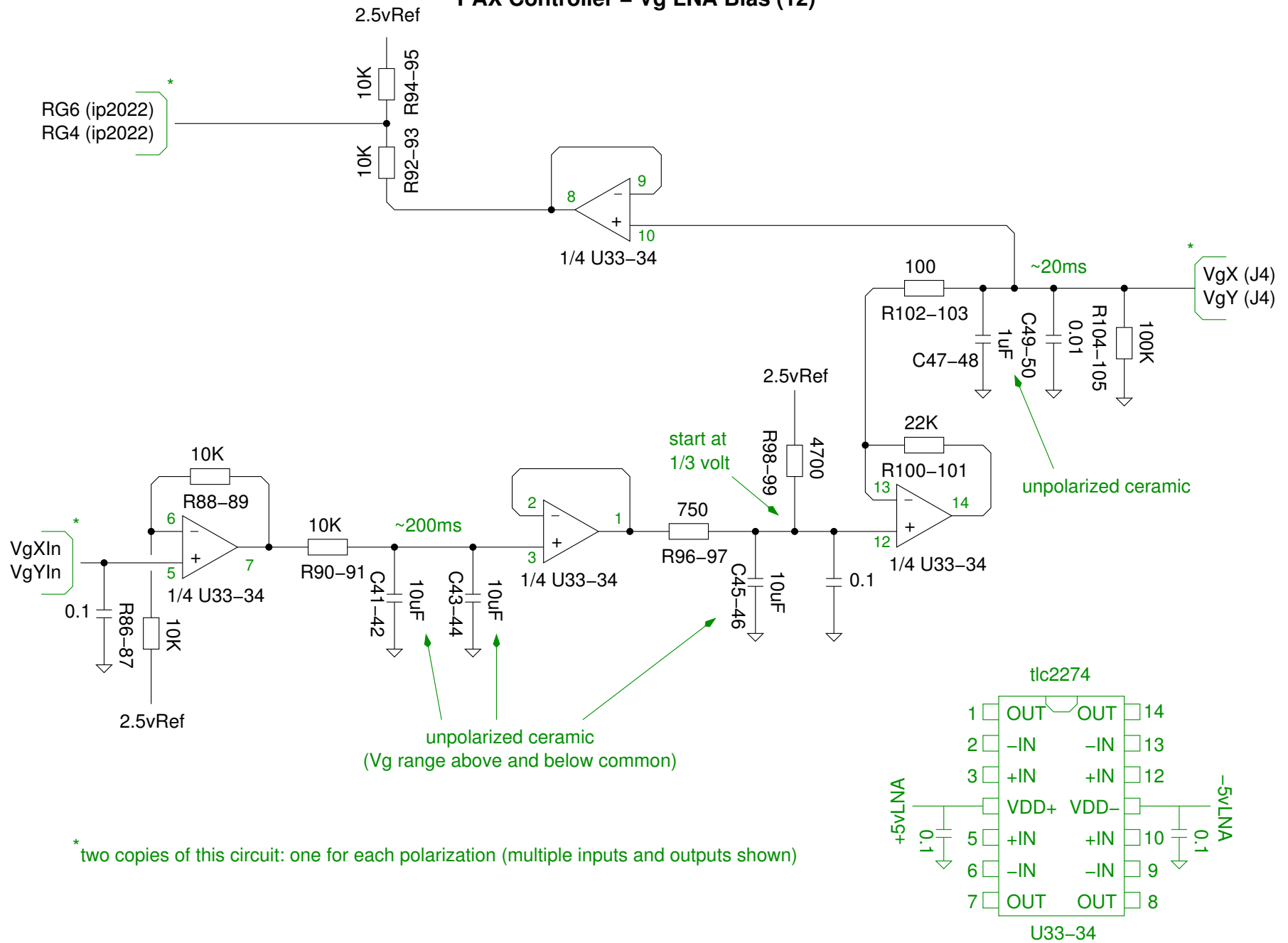


PAX Controller – Vm LNA Bias (11)



* two copies of this circuit: one for each polarization (multiple inputs and outputs shown)
Note: this is a negative supply; therefore, tantalum capacitor polarity must be oriented positive with respect to ground.

PAX Controller – Vg LNA Bias (12)



PAX Controller – Component List (13)

C1–6, C13–22, C24, C27, C28, C33–34, C39–40	10uF	tantalum capacitor, SMD, 10–20v	R42–43, R78–79, R100–101	22K ohm	1/8W resistor, 0805 SMD
C7–12	22uF	tantalum capacitor, SMD, 10–20v	R46–47, R82–83	24.9 ohm	1/2W resistor, SMD
C23, C26	1uF	tantalum capacitor, SMD, 10–20v	R48–49, R84–85	1 ohm	1/2W resistor, SMD
C25	220pF	ceramic capacitor, SMD, 10–50v	R50–61, R62–75, R86–95	10K ohm	1/8W resistor, 0805 SMD
C29–32, C35–38	100uF	tantalum capacitor, SMD, 10–20v	R96–97	750 ohm	1/8W resistor, 0805 SMD
C41–46	10uF	ceramic capacitor, SMD, 10–50v			
C47–48	1uF	ceramic capacitor, SMD, 10–50v			
C49–50	0.01uF	ceramic capacitor, SMD, 10–50v			
D1, D6–9		GP silicon rectifier, SOT–23	U1–6	LT1117–5	low-dropout positive 5v regulator, SOT–223
D2	blue	LED, 0805 SMD	U7–9	LT1175–5	low-dropout negative 5v regulator, SOT–223
D3	IF–E96	fiber optic emitter, plastic 1000um	U10	ST2L01	dual 3.3v and adj. output positive regulator
D4	(MCR08BT1)	SCR, 0.8A, SOT–223	U11	ip2022–PQ80	Ubicom microcontroller
D5		GP silicon rectifier, 1A, SMA	U12	AT45DB041	Atmel serial flash, 8–SOIC
J1–3		2x8 100mil header	U13	24MHz	oscillator, 3.3v (CB3LV–3C–24M0000–T))
J4		2x10 100mil header	U14	TC77	Microchip digital temp. sensor, SOT–23–5
J5		2x5 100mil header	U15	ADM696	Analog Devices watchdog, 16–SOIC
K1		5v DPDT PCB relay	U16	LM4140BCM–2.5	2.5v voltage reference, 8–SOIC
Q1	(MJD31C)	GP silicon NPN transistor, TO–252	U17	tlc2272	dual low-noise operational amplifier, 8–SOIC
Q2–3, Q8–9	(MMBT2907ALT1)	GP silicon PNP transistor, SOT–23	U18	MCP6S26	Microchip prog. gain mux amp, 14–SOIC
Q4–5, Q6–7	(MMBT4401LT1)	GP silicon NPN transistor, SOT–23	U19–20	74ACT04	hex TTL to CMOS inverter, 14–SOIC
R1–2, R44–45, R80–81	470 ohm	1/8W resistor, 0805 SMD	U21–22	AD7940	Analog Devices 14-bit ADC, 8–MSOP
R3–4	10 ohm	1/8W resistor, 0805 SMD	U23	IF–D95T	fiber optic detector, plastic 1000um
R5	560 ohm	1/8W resistor, 0805 SMD	U24–26	AD5235	1024-step digital pot., 16–TSSOP
R6	22 ohm	1/8W resistor, 0805 SMD	U27–28	(NTE3098)	LED to NPN transistor optoisolator
R7, R31–32	160 ohm	1/8W resistor, 0805 SMD	U29–34	tlc2274	quad low-noise operational amplifier, 14–SOIC
R8–9, R98–99	4.7K ohm	1/8W resistor, 0805 SMD			
R10, R38–39, R104–105	100K ohm	1/8W resistor, 0805 SMD			
R11–12, R24, R30, R33, R40–41, R76–77	1K ohm	1/8W resistor, 0805 SMD			
R13–18	270 ohm	1/8W resistor, 0805 SMD			
R19	82 ohm	1/8W resistor, 0805 SMD			
R20–22	2.2K ohm	1/8W resistor, 0805 SMD			
R23, R29	6.2K ohm	1/8W resistor, 0805 SMD			
R25–28	1.6K ohm	1/8W resistor, 0805 SMD			
R34, R37, R102–103	100 ohm	1/8W resistor, 0805 SMD			
R35	125 ohm	1/2W resistor, SMD			
R36	360 ohm	1/8W resistor, 0805 SMD			

Throughout the schematics are shown unnamed 0.1uF ceramic decoupling capacitors and 10K ohm 1/8W 0805 pull-up resistors.