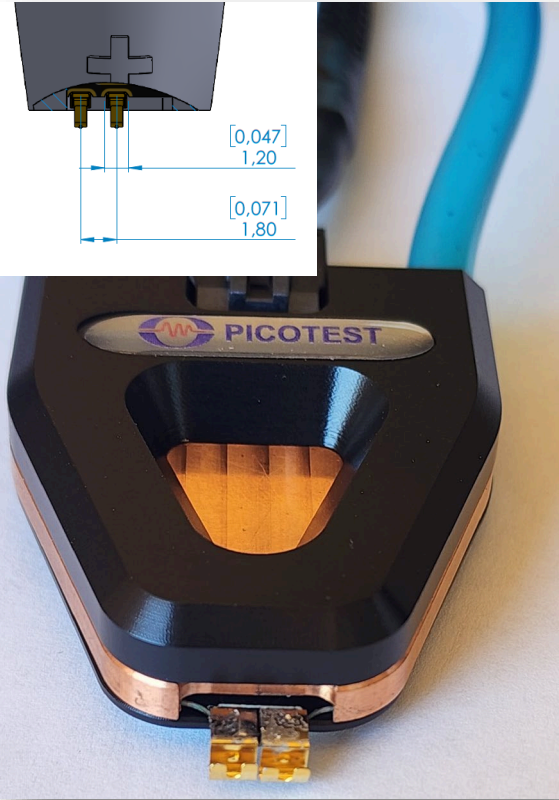
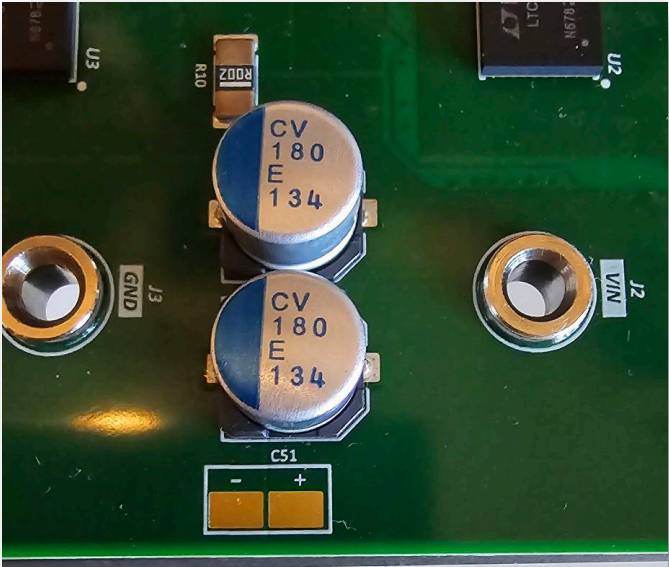
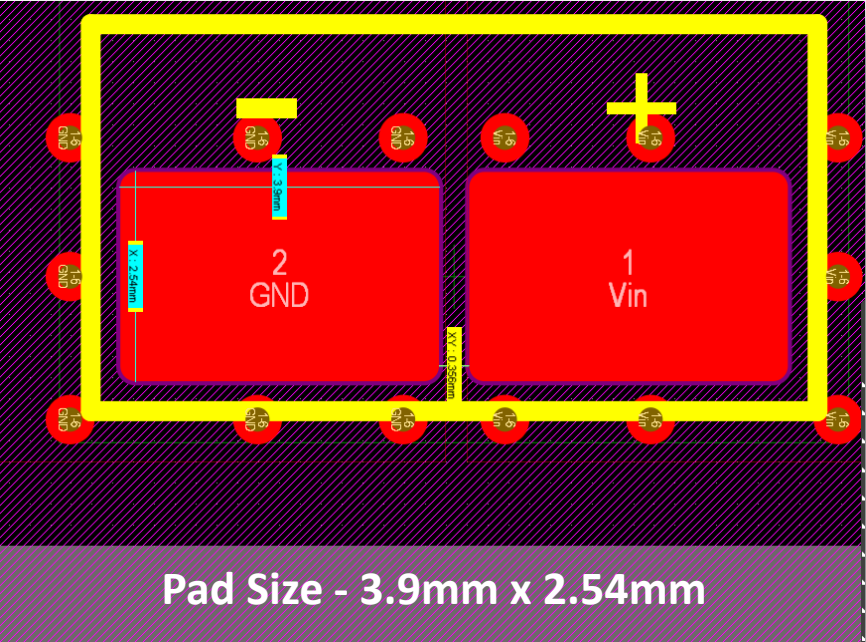




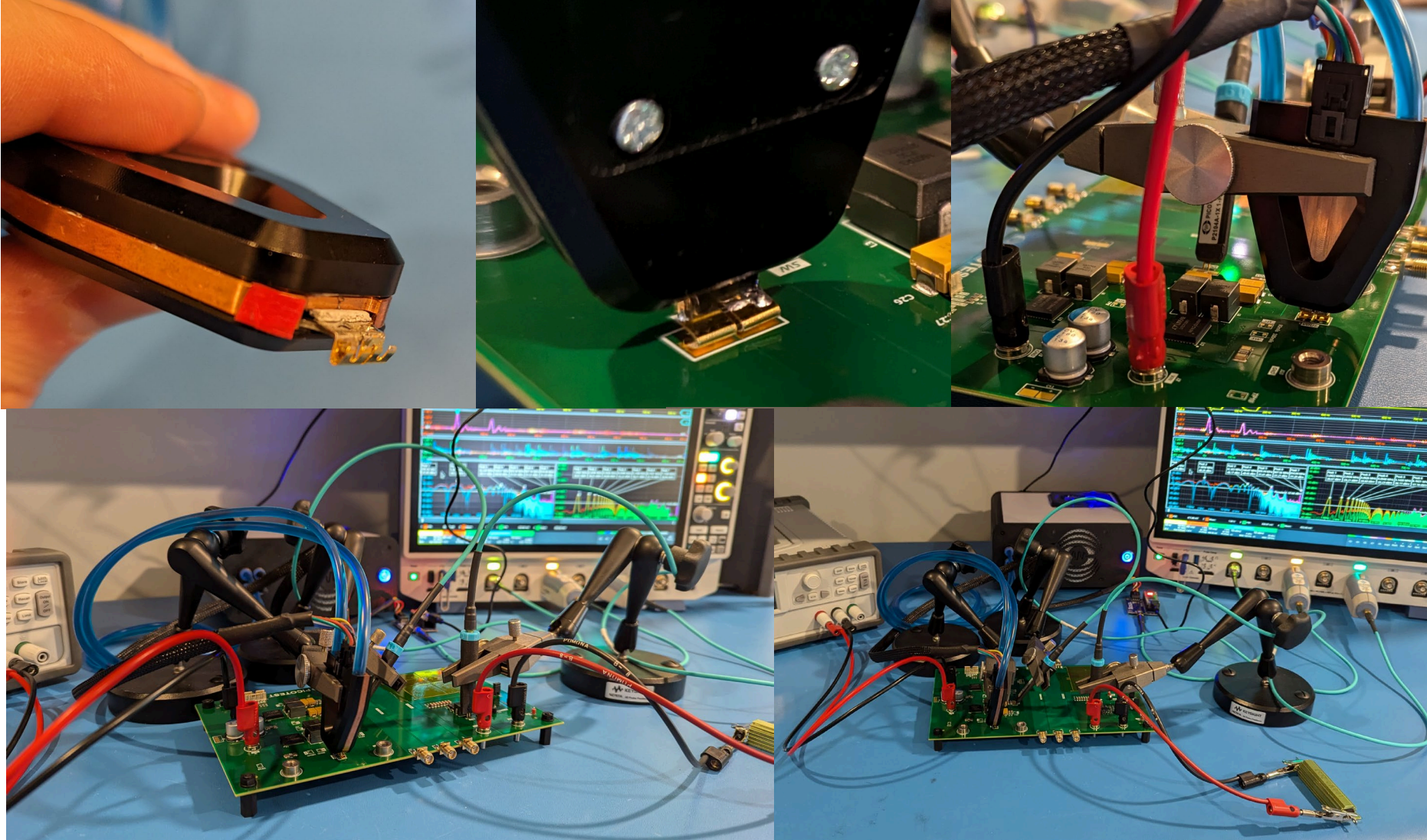
S50 Probe Support PCBs

PCBs to support the operation of the
S50 water-cooled transient load stepper probe

S50 Probe Head & Dimensions



S50 Probe in Action



Ordering an S50 Probe

Ordering Information: Upon placing an order for the S50, the voltage/current/resistance for each of the 6 cell settings in the probe needs to be defined. Please fill out the table at the bottom in BLUE and Picotest will confirm the settings. You can specify the voltage and the desired current for each of the six (6) load steps given the requirements and Picotest will choose the closest resistor value.

Notes

- Each cell in the probe can handle approximately **10W max (avg)**. There are 6.
- The duty cycle can be pushed to that level. Higher currents must be restricted in their duty cycle
- **The total power (50W) should not be exceeded at any time.**
- **If these other settings are low duty pulses, below 10W avg per cell or 50W total in combination then operation should be acceptable.** Higher power levels would require an alternate higher power water cooler (currently 60W) which can be ordered.

Example #1 - Allowed Switch Activation Combinations

#	Amps	Volts	Duty	Sum Amps	Allowed Combinations
1	0.25	24	100%	0.25	1
2	0.5	24	83%	0.75	1 and 2
3	0.85	24	49%	1.6	1 and 2 and 3
4	1.6	24	26%	3.2	1 and 2 and 3 and 4
5	1.6	24	26%	4.8	1 and 2 and 3 and 4 and 5
6	1.6	24	26%	6.4	1 and 2 and 3 and 4 and 5 and 6

Example #1

#	Amps	Volts	Duty	Power	Power ok if < 10W in each cell
1	0.25	24	100%	6	6
2	0.5	24	83%	12	9.96
3	0.85	24	49%	20.4	9.996
4	1.6	24	26%	38.4	9.984
5	1.6	24	26%	38.4	9.984
6	1.6	24	26%	38.4	9.984

Example #2

#	Amps	Volts	Duty	Power	Resistor Value	Actual Resistor Value	Actual Current	Duty Cycle Limit
1	1	1	100%	1	1	1	1	100%
2	2	1	100%	2	0.5	0.51	1.96	100%
3	4	1	100%	4	0.25	0.24	4.17	100%
4	8	1	100%	8	0.125	0.124	8.06	100%
5	16	1	50%	8	0.0625	0.068	14.71	68%
6	32	1	25%	8	0.03125	0.03	33.33	30%

User defined table to be filled out upon ordering

#	Amps	Volts	Duty	Power	Ideal Resistor Value	Actual Resistor Value	Actual Current	Duty Cycle Limit
1								
2								
3								
4								
5								
6								

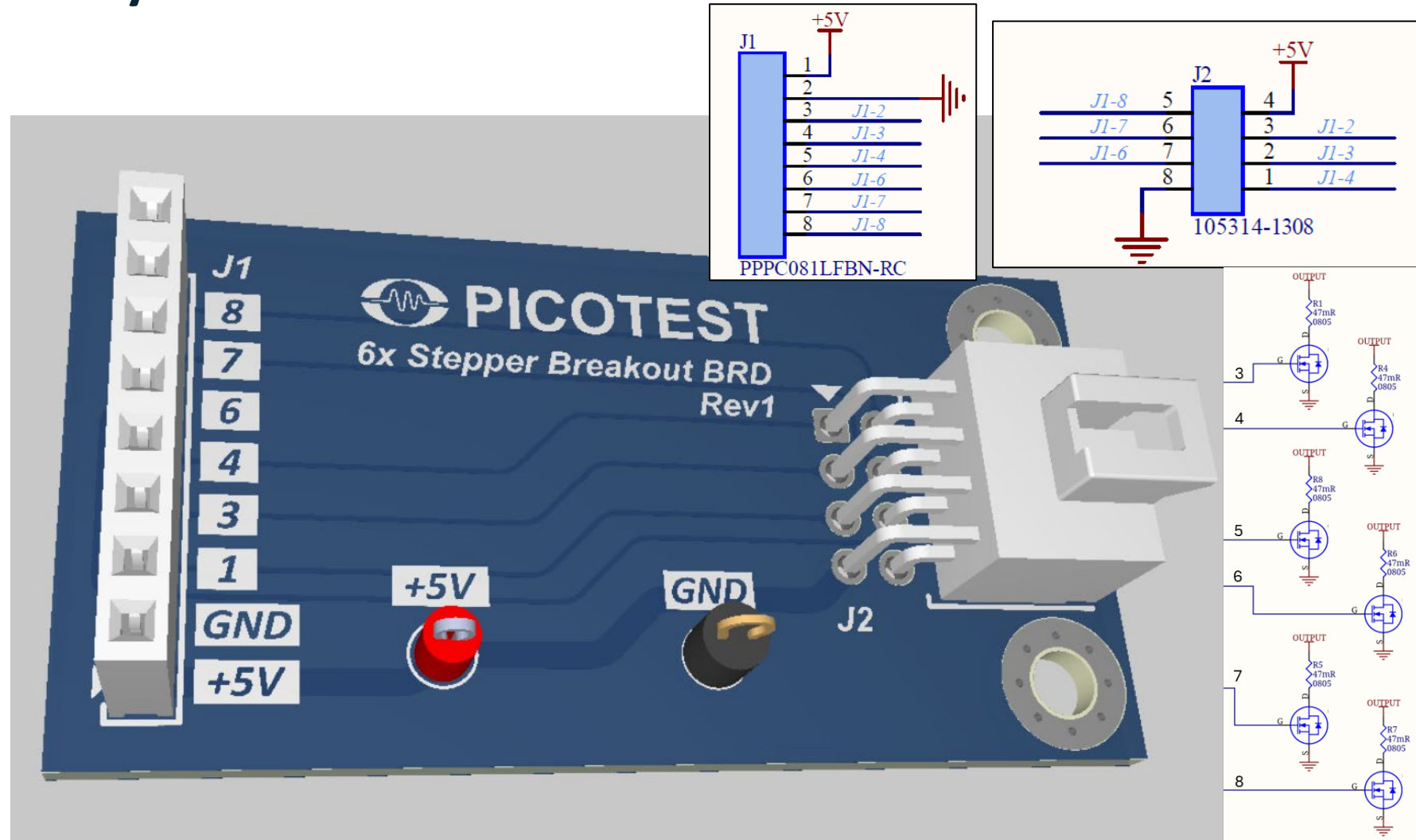
S50BREAKOUT – Individual Signal Breakout Board for Load Step Control

-- Each signals individually

Individual Signal Breakout Board

- Apply 5V and Ground (either to the breakout connector or the clip points)
- Drive any pin high or low with 5V to toggle the current for the pin

S50 HEADER	BREAKOUT HEADER	MOLEX	Resistance User-Defined	Switch	Resistor	Power	Current
1	1	4				+5V	50mA
5	2	8				GND	
2	3	3	220mΩ	Q3	R5		4.35
3	4	2	82mΩ	Q6	R8		10.87
4	5	1	430mΩ	Q2	R4		2.27
6	6	7	82mΩ	Q5	R7		10.87
7	7	6	82mΩ	Q4	R6		10.87
8	8	5	931mΩ	Q1	R1		1.06



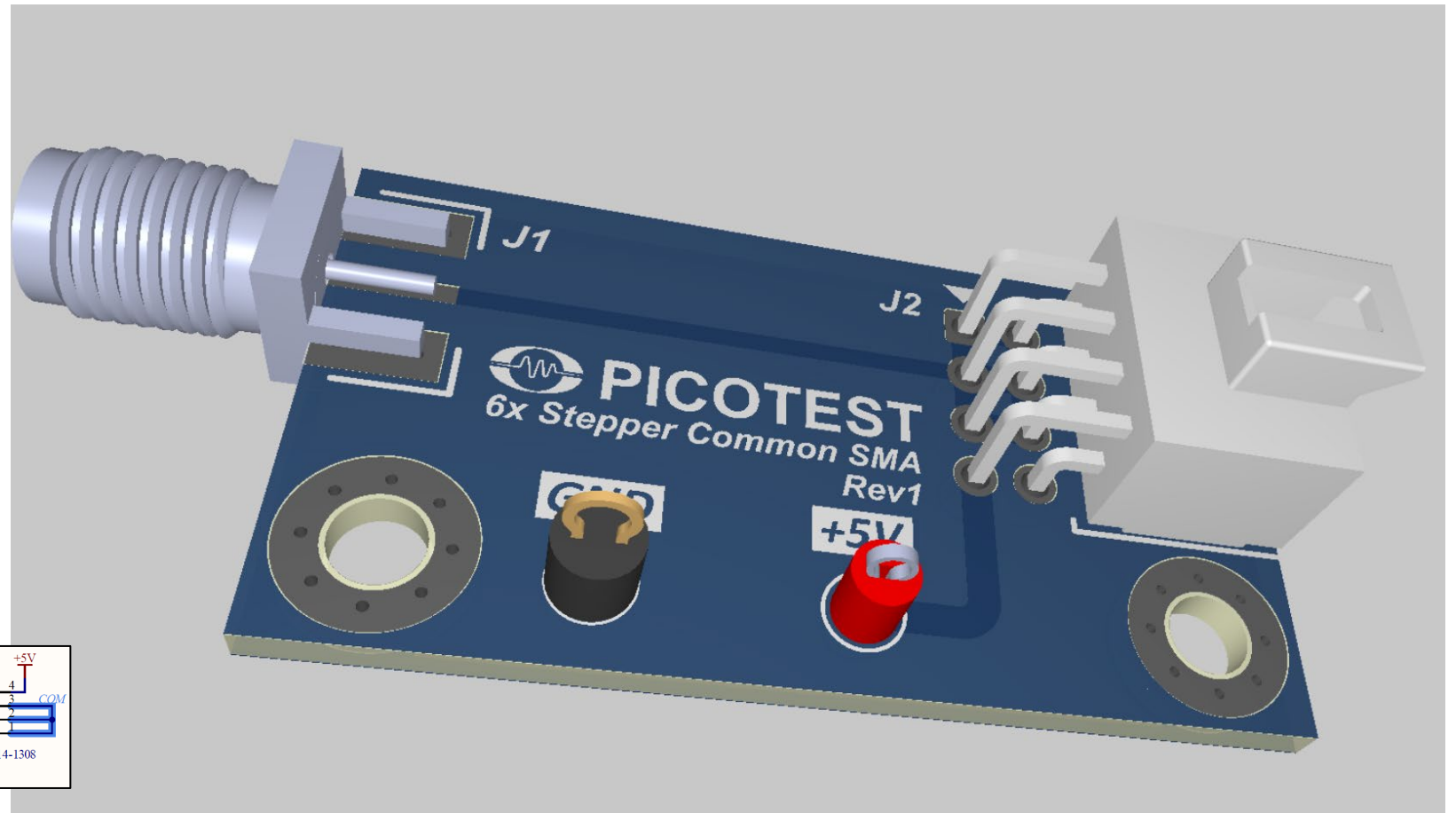
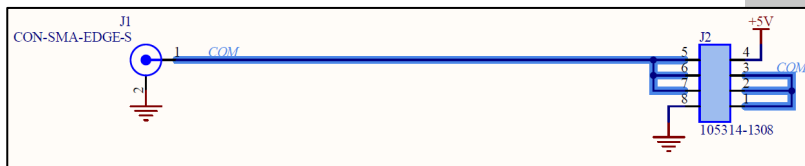
S50COMMON – Combined Signal Breakout Board for Load Step Control

-- All signals at once

Common Step Board

(ALL ON or ALL OFF)

- Apply 5V and Ground (to the clip points)
- Connect a cable from the SMA connector to a pulse generator
- Drive the signal high or low with 5V to toggle the current from 0 to 37A

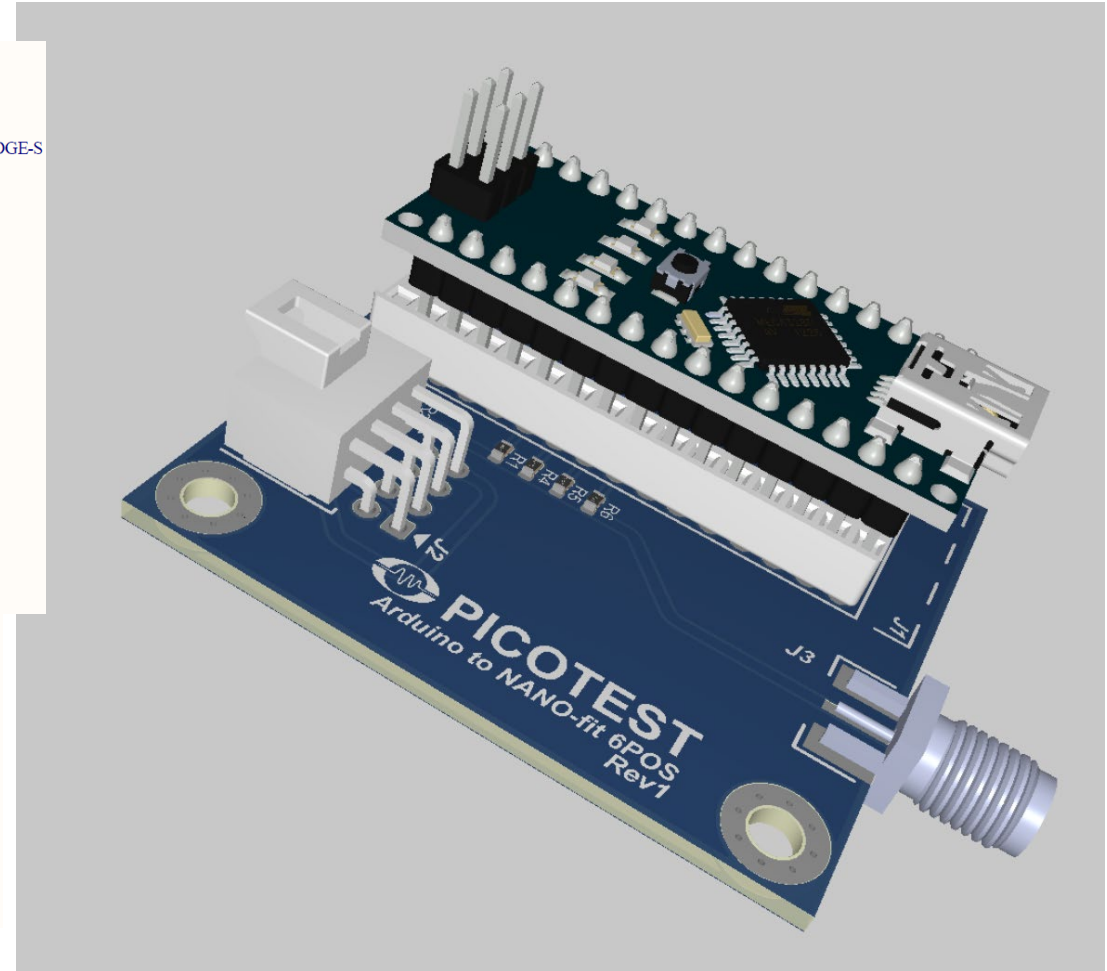
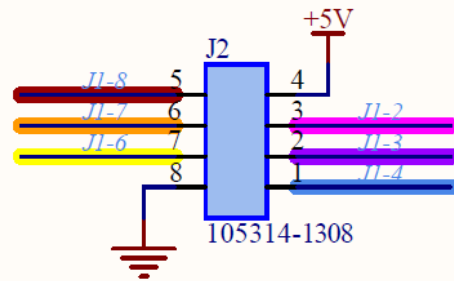
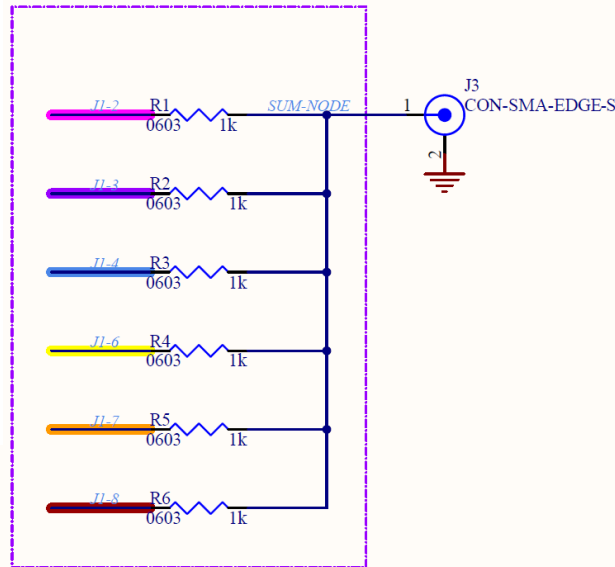
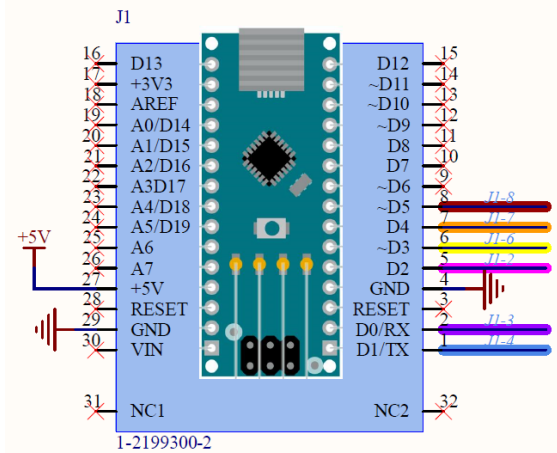


S50 Probe Support PCBs and Cabling



OPTIONAL: Arduino Programmable Controller

Programmable Solution
Connect the cable

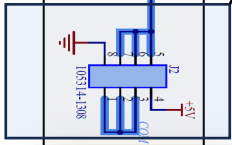


S50 System Interconnects



To S50 Header Cable

Sig GEN
Load Pulse

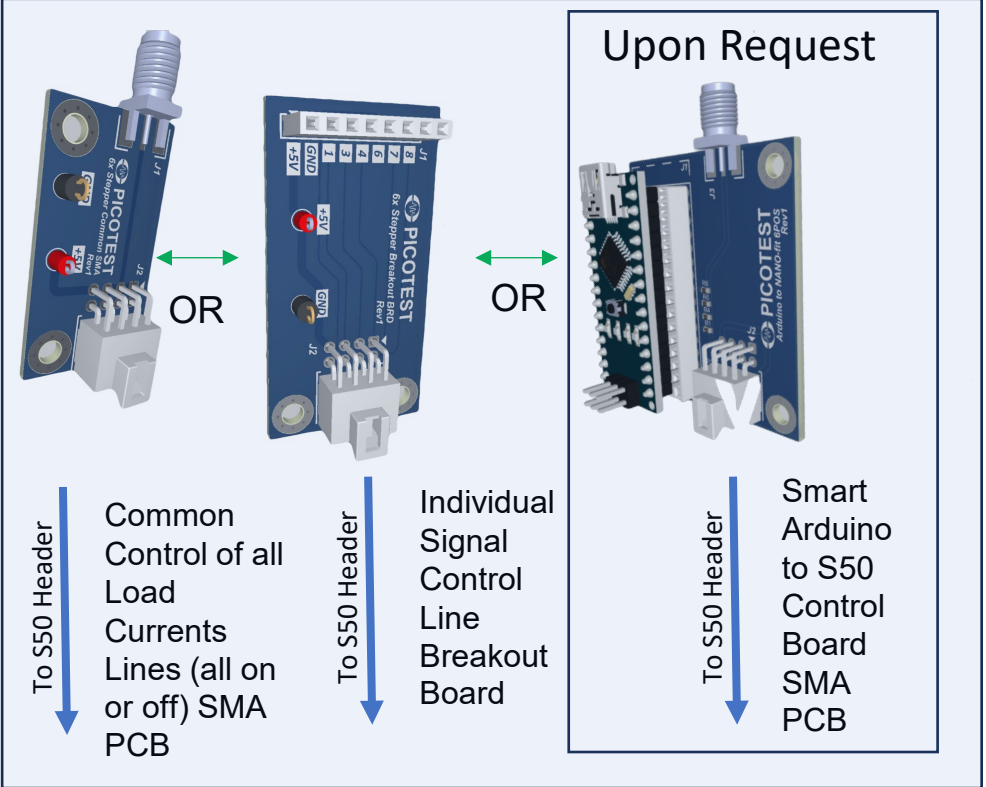


S50 Header



S50 Solder Tabs

Target DUT Output



PCB Selection Options:

- S50 Stepper Board Common Control SMA
- S50 Stepper Board Individual Step Control
- S50 Programmatic Arduino to Nano Common SMA

* Control Signal Level: TTL or CMOS

