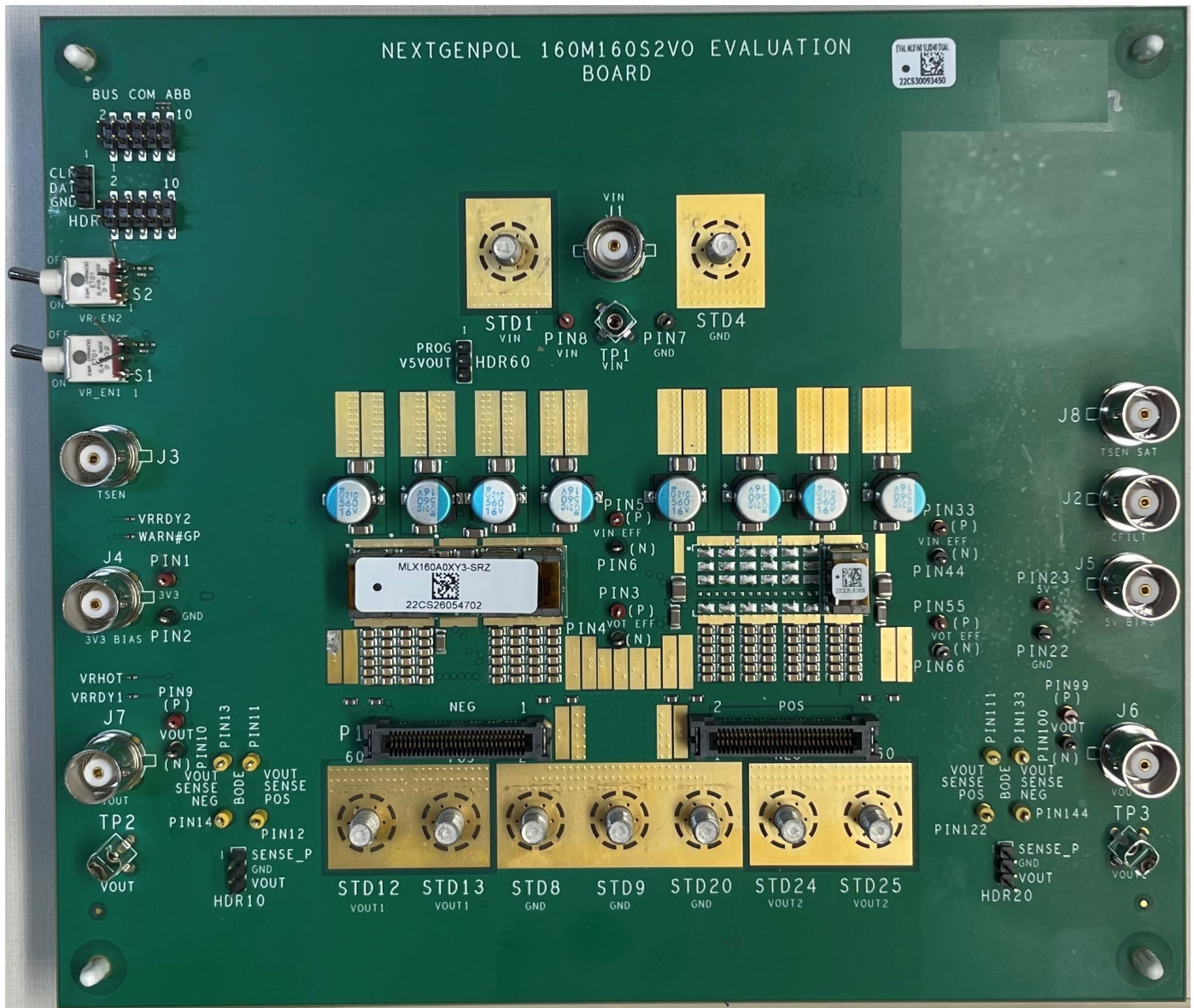


# NEXTGENPOL 160M160S2V0 DUAL LOOP/OUTPUT

Dual Loop/Output Voltage Evaluation Board populated with MLX040 / MLX080 / MLX120 / MLX160 / MLX160+SLX040 or MLX160+SLX160



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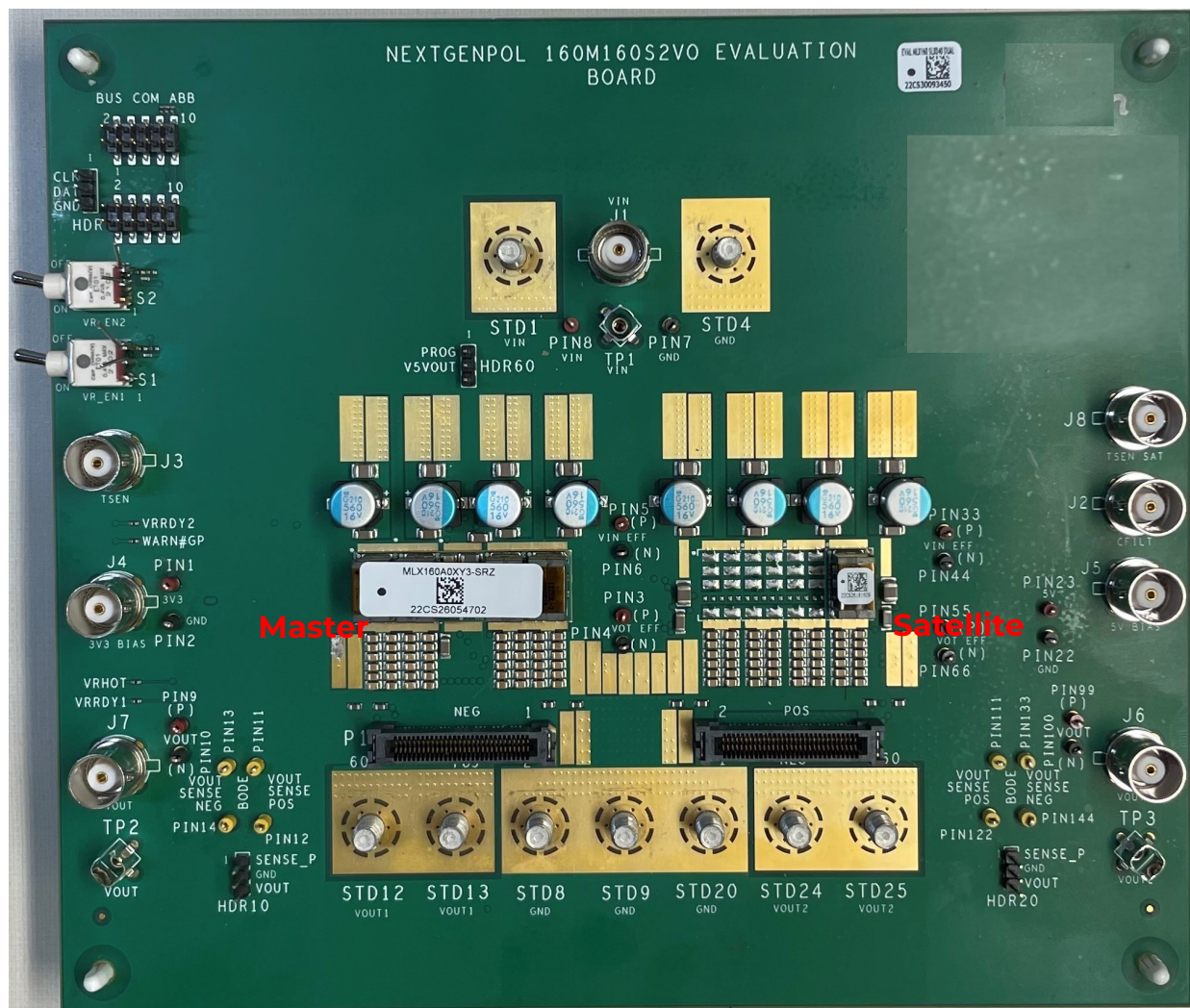
# 1. Description

The MLX series are the next generation of POL modules that can deliver 40-160A; 40-160A in a two loop configured mode. It operates over a wide input range from 7V to 14Vdc and provides precisely regulated output voltage from 0.45 to 2..0V

The module's features include digital PMBus™ interface, remote ON/OFF, output voltage sequencing, pre-biased start up, cycle-by-cycle output overcurrent protection, input and output under-voltage and over-voltage protections and over-temperature protections and more. The module has an extensive set of PMBus™ commands for both control and monitoring of the system parameters.

The evaluation board is shown on the picture below. It comes pre-populated with required minimum of input and output capacitors. Numerous empty component place holders allow the board to be reconfigured to match a specific customer's application. Various test points facilitate the easy setup and monitoring of the module operation.

**Top View of Evaluation Board**

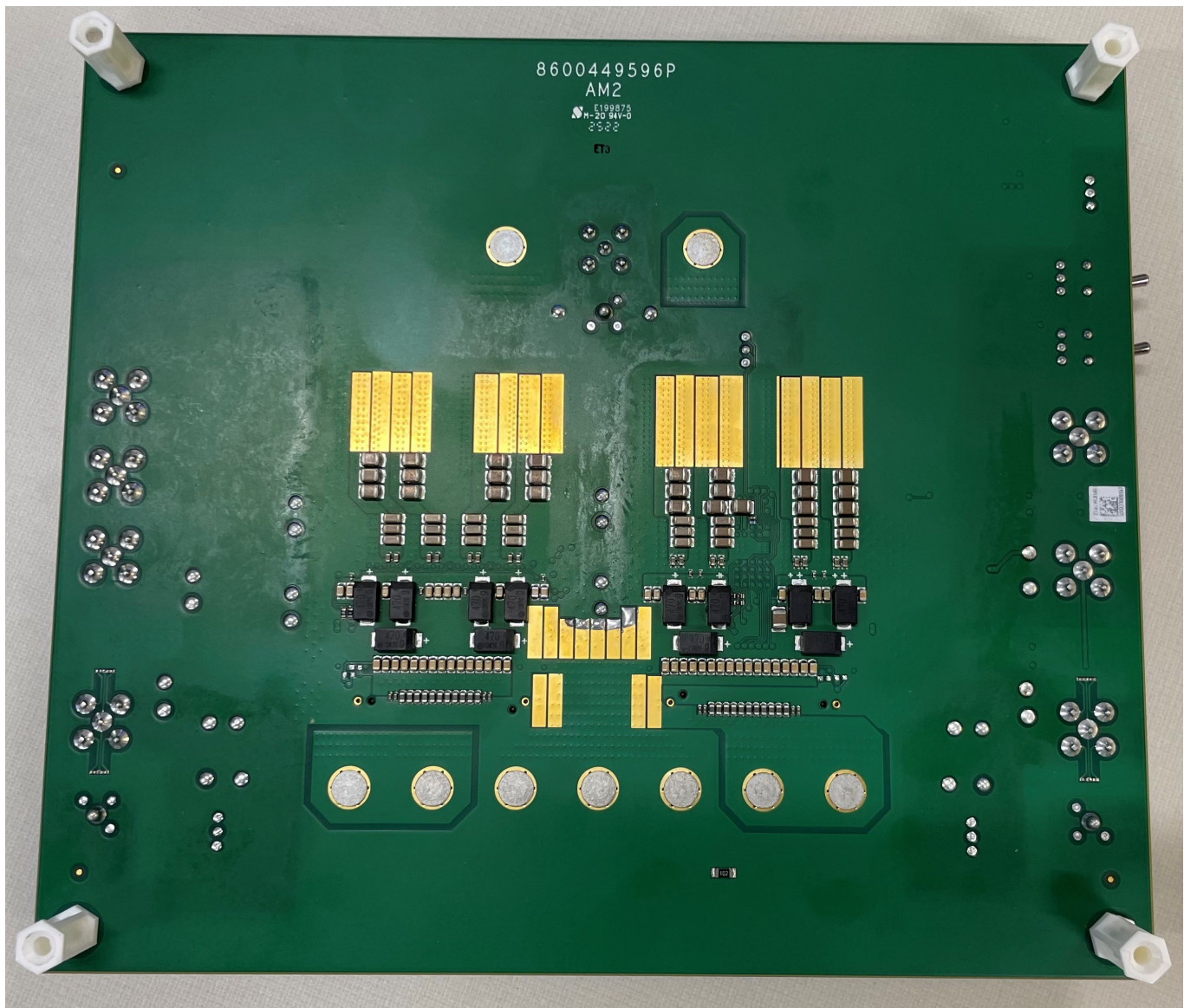


## 1. Description (Continued)

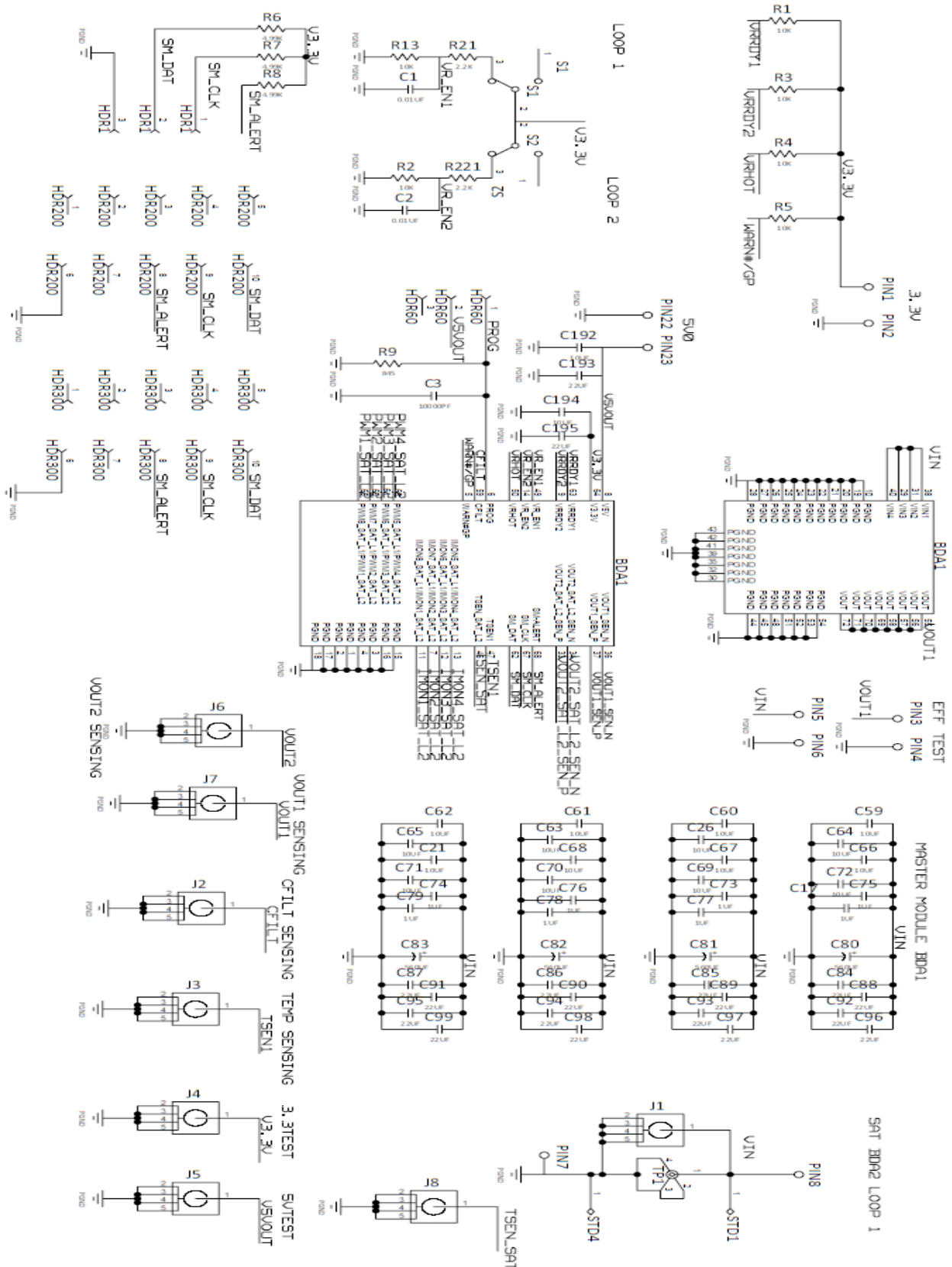
The Installed components are as follows. The schematic on the following page shows maximum capability and includes expansion capability:

- Ceramic caps for input
- Ceramic and Surface electrolytic on output

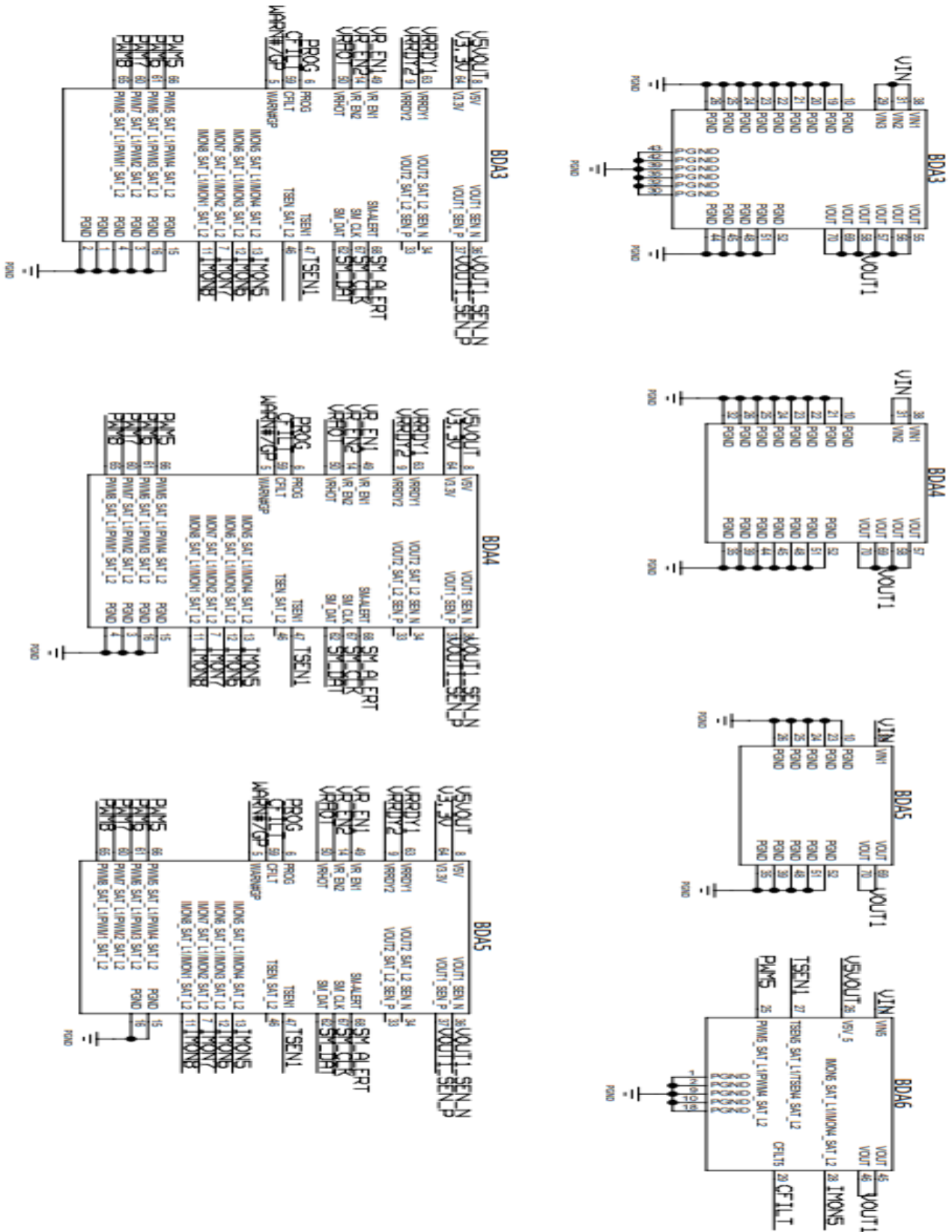
**Bottom View of Evaluation Board**



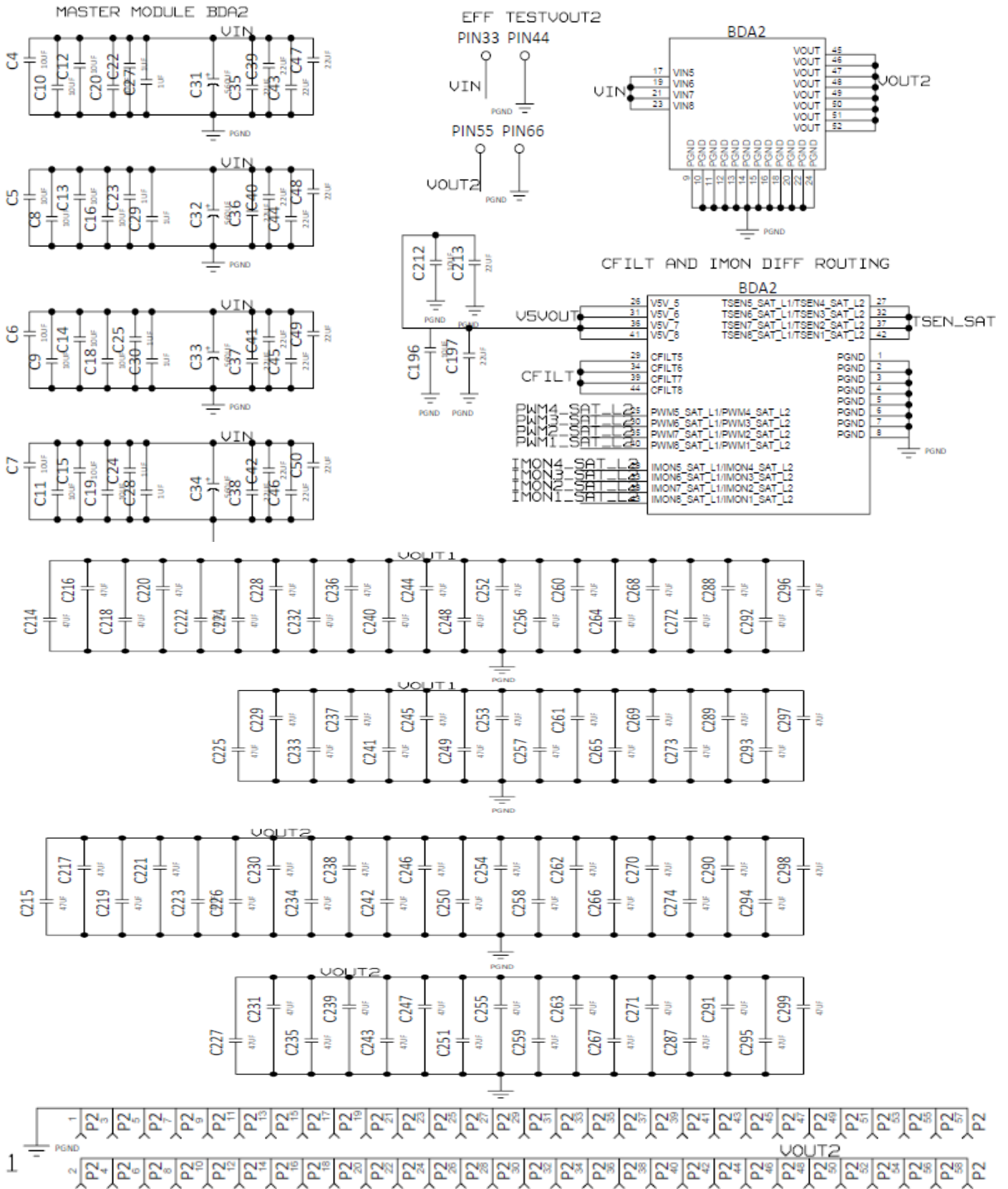
## 2. Schematic



## 2. Schematic (Continued)

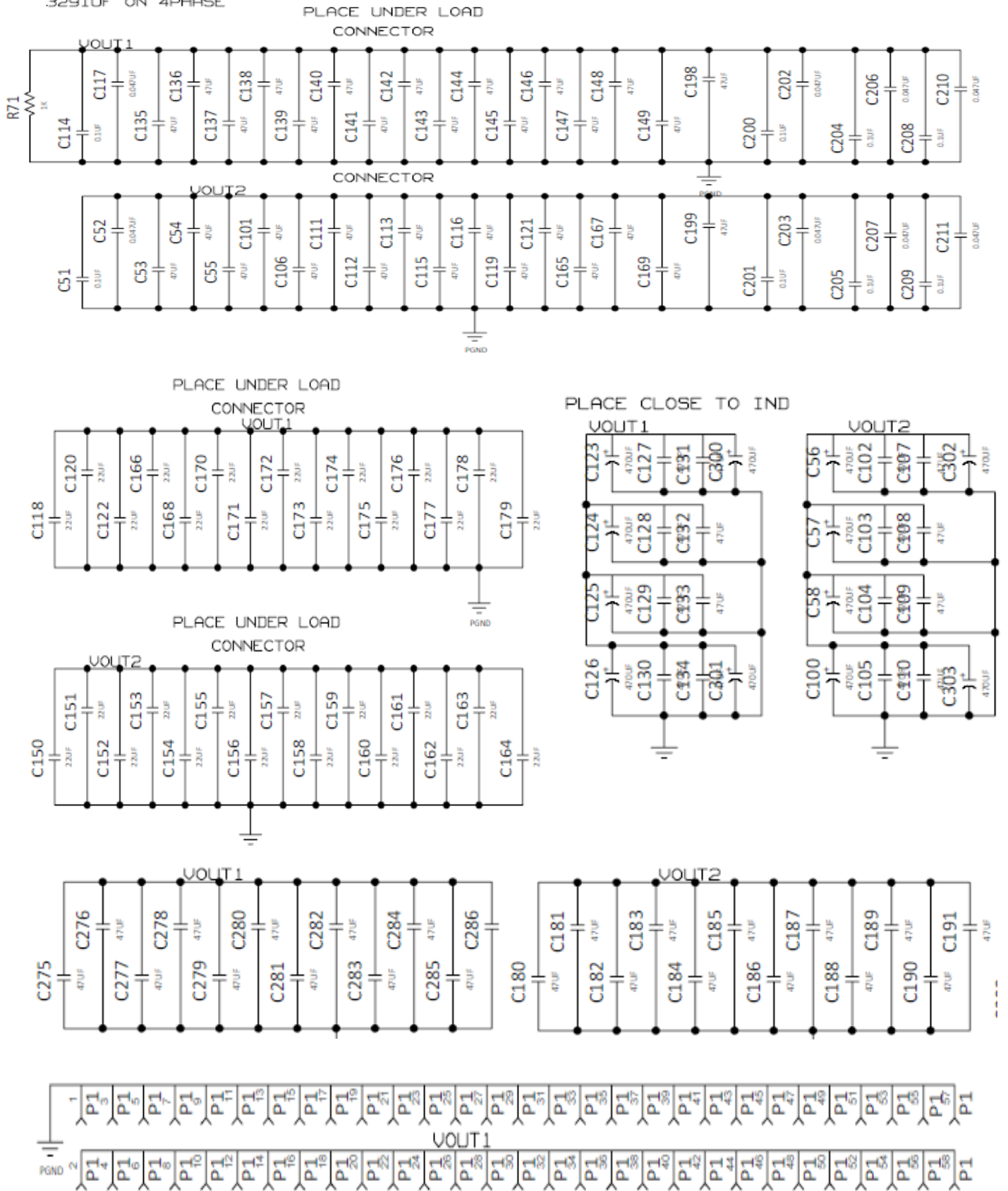


## 2. Schematic (Continued)



## 2. Schematic (Continued)

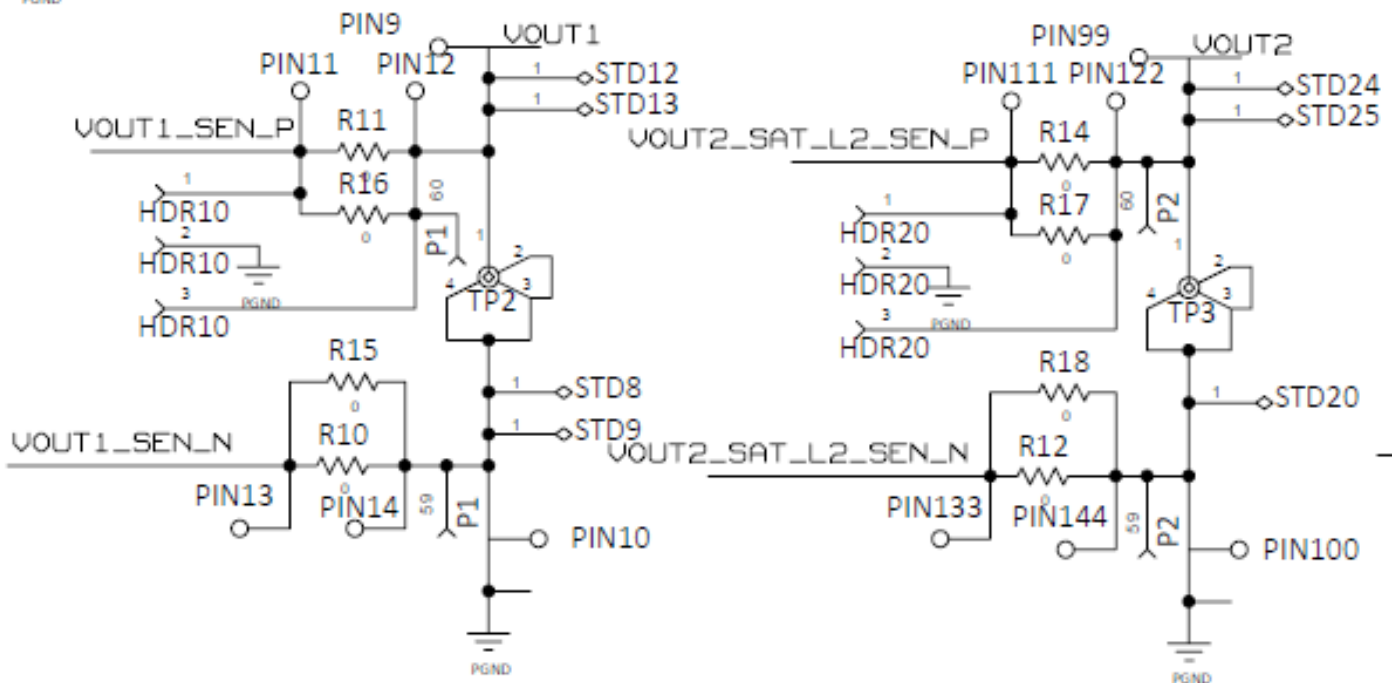
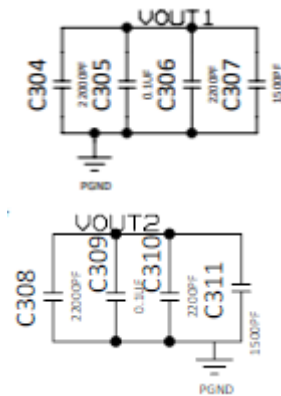
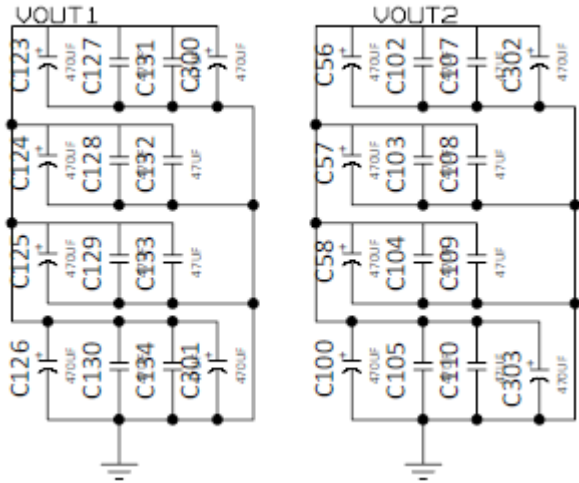
822UF PER PHASE  
3291UF ON 4PHASE





## 2. Schematic (Continued)

PLACE CLOSE TO IND

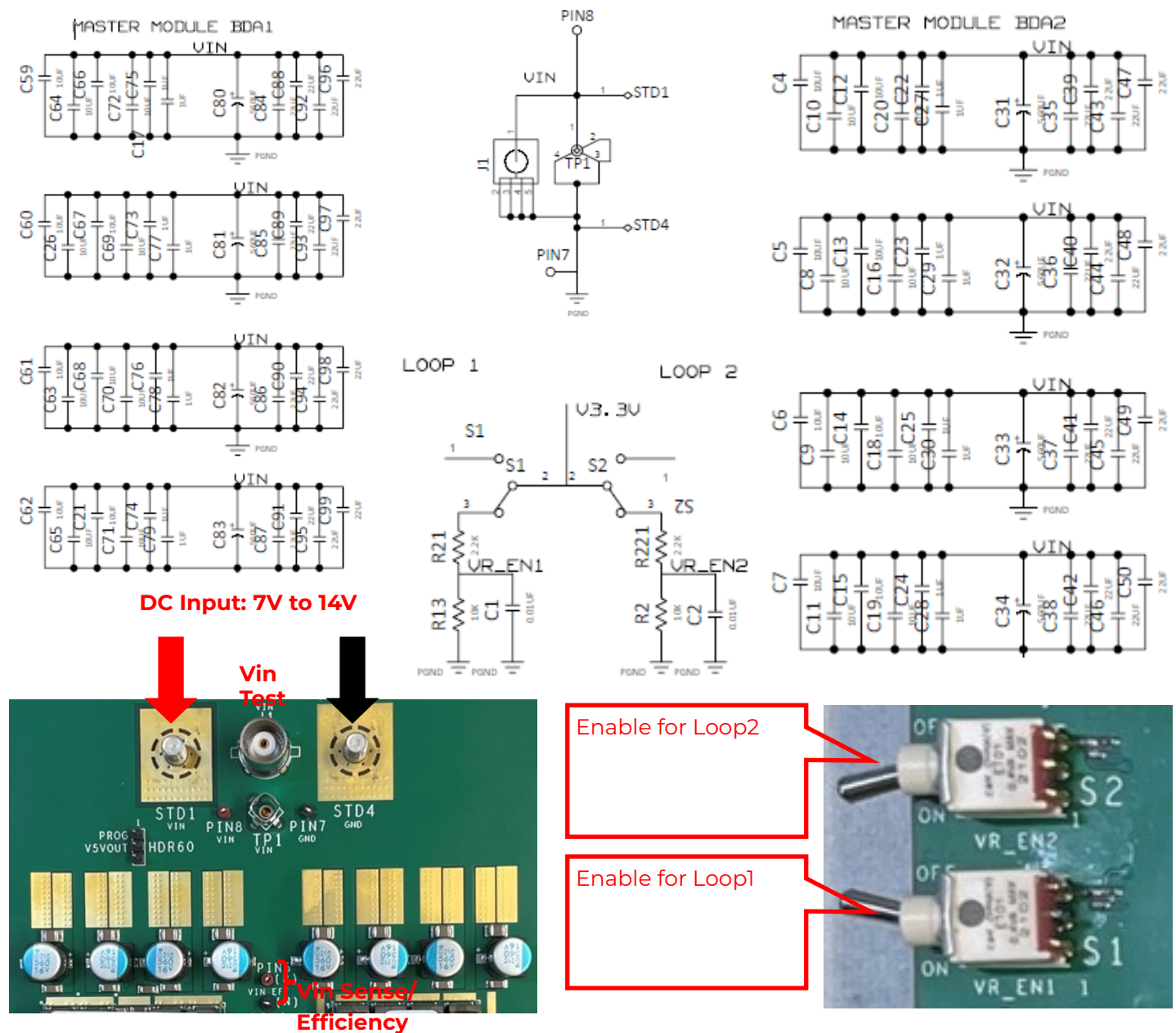


The complete schematic diagram of the MLX Series evaluation board is shown in the previous pages. Components on schematic show max capability and may not be actually used on the board.

## 2.1. Eval Board Sections

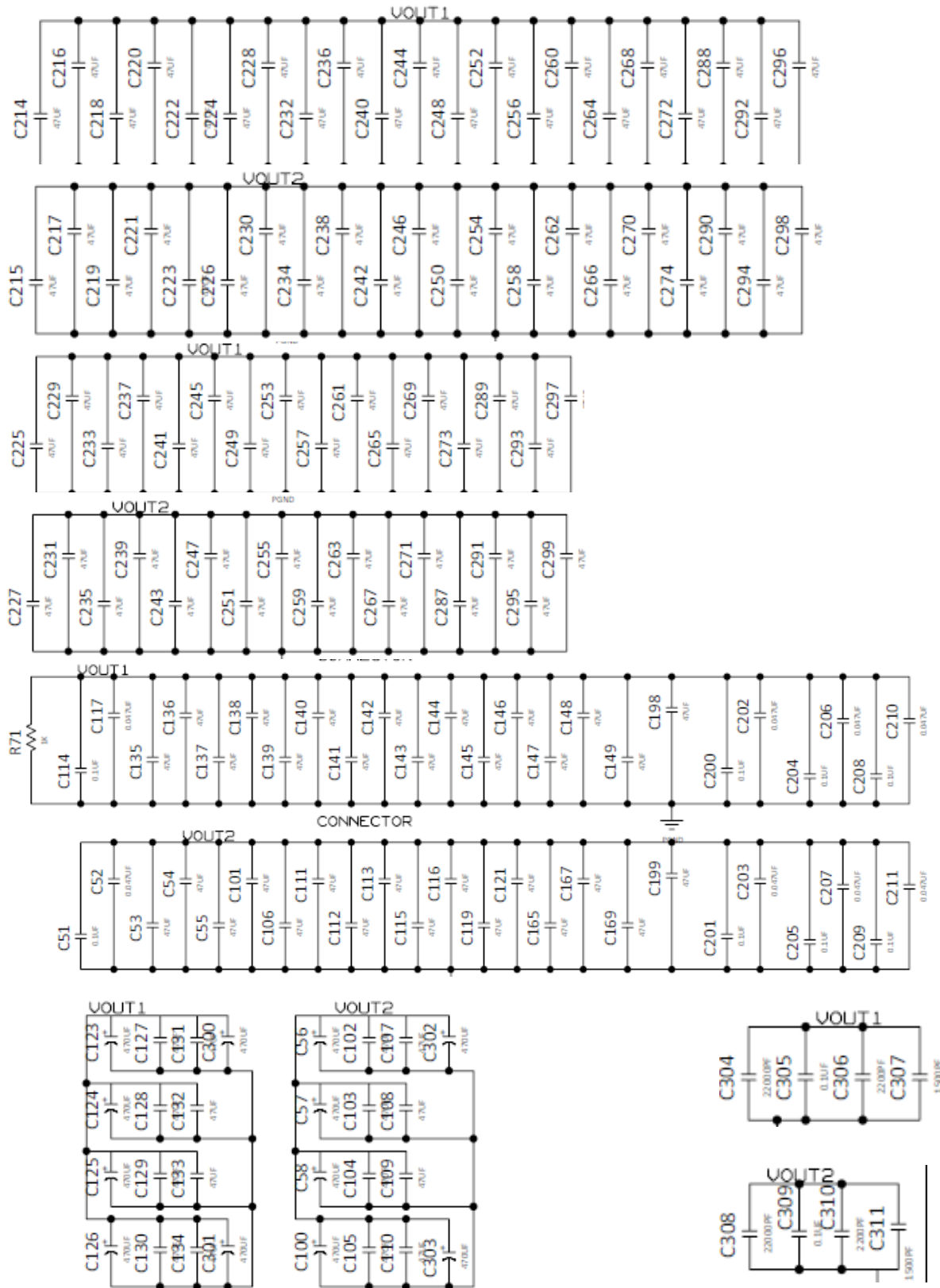
The following pictures show the input connections and components external to the module

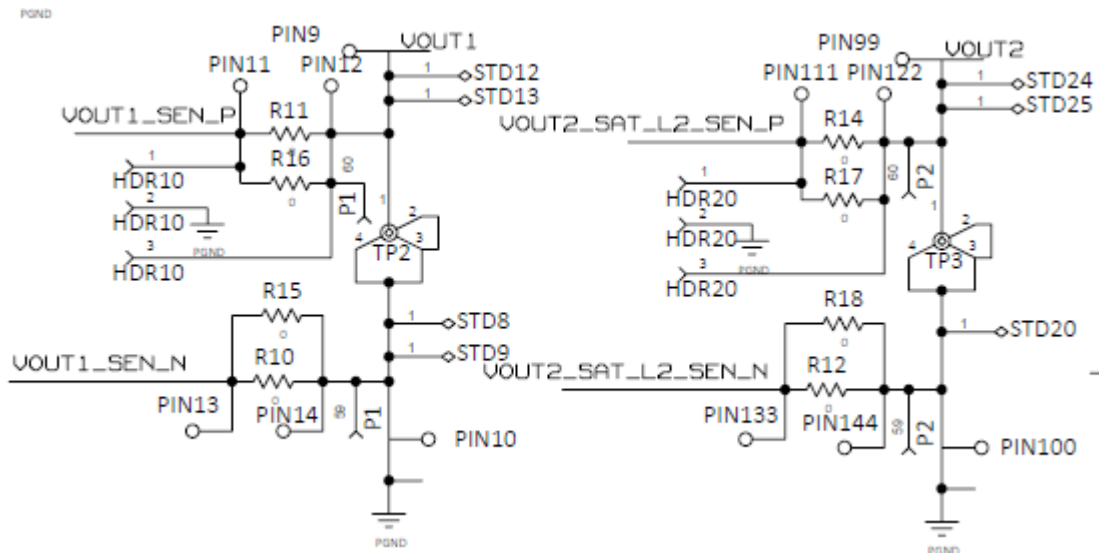
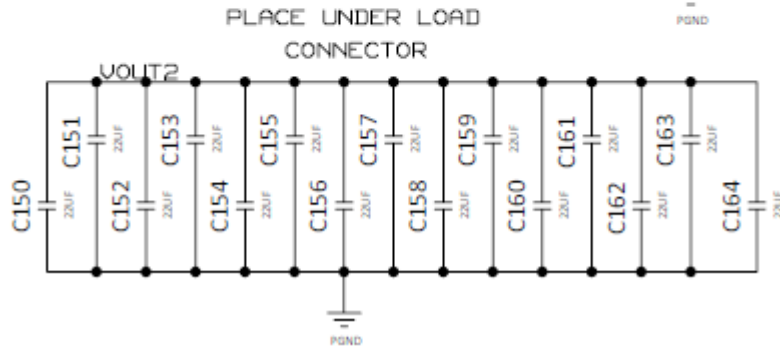
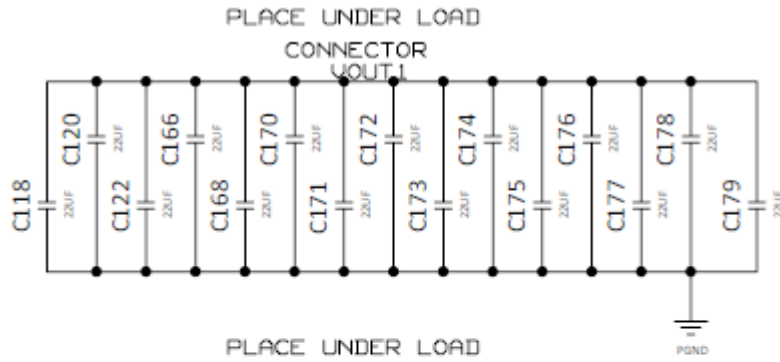
### 2.1.1. Input Connections

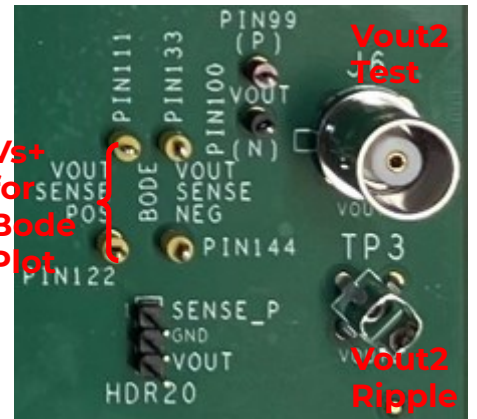
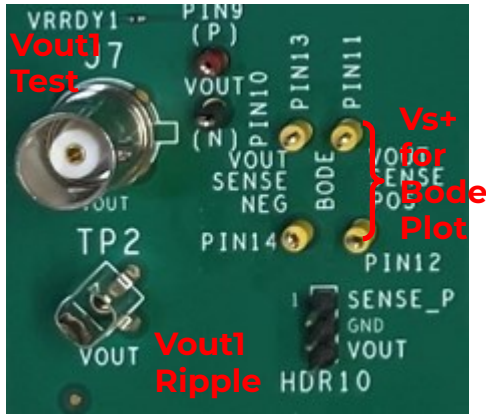


## 2.1.2. Output Connections

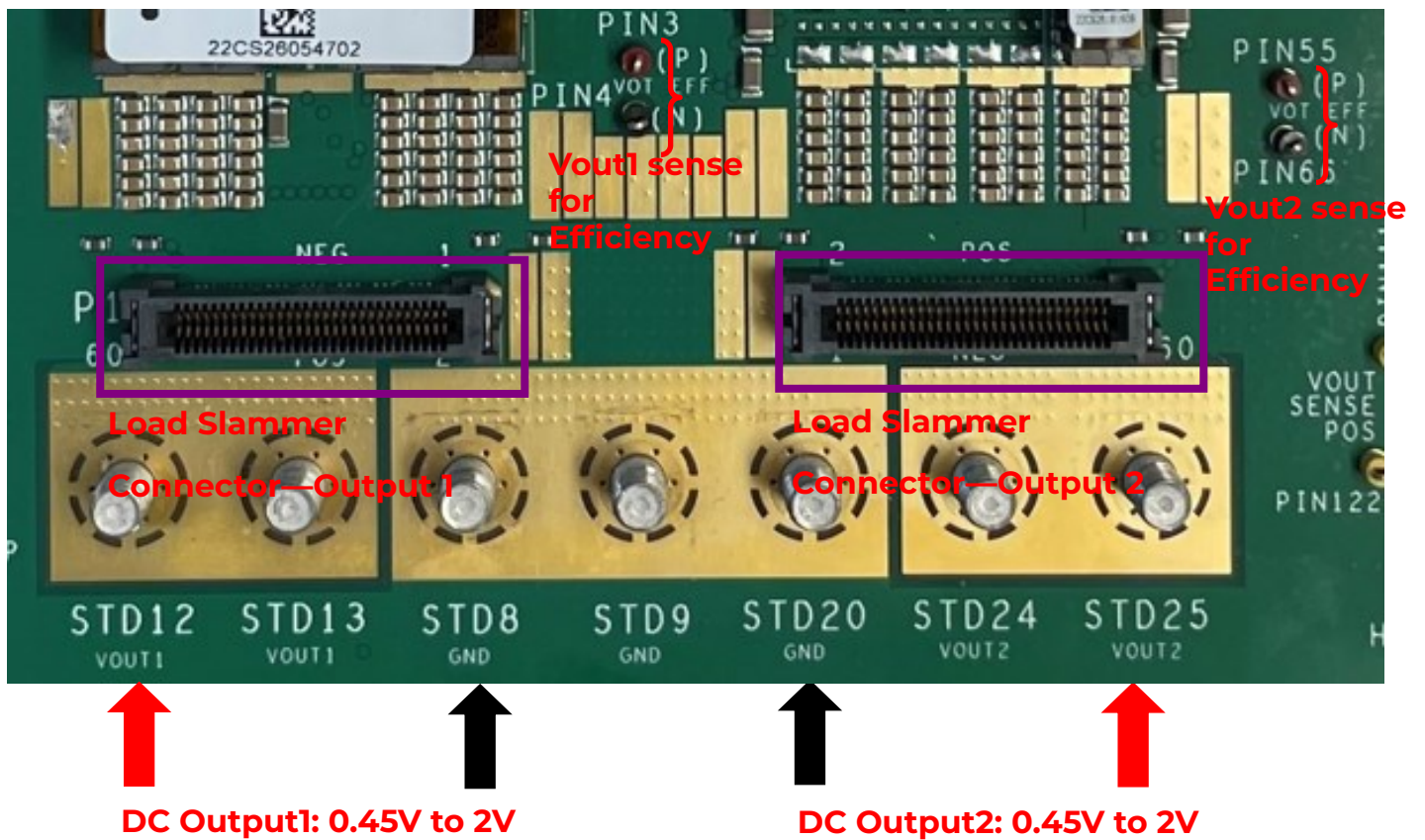
Schematic shows max capability. Board will not be populated with all components





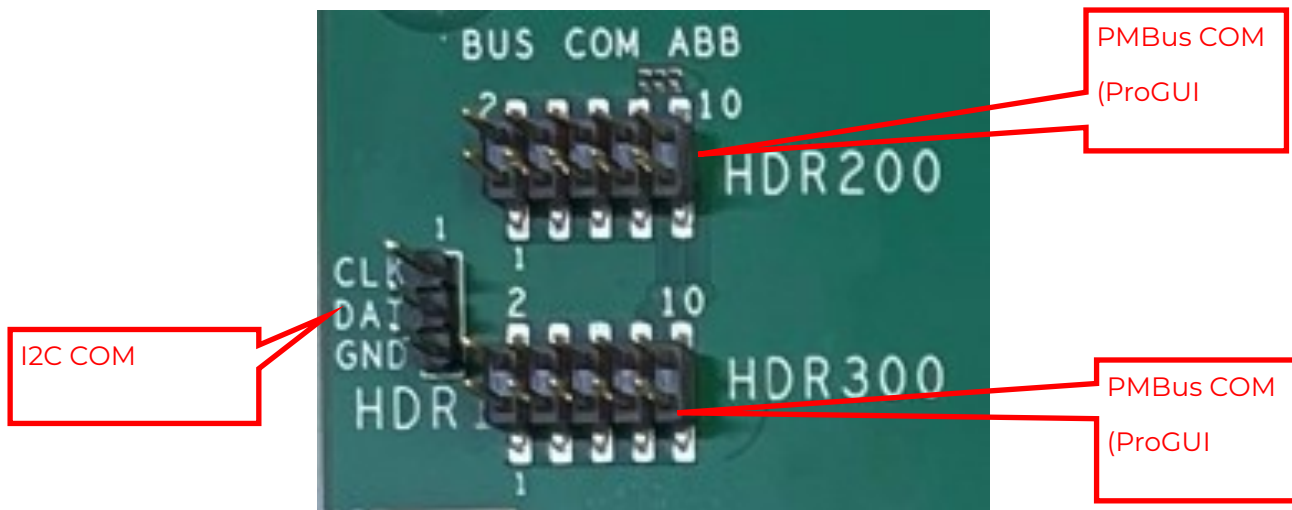
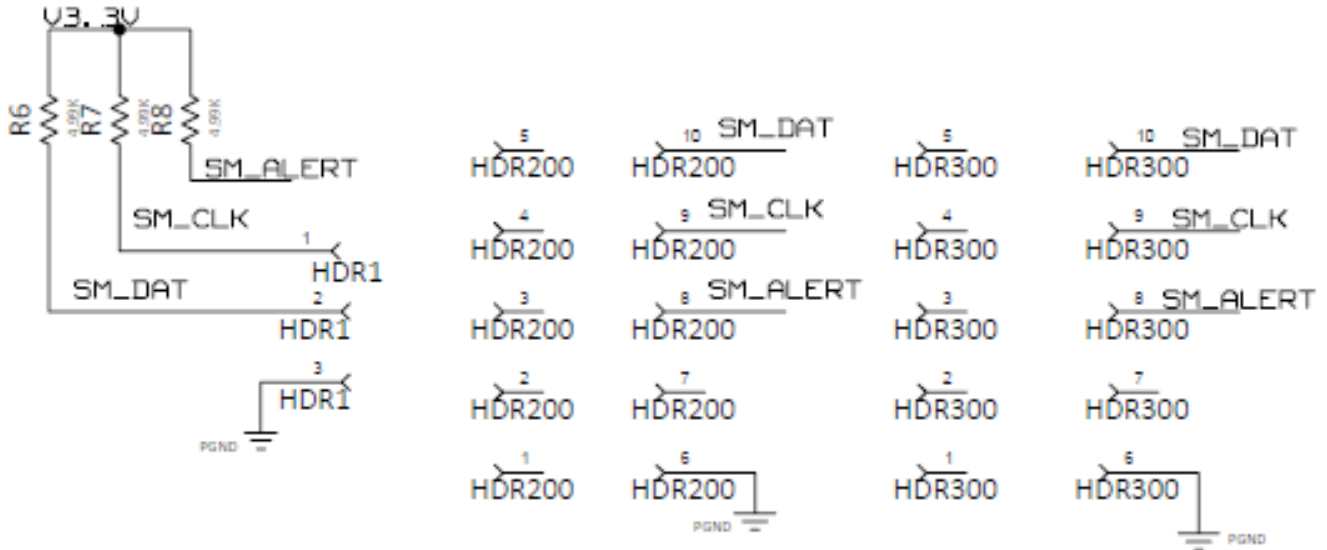


### 2.1.3. Load Transient Connections



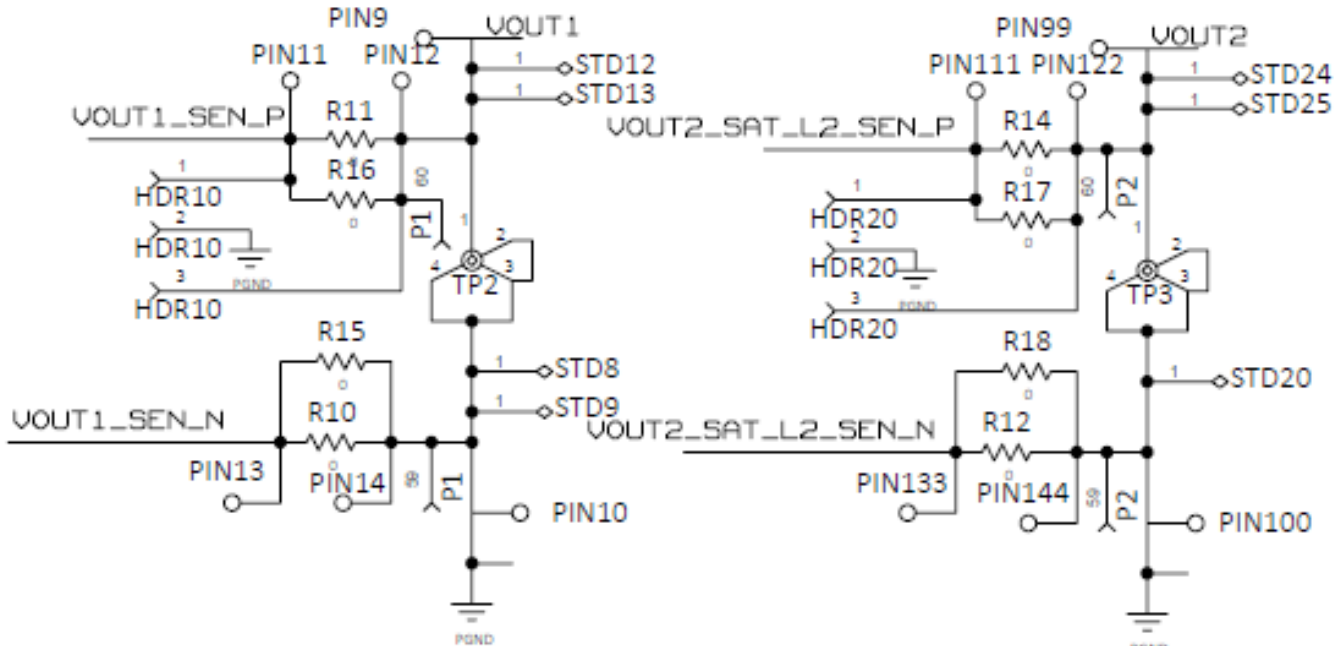
## 2.1.4. PMBus Connection

Evaluation Board is provided with a pair of 10 pin connectors and 3 pin header for PMBus connectivity

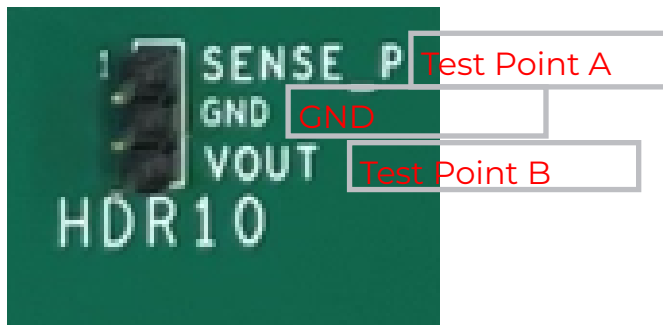


### 2.1.5. Bode Plot Connection

Evaluation Board is provided with test points for Bode Plot connections. Populate a 10-50 ohm resistor between test points A&B, and inject a small signal across Point A and Point B by using a transformer. Measure voltage of Ch1( A and GND) and Ch2(B and GND); Gain=Ch1/Ch2



### Bode Measurement



## 2.1.6. Miscellaneous Connections

### Bias Rails

<p>3.3VTEST U3.3V</p> <p>J4</p> <p>PGND</p>	<p>VRRDY2 WARN#GP J4 PIN1 3V3 GND 3V3 BIAS PIN2 VRHOT VRRDY1</p>
<p>5VTEST U5VOUT</p> <p>J5</p> <p>PGND</p>	<p>J5 PIN23 (P) PIN22 (N) 5V BIAS</p>
<p>CFILT SENSING CFILT</p> <p>J2</p> <p>PGND</p>	<p>J2 CFILT</p>
<p>TEMP SENSING TSEN1</p> <p>J8</p> <p>PGND</p>	<p>J8 TSEN SAT</p>
<p>1 HDR60</p> <p>2 V5VOUT</p> <p>3 HDR60</p> <p>PROG</p> <p>R9 846</p> <p>C3 1000PF</p> <p>PGND PGND</p> <p>CFILT 65 PROG WARN#ZGP 5 CFILT WARN#GP</p> <p>PWMS 65 PWME_SAT, PWMD 61 PWME_SAT, PWMT 60 PWM7_SAT, PWMB 65 PWMB_SAT</p>	<p>VIN PROG V5VOUT HDR60</p>



Output Rails

VOUT1



VOUT 2



## Revision History

Revision	Date	Description of the change
1.1	02/23/2024	Initial Release
1.2	03/08/2024	Updated as per OmniOn template

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