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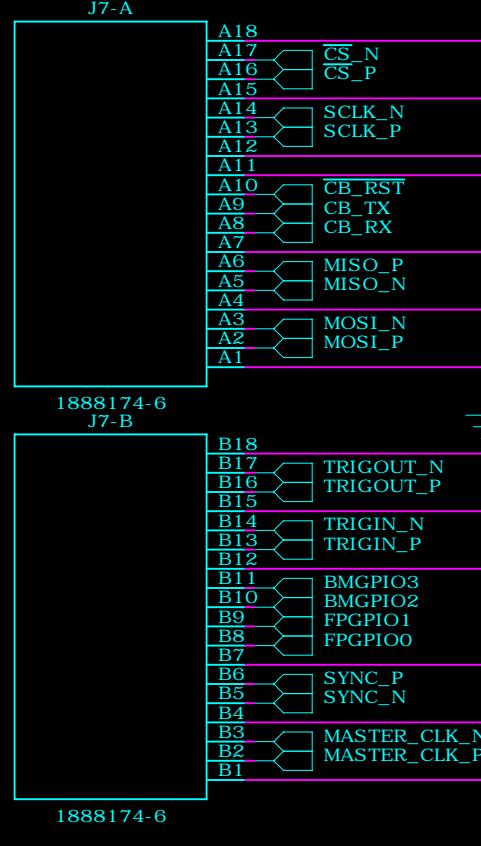
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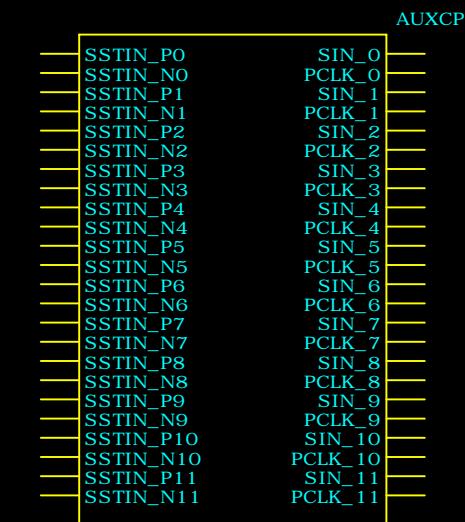
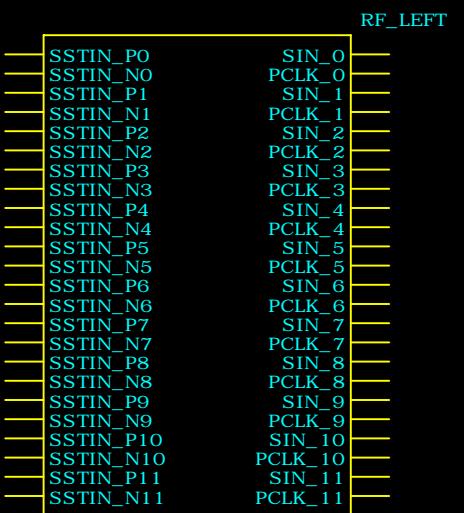
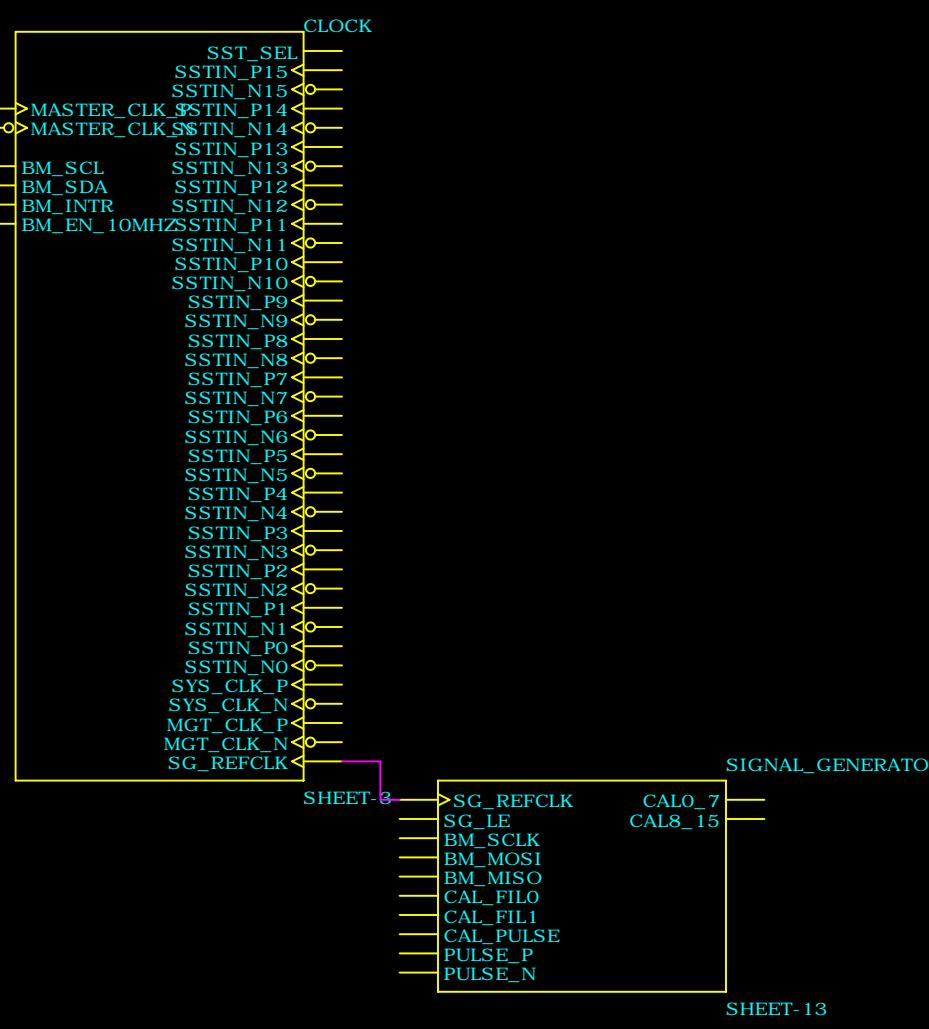
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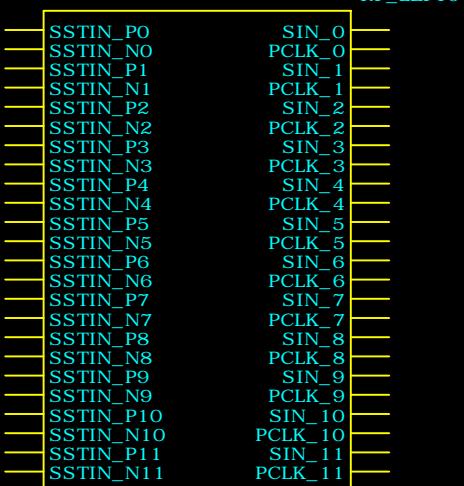


ECO 6/2: swap A/B on sideband signals

protection diodes somewhere??

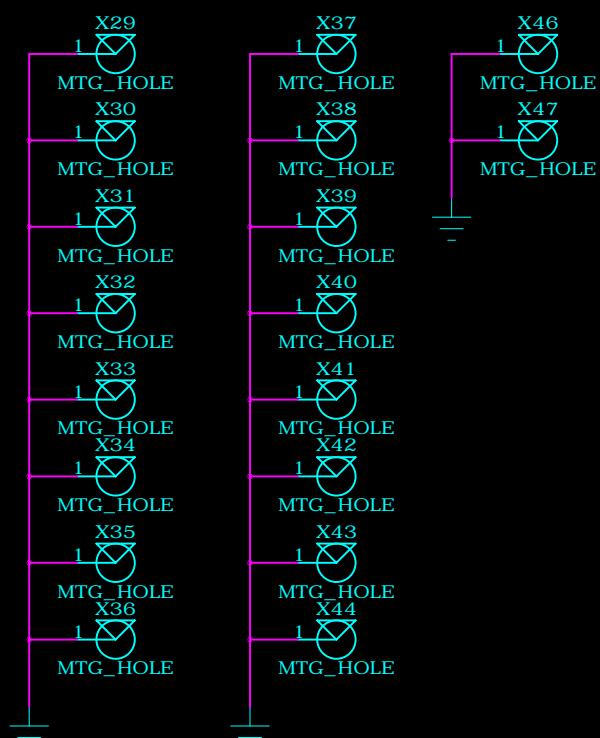


SHEET-41



SHEET-42

B



At some point I'll finish a top block diagram...

A

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| COMPANY:         | Ohio State University |        |              |
| SHEET:           | TOP                   |        |              |
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| CHECKED:         | PSA                   | DATED: | 3/3/23       |
| QUALITY CONTROL: | PSA                   | DATED: | 3/15/23      |
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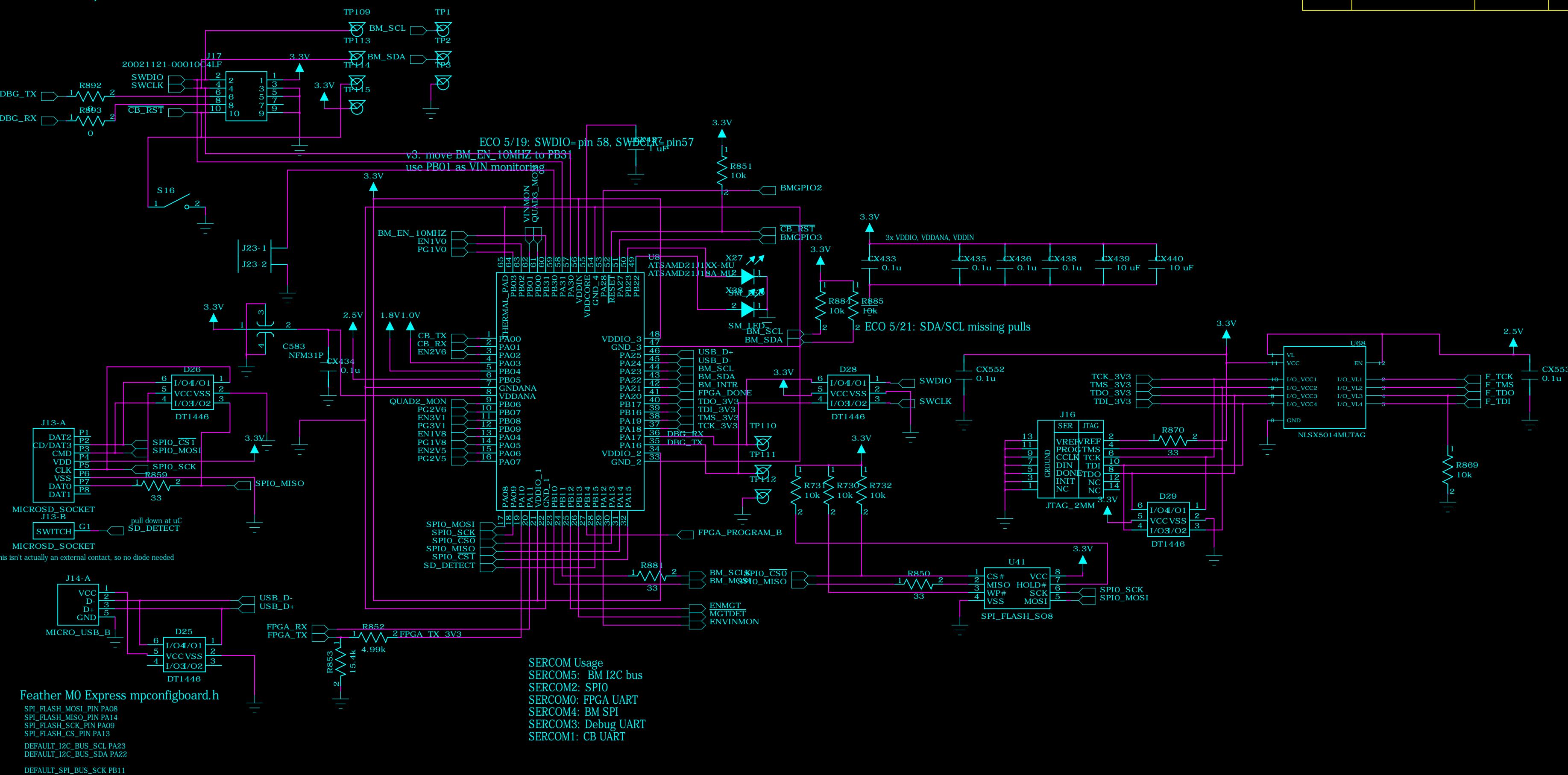
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v3: Expose DBG\_TX/DBG\_RX on JTAG header for use as GPIOs if needed



## Feather M0 Express mpconfigboard.h

```

SPI_FLASH_MOSI_PIN PA08
SPI_FLASH_MISO_PIN PA14
SPI_FLASH_SCK_PIN PA09
SPI_FLASH_CS_PIN PA13
DEFAULT_I2C_BUS_SCL_PA23
DEFAULT_I2C_BUS_SDA_PA22

DEFAULT_SPI_BUS_SCK_PB11
DEFAULT_SPI_BUS_MOSI_PB10
DEFAULT_SPI_BUS_MISO_PA12

DEFAULT_UART_BUS_RX_PA11
DEFAULT_UART_BUS_TX_PA10

```

Note that the default UART goes to the FPGA

SERCOM Usage  
SERCOM5: BM I2C bus  
SERCOM2: SPI0  
SERCOM0: FPGA UART  
SERCOM4: BM SPI  
SERCOM3: Debug UART  
SERCOM1: CB UART

COMPANY:

Ohio State University

SHEET:

BOARD\_MANAGER

|                  |     |        |         |         |         |                 |        |
|------------------|-----|--------|---------|---------|---------|-----------------|--------|
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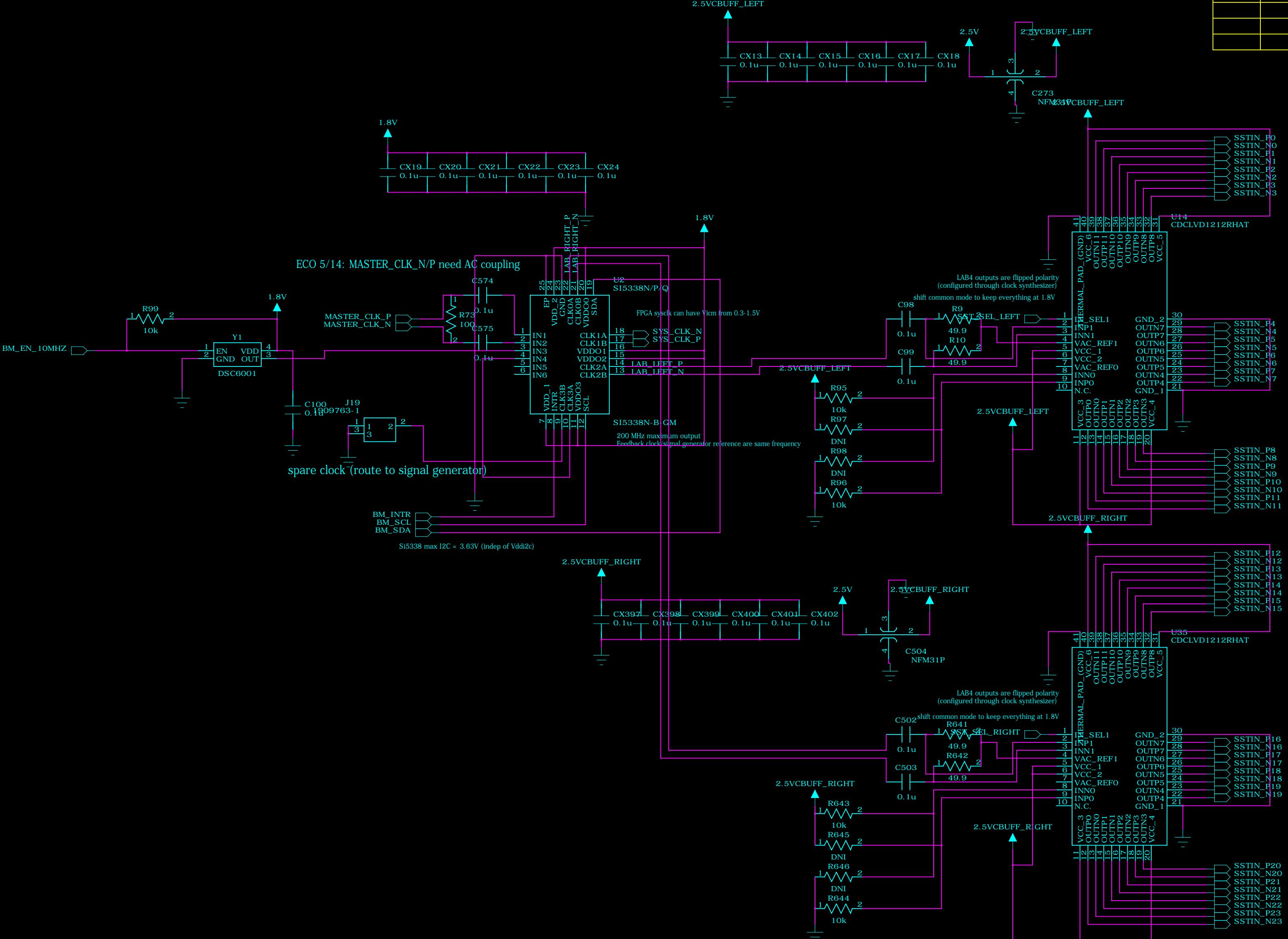
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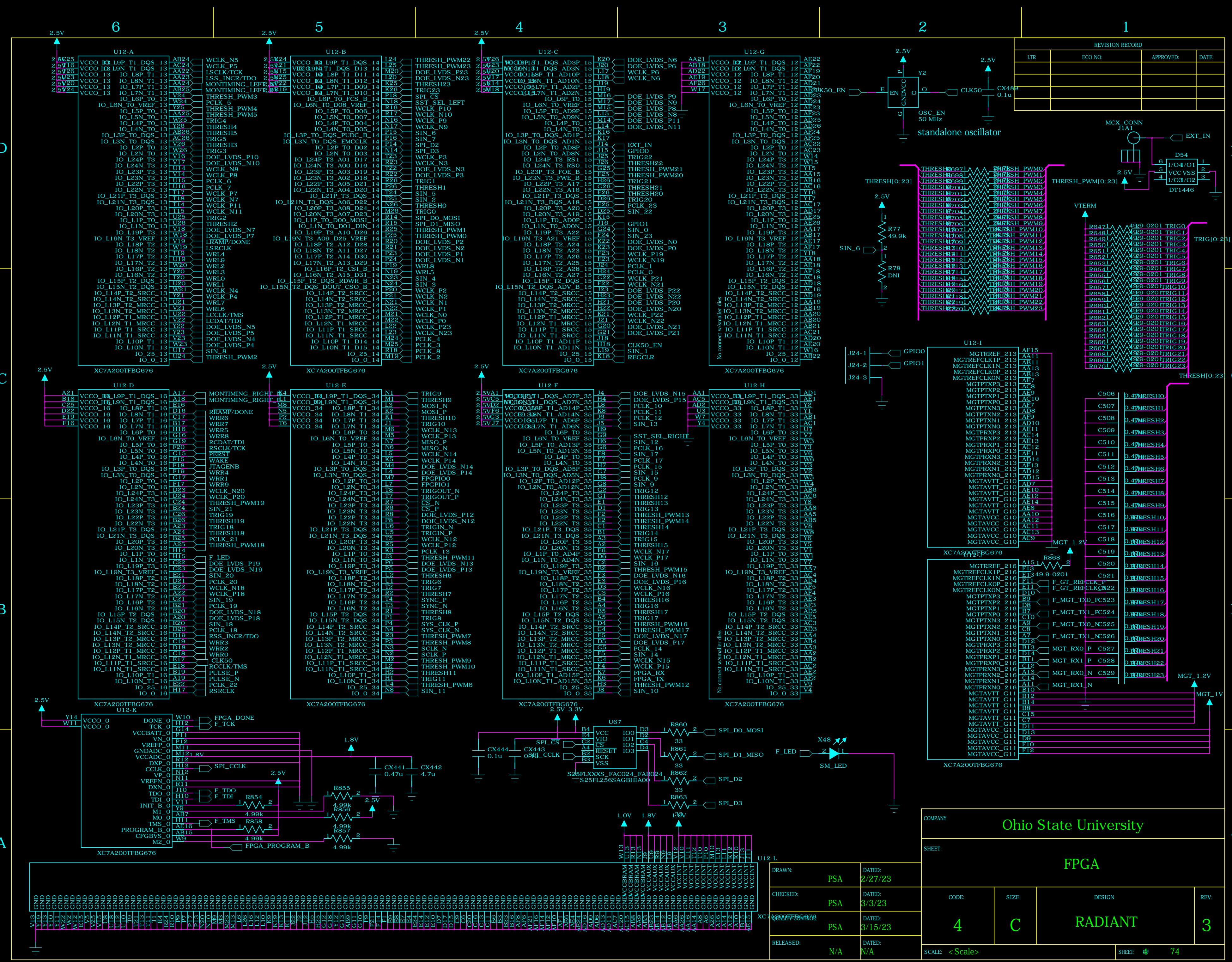
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Ohio State University

CLOCK



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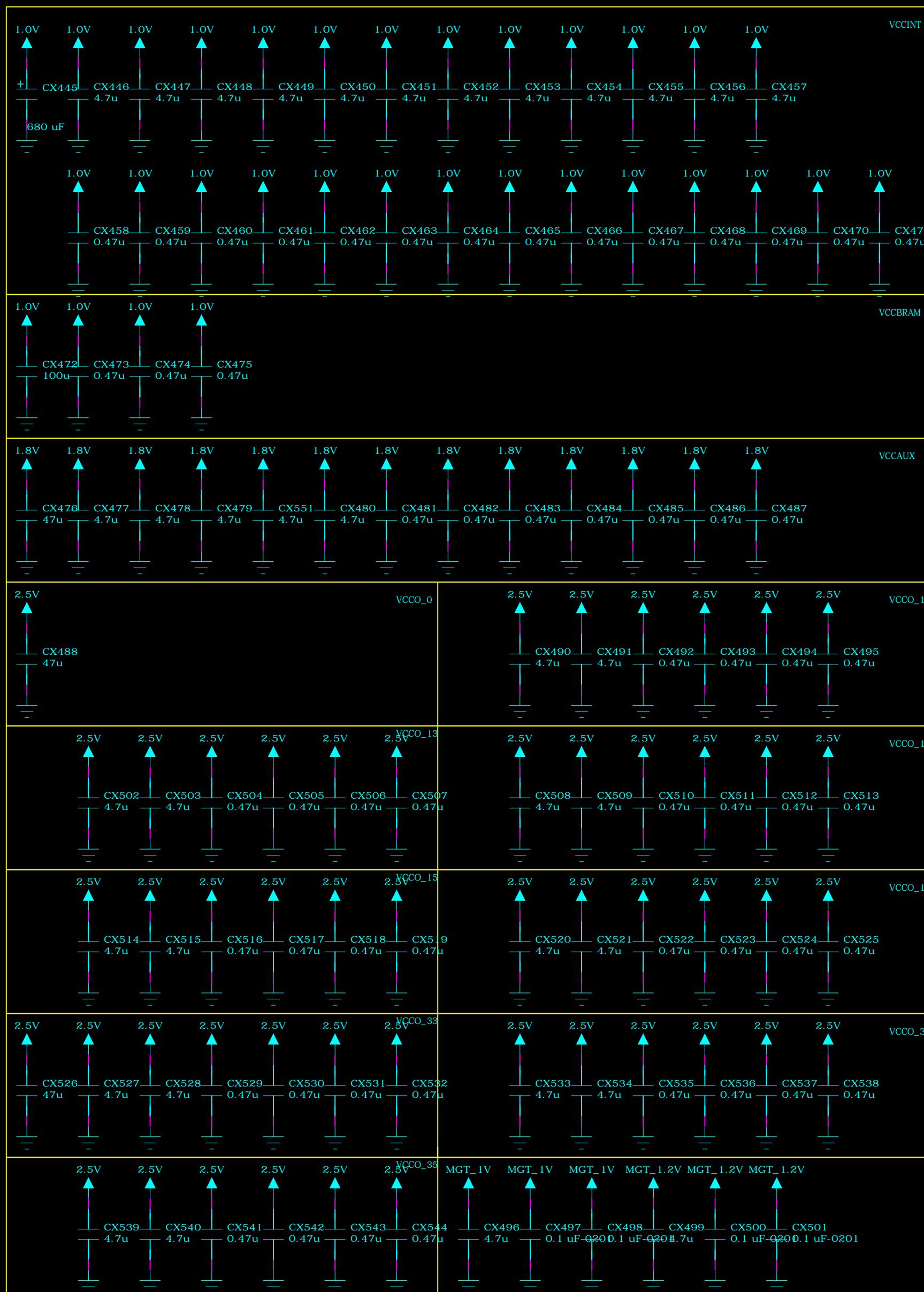
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|---|-----------------------|----------------|-----------------|
| COMPANY:                                | Ohio State University |                |                 |
| SHEET:                                  | FPGA_DECUPLE          |                |                 |
| <b>DRAWN:</b> PSA <b>DATED:</b> 2/27/23 |                       |                |                 |
| CHECKED:                                | PSA                   | DATED: 3/3/23  | CODE: 4         |
| QUALITY CONTROL:                        | PSA                   | DATED: 3/15/23 | SIZE: C         |
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## REVISION RECORD

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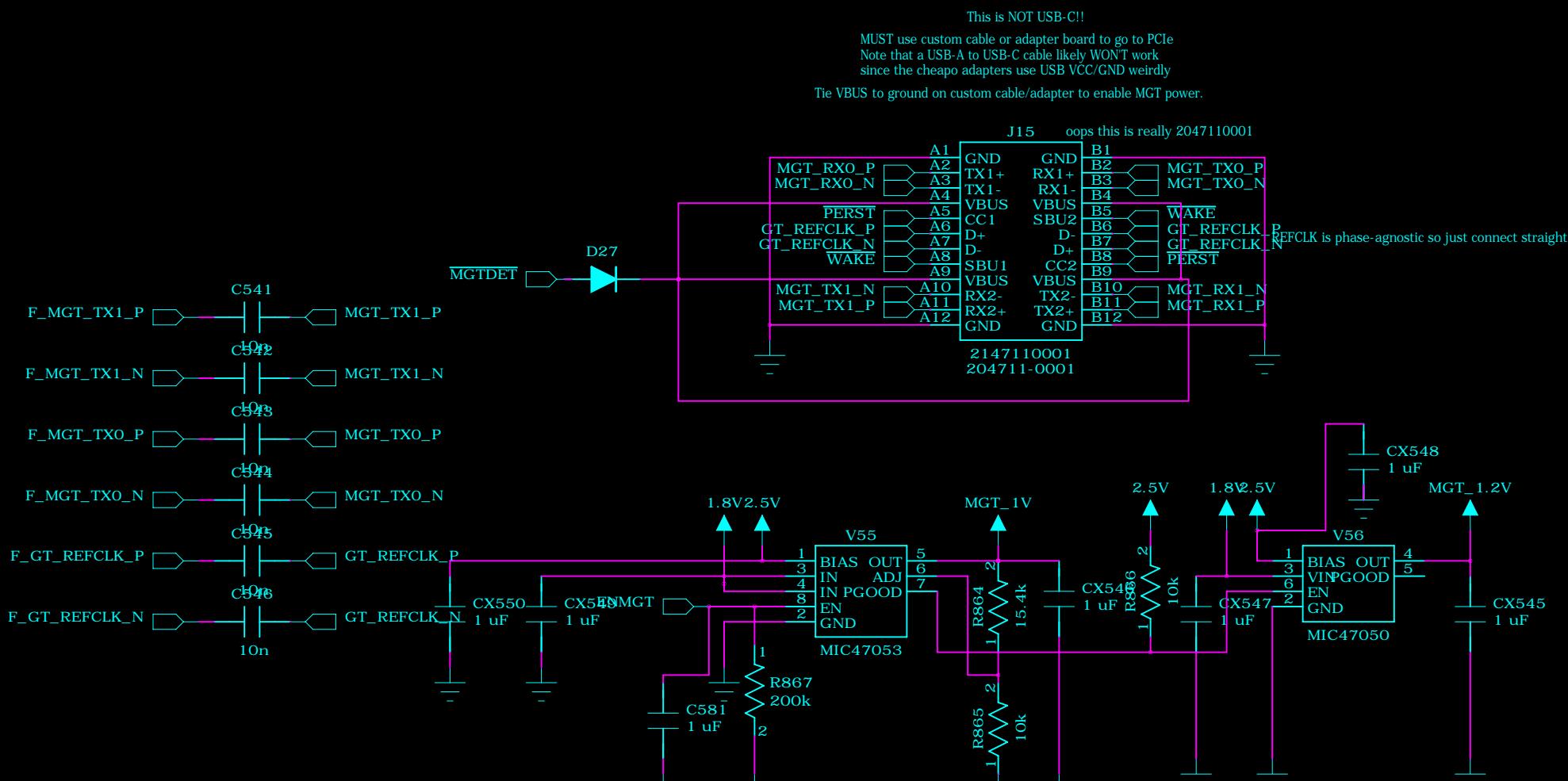
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MGT power is off by default. If board manager detects plugged in cable/board, it enables in proper sequence

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|------------------|-----------------------|-------------------|-----------------|
| COMPANY:         | Ohio State University |                   |                 |
| SHEET:           | FPGA-PCIE             |                   |                 |
| DRAWN:           | PSA                   | DATED:<br>2/27/23 |                 |
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## REVISION RECORD

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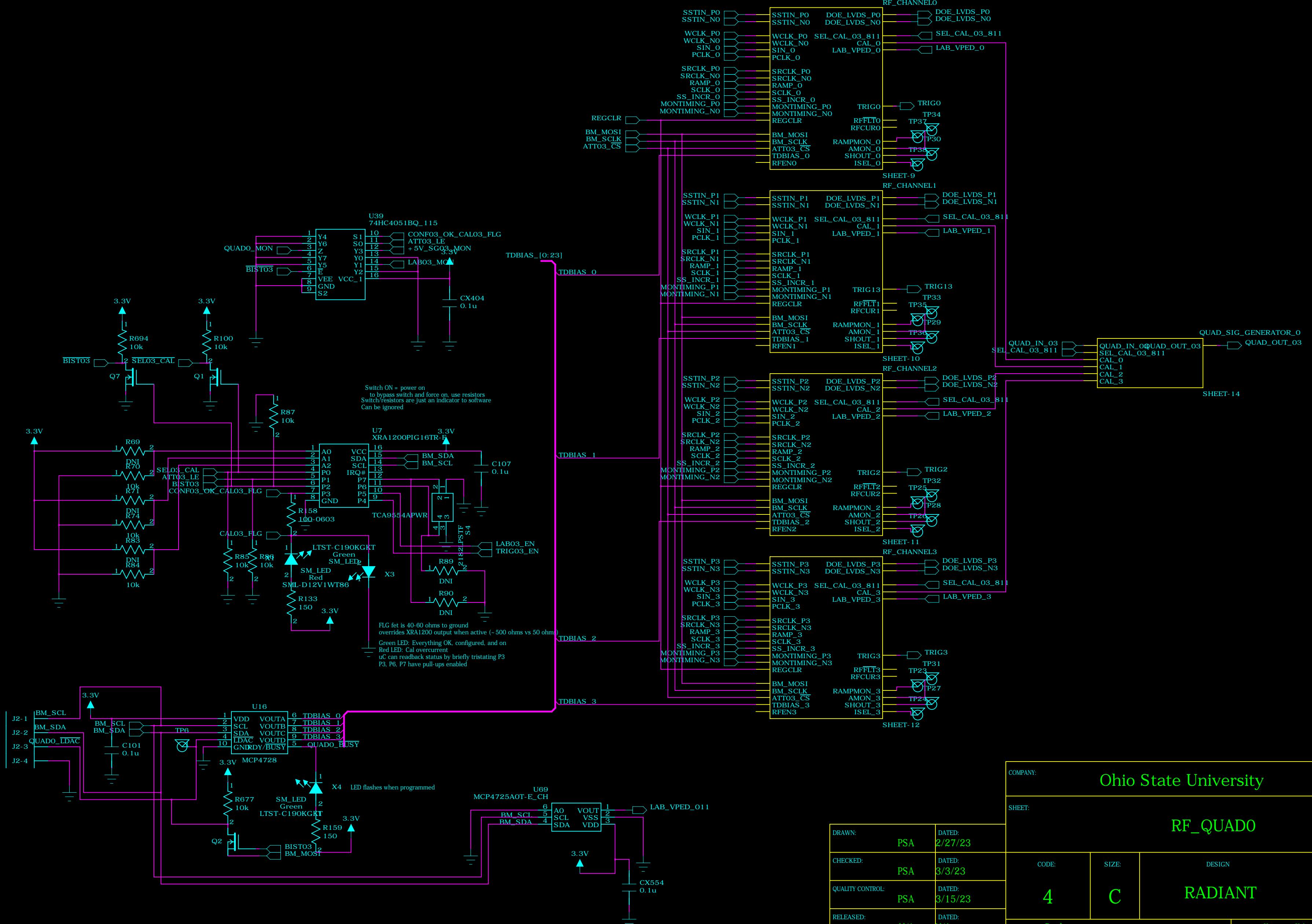
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Ohio State University

RF\_QUADO

|                  |                       |        |         |
|------------------|-----------------------|--------|---------|
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| DRAWN:           | PSA                   | DATED: | 2/27/23 |
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Sheet: 0F 74

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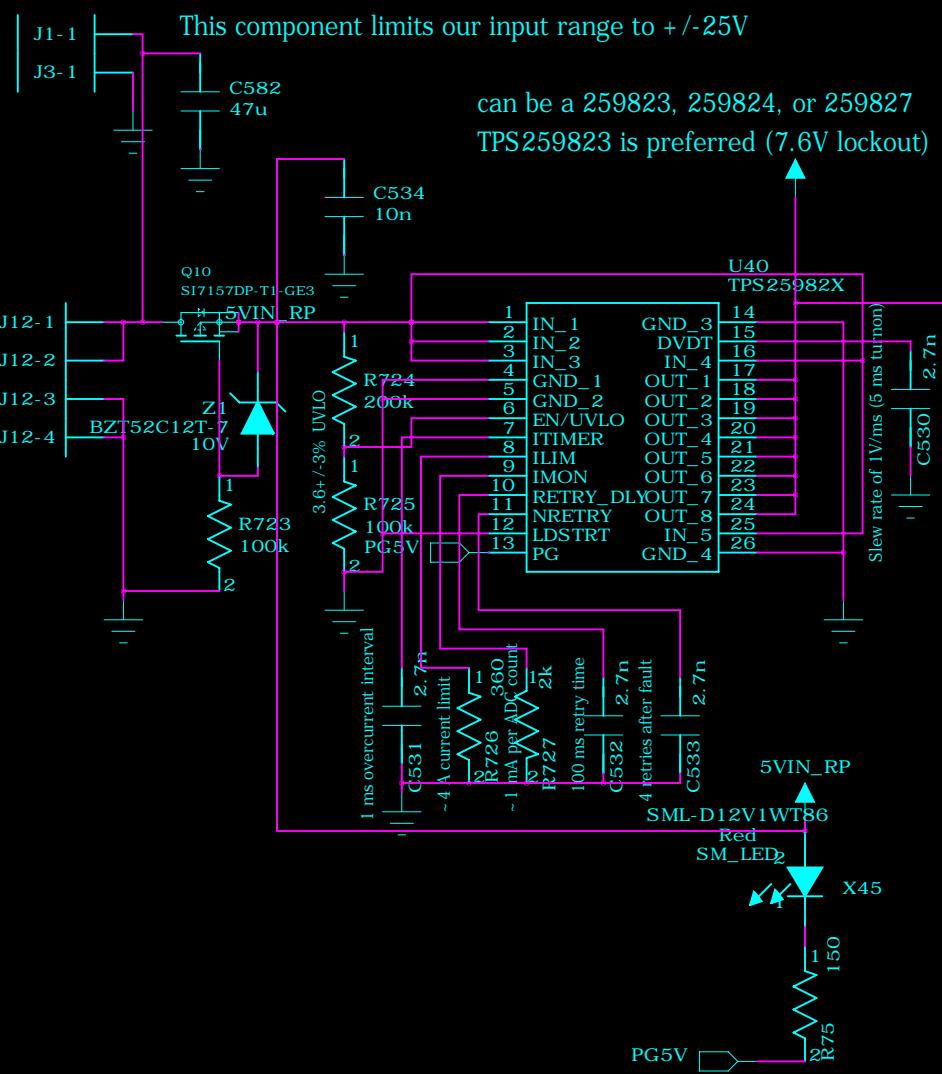
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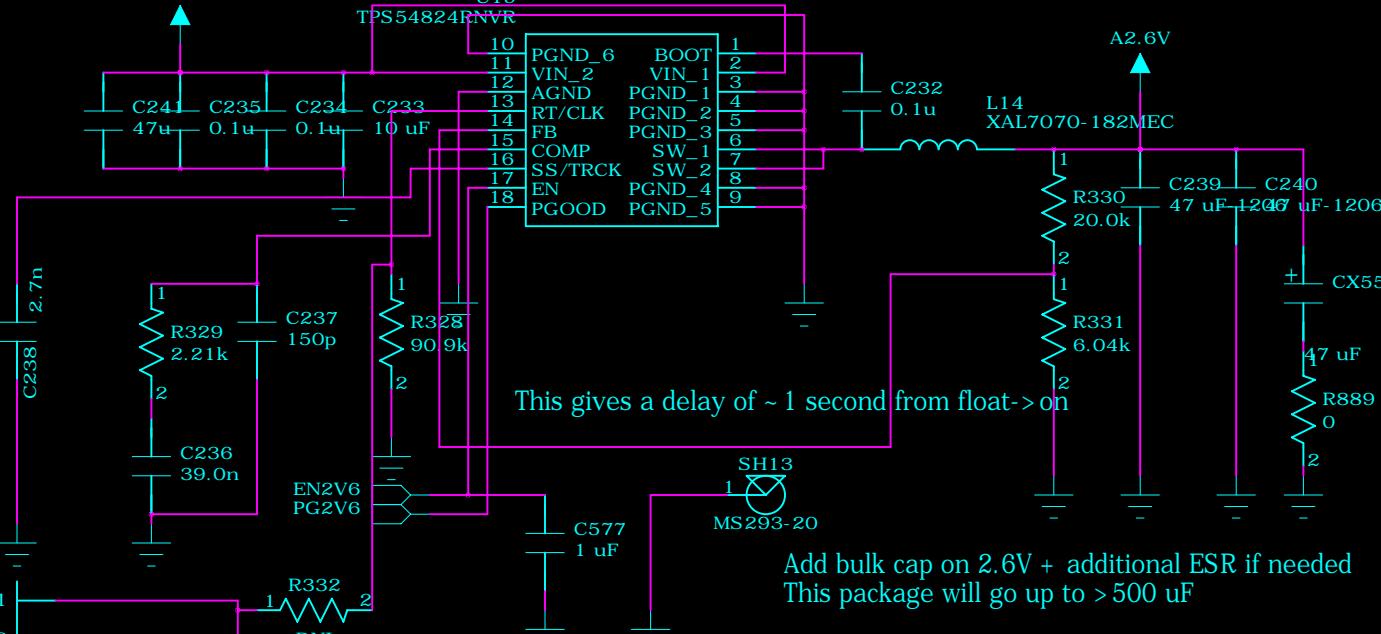
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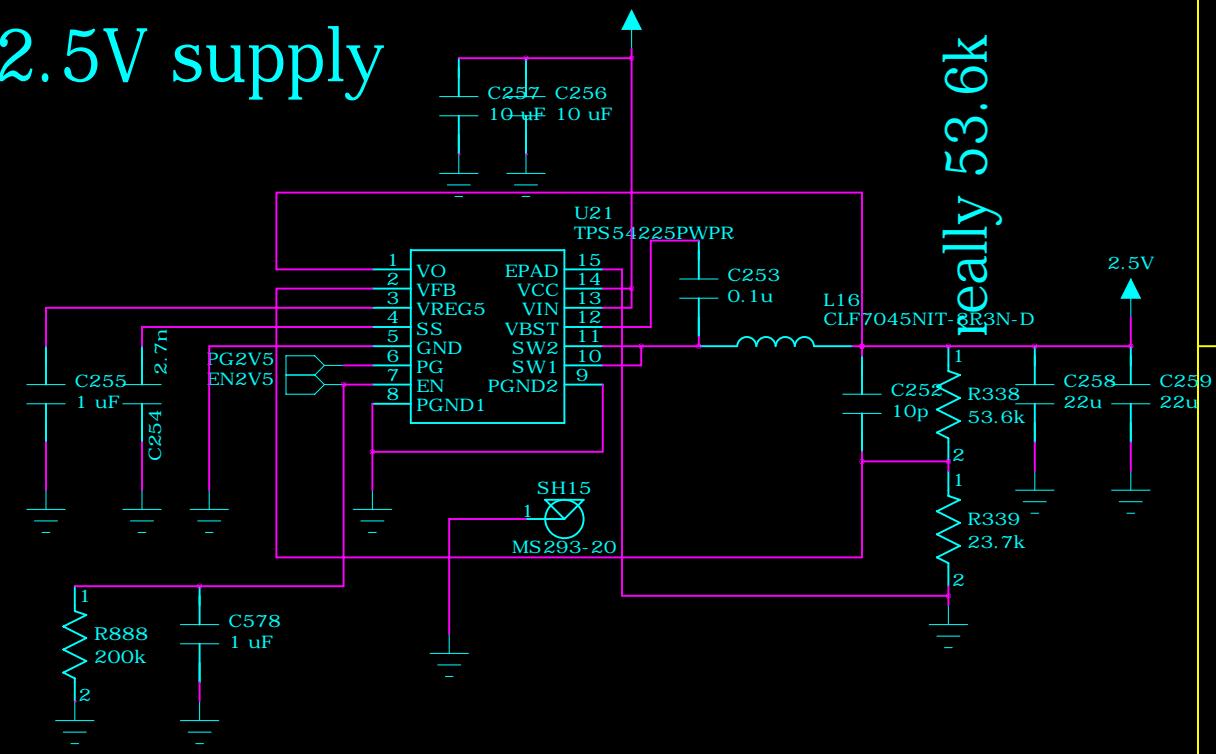
## Input power protection



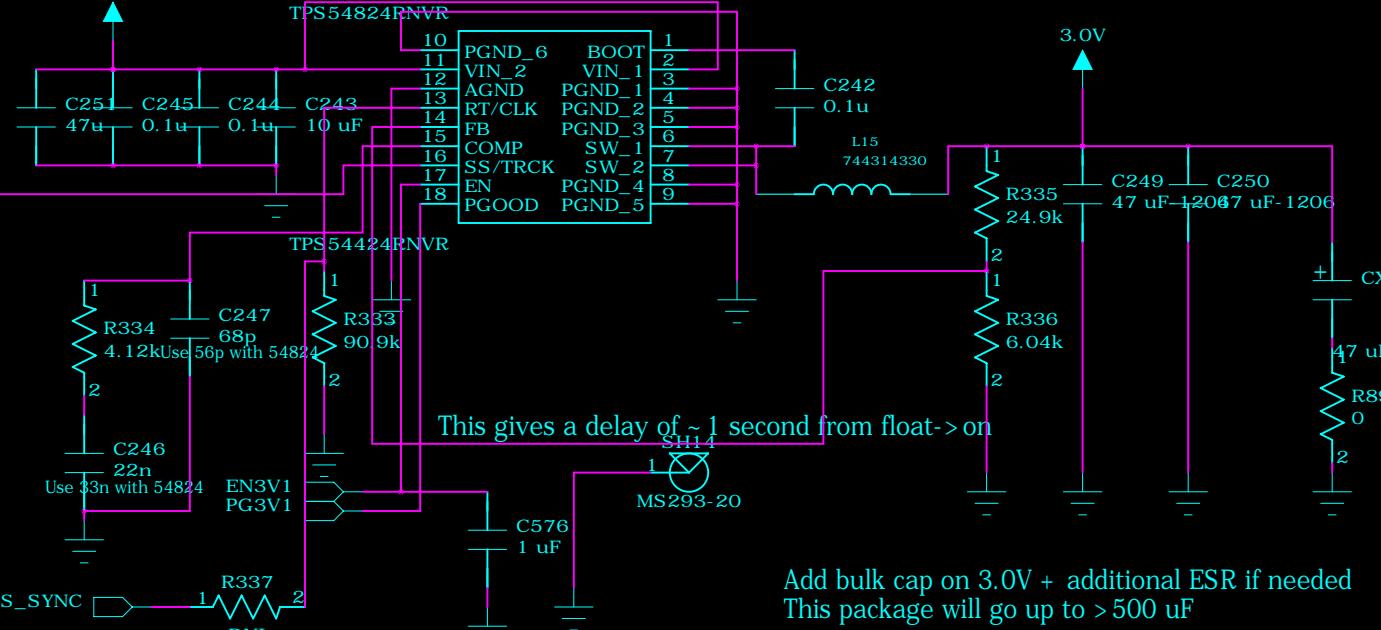
## LAB4D supply (2.6V, regulated to 2.5V)



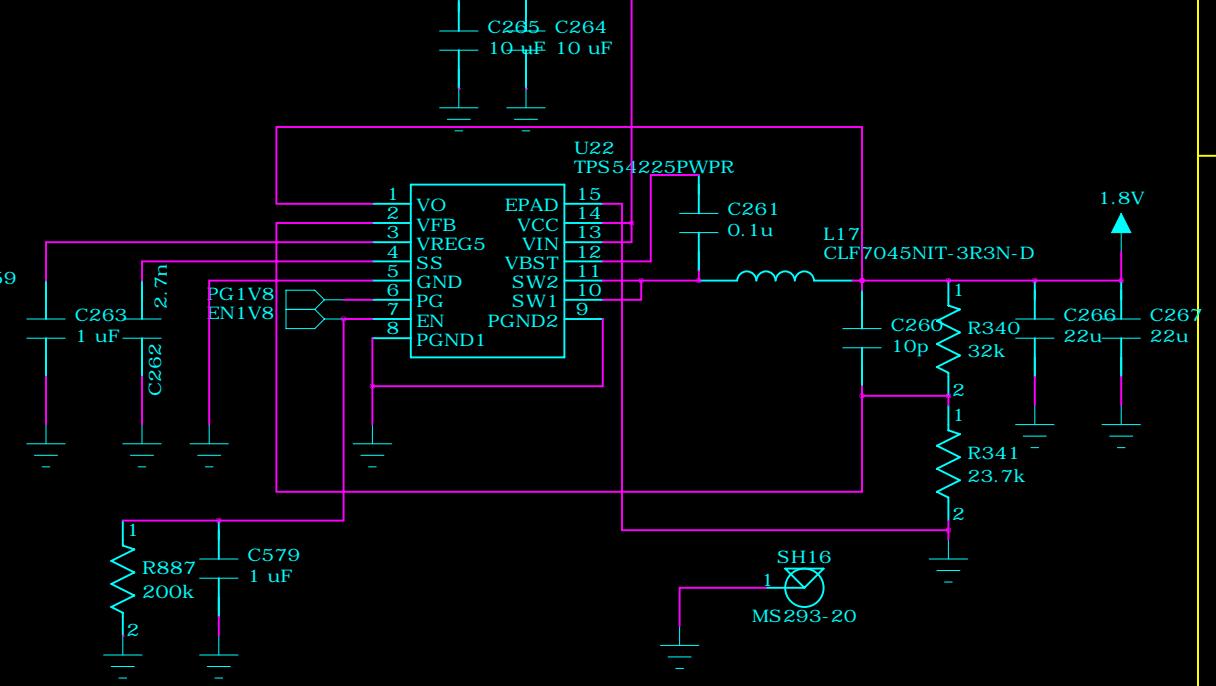
## 2.5V supply



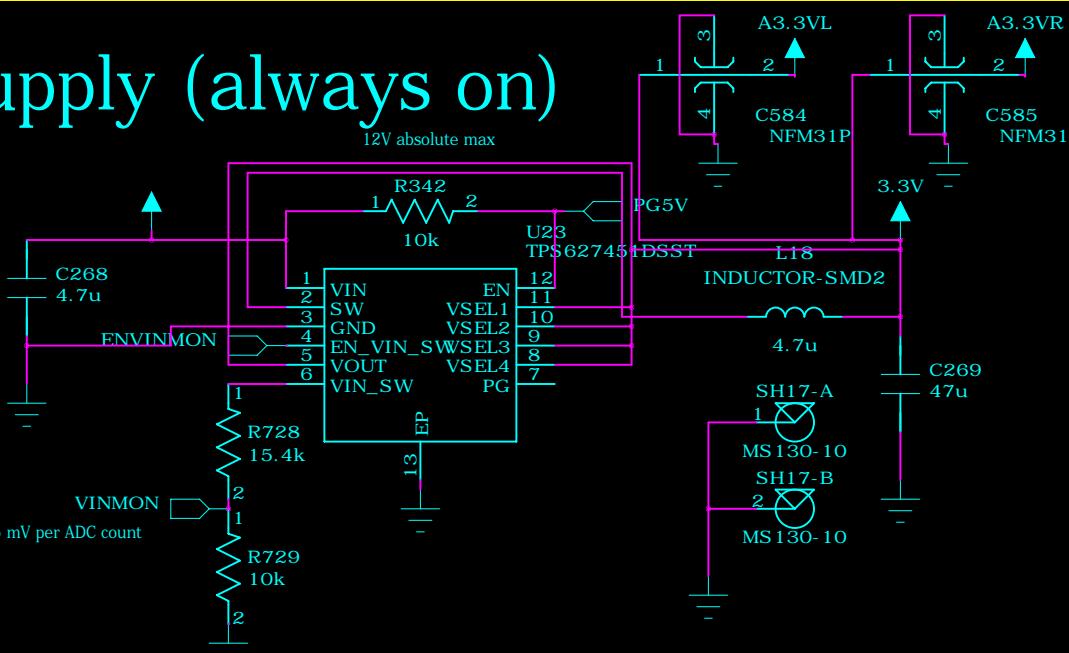
## Trigger supply (3.07V, regulated to 3.0V)



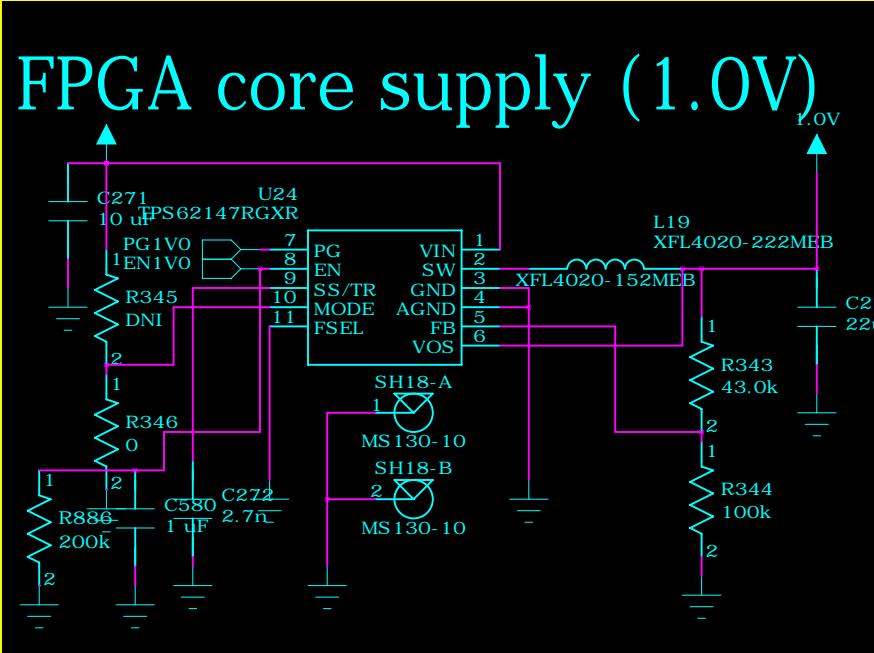
## 1.8V supply



## 3.3V supply (always on)



## FPGA core supply (1.0V)



Ohio State University

POWER

| COMPANY:         | Ohio State University |        |         |
|------------------|-----------------------|--------|---------|
| SHEET:           | POWER                 |        |         |
| DRAWN:           | PSA                   | DATED: | 2/27/23 |
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## REVISION RECORD

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Filtering/bypass capacitors

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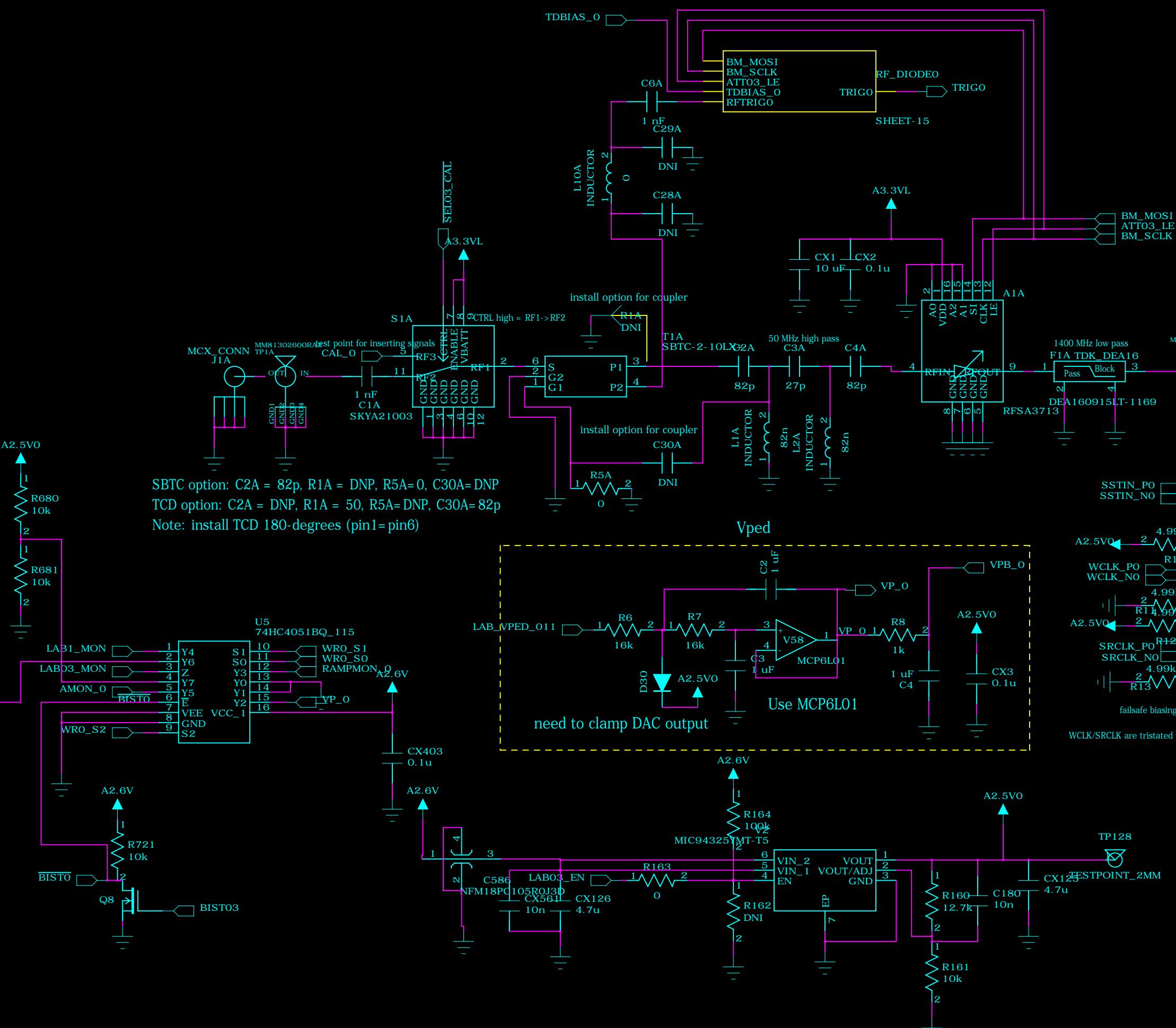
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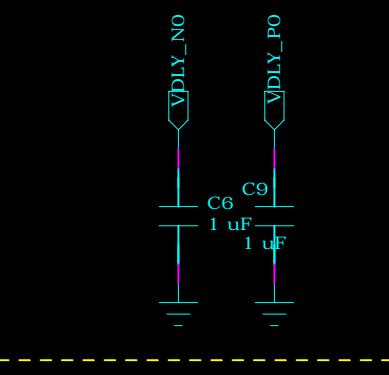
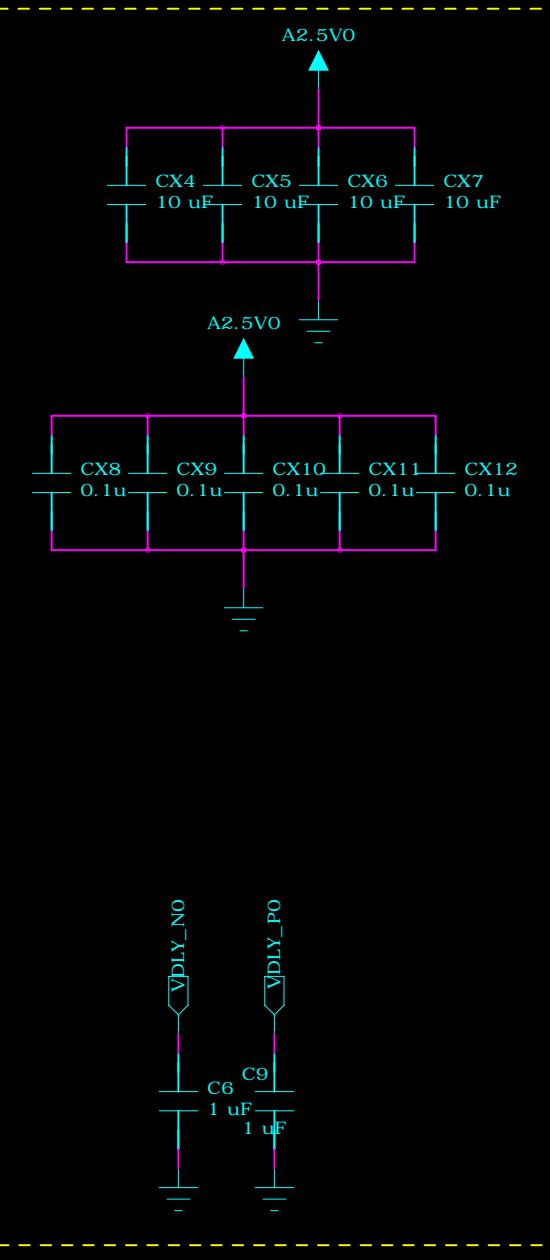
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| QUALITY CONTROL: | PSA | DATED: | 3/15/23 |
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Ohio State University

RF\_CHANNEL0

RADIANT

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Do not install

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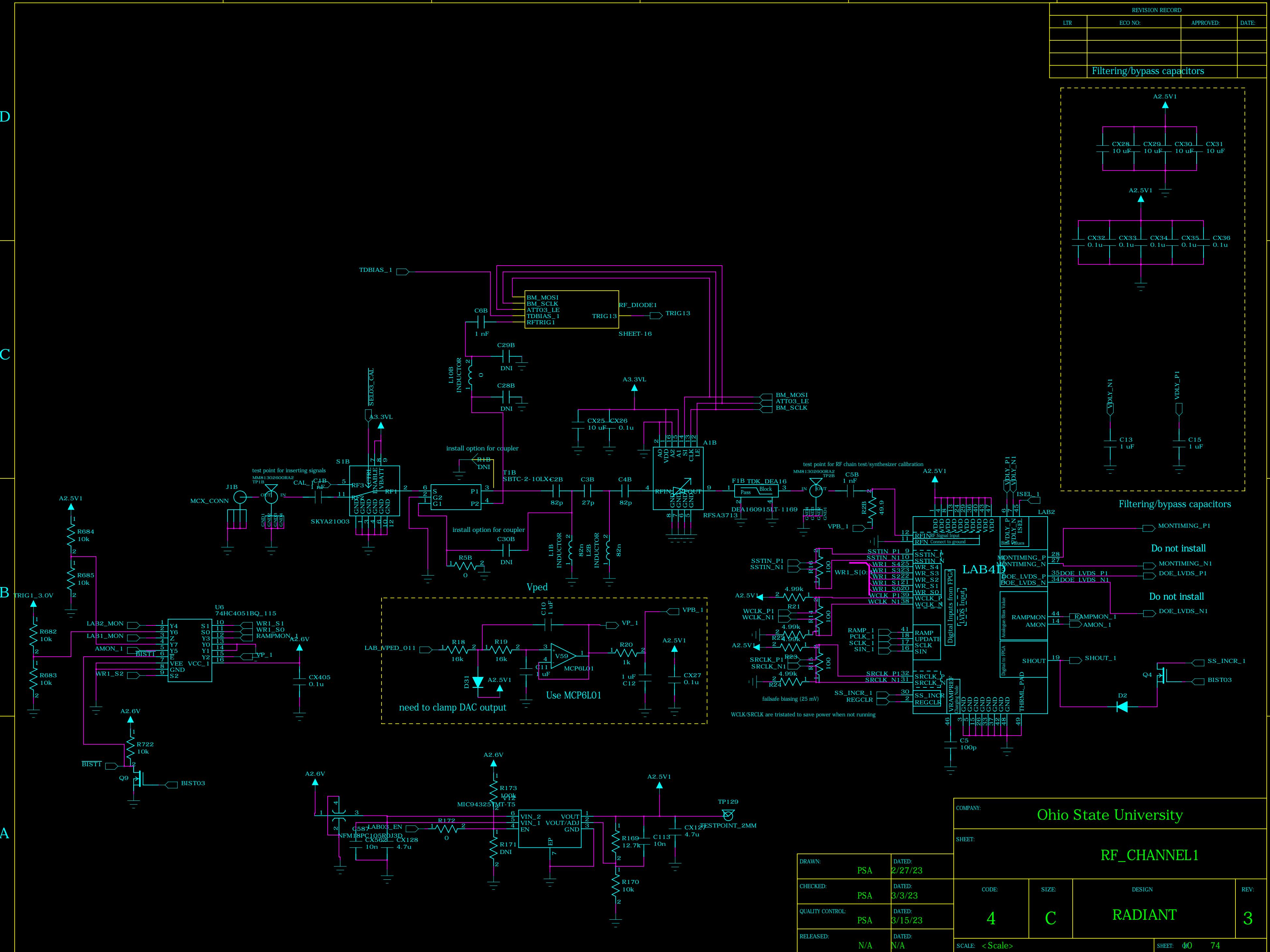
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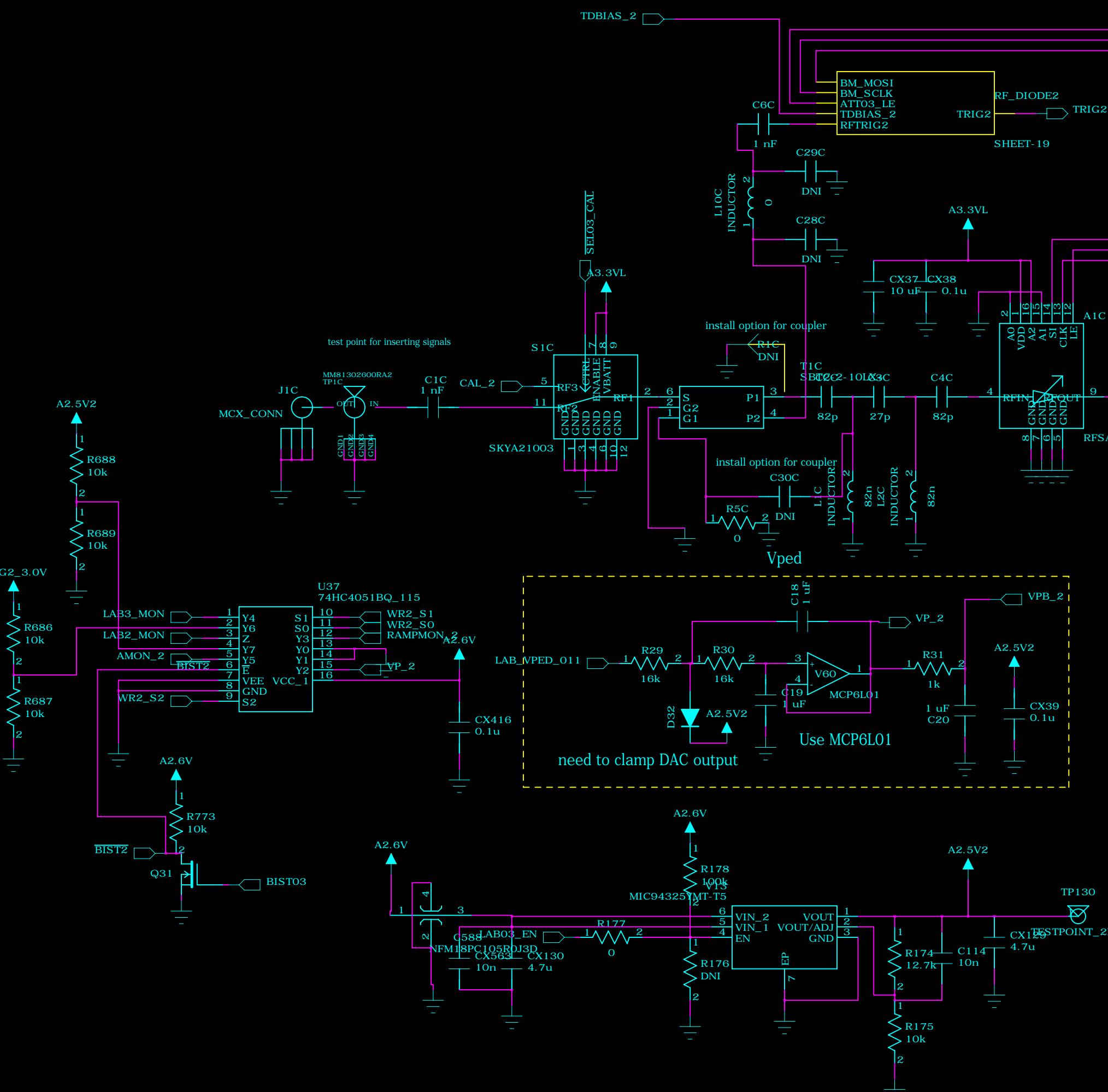
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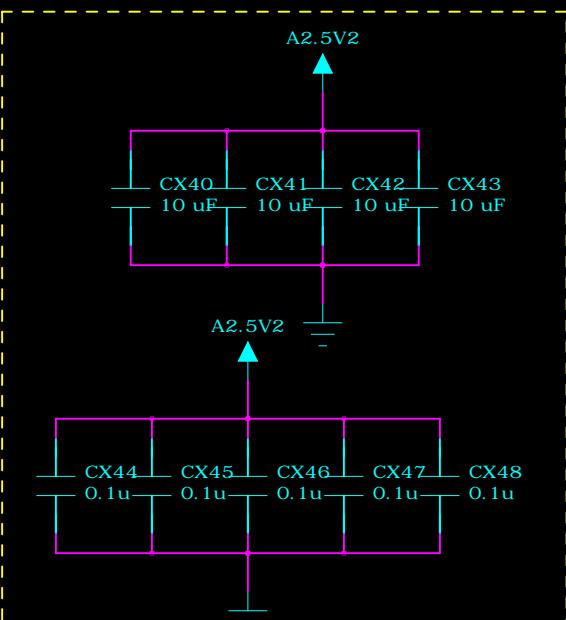
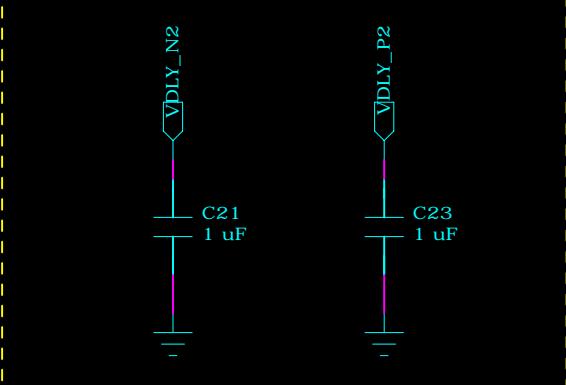
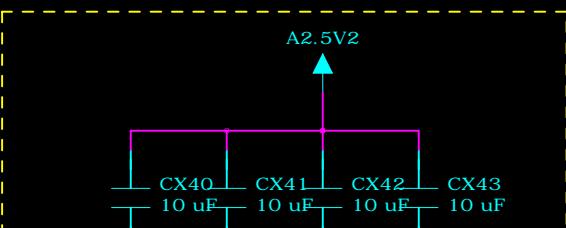
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SCHEET: RF\_CHANNEL2  
COMPANY: Ohio State University  
SHEET: 1 of 1



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## REVISION RECORD

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Filtering/bypass capacitors

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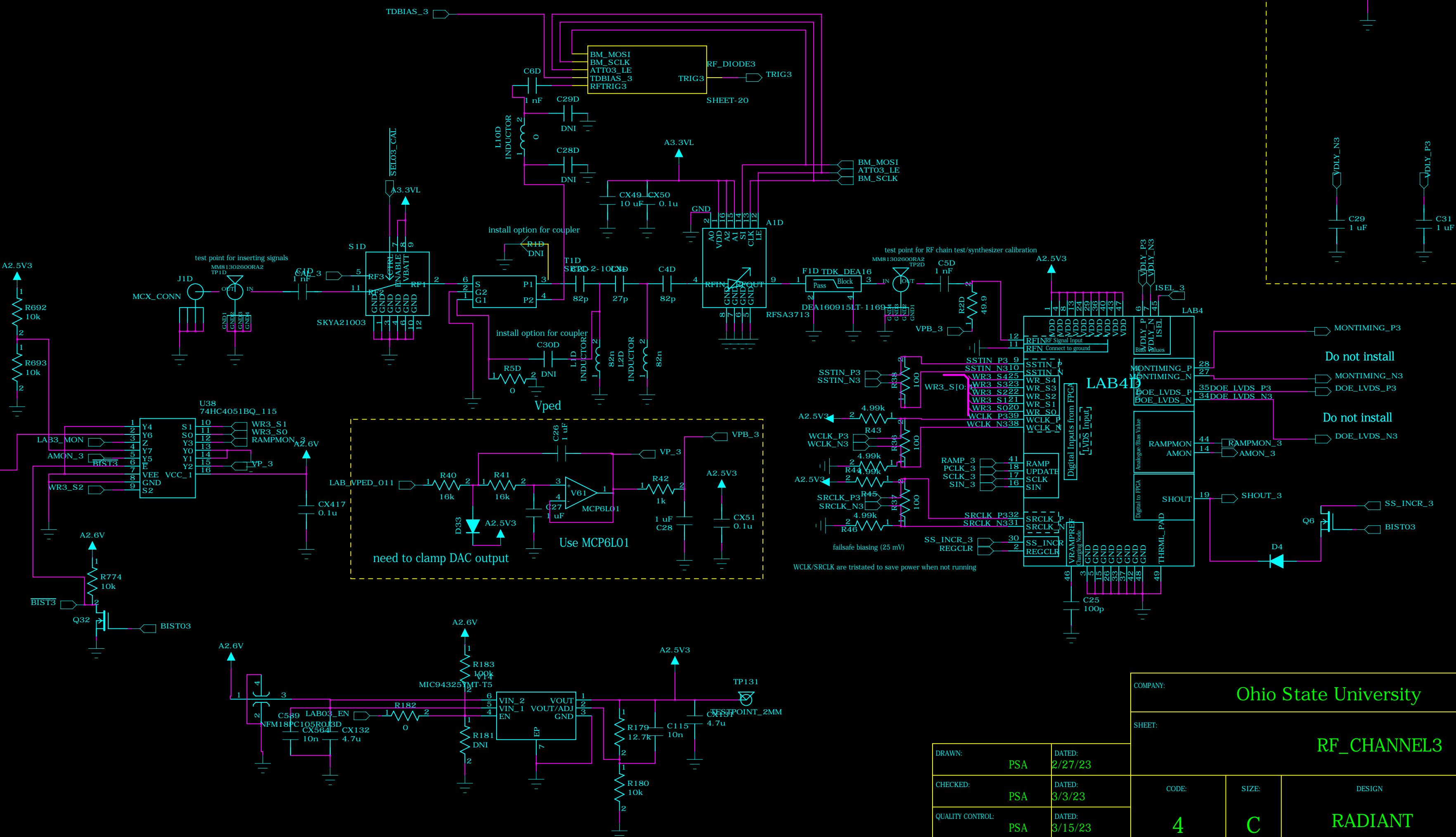
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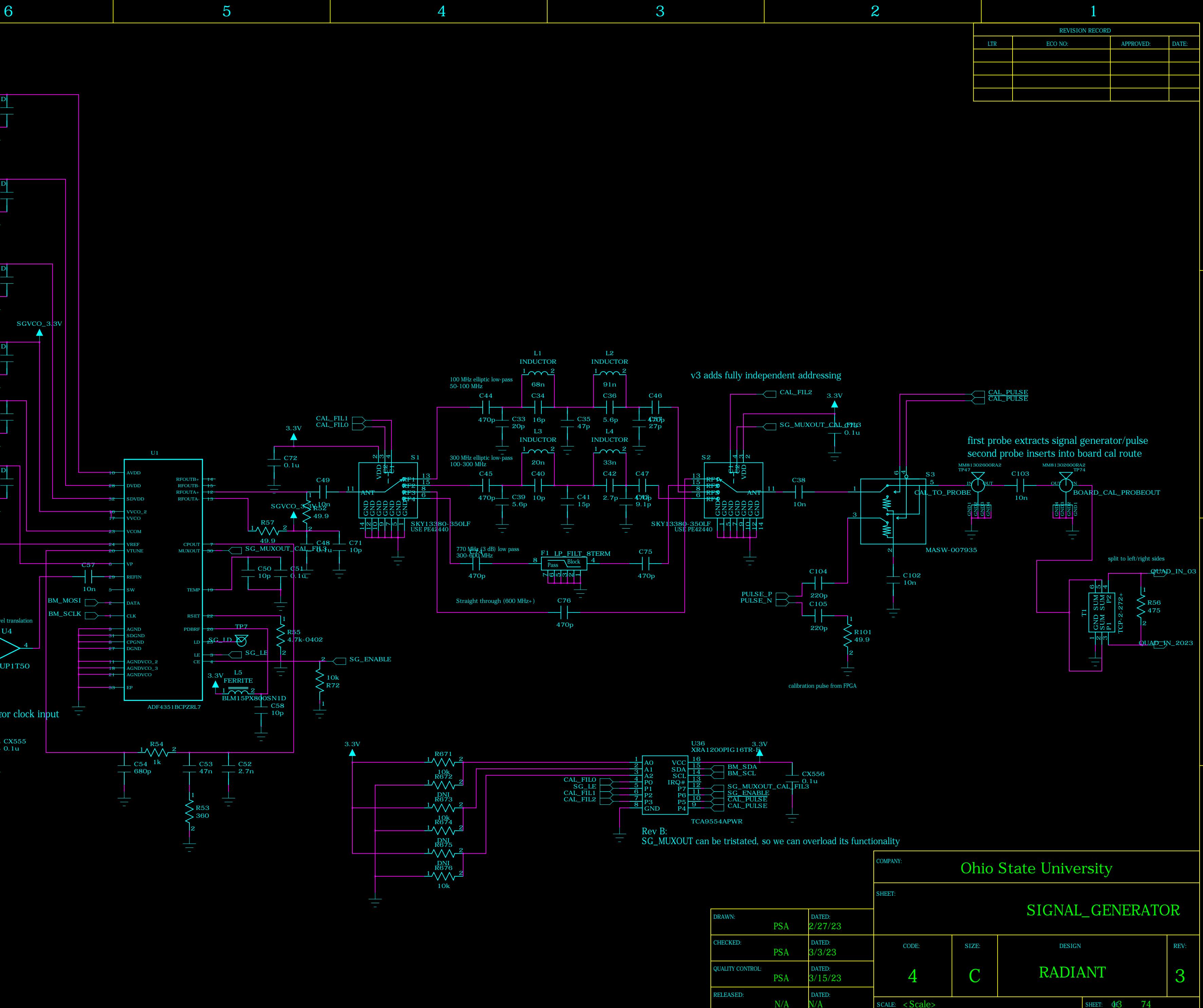
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| COMPANY:         |     | Ohio State University |        |                |
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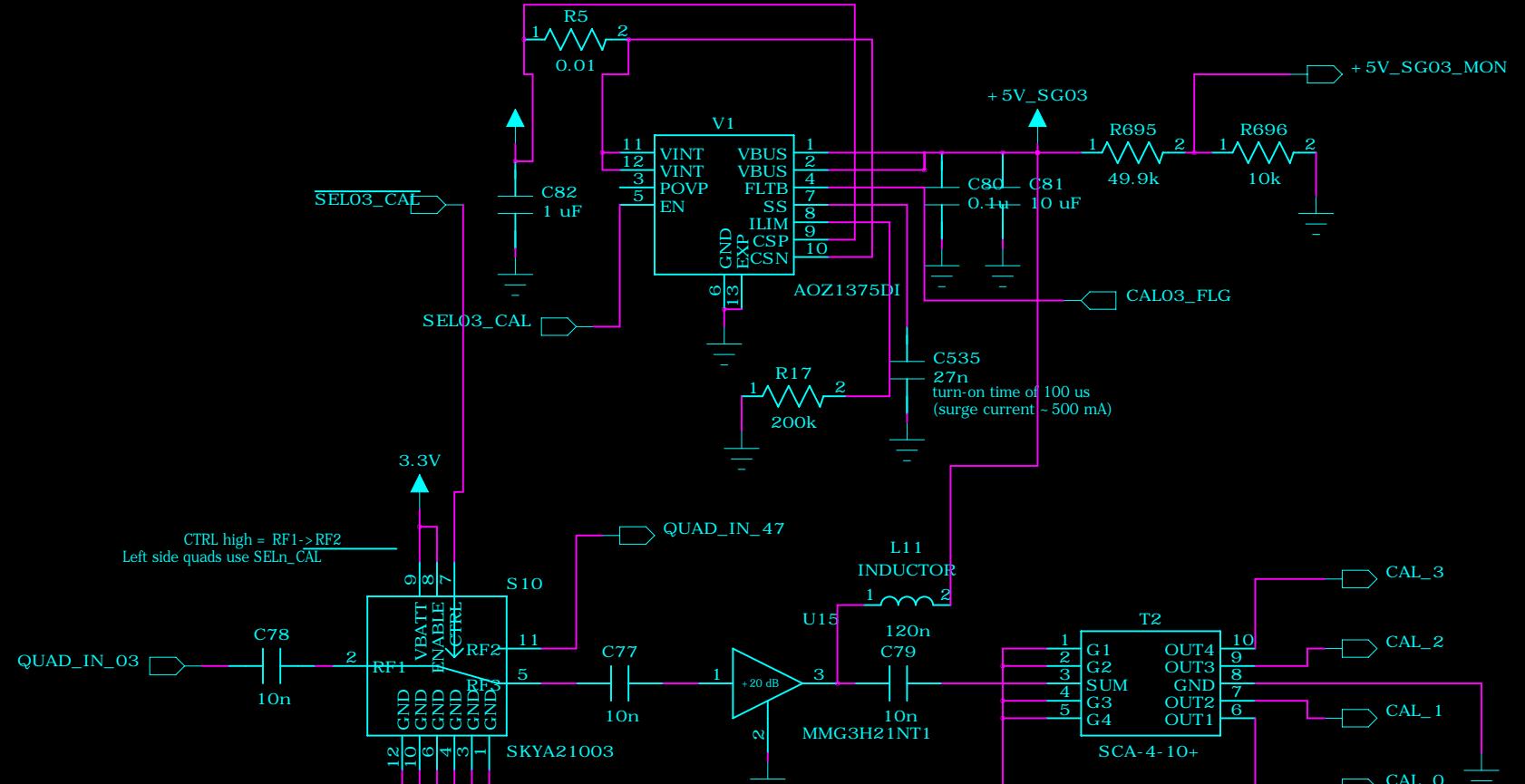
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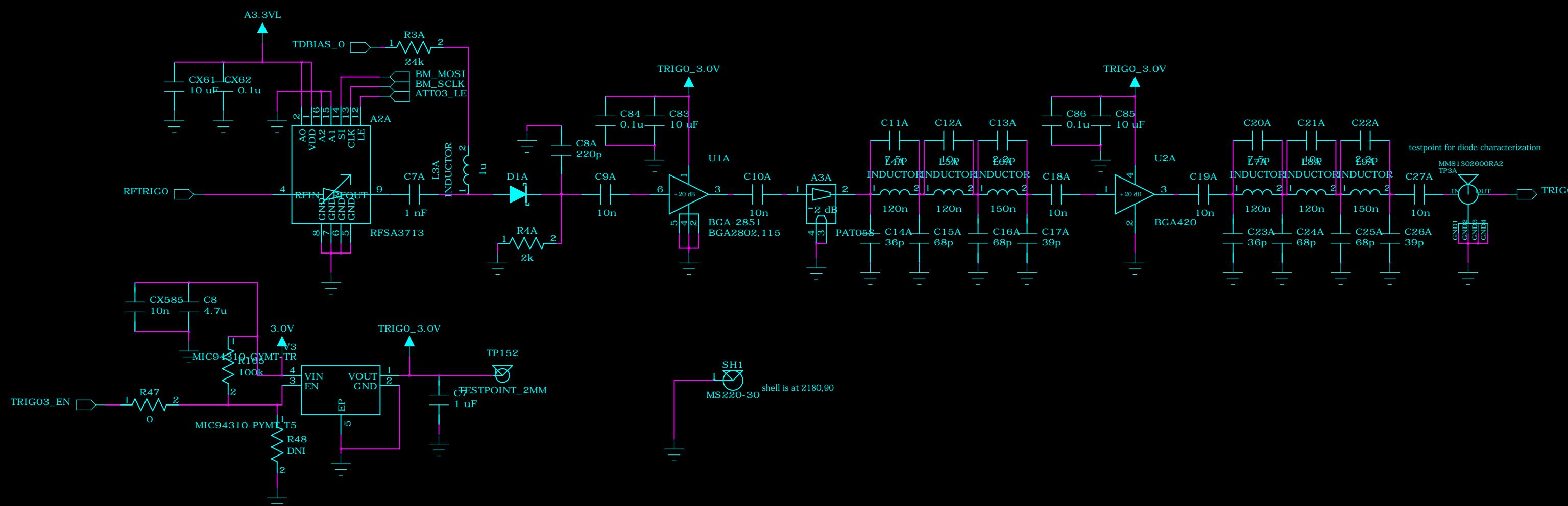
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COMPANY:

Ohio State University

SHEET:

RF\_DIODE0

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## REVISION RECORD

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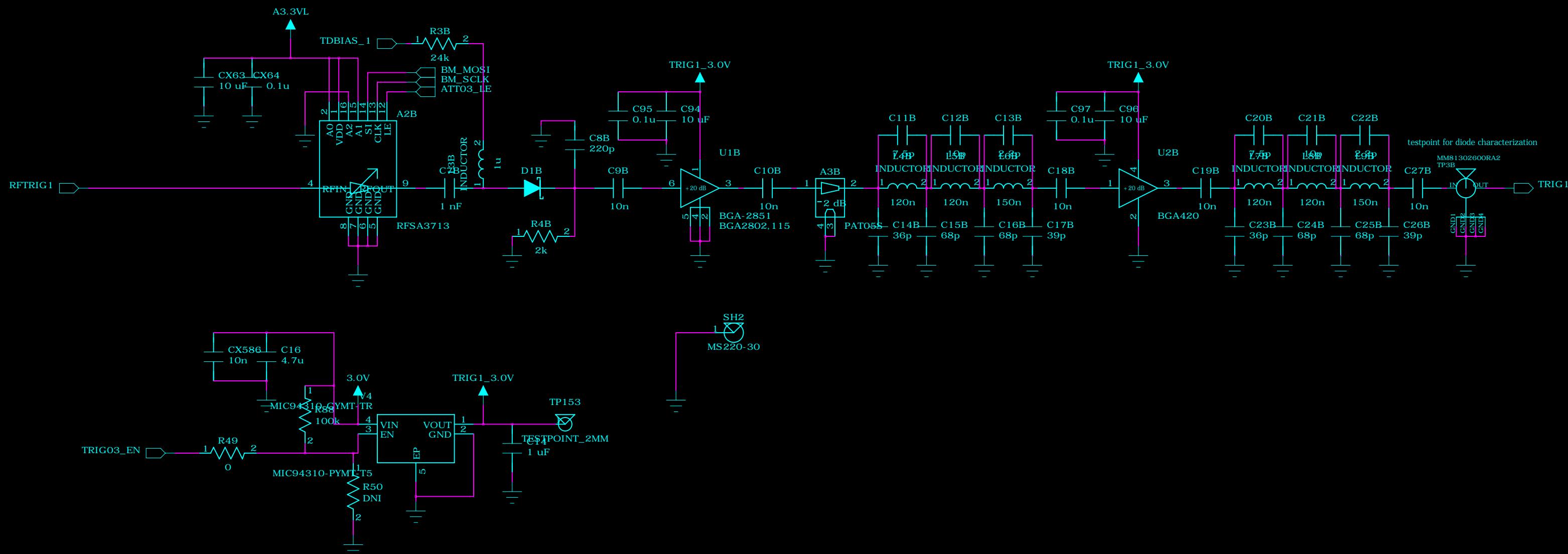
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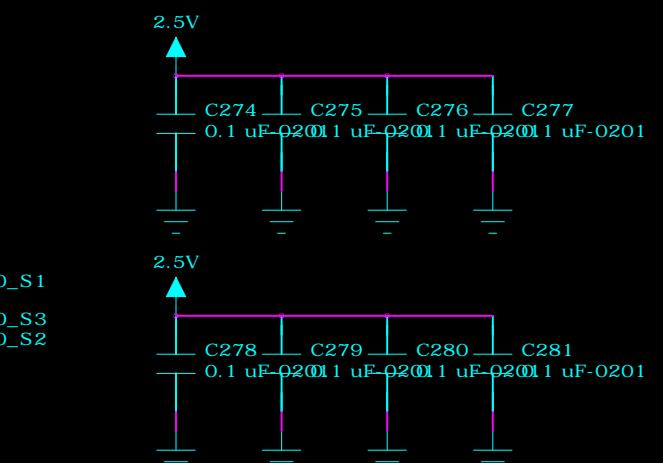
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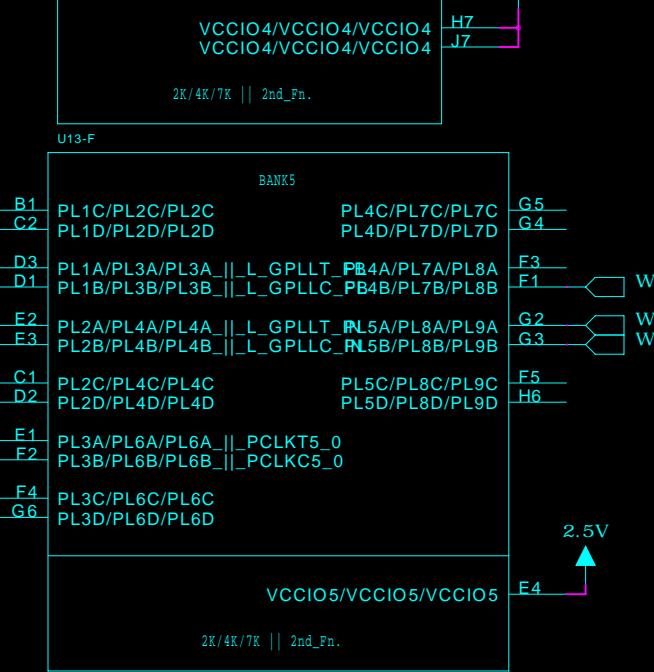
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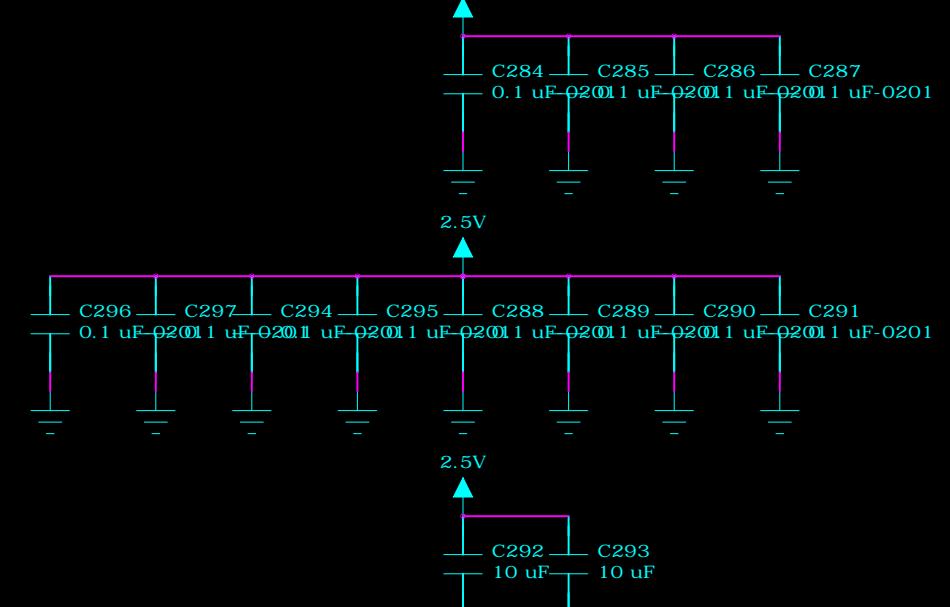
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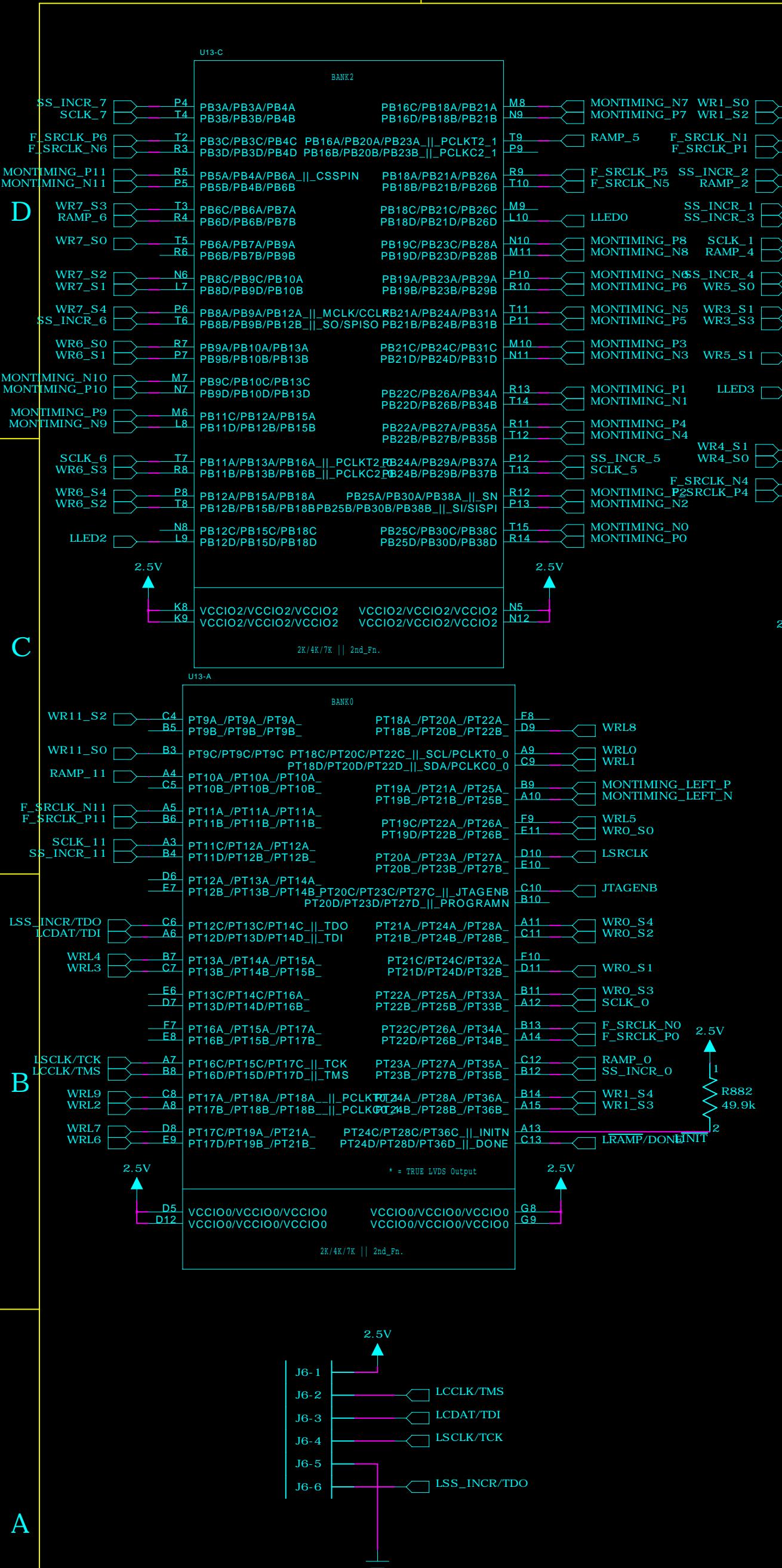
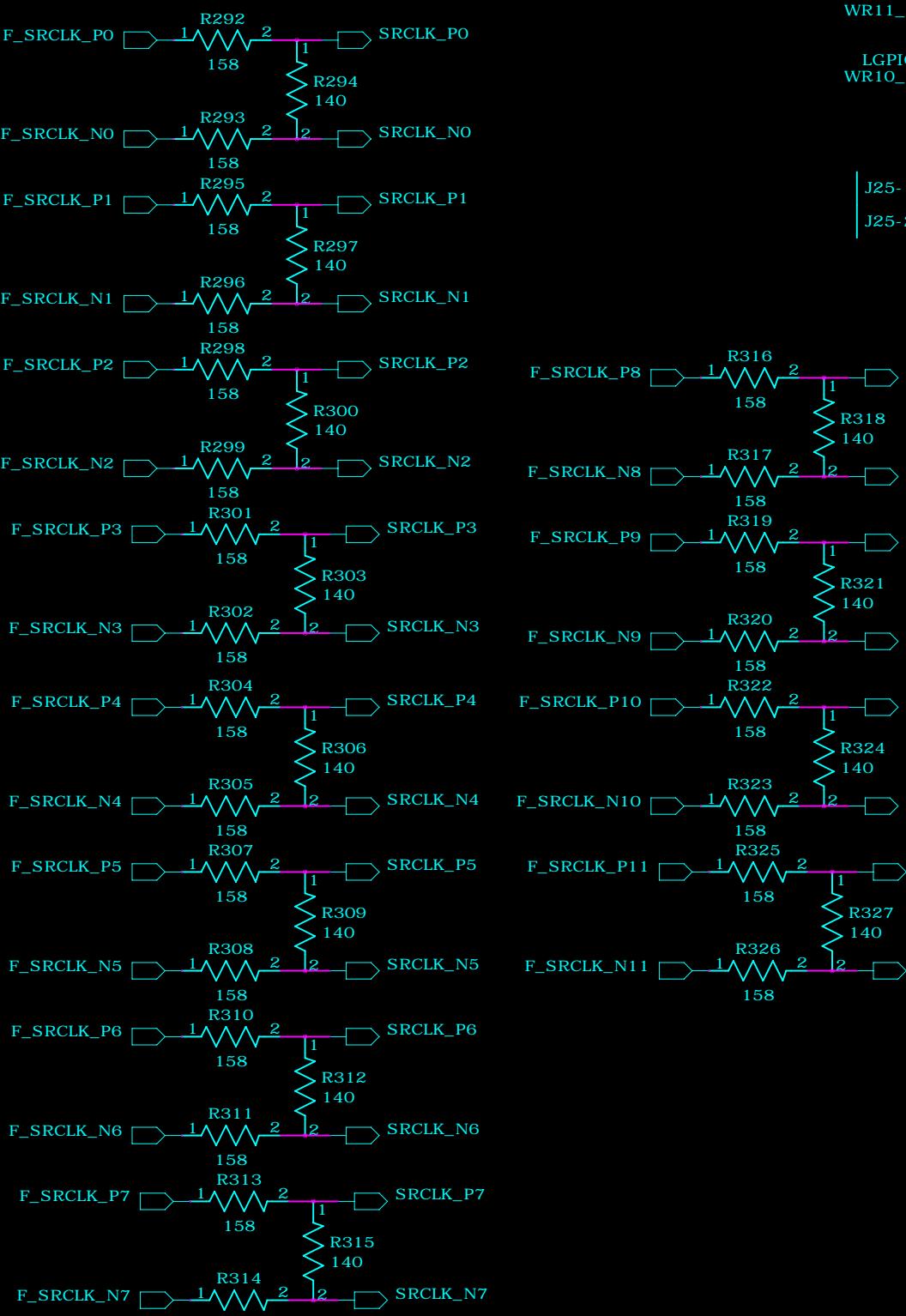
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| COMPANY:         | Ohio State University |        |         |
|------------------|-----------------------|--------|---------|
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Sheet: d7 74

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## REVISION RECORD

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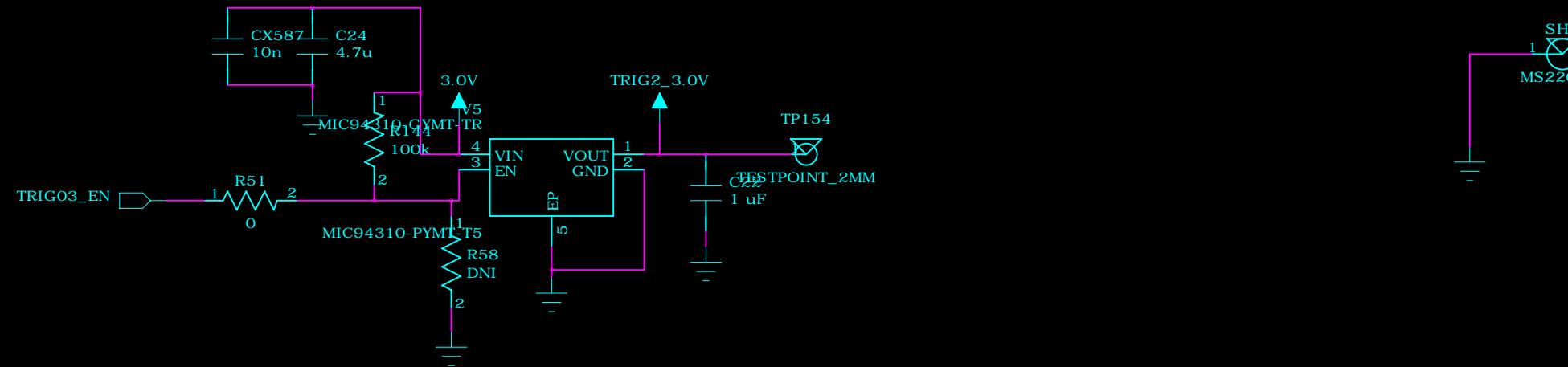
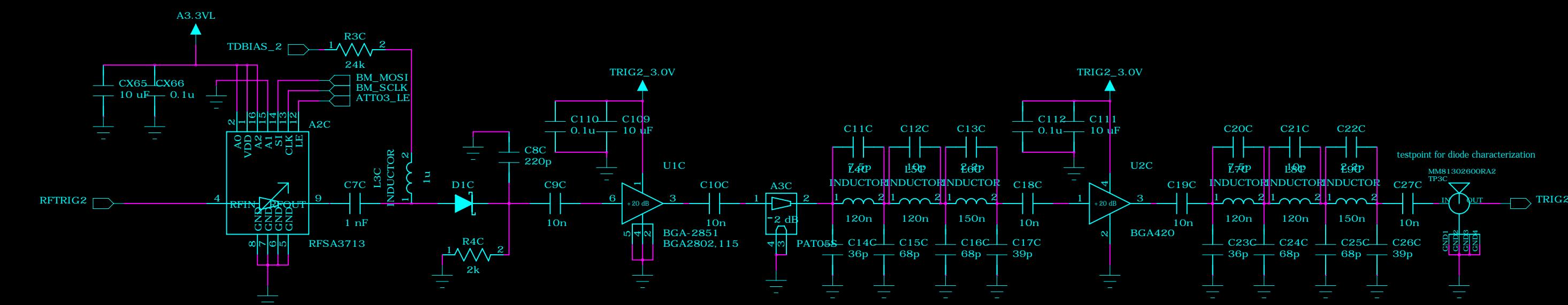
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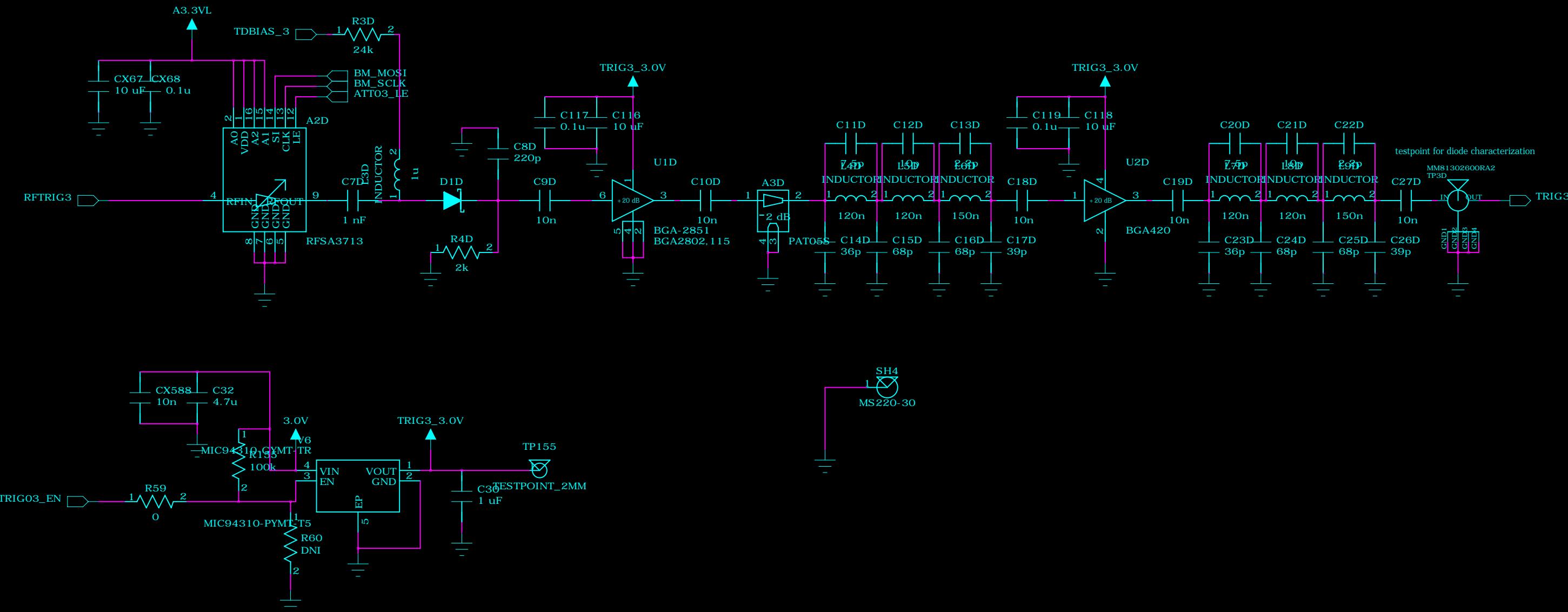
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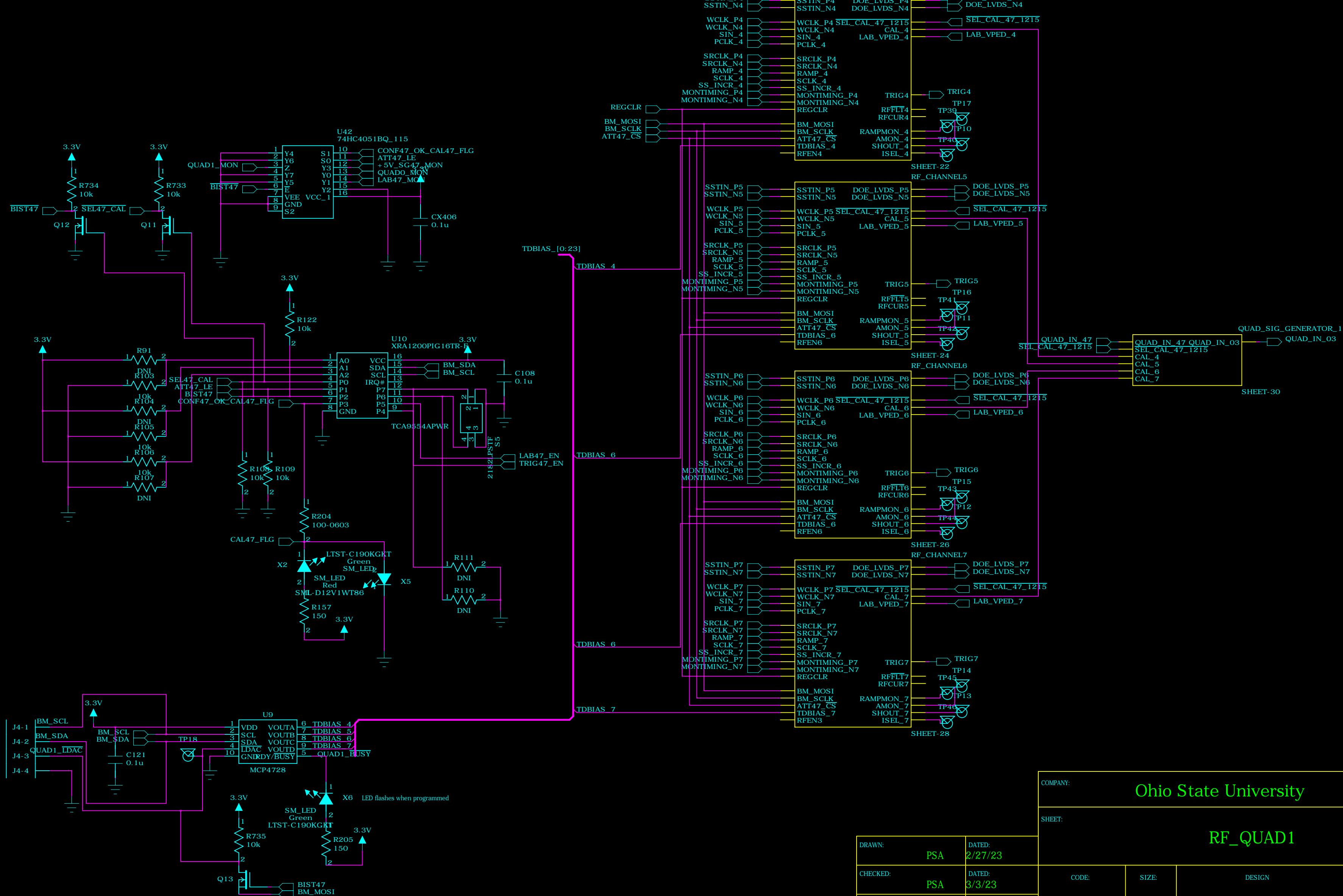
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Ohio State University

RF\_QUAD1

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| DRAWN:           | PSA                   | DATED: | 2/27/23 |
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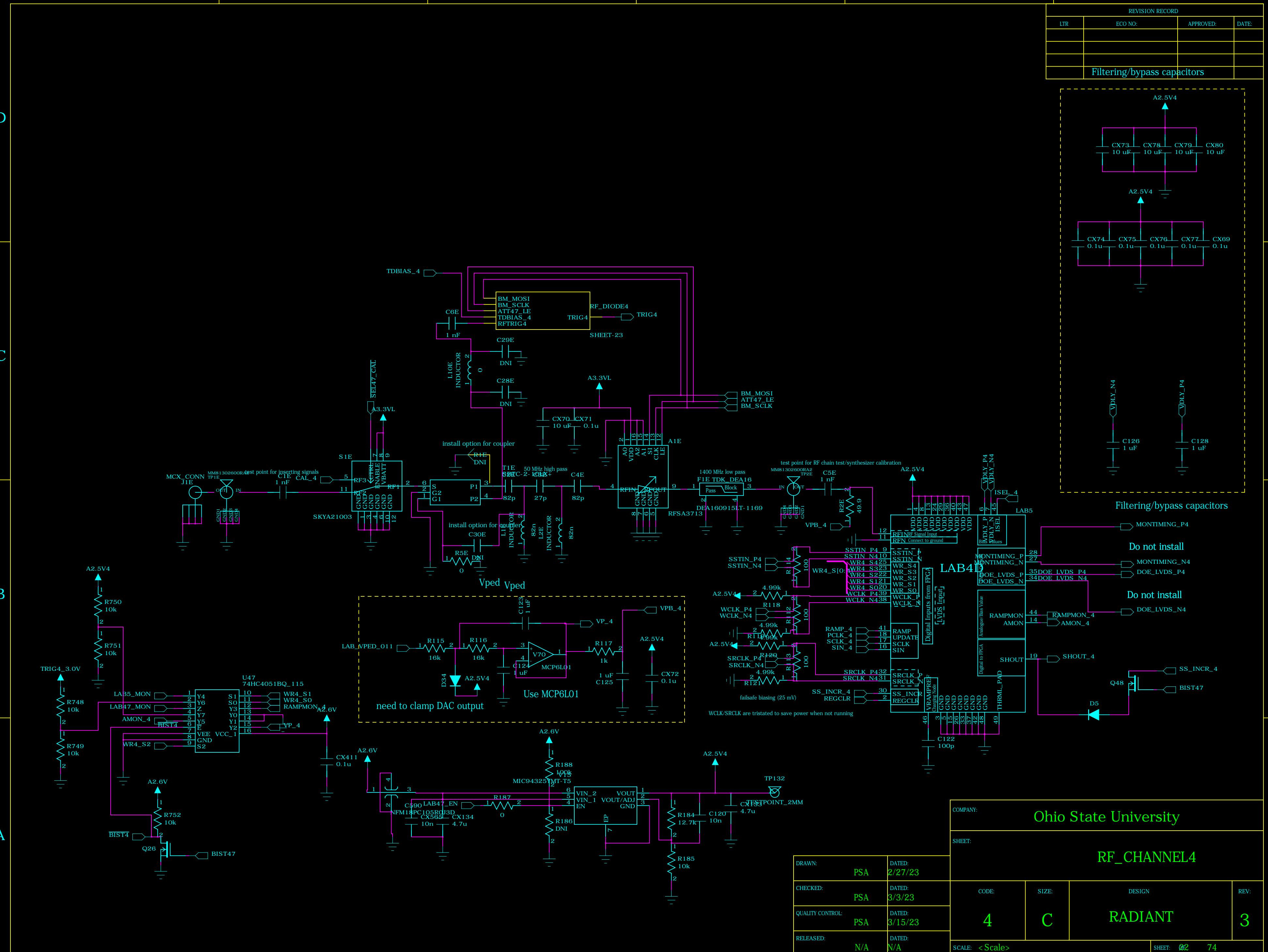
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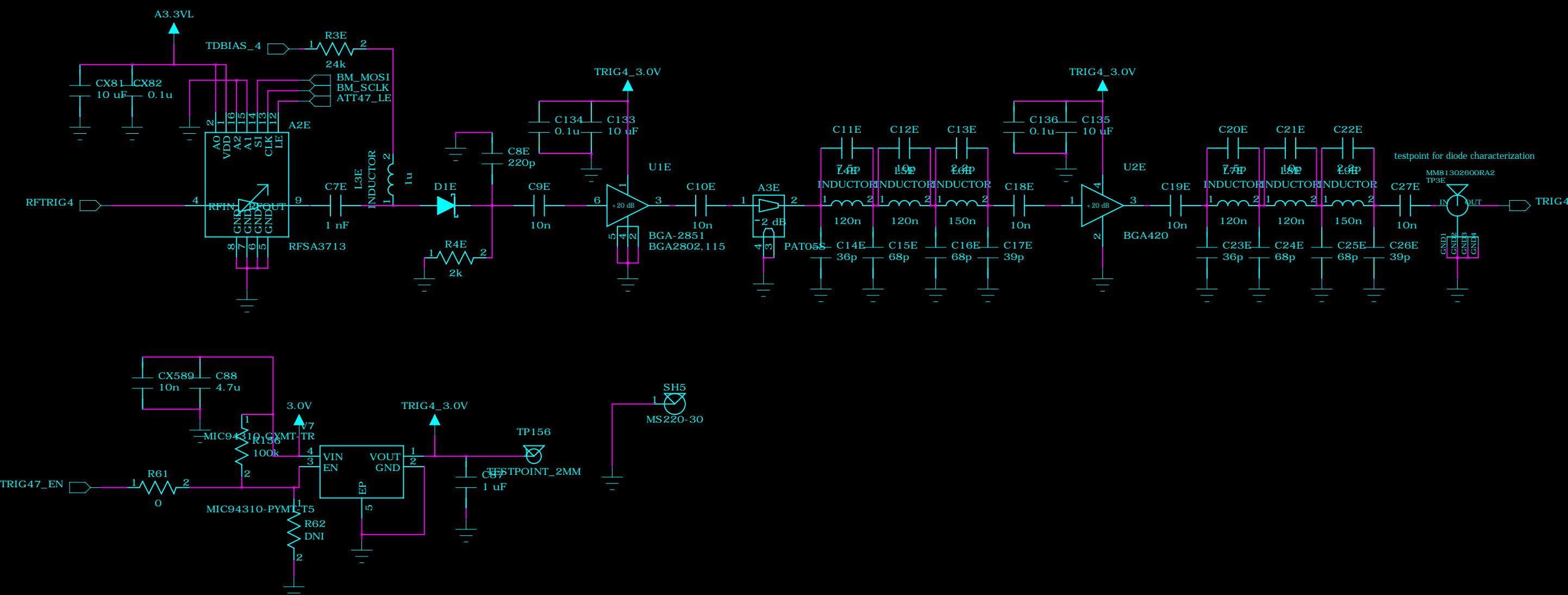
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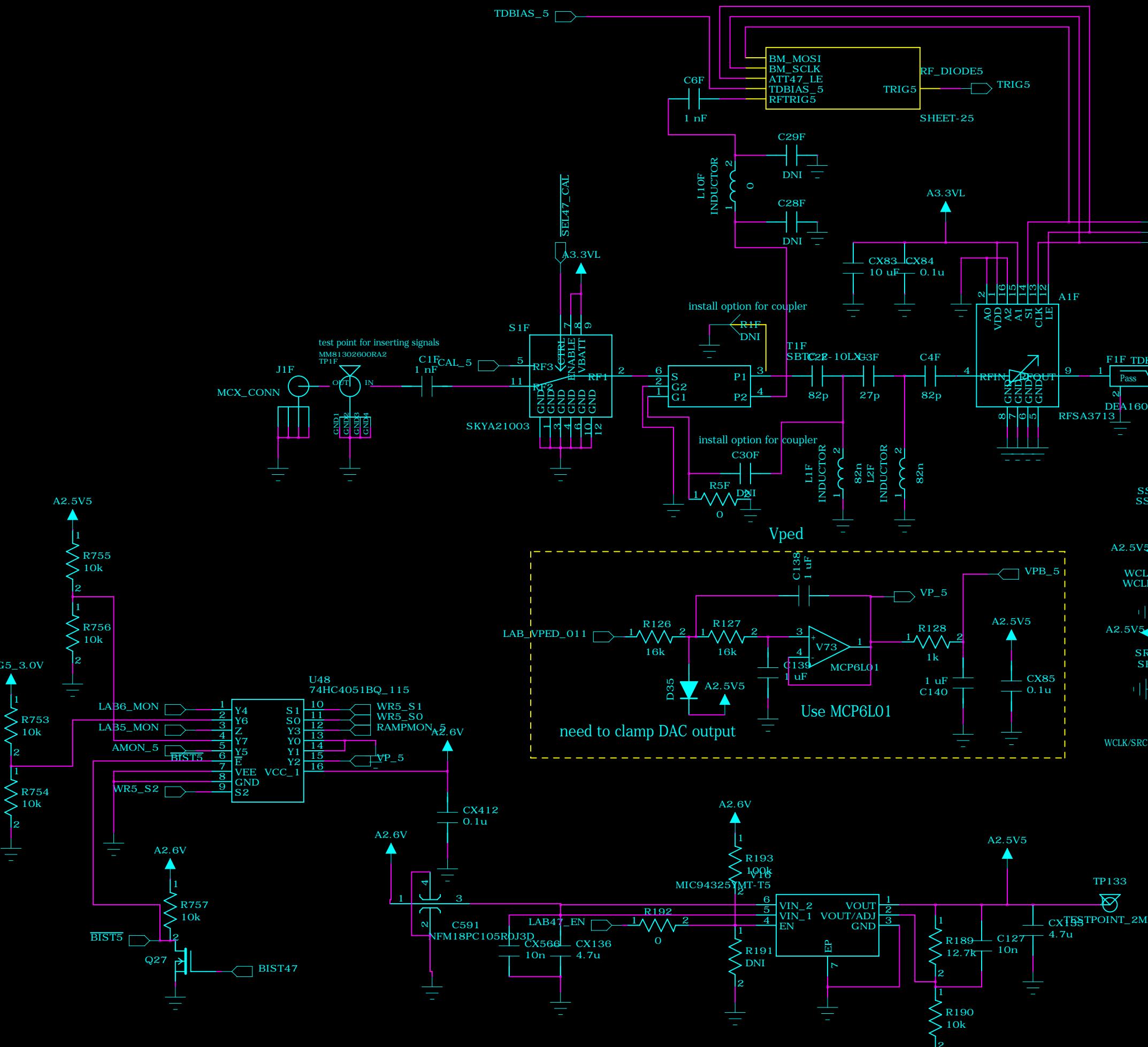
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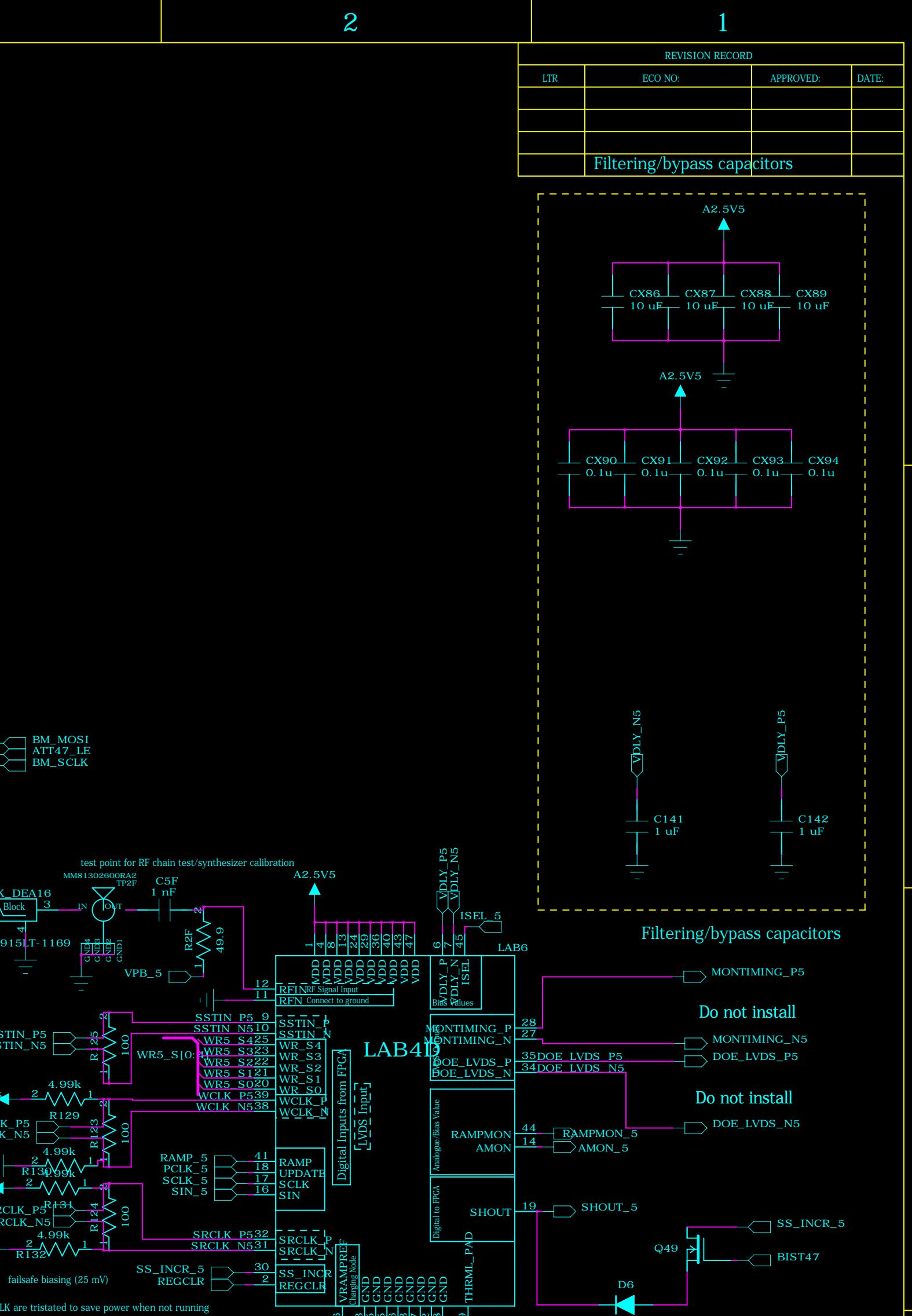
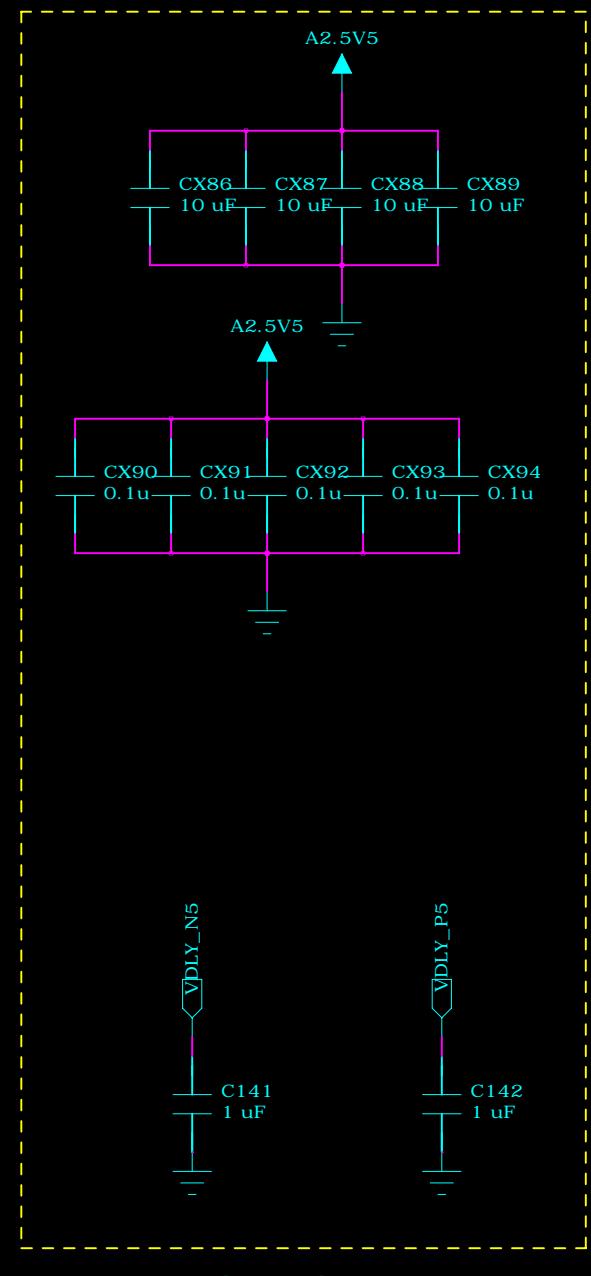
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| QUALITY CONTROL:      | PSA     | DATED:  | 3/15/23 |
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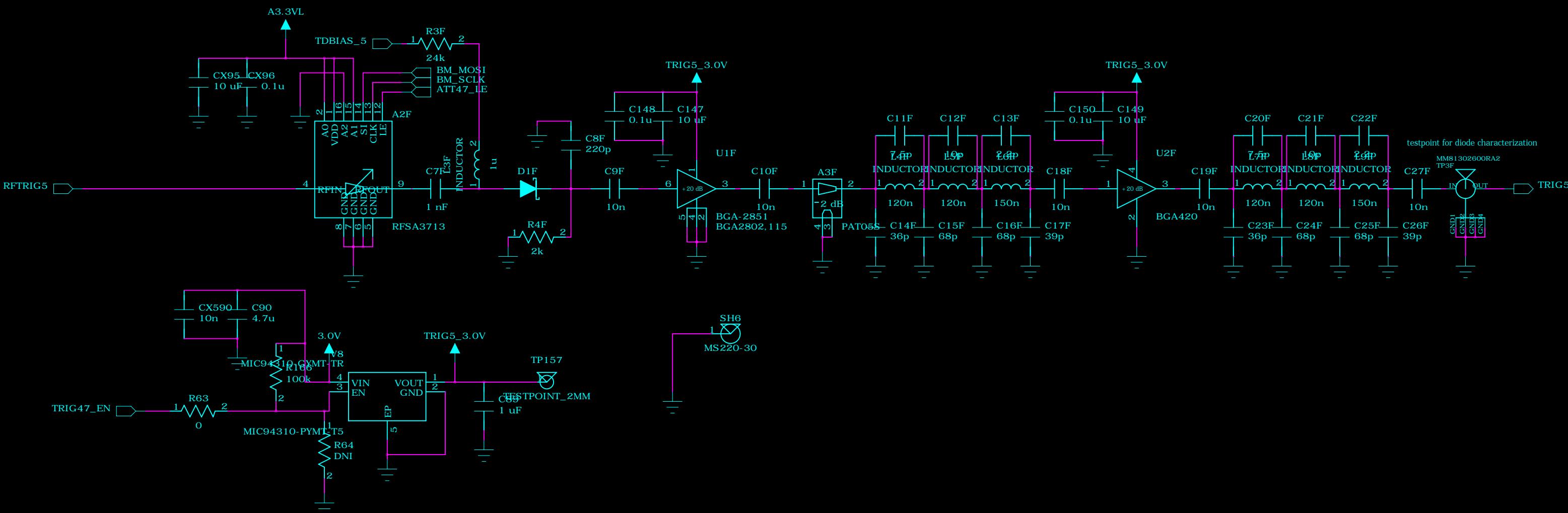
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COMPANY:

Ohio State University

SHEET:

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| QUALITY CONTROL: | PSA | DATED: | 3/15/23 |   |
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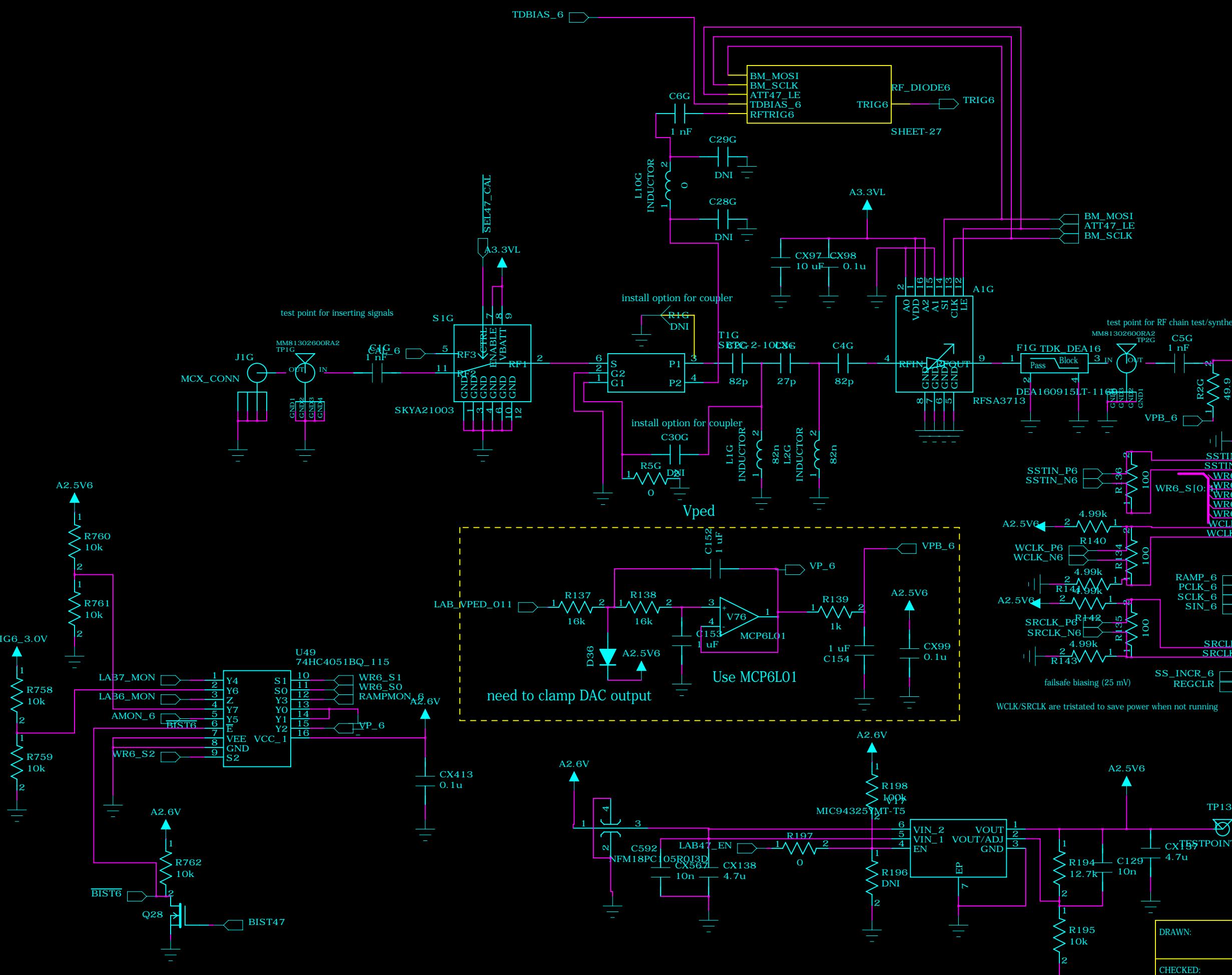
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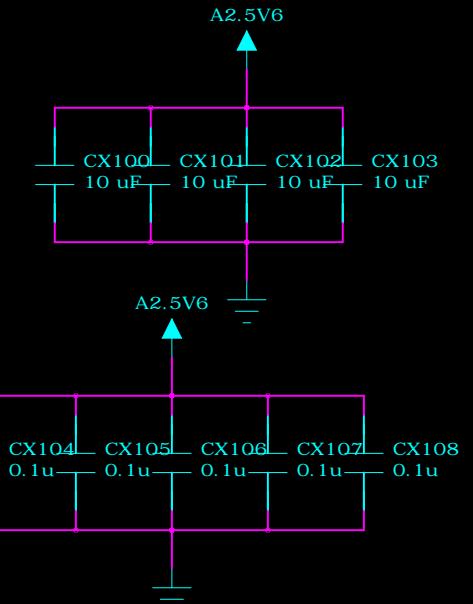


Ohio State University

RF\_CHANNEL6

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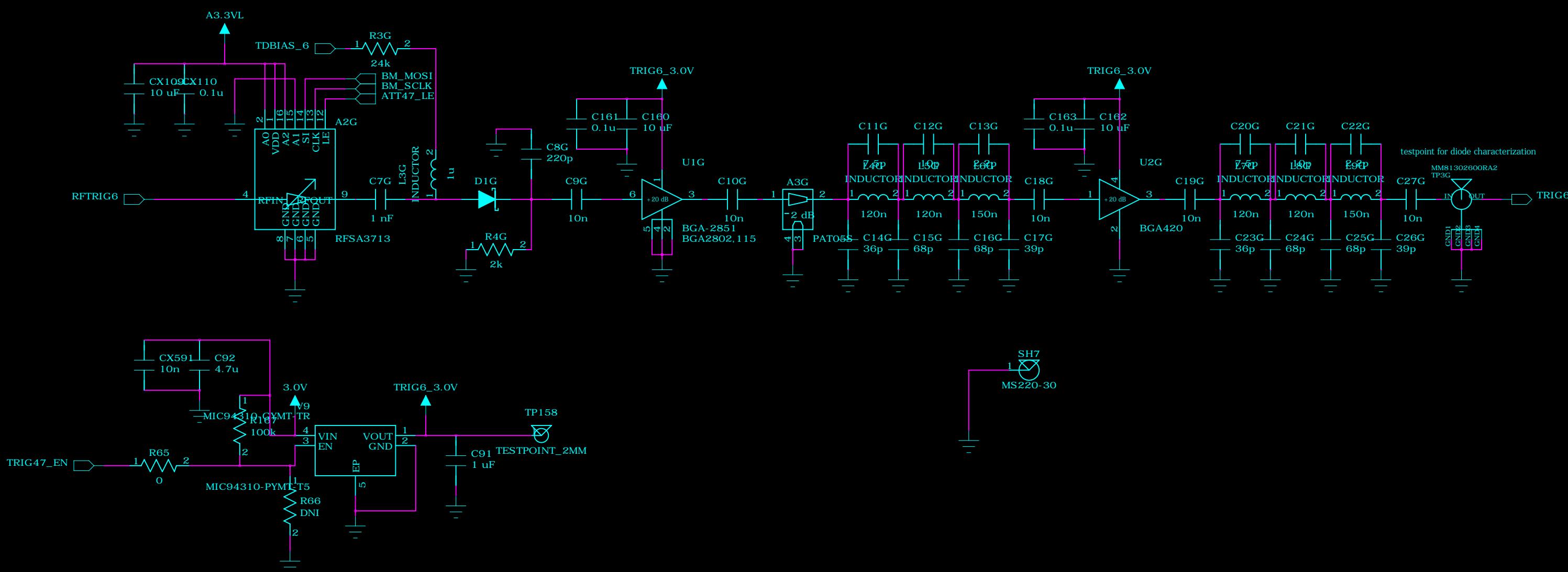
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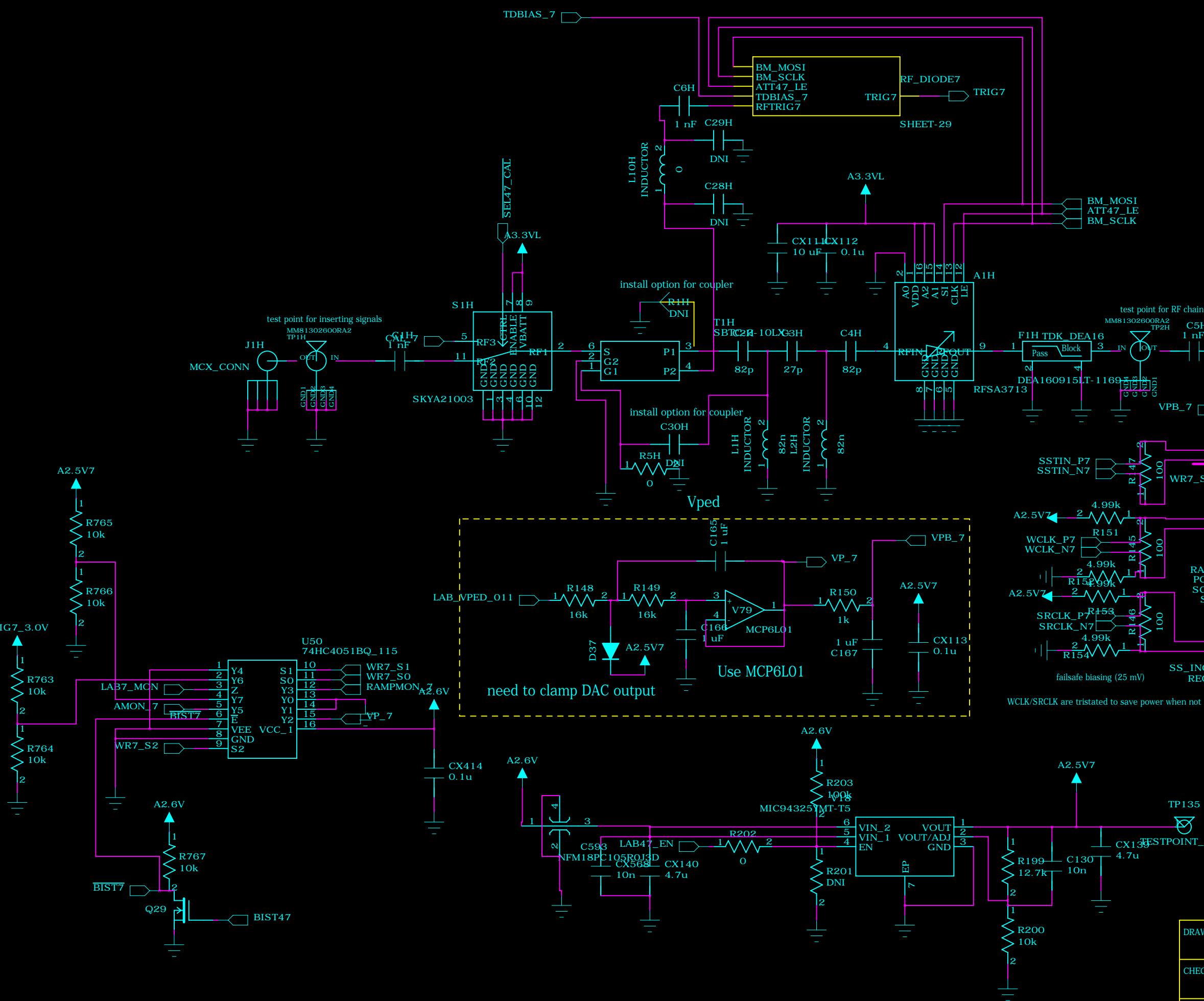
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Ohio State University

RF\_CHANNEL7

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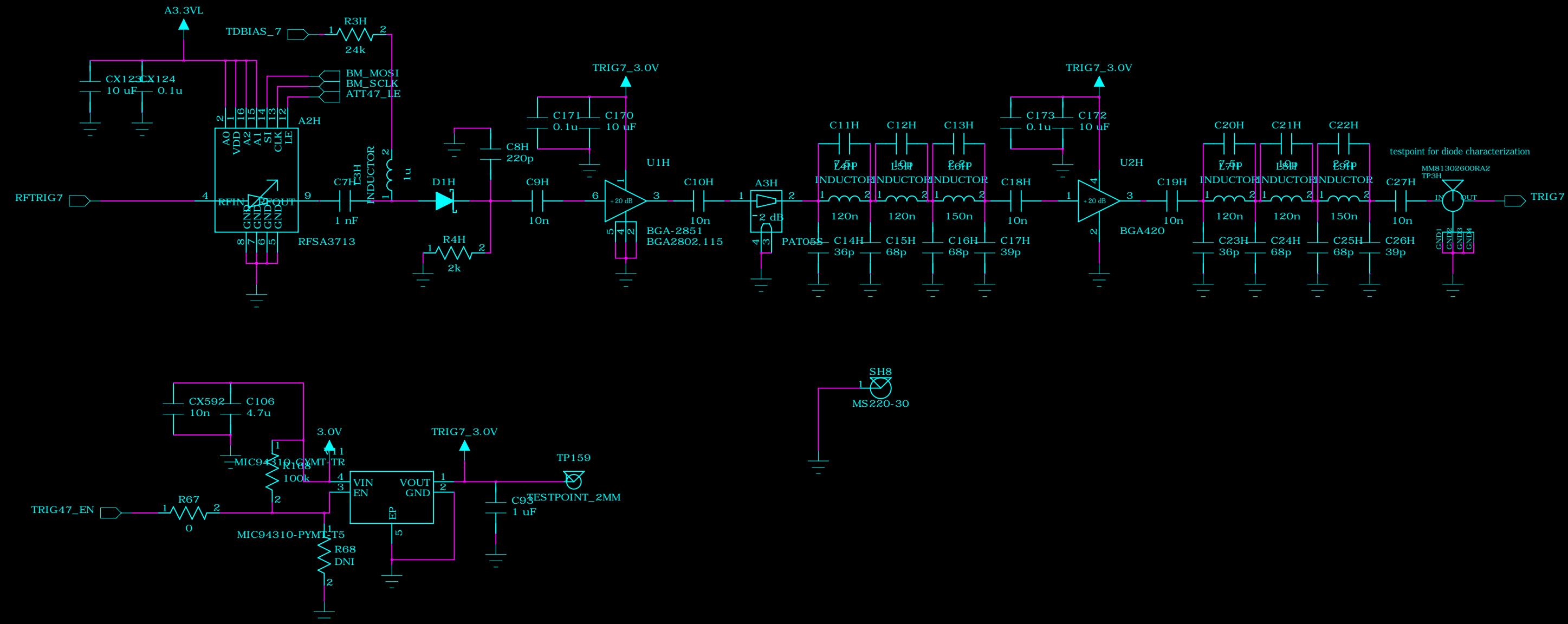
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COMPANY:

Ohio State University

SHEET:

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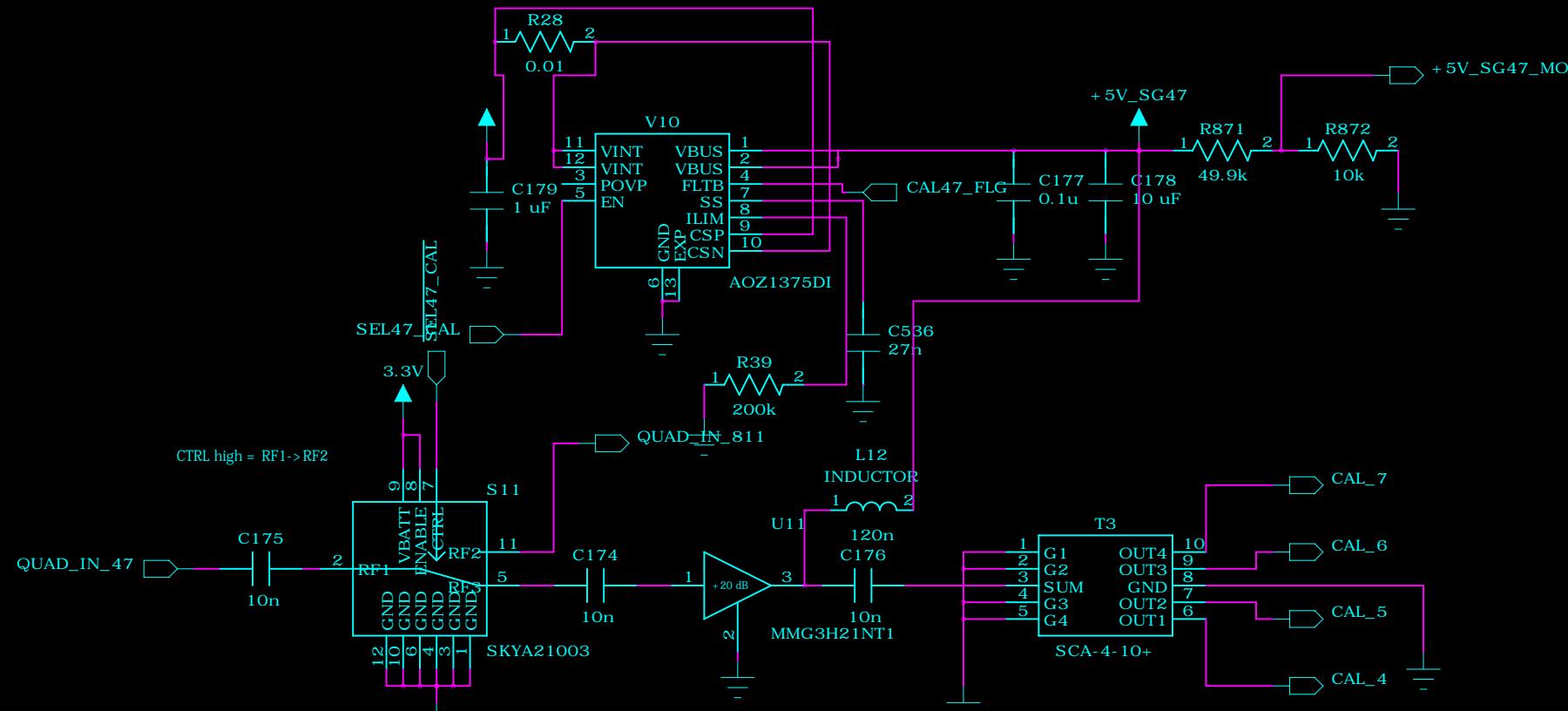
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COMPANY:

Ohio State University

SHEET:

QUAD\_SIG\_GENERATOR\_1

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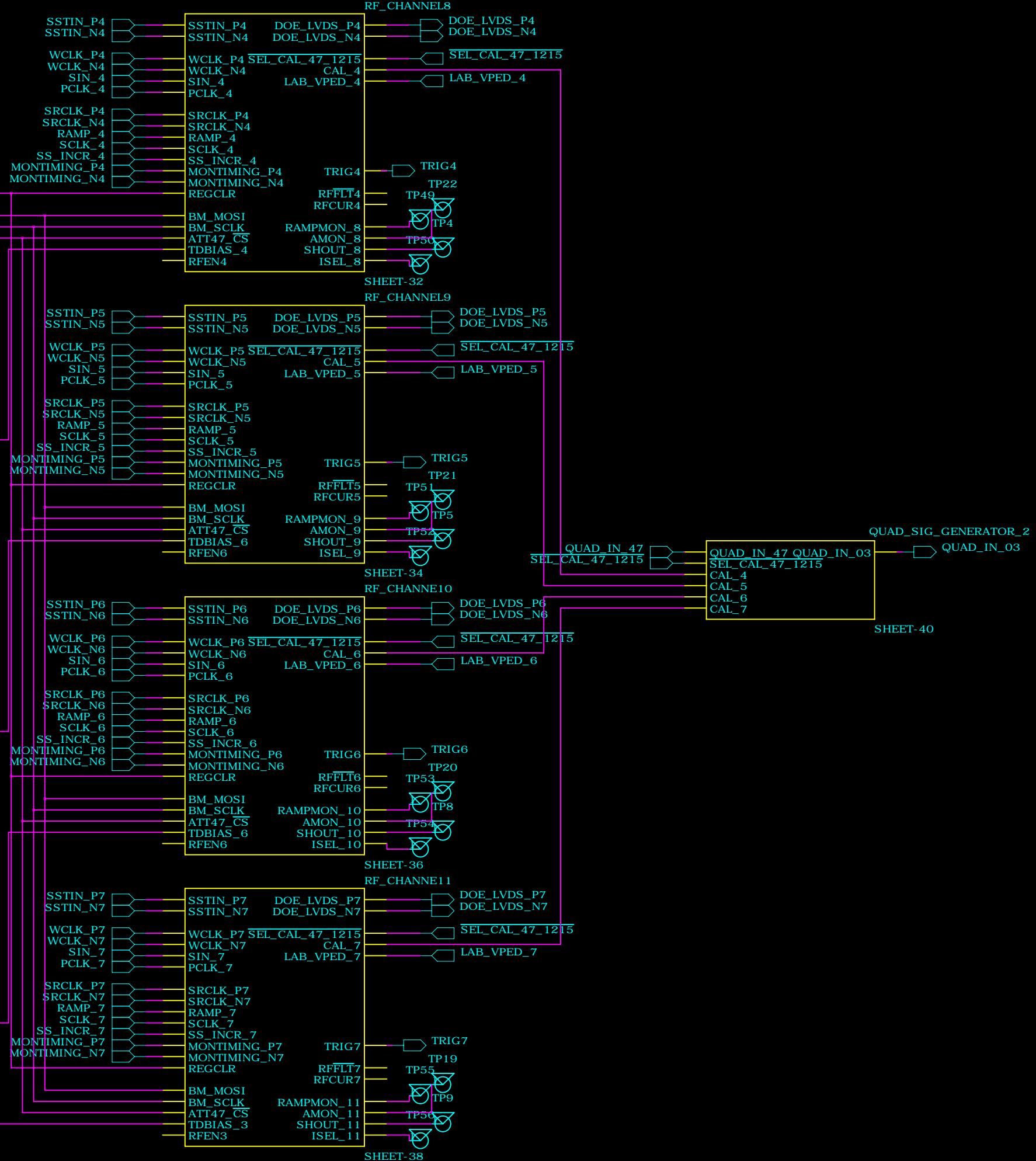
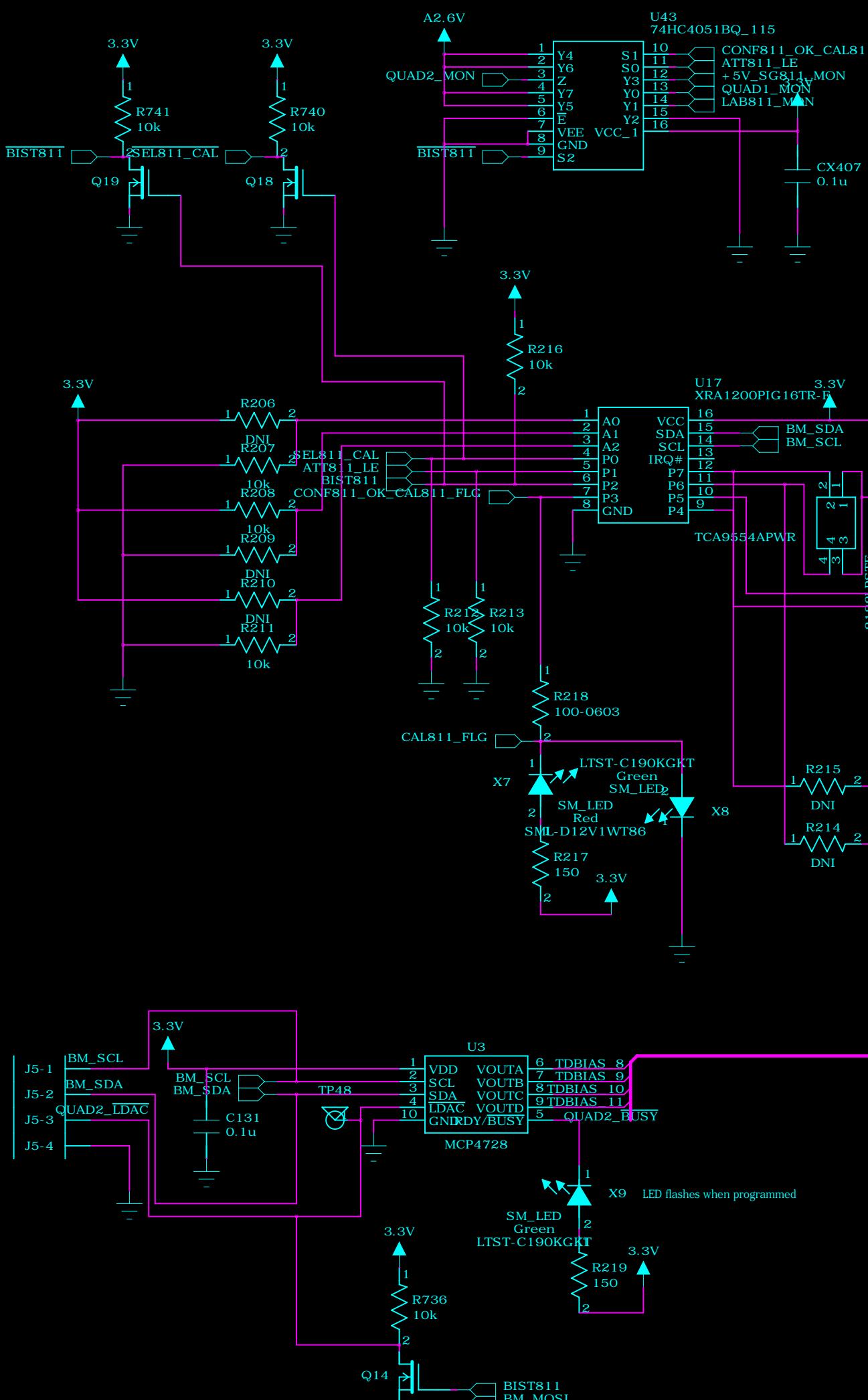
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rev 3: QUAD2 and QUAD3's switches stay enabled and route A2.6V/3.07V (respectively) when not in BIST mode



Ohio State University

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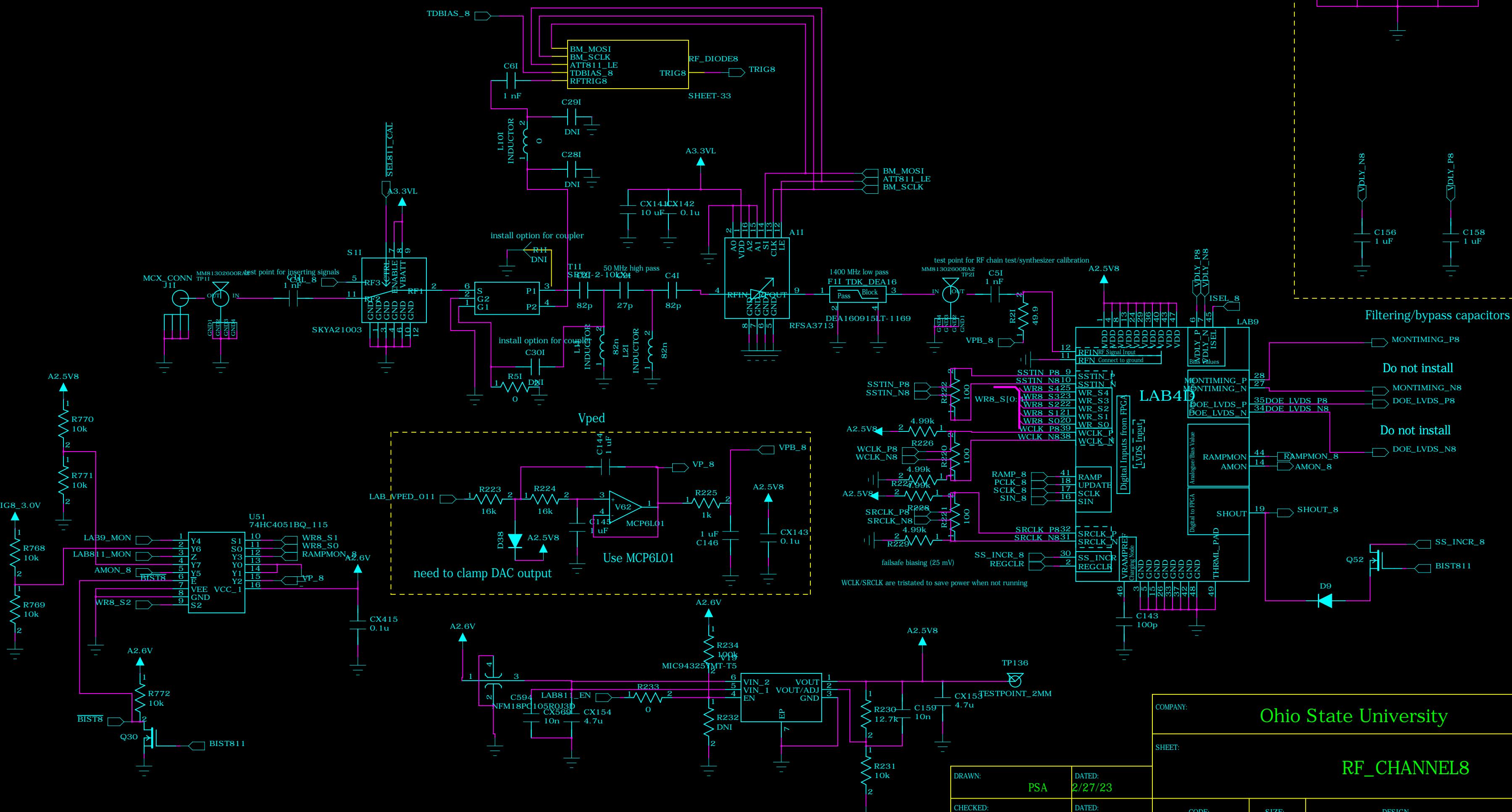
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Ohio State University

RF\_CHANNEL8

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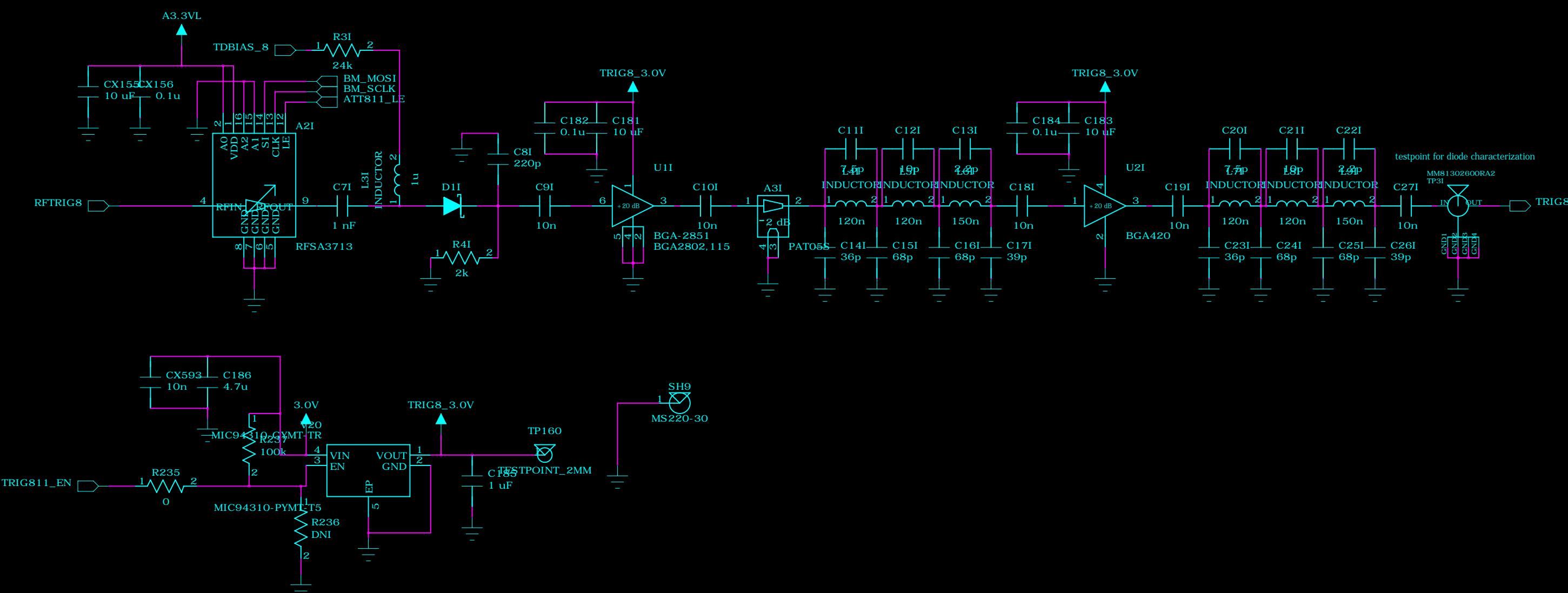
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| DRAWN:           | PSA | DATED:                | 2/27/23      |         |
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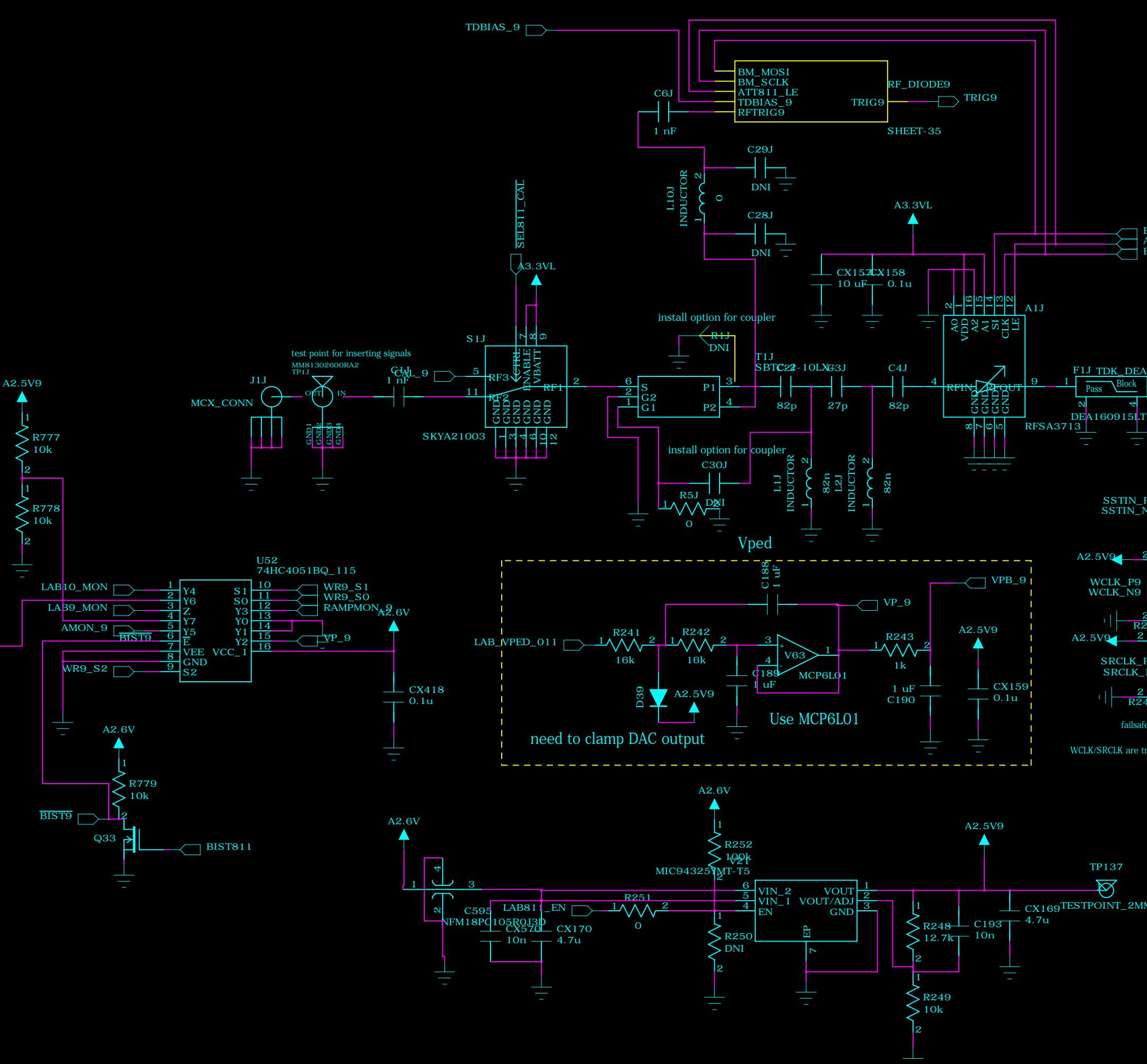
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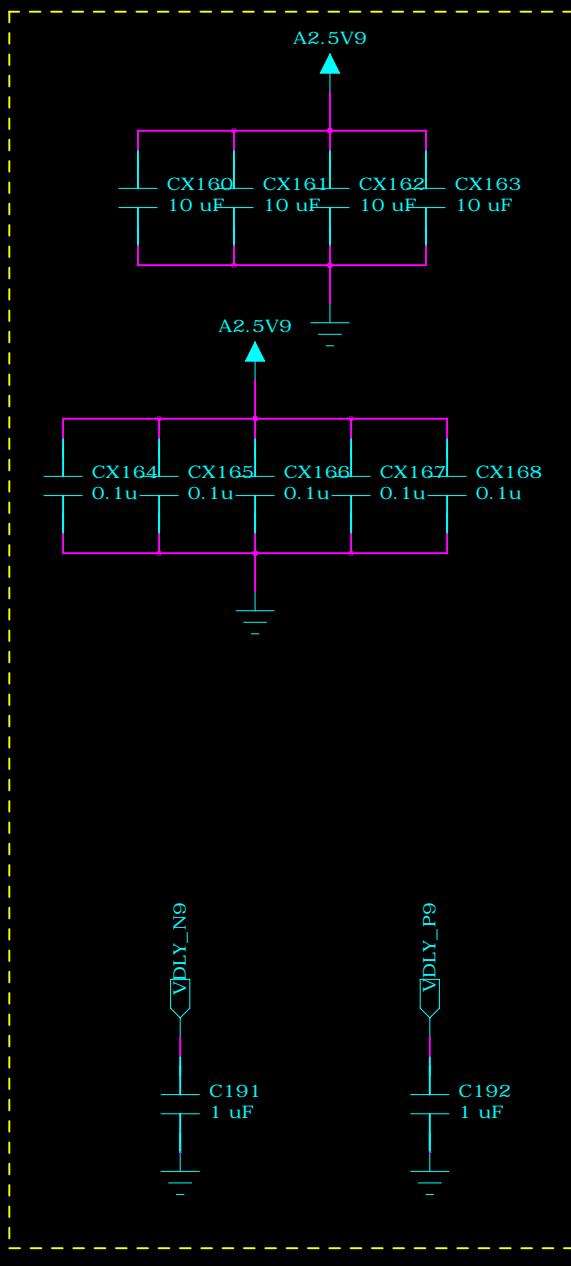
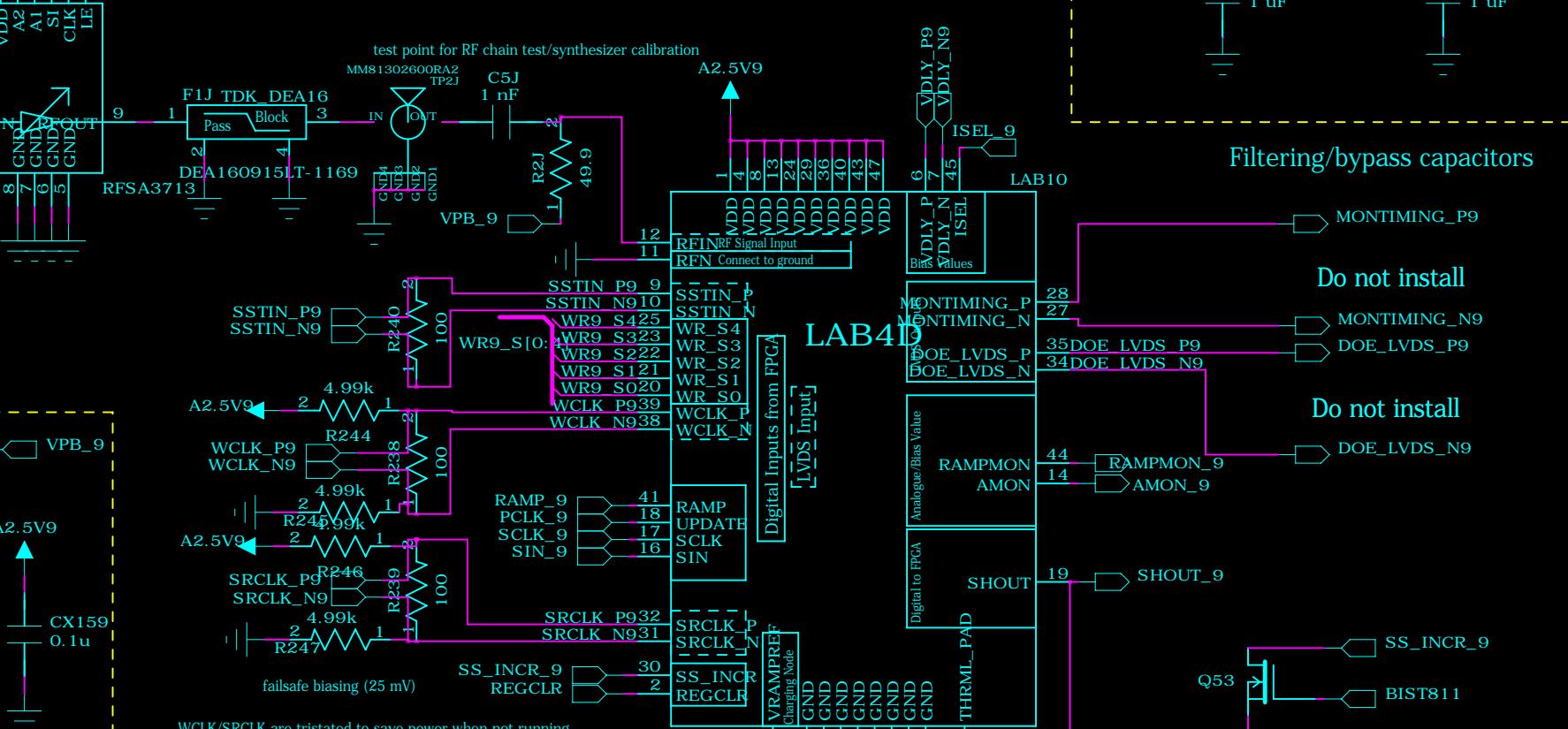
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Ohio State University

RF\_CHANNEL9



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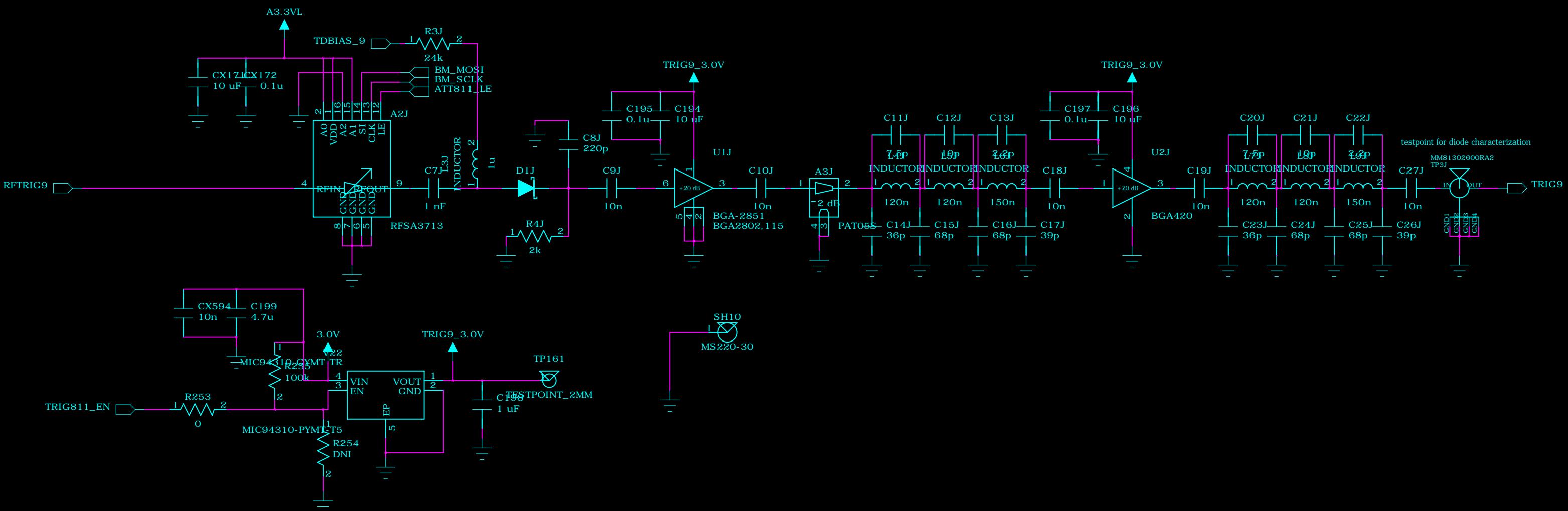
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COMPANY:

Ohio State University

SHEET:

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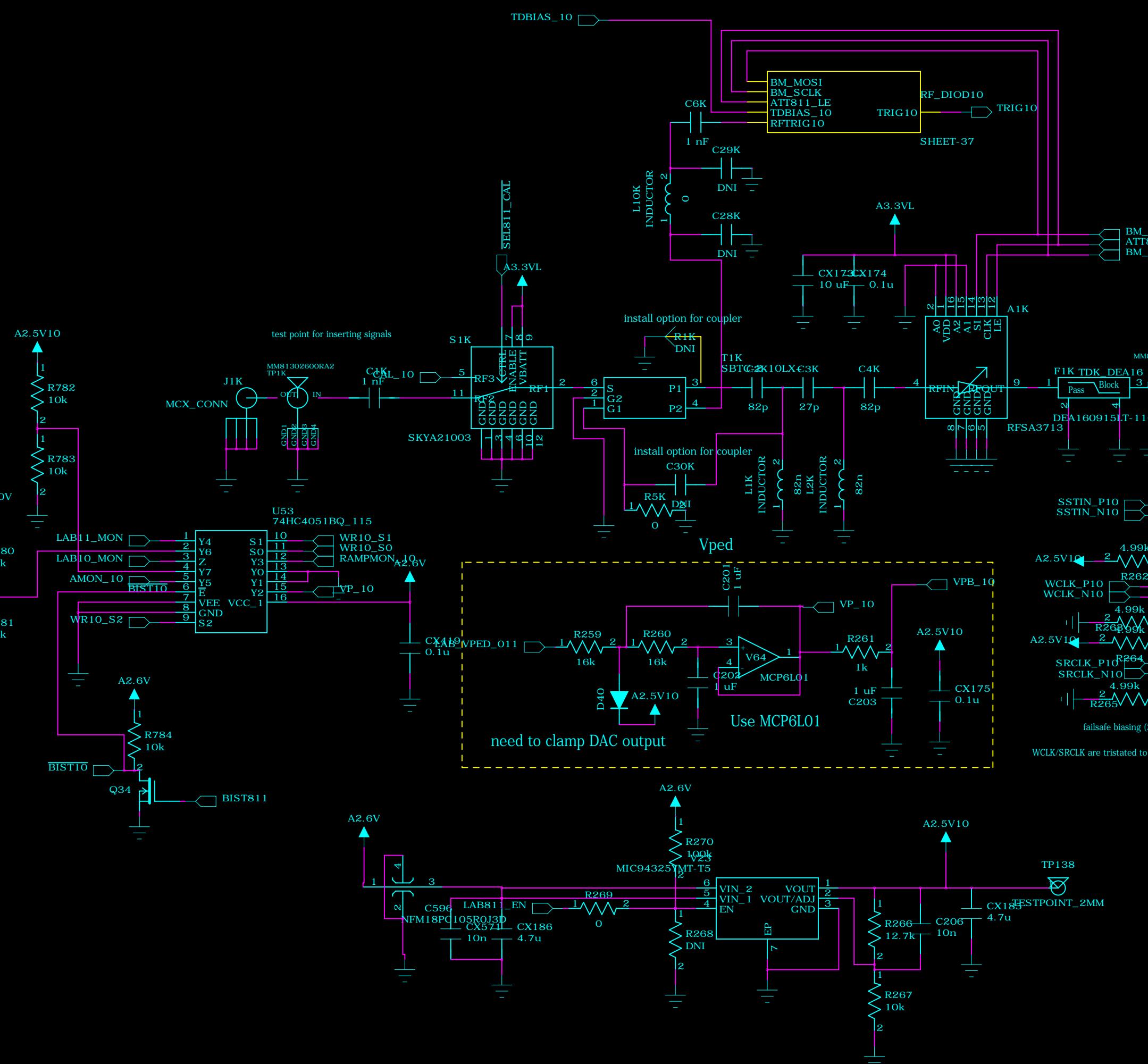
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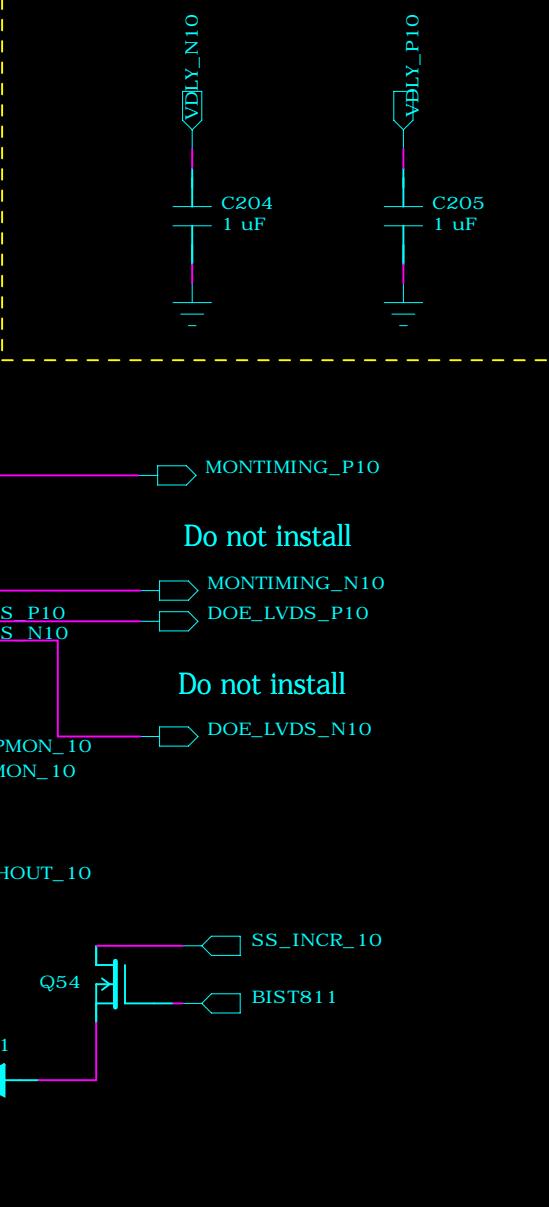
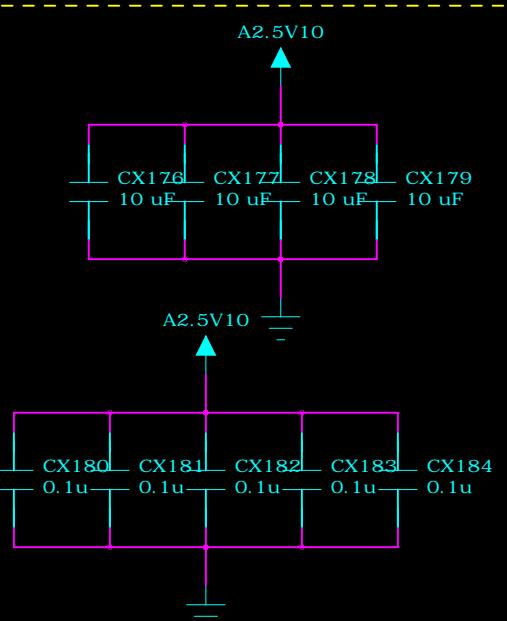
Ohio State University

RF\_CHANNEL10

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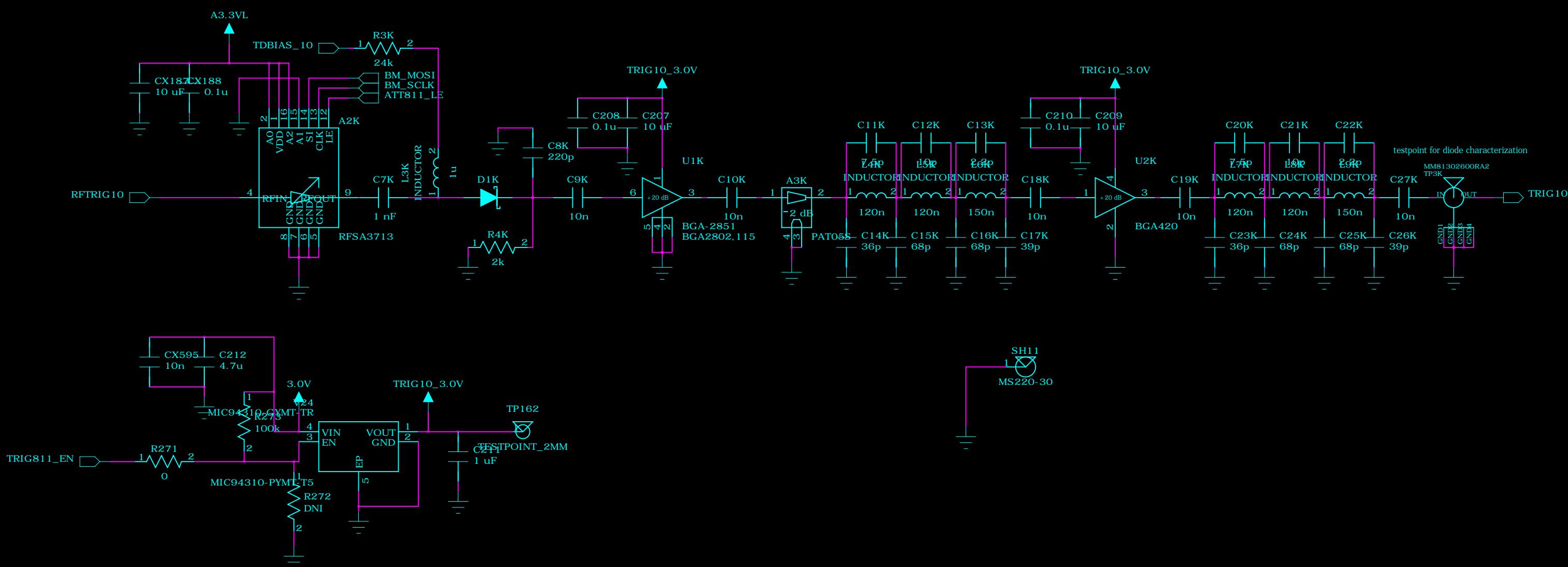
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## REVISION RECORD

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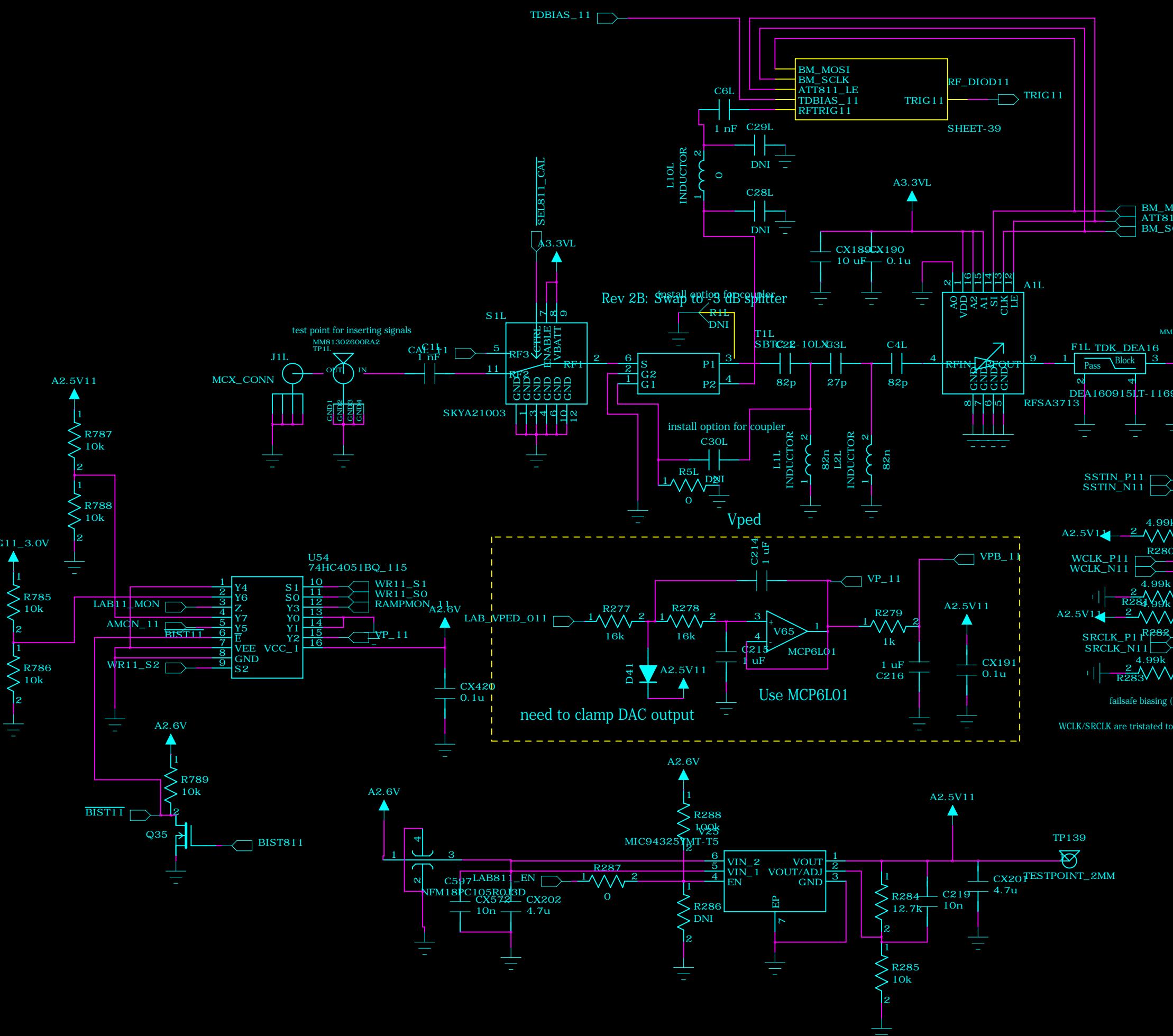
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Ohio State University

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## REVISION RECORD

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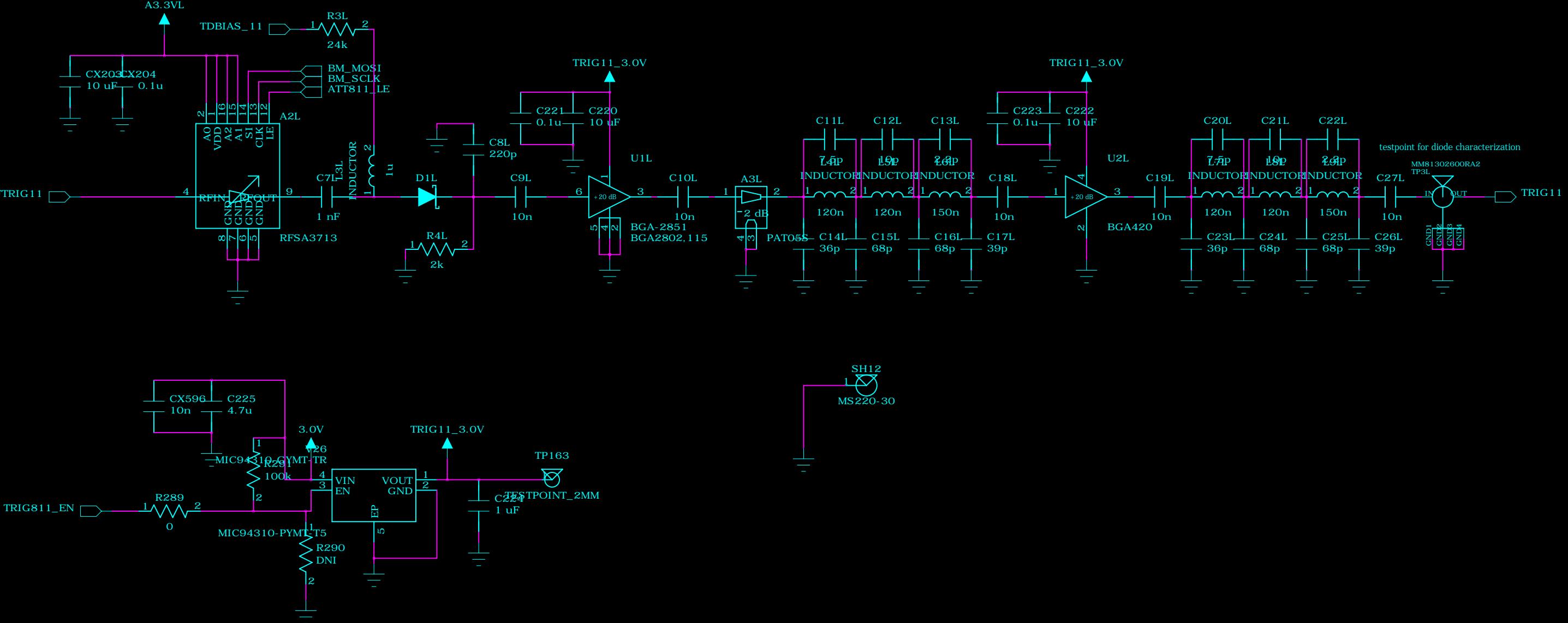
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COMPANY:

Ohio State University

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## REVISION RECORD

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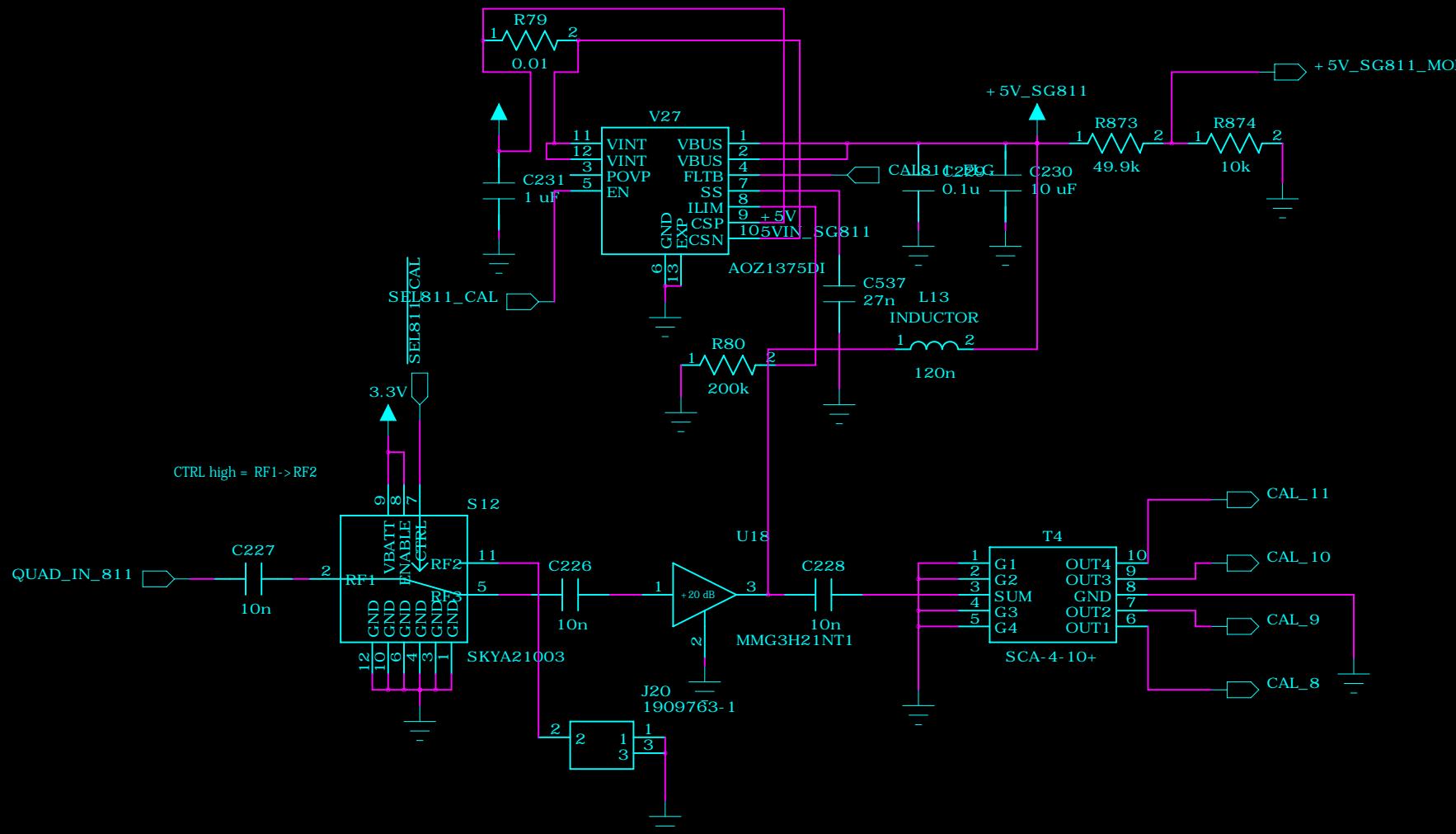
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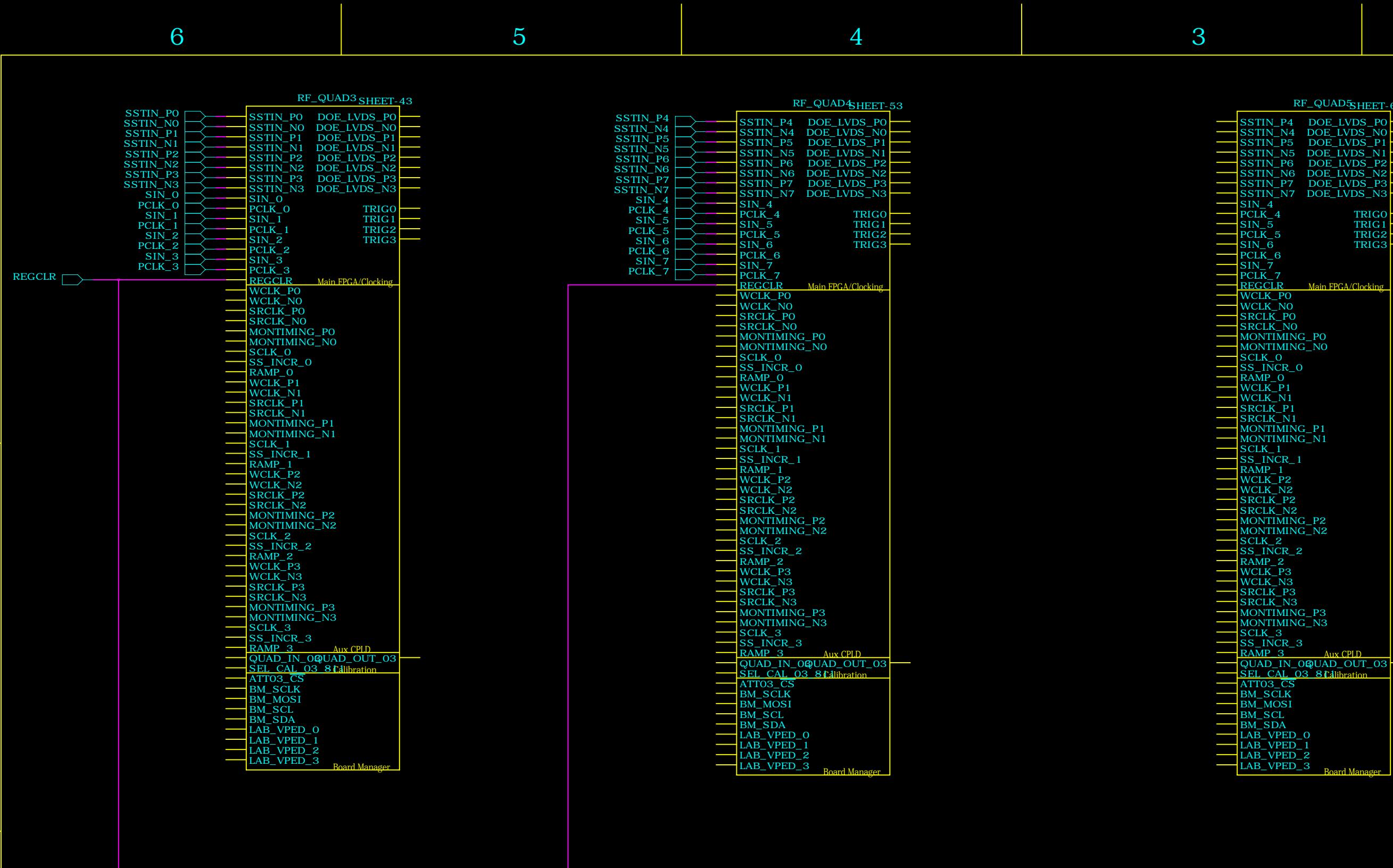
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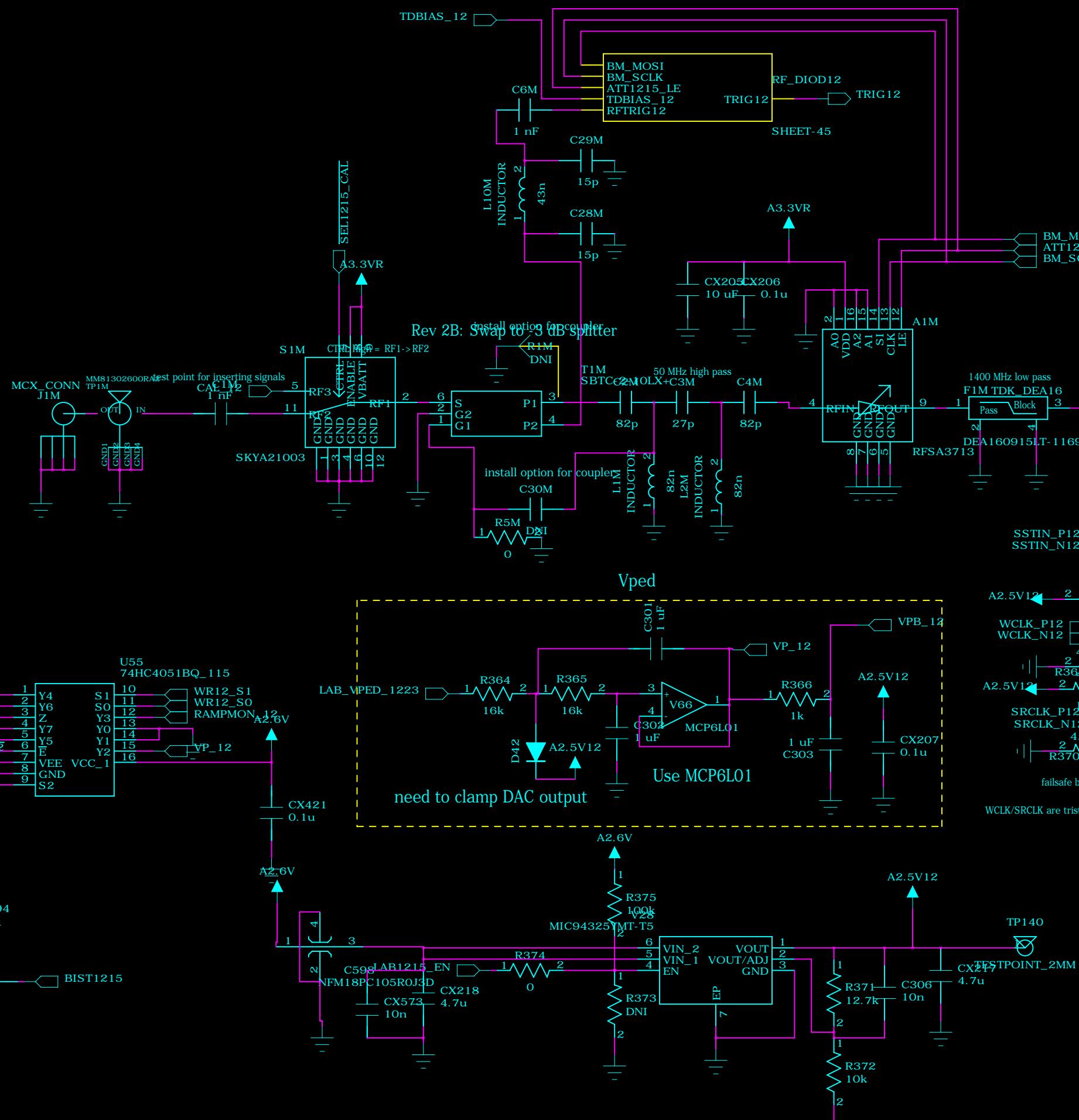
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Ohio State University

RF\_CHANNEL12

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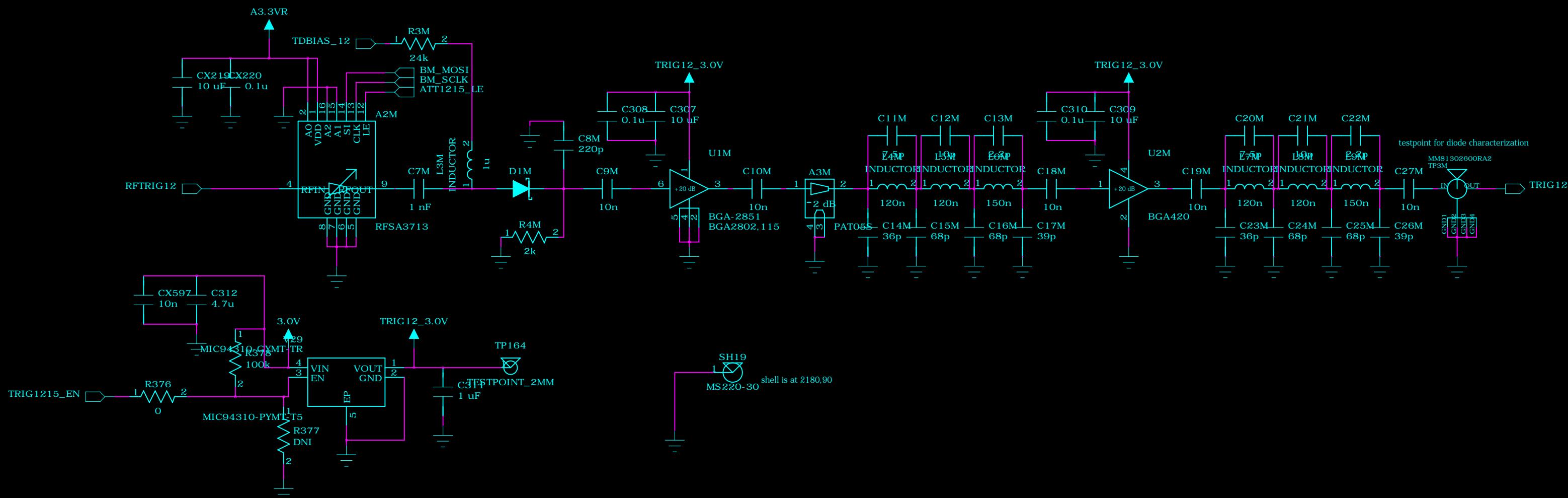
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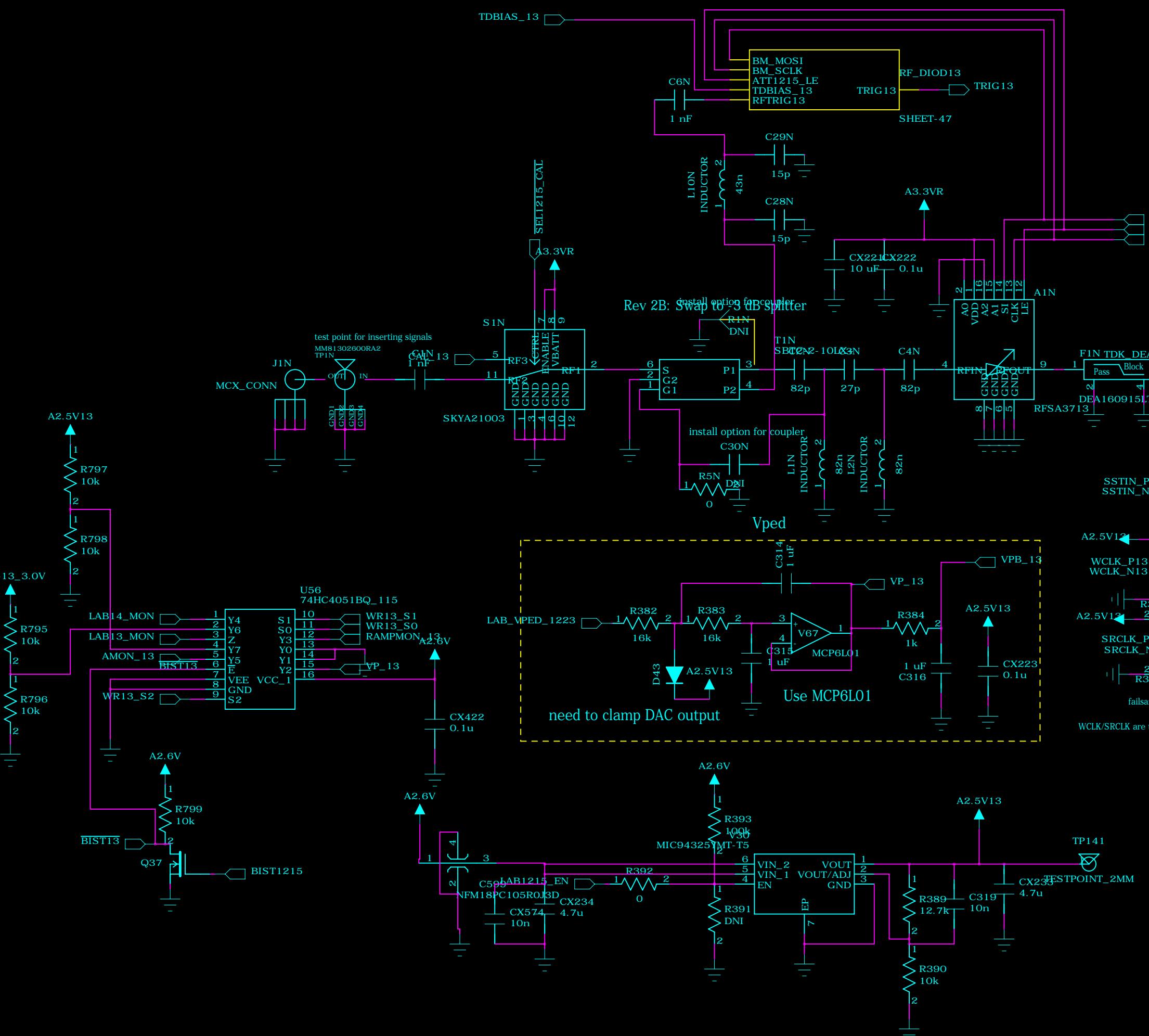
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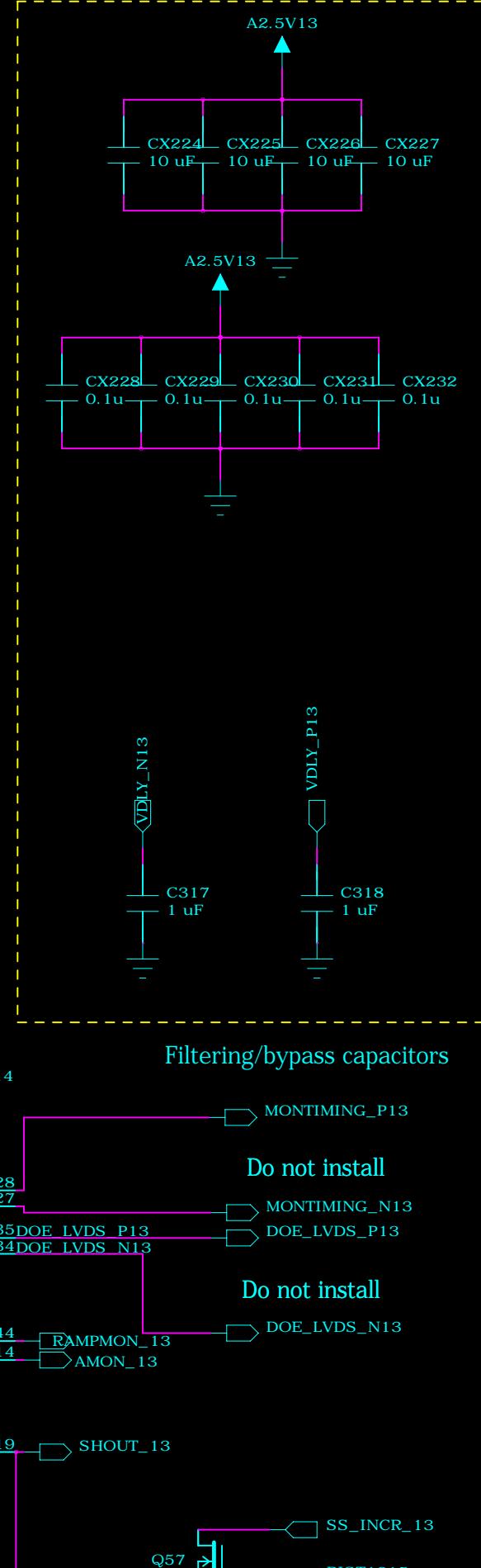
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Ohio State University

RF\_CHANNEL13



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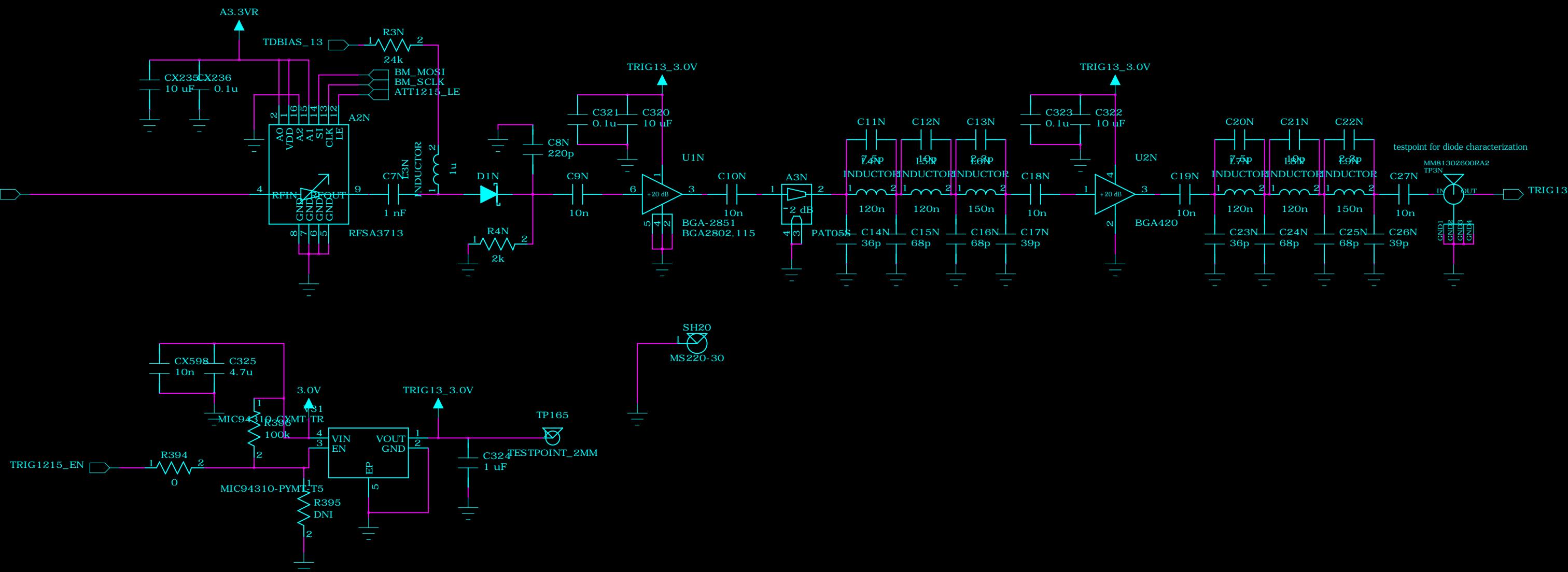
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Ohio State University

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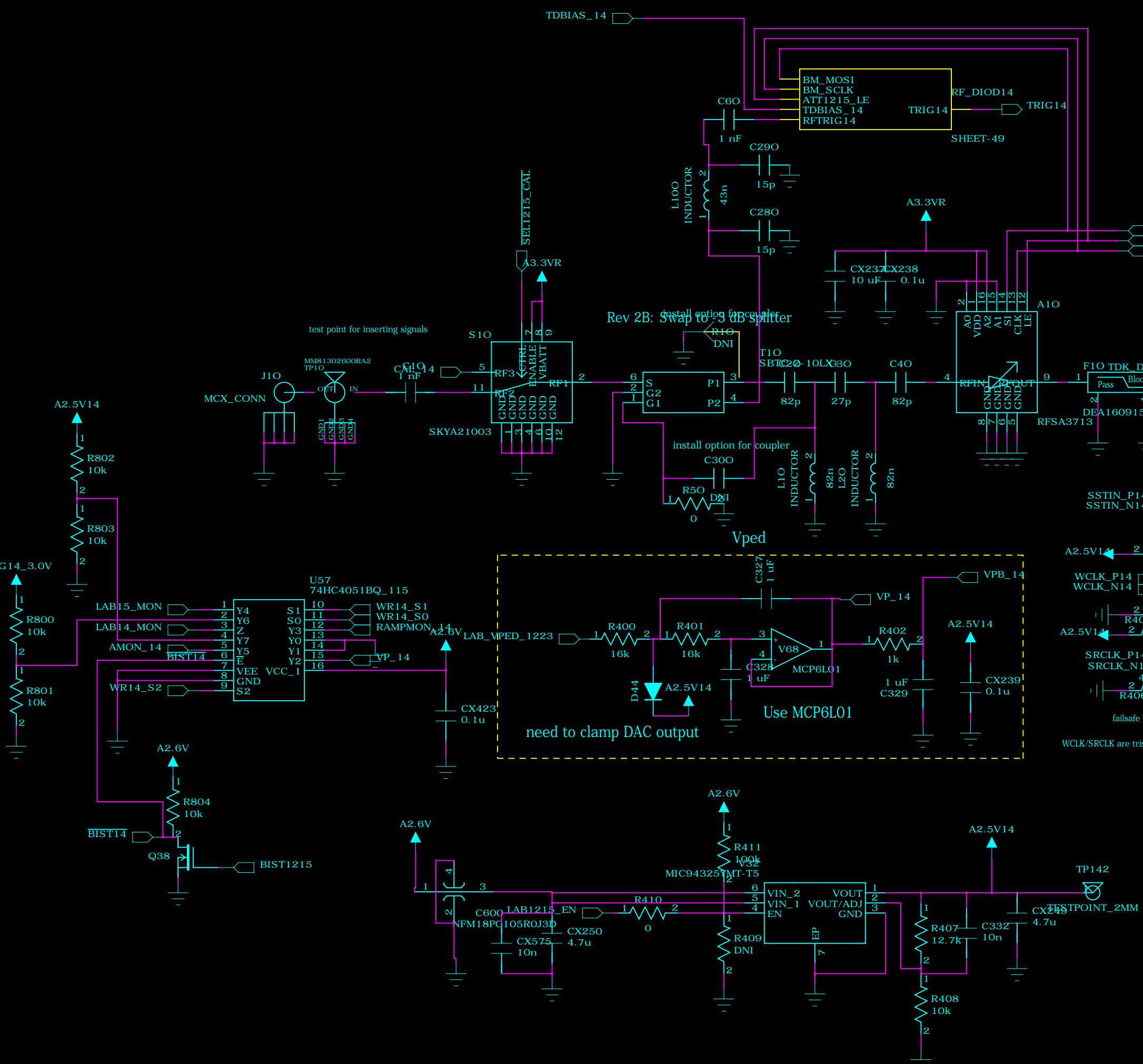
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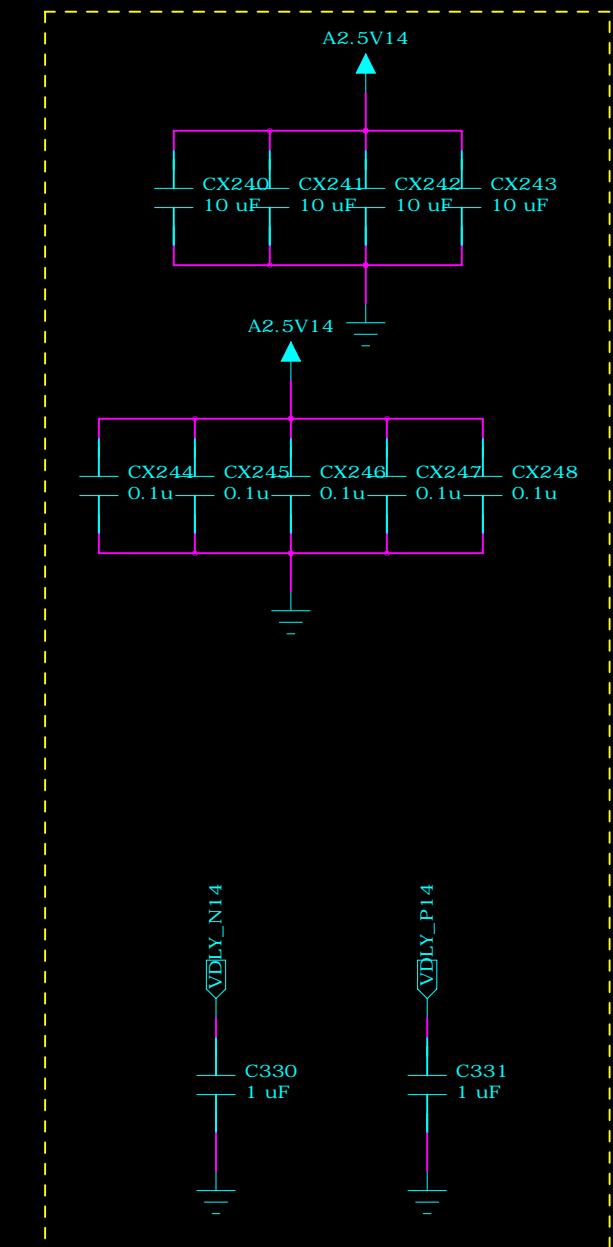


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Ohio State University

RF\_CHANNEL14

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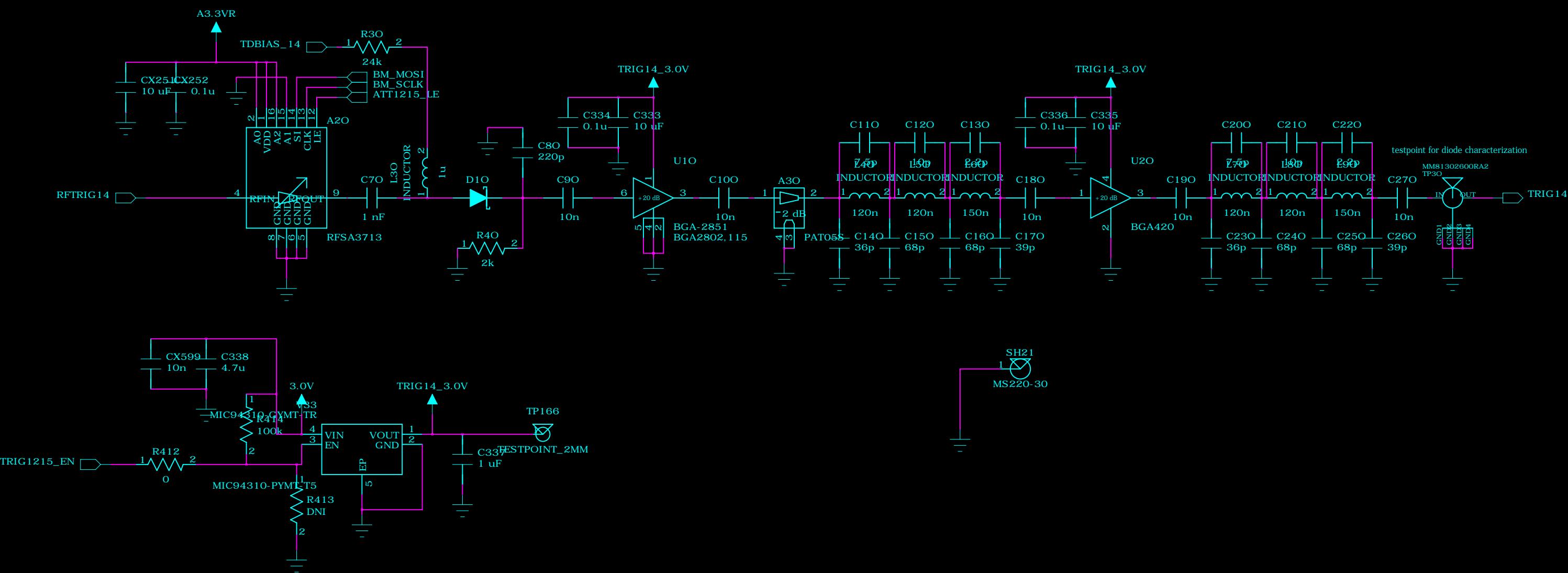
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COMPANY:

Ohio State University

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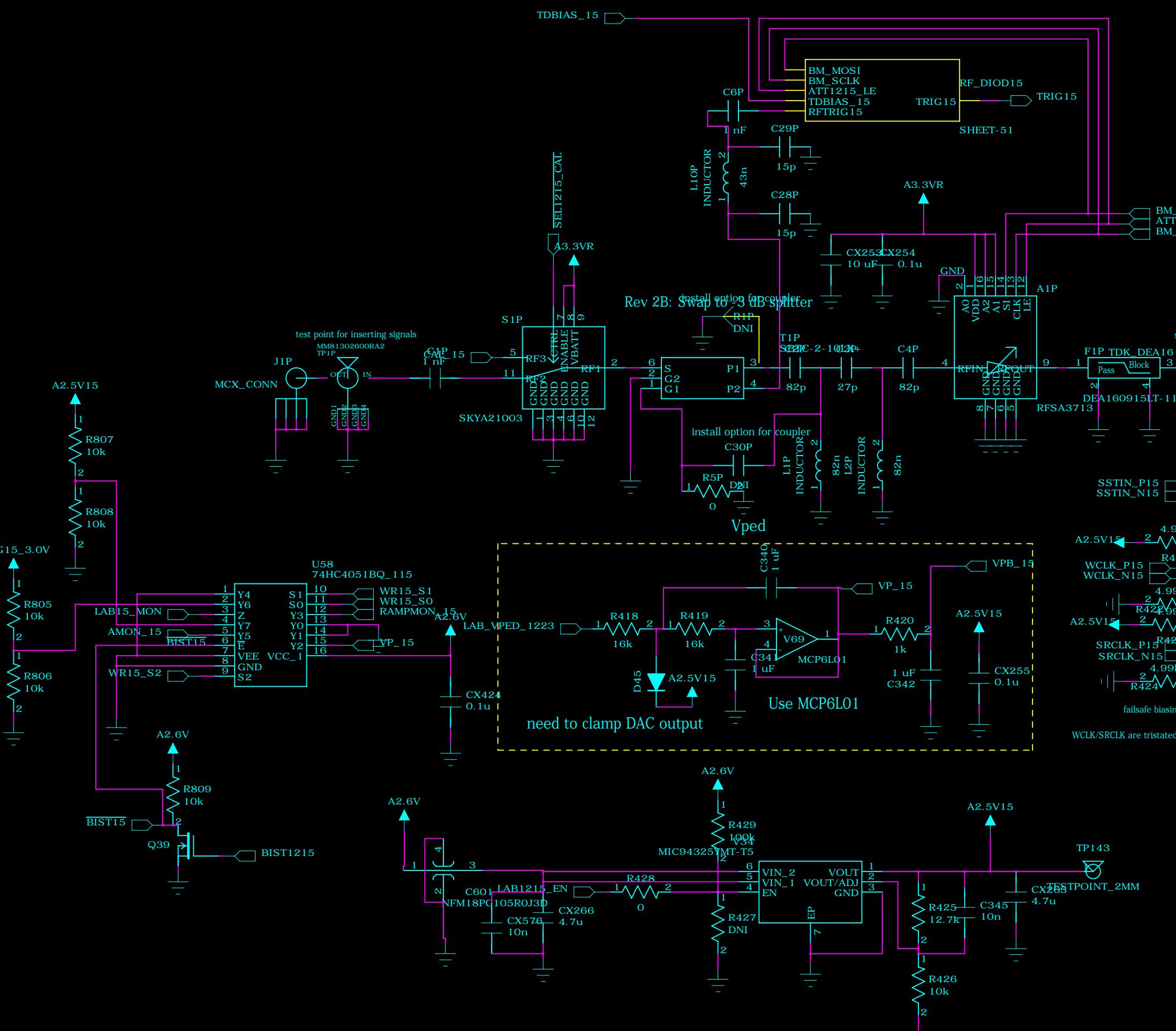
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Ohio State University

RF\_CHANNEL15

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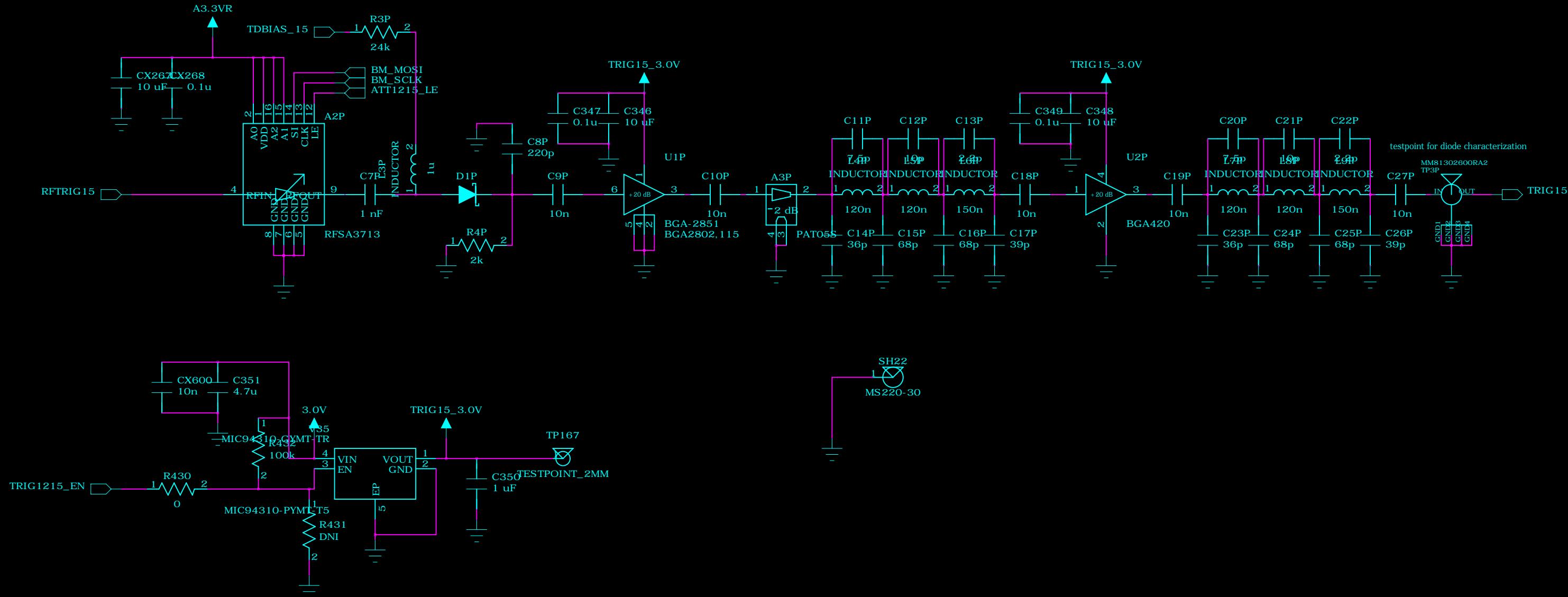
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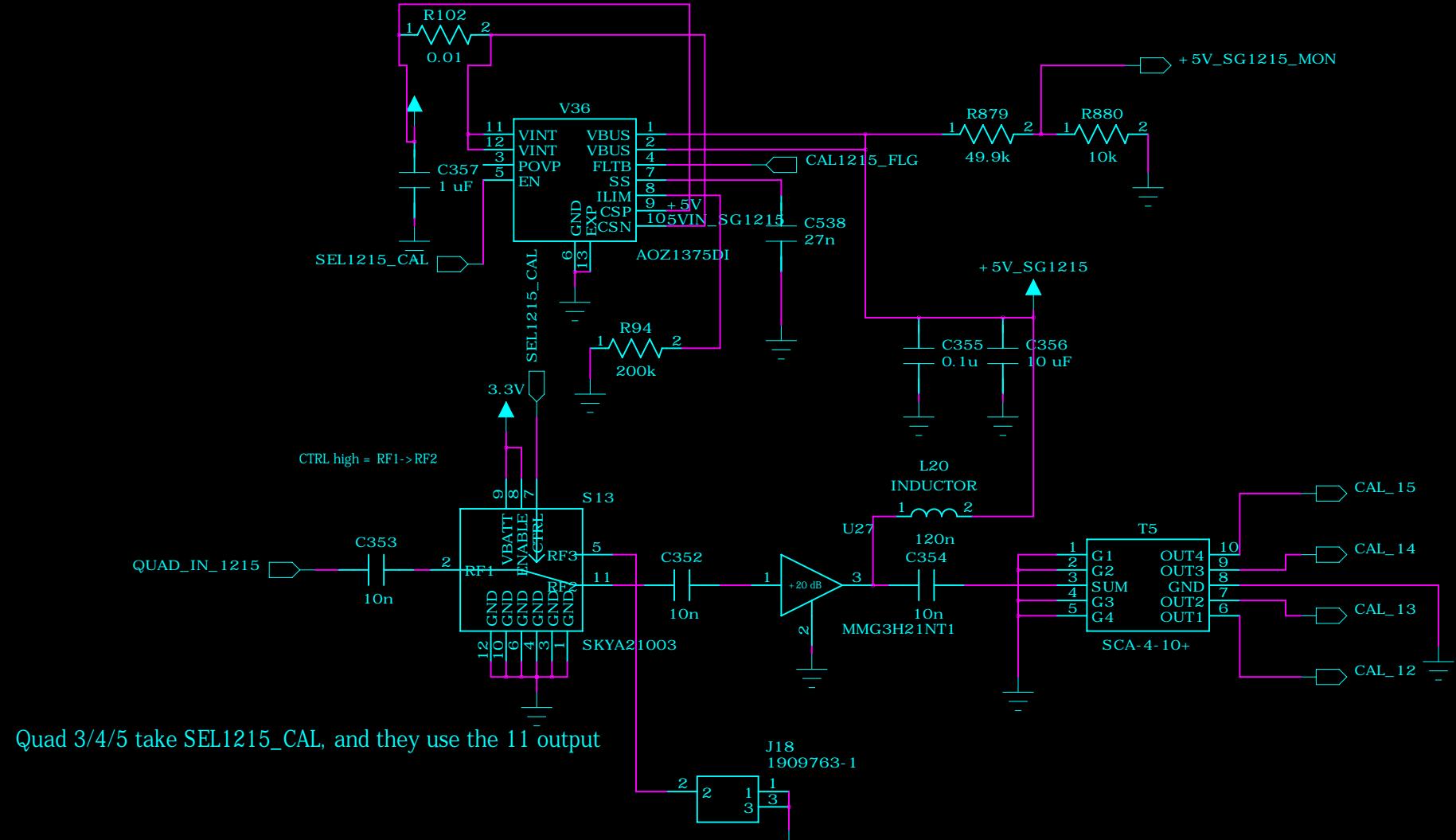
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| COMPANY:         | Ohio State University |                |              |
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## REVISION RECORD

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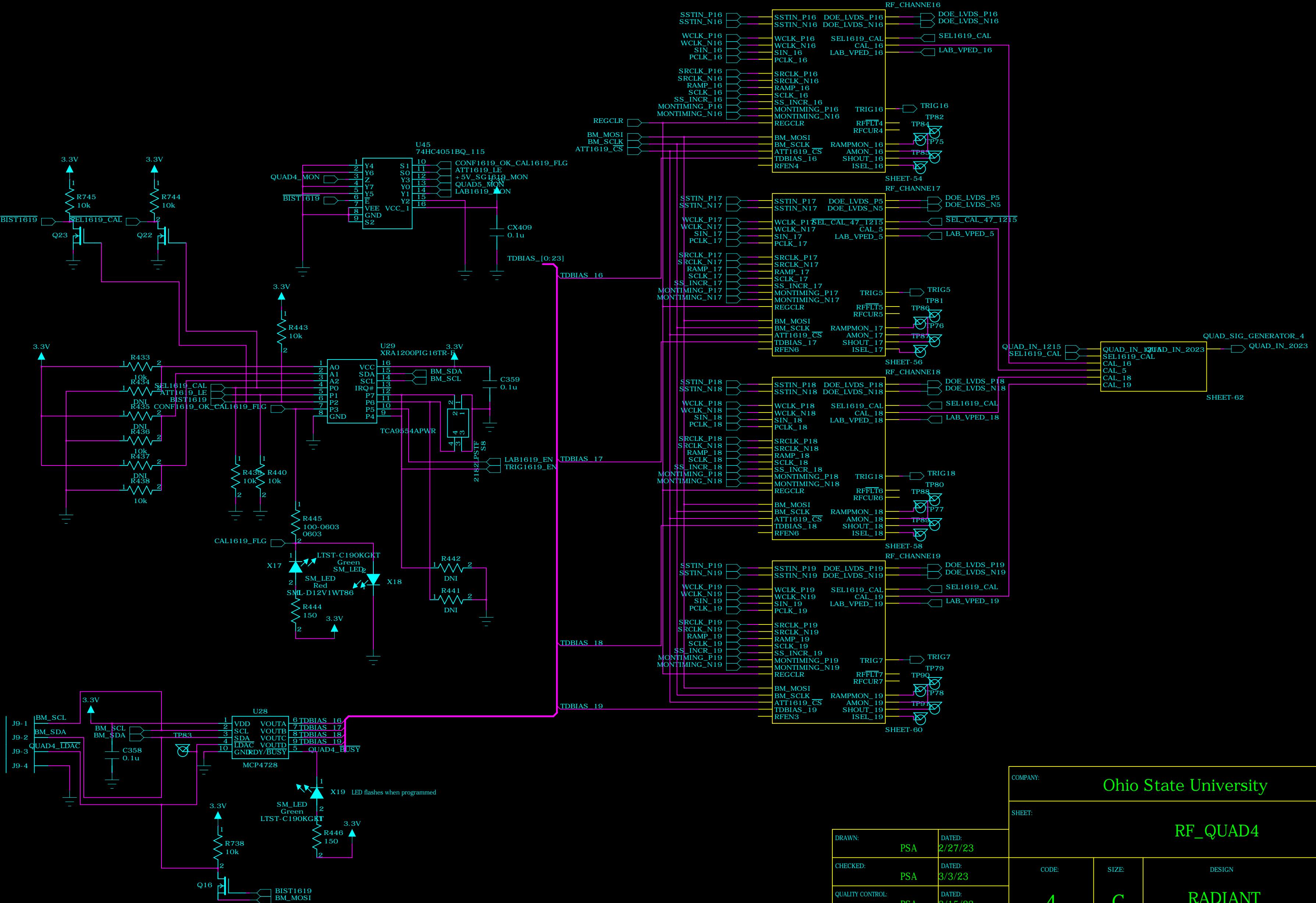
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Ohio State University

RF\_QUAD4

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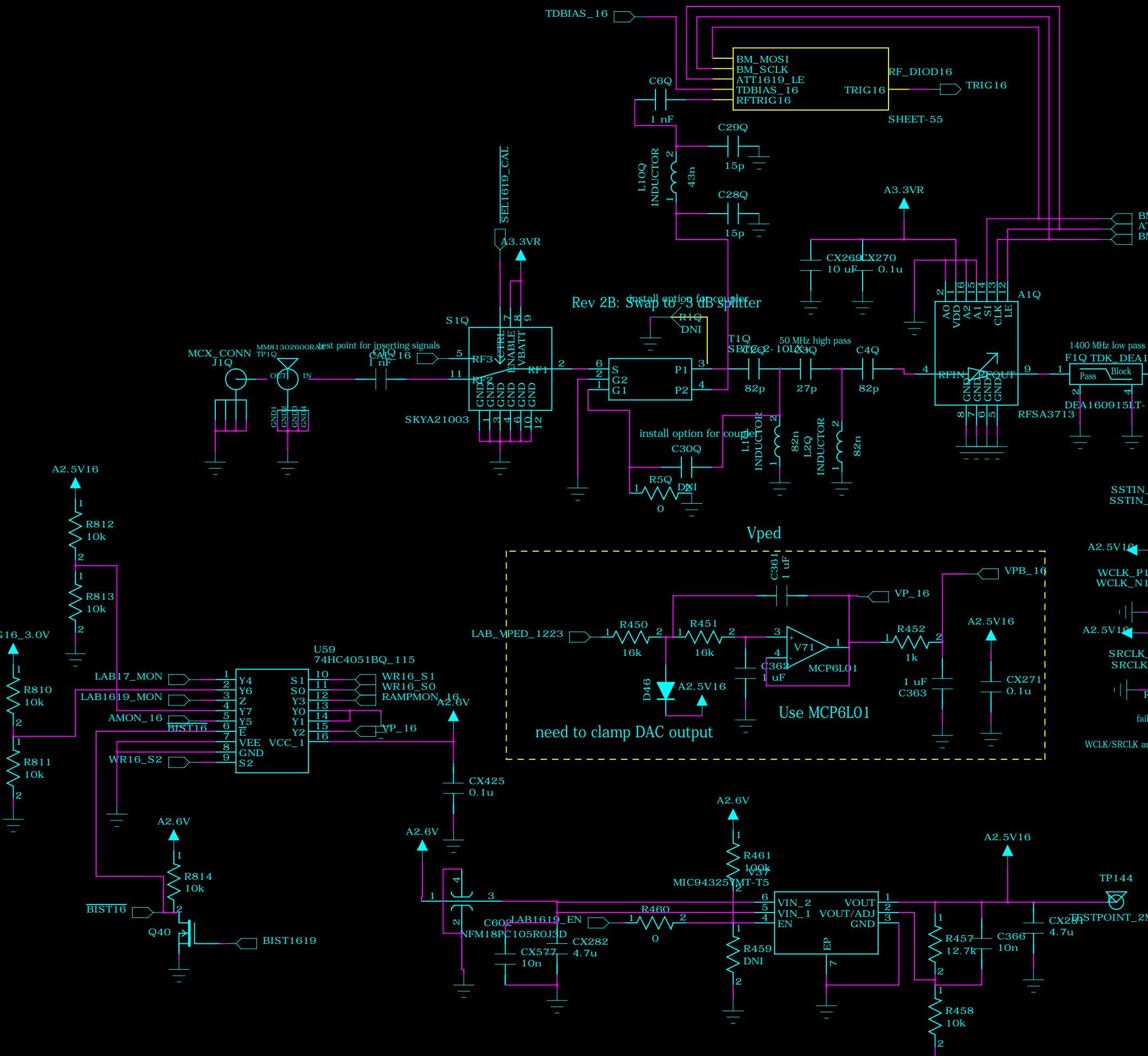
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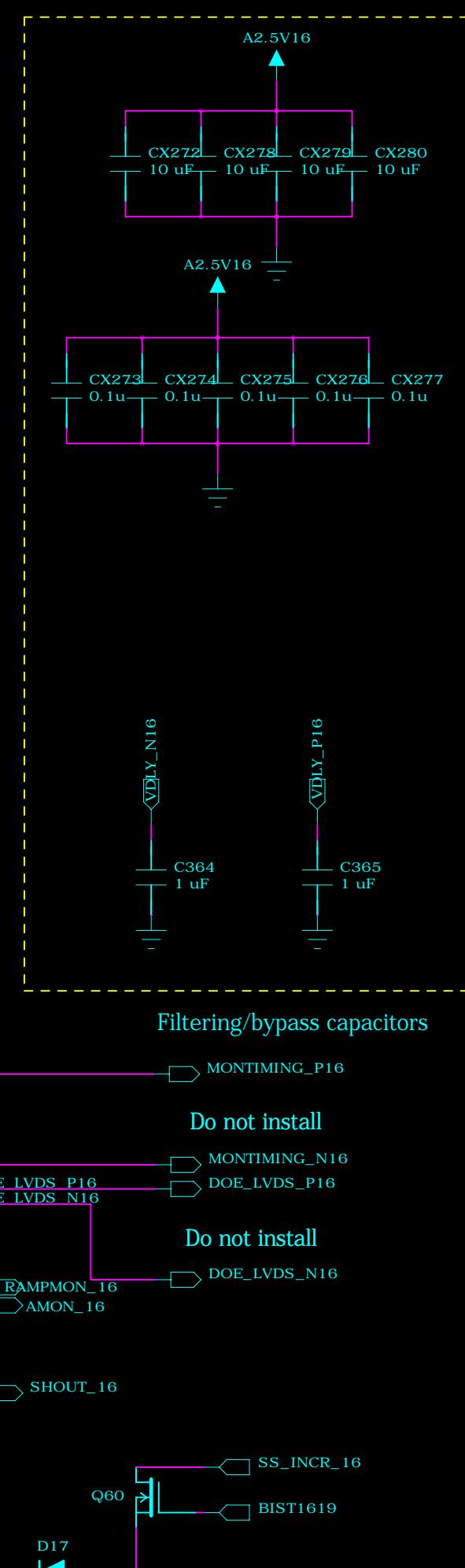
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| COMPANY:         |     | Ohio State University |         |              |
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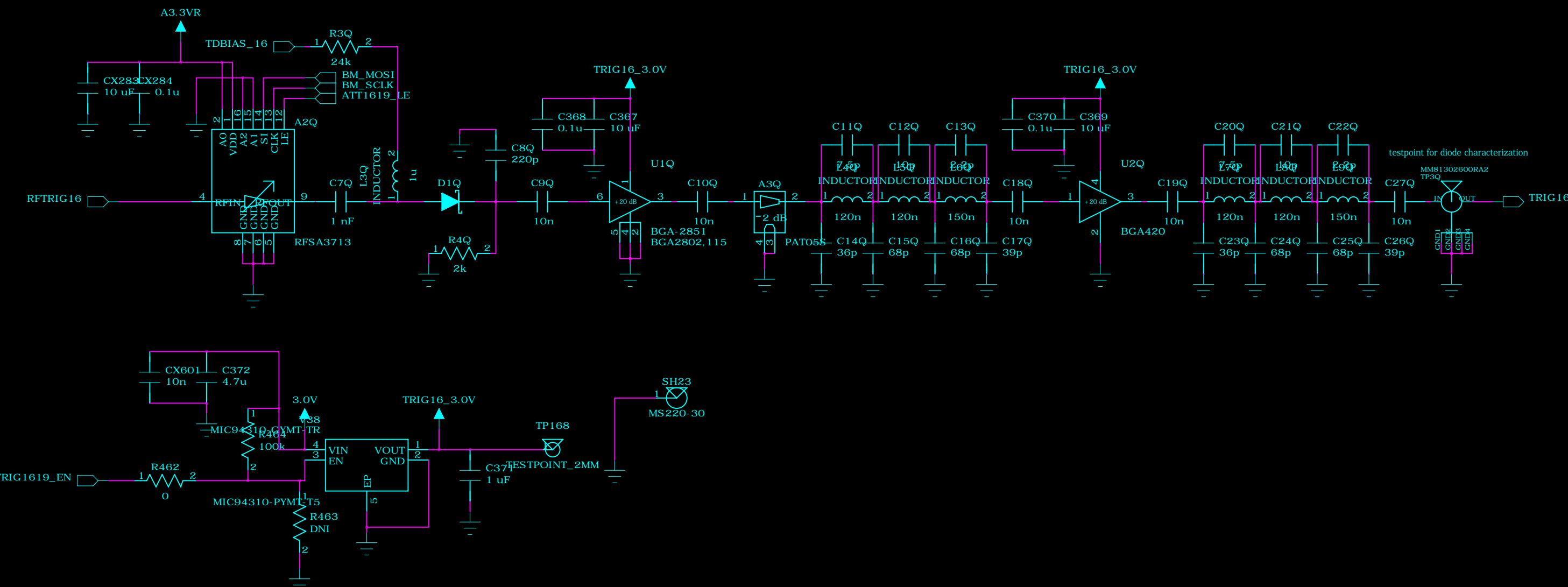
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COMPANY:

Ohio State University

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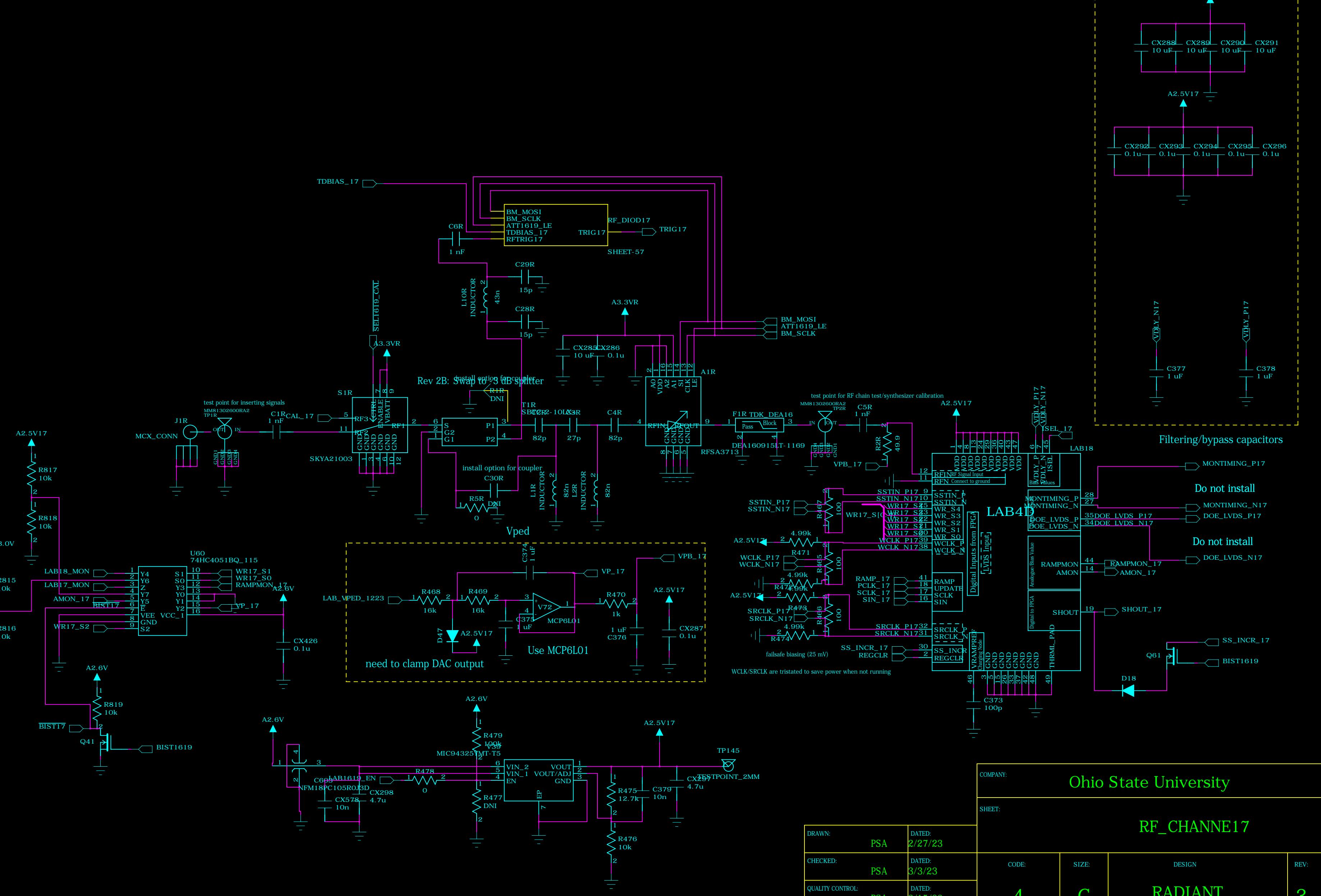
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Filtering/bypass capacitors



Ohio State University

RF\_CHANNEL17

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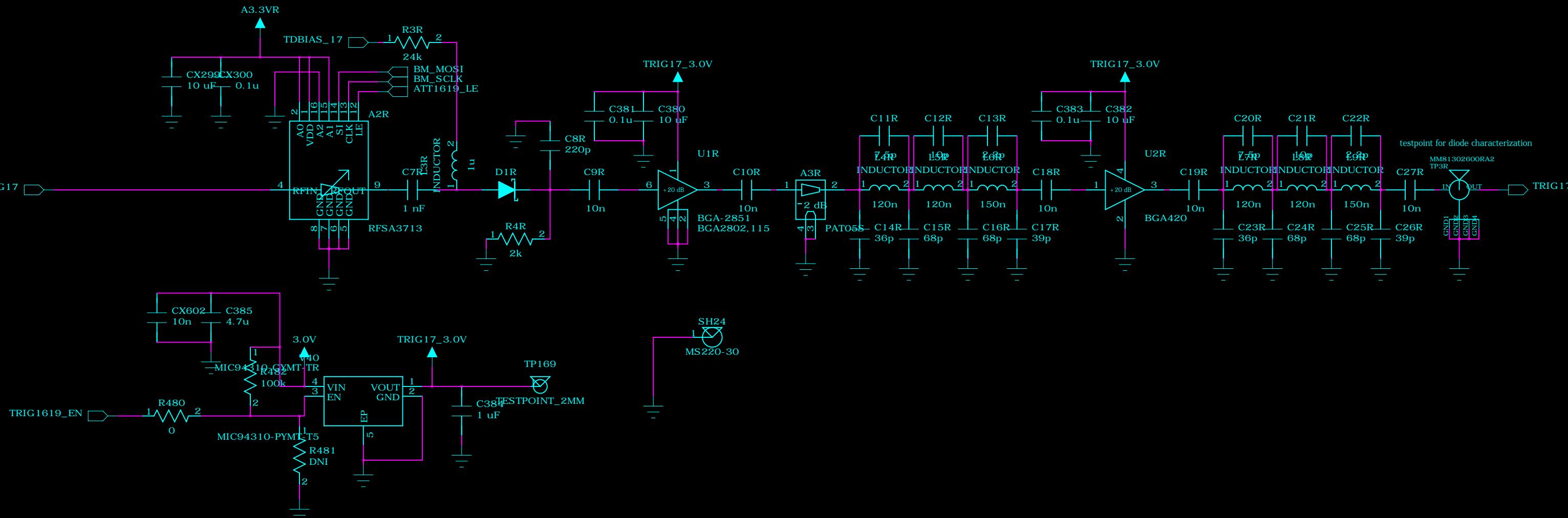
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Ohio State University

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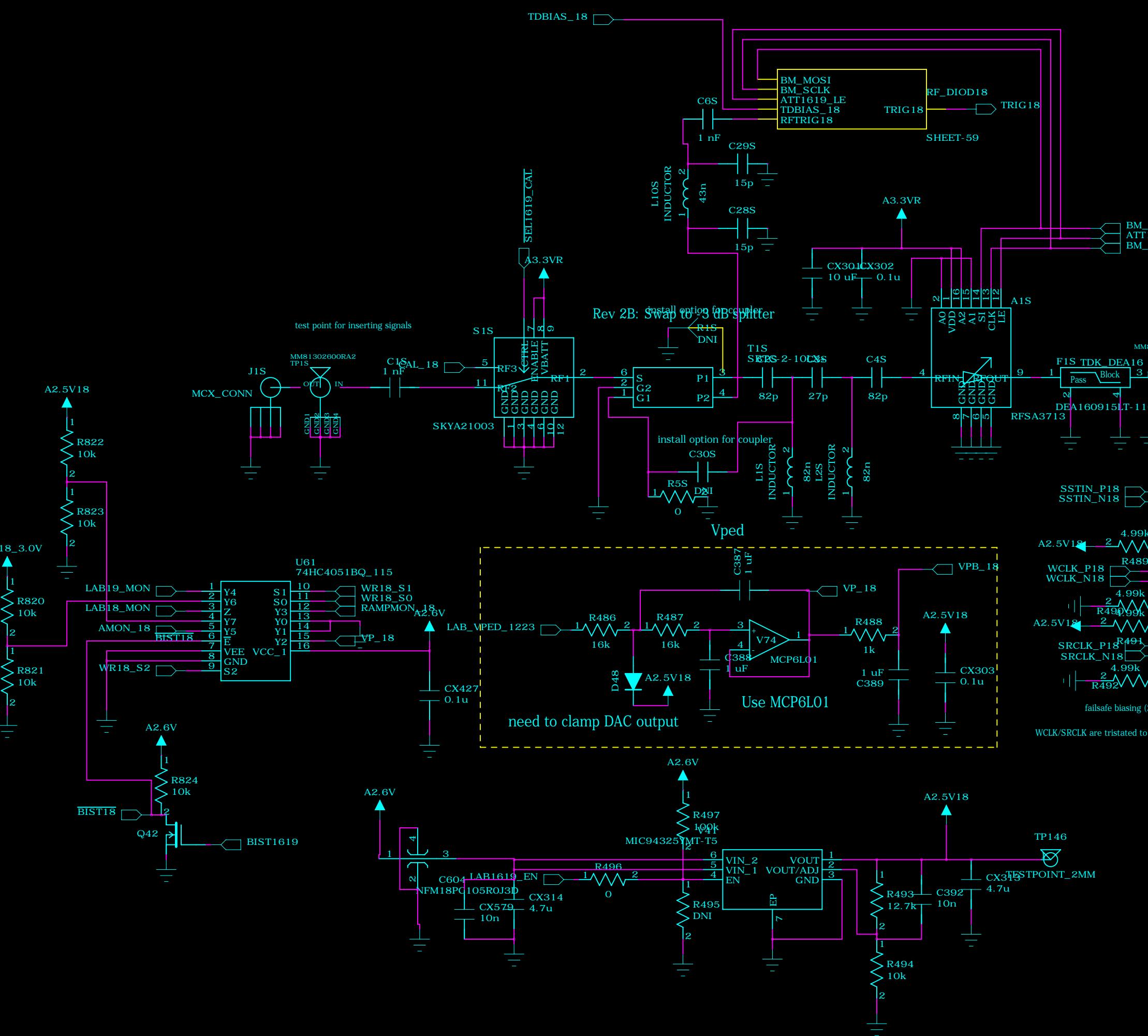
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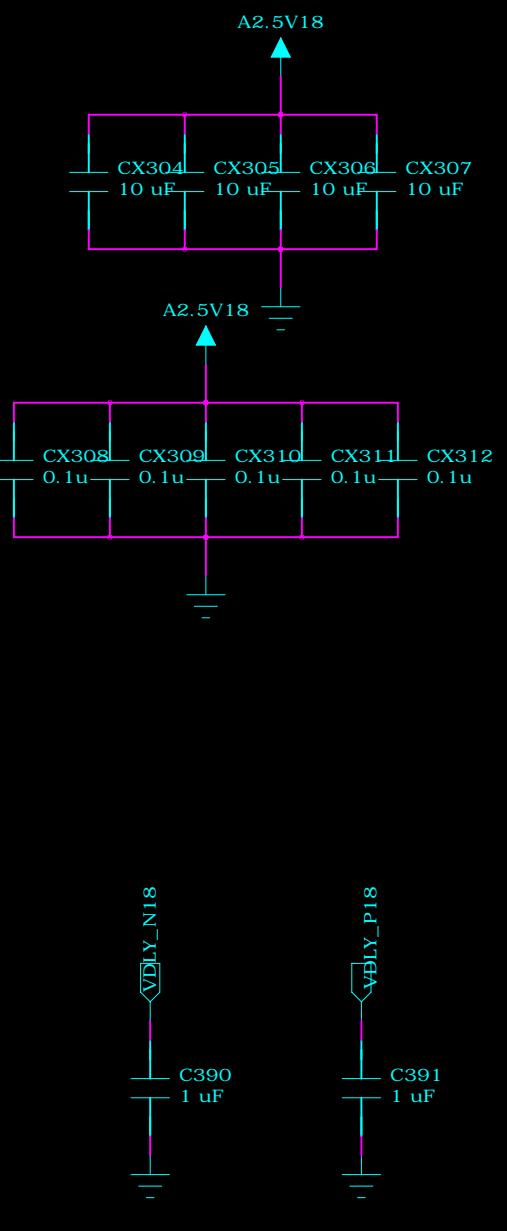
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Ohio State University

RF\_CHANNEL18

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Filtering/bypass capacitors



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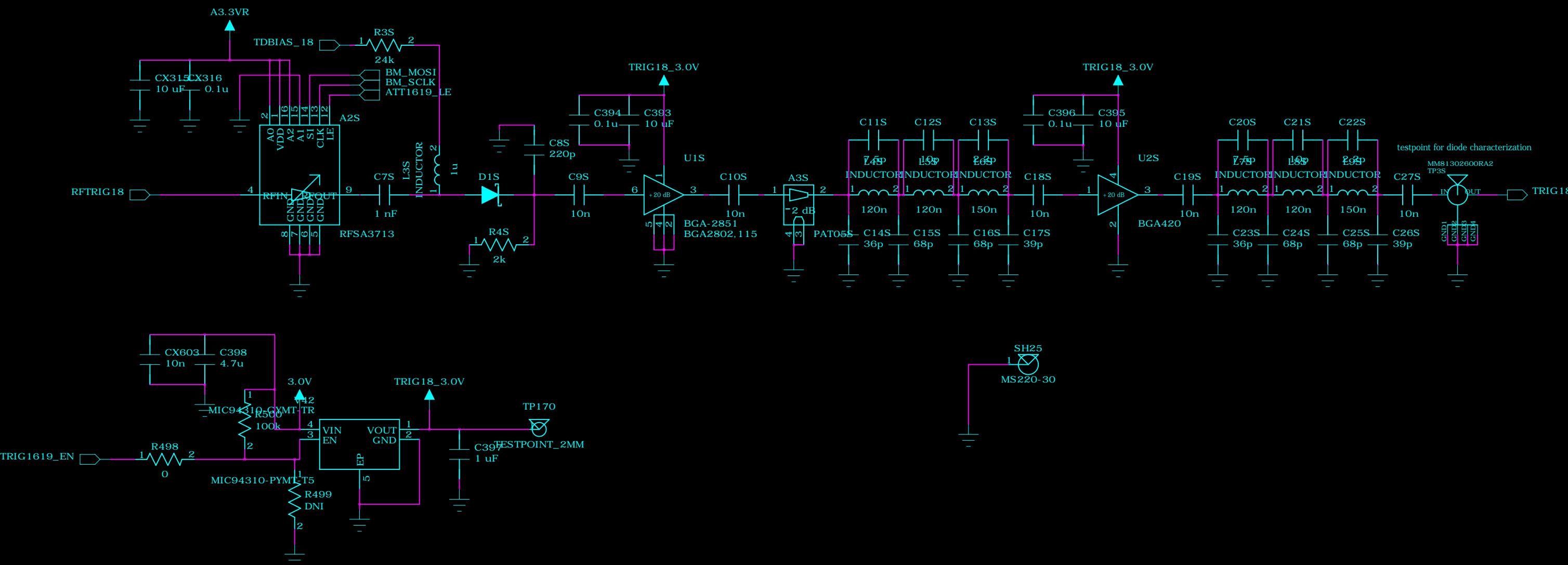
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Filtering/bypass capacitors

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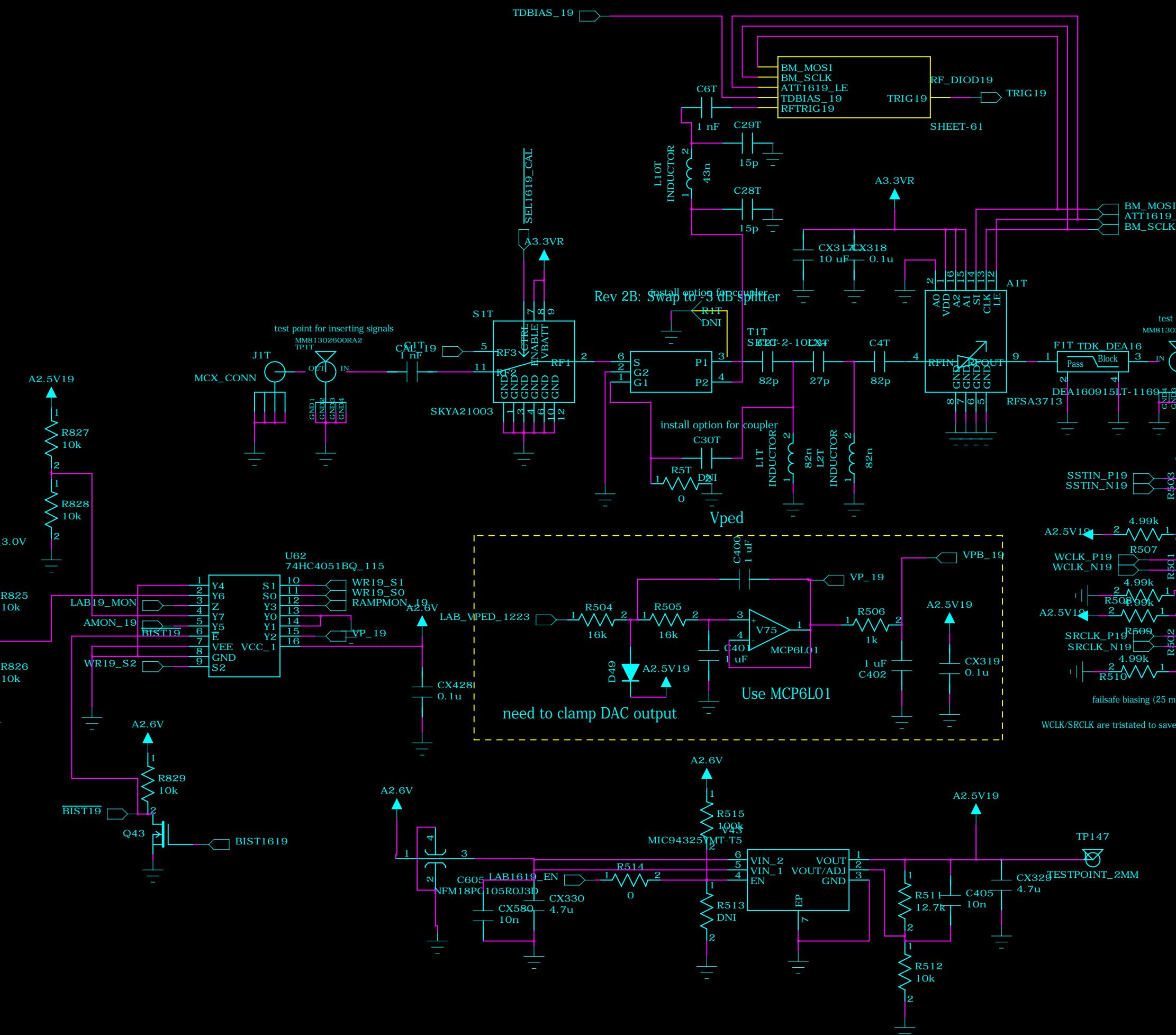
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Ohio State University

RF\_CHANNEL19

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| QUALITY CONTROL: | PSA | DATED: | 3/15/23 |
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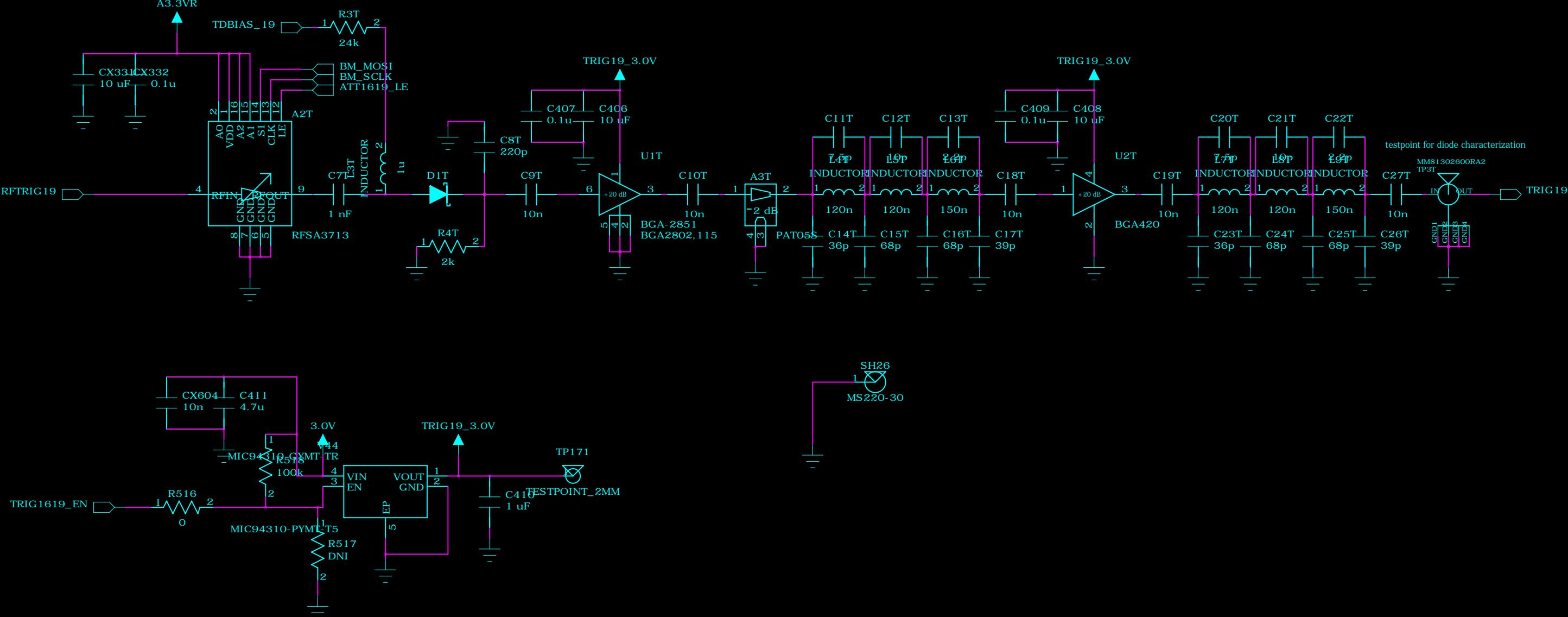
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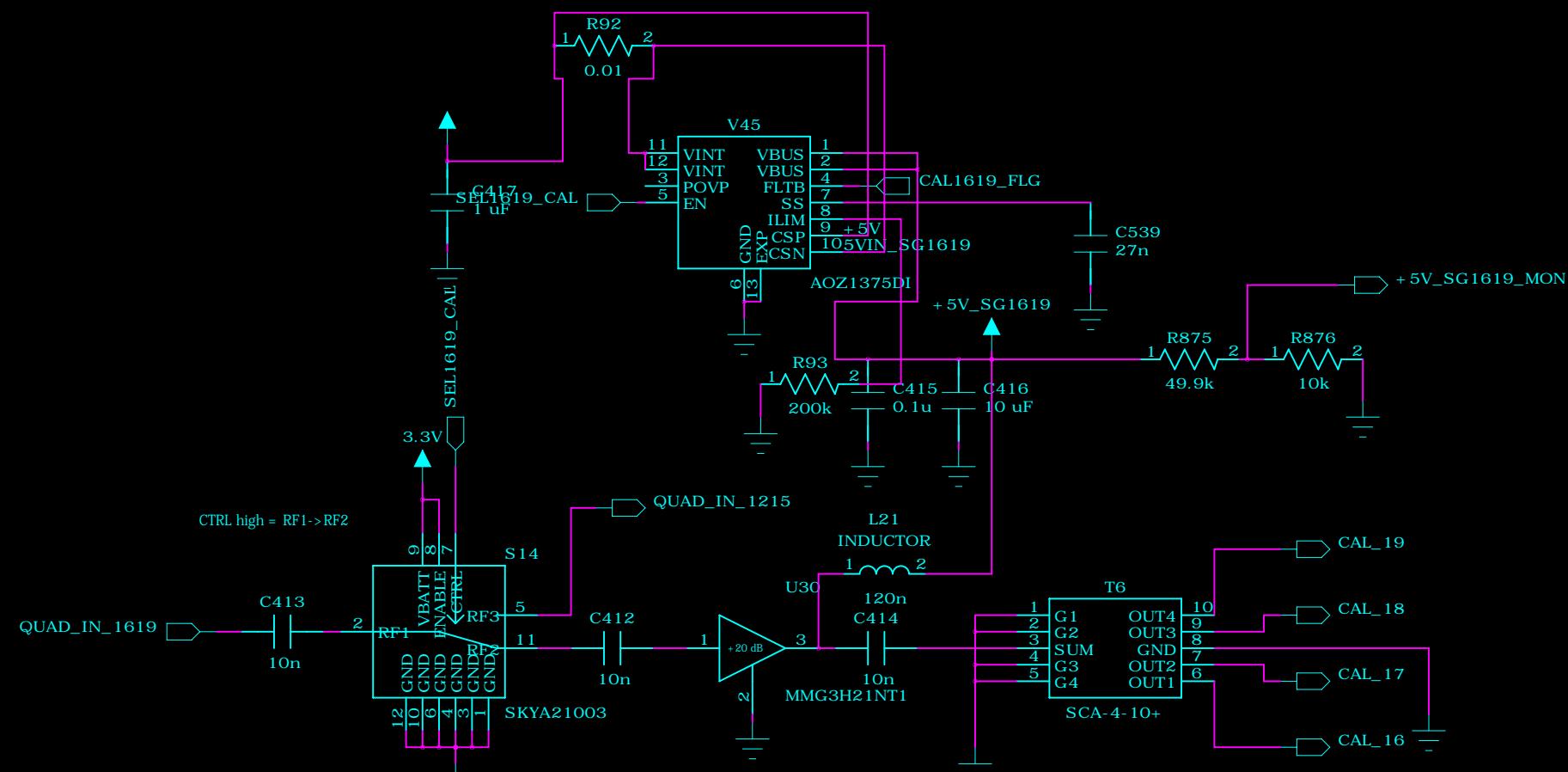
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COMPANY:

Ohio State University

SHEET:

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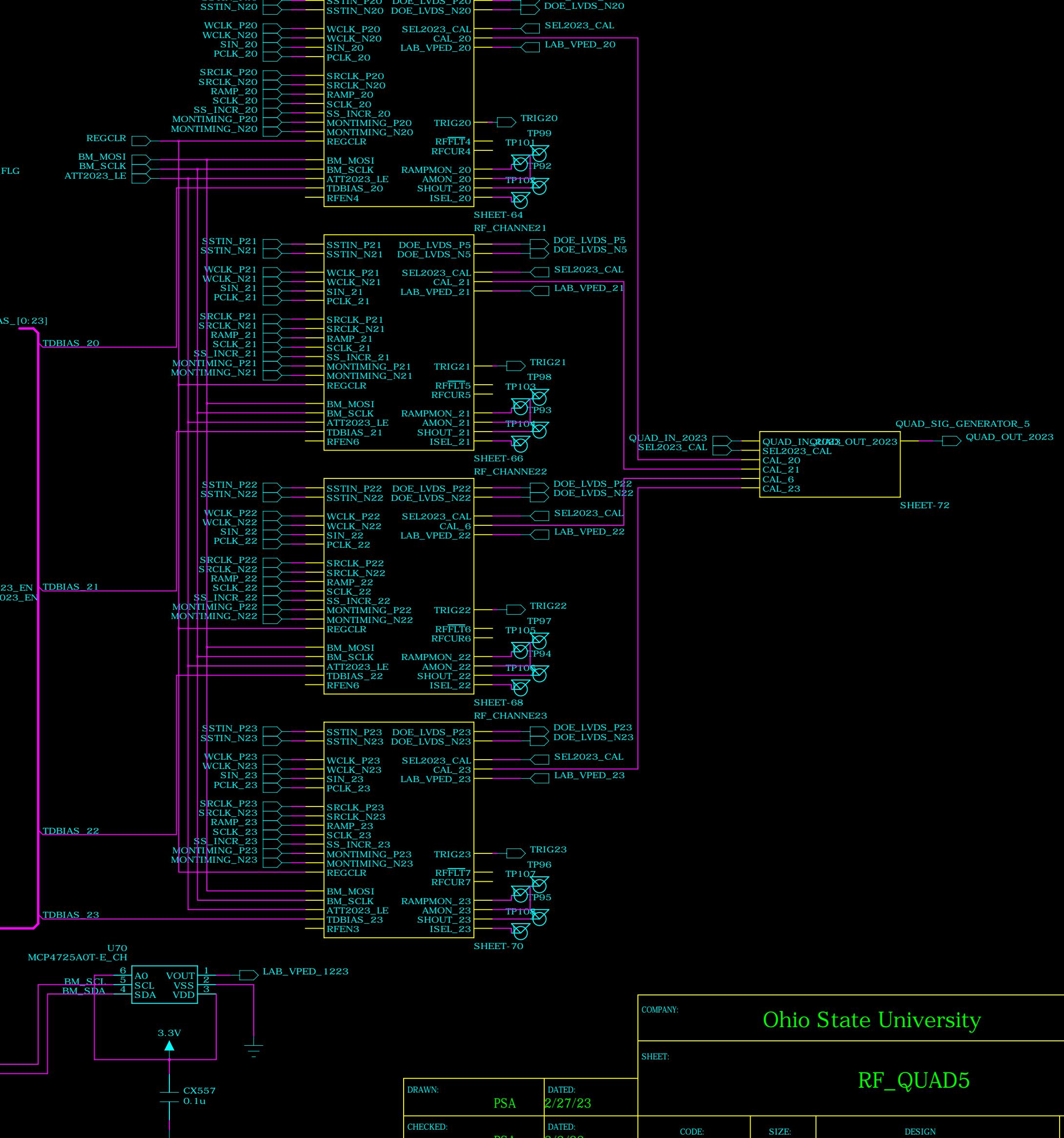
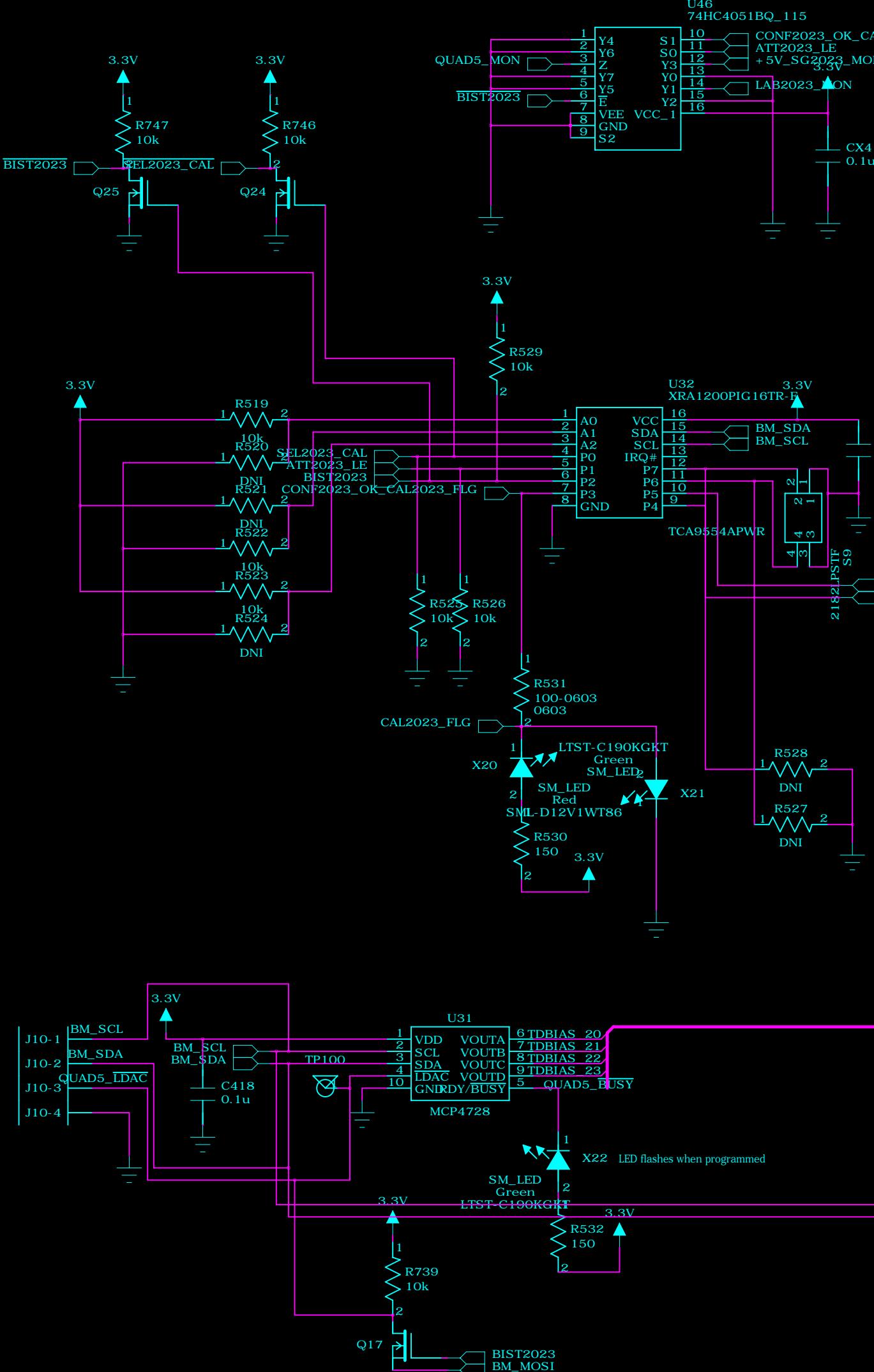
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Ohio State University

RF\_QUAD5

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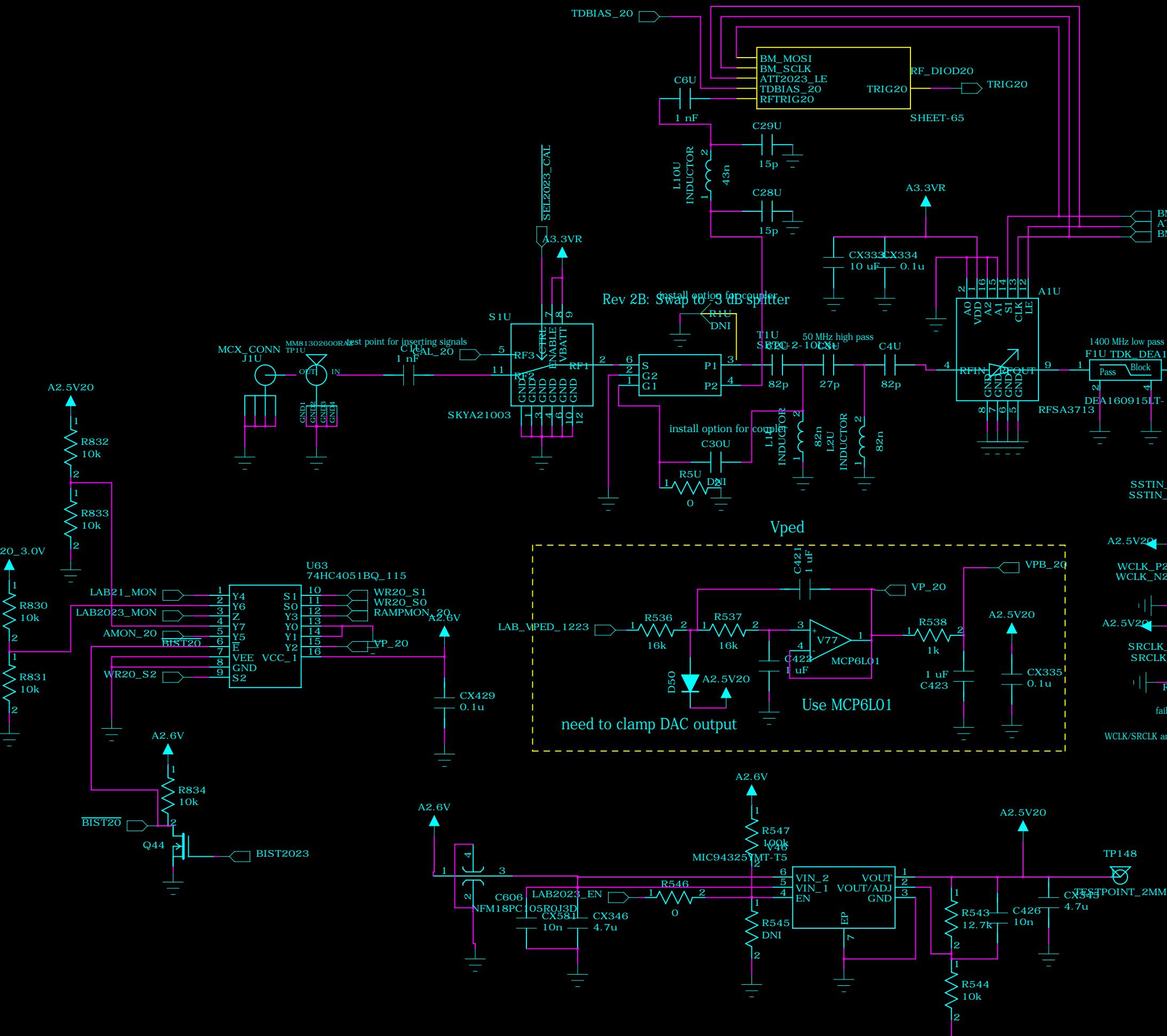
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| COMPANY:         |         | Ohio State University |         |    |
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## REVISION RECORD

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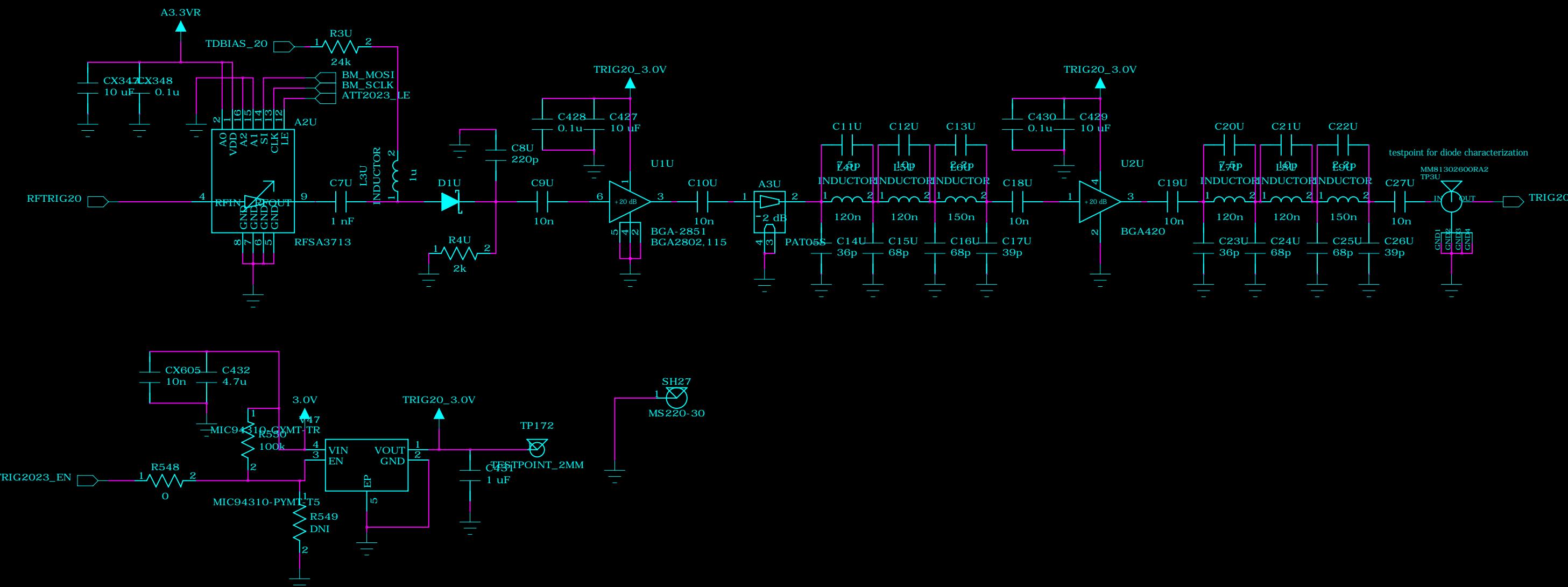
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COMPANY:

Ohio State University

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Filtering/bypass capacitors

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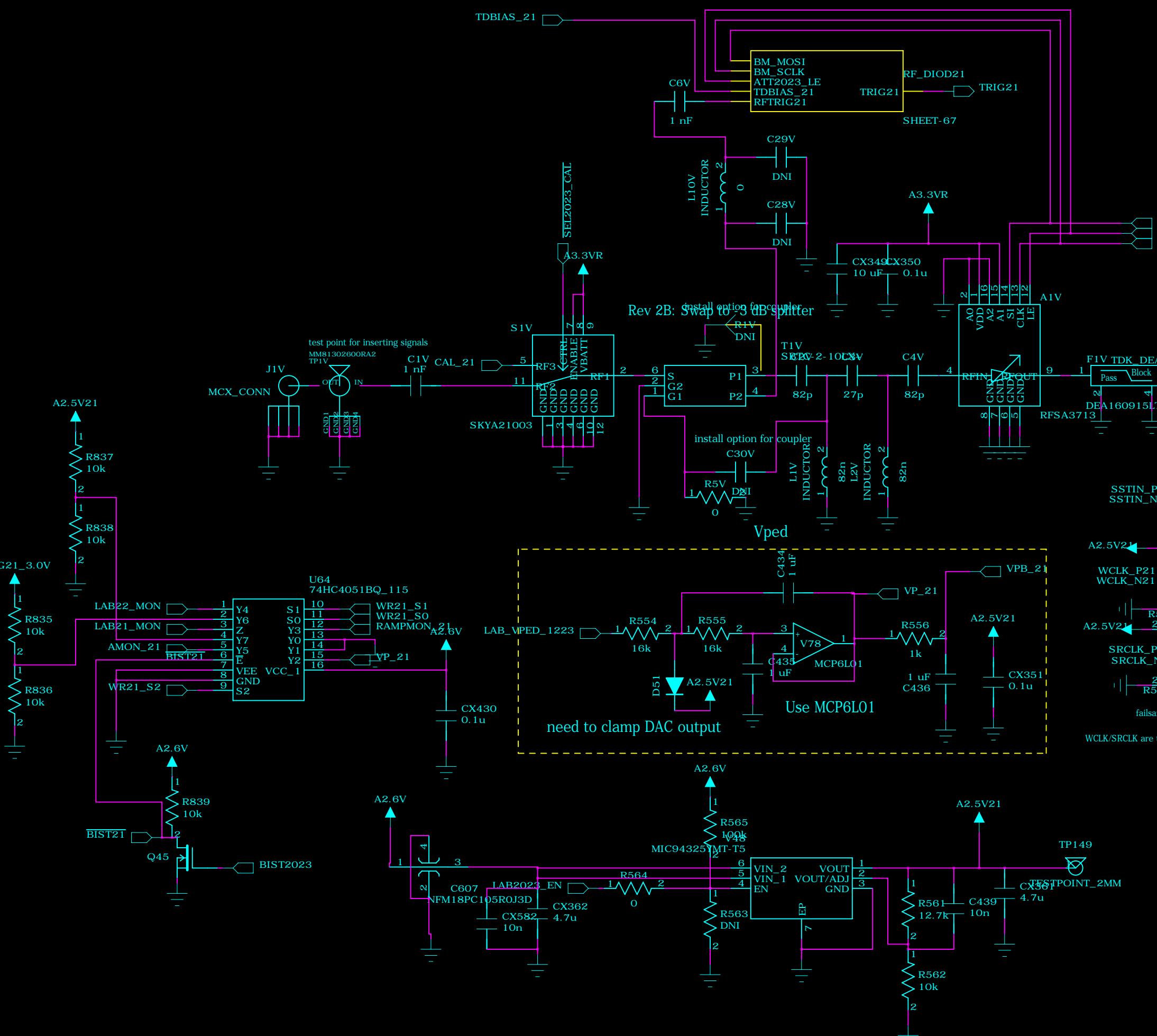
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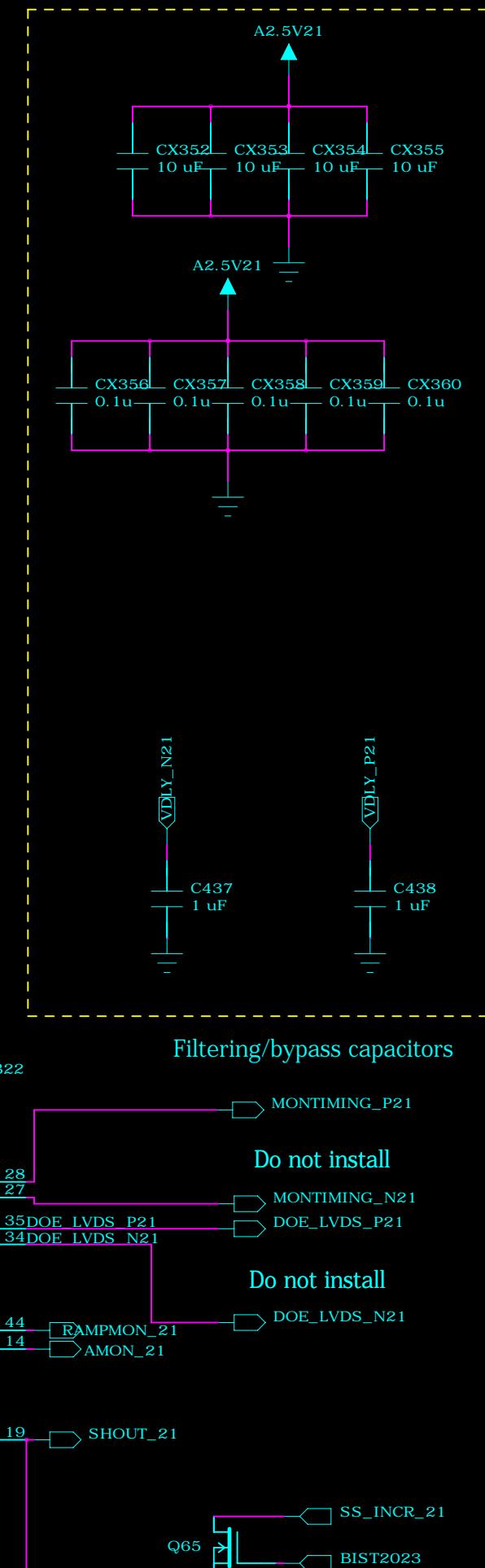


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Ohio State University

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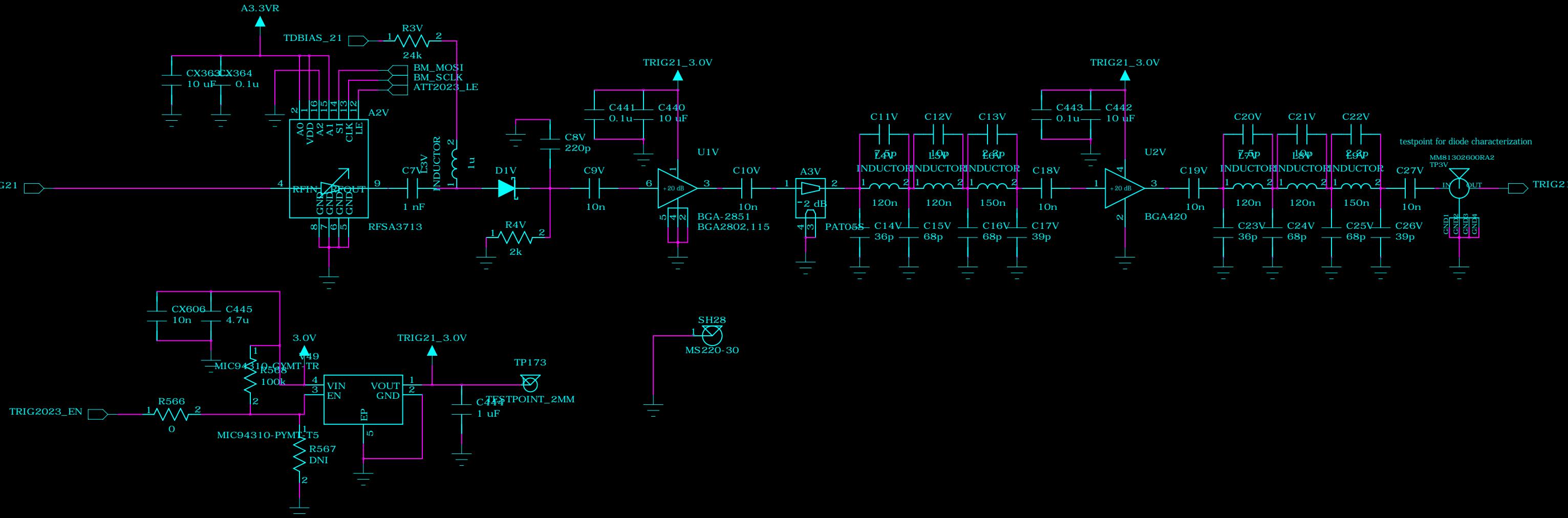
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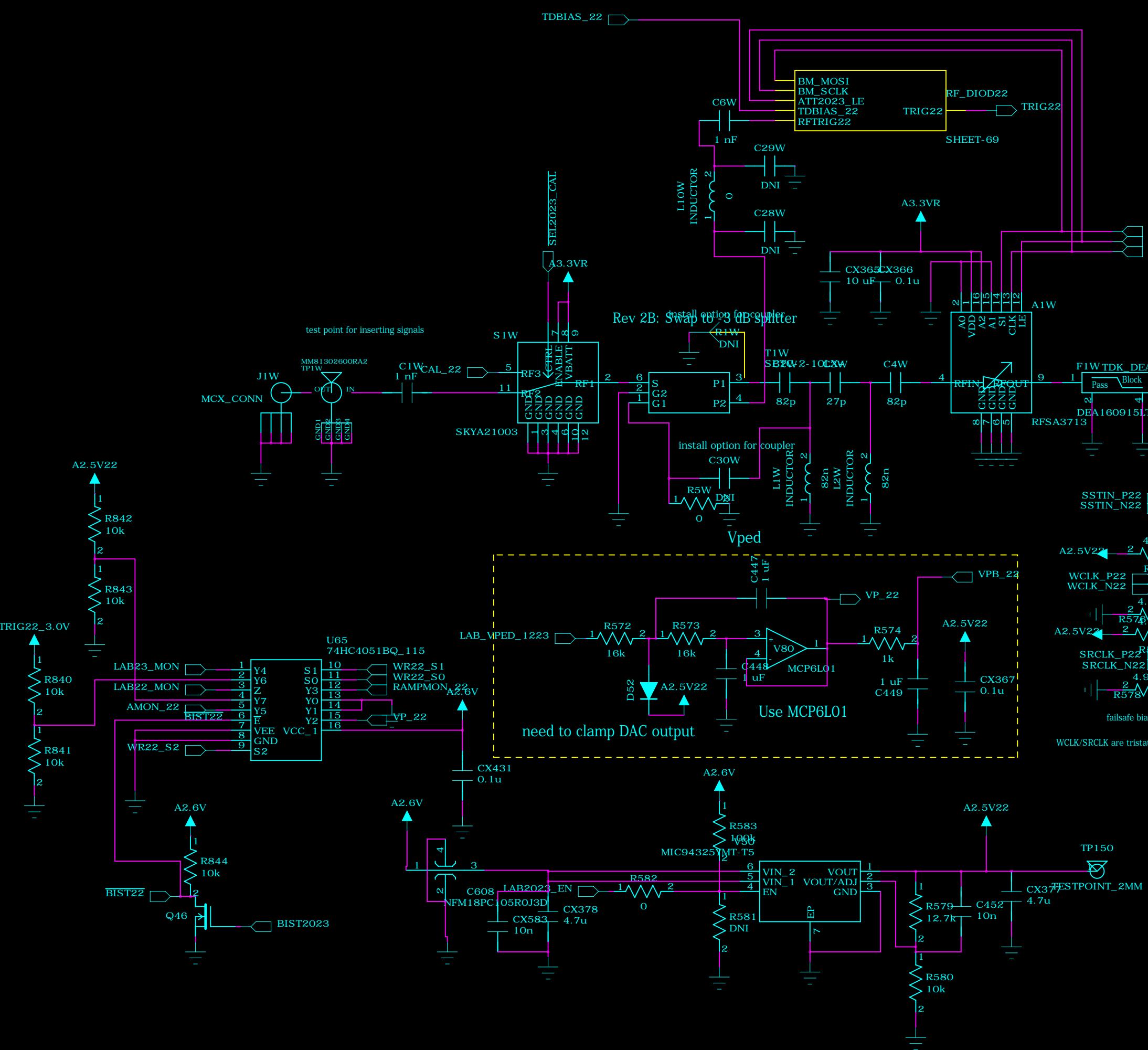
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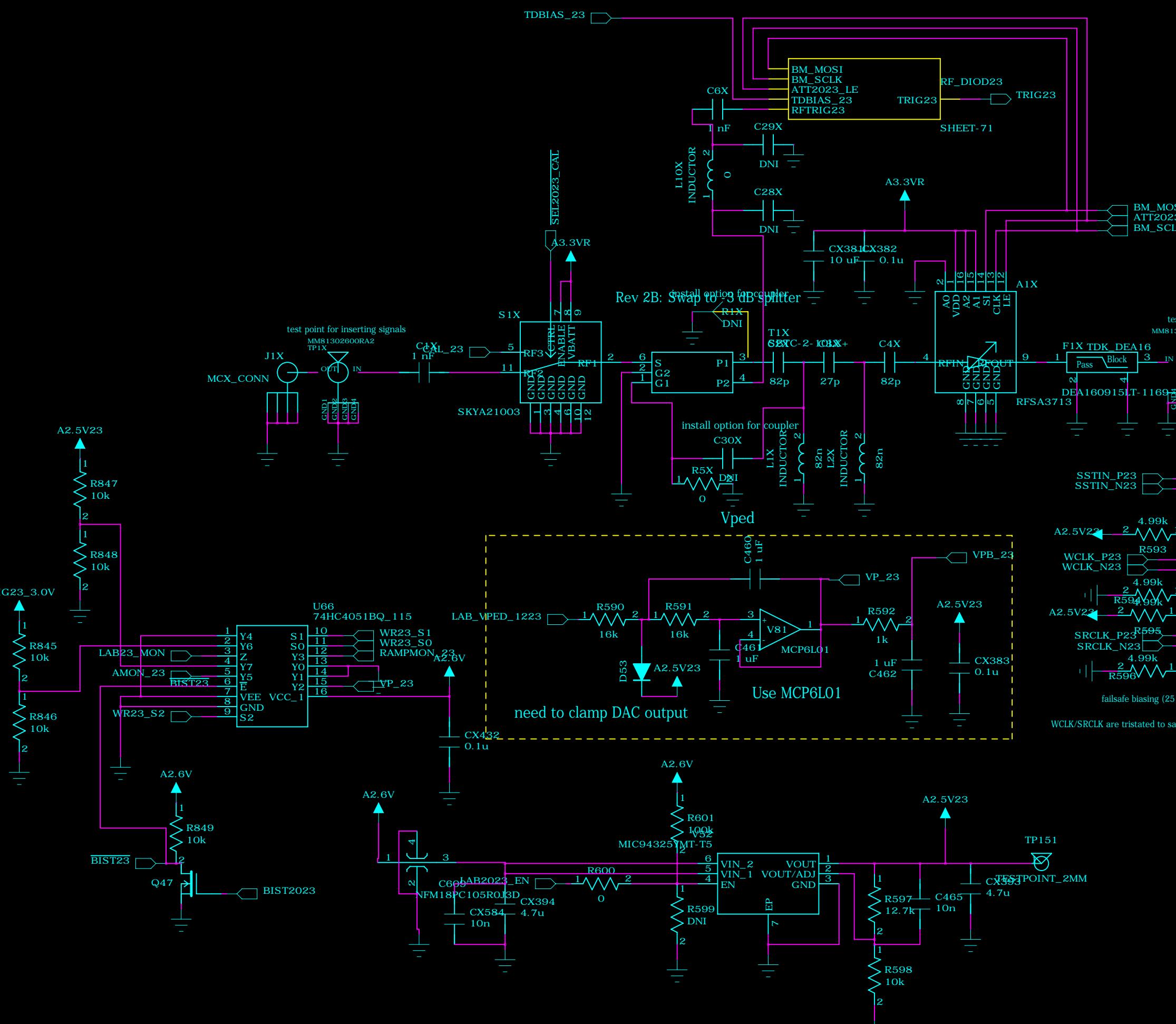
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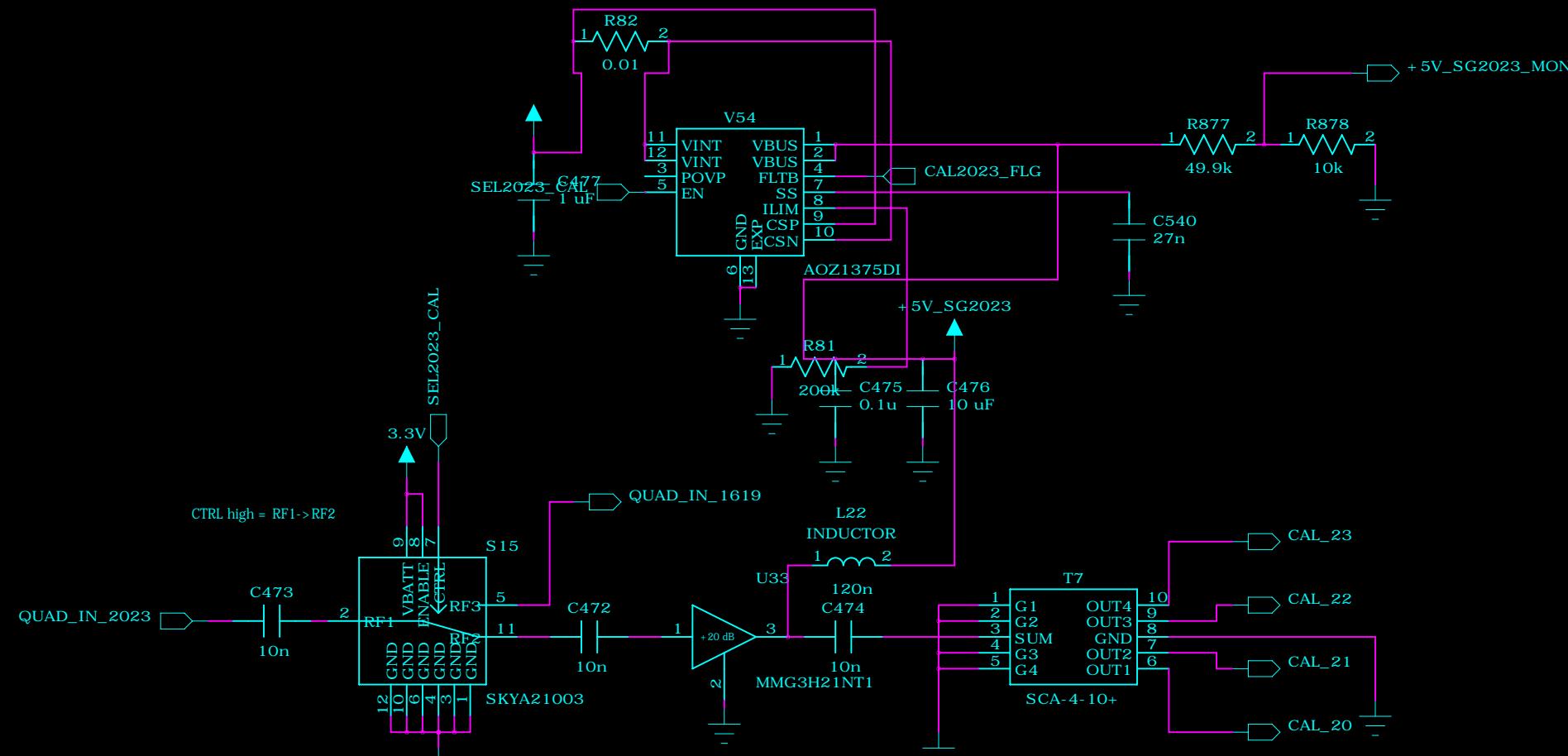
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COMPANY:

Ohio State University

SHEET:

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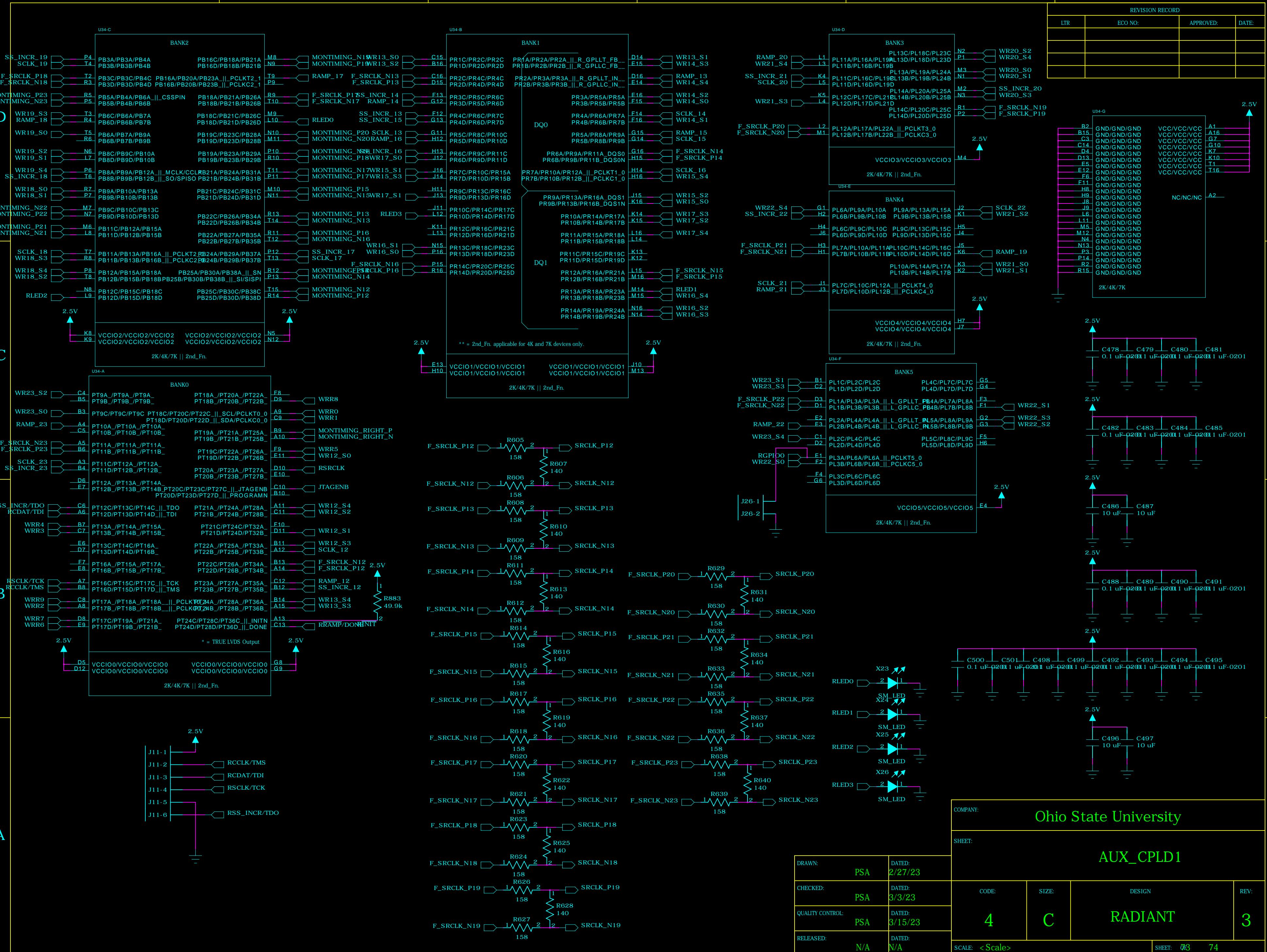
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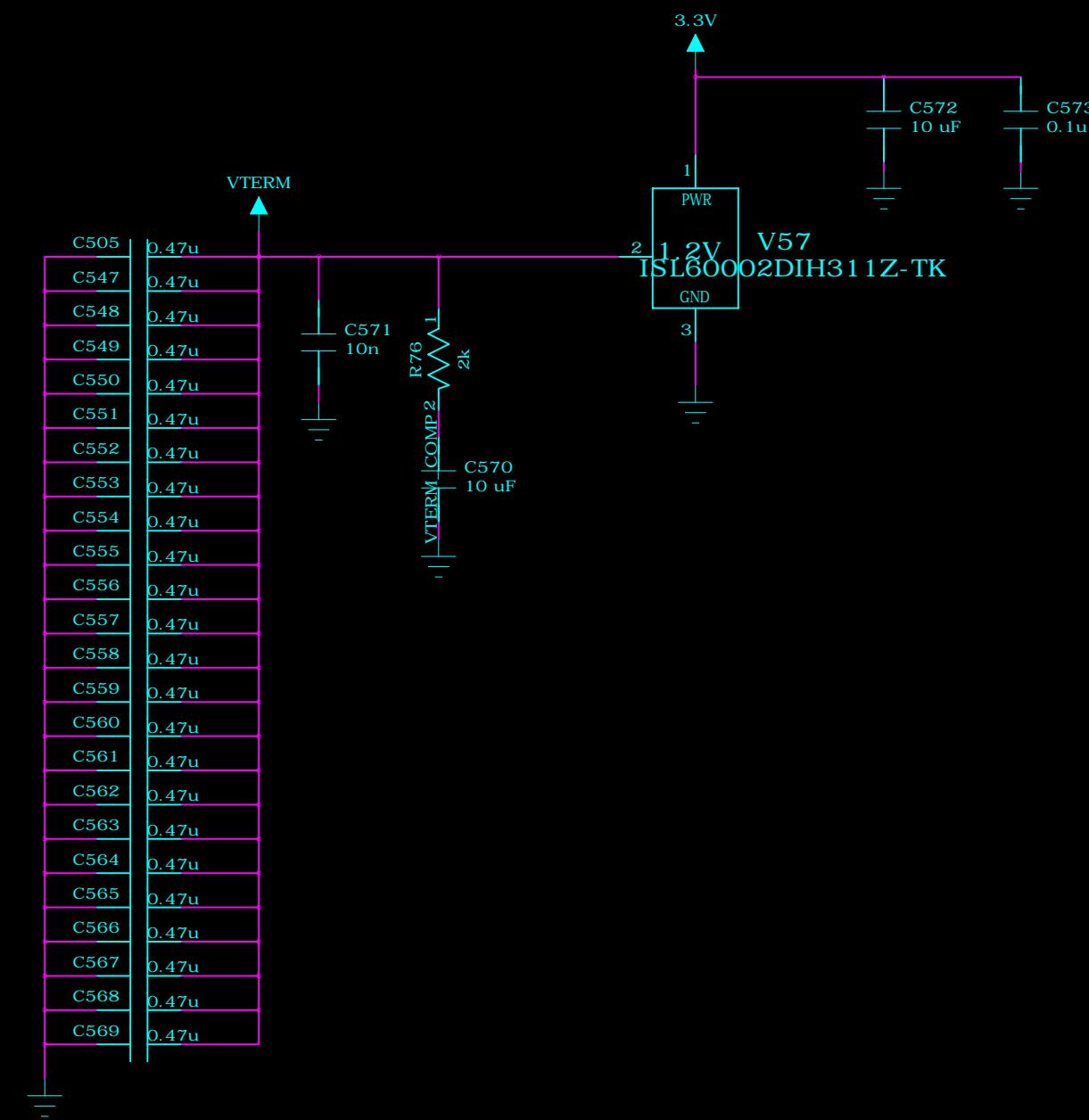
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