

6

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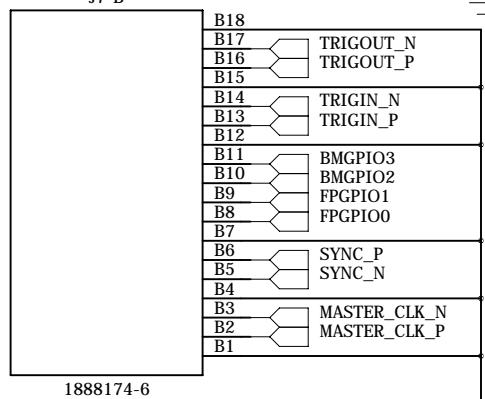
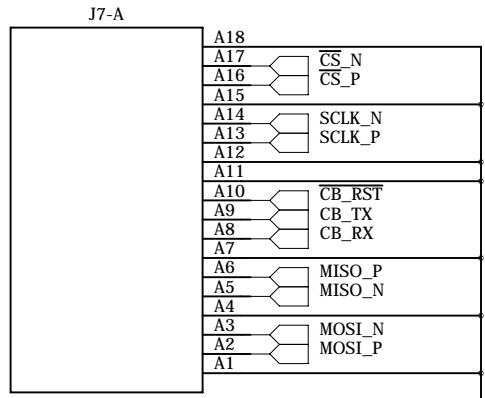
3

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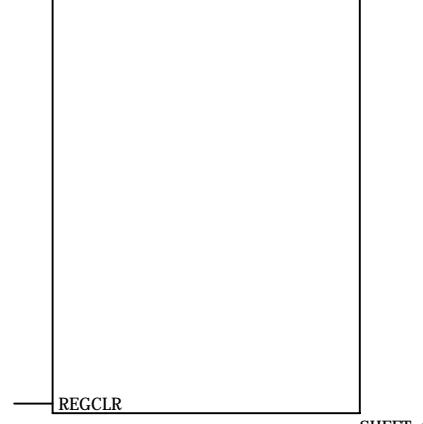
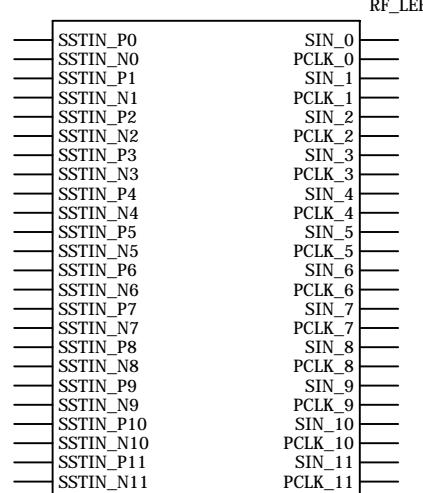
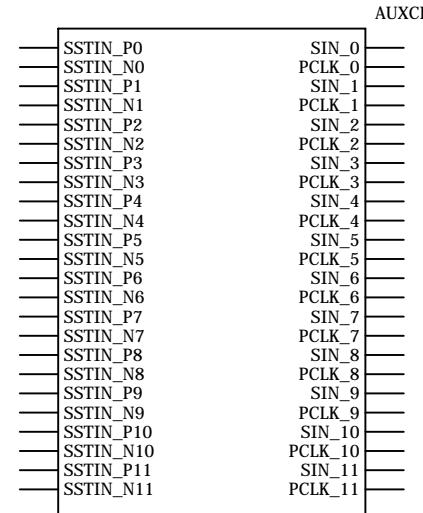
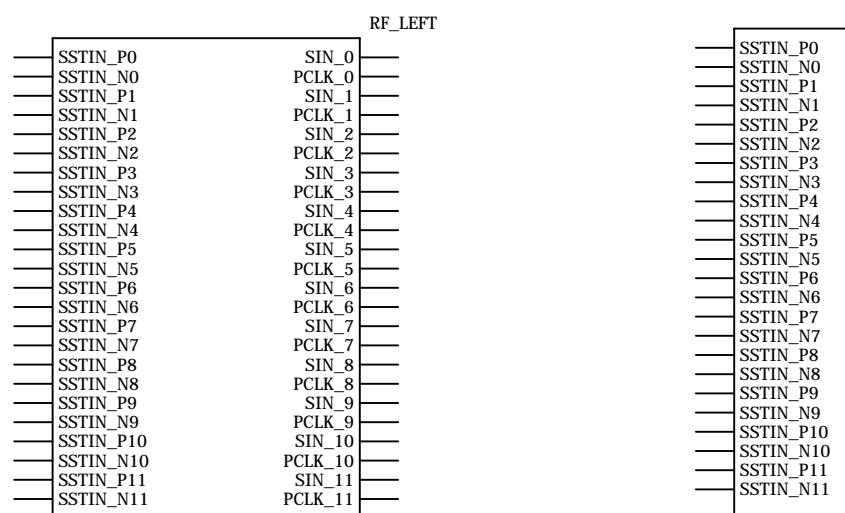
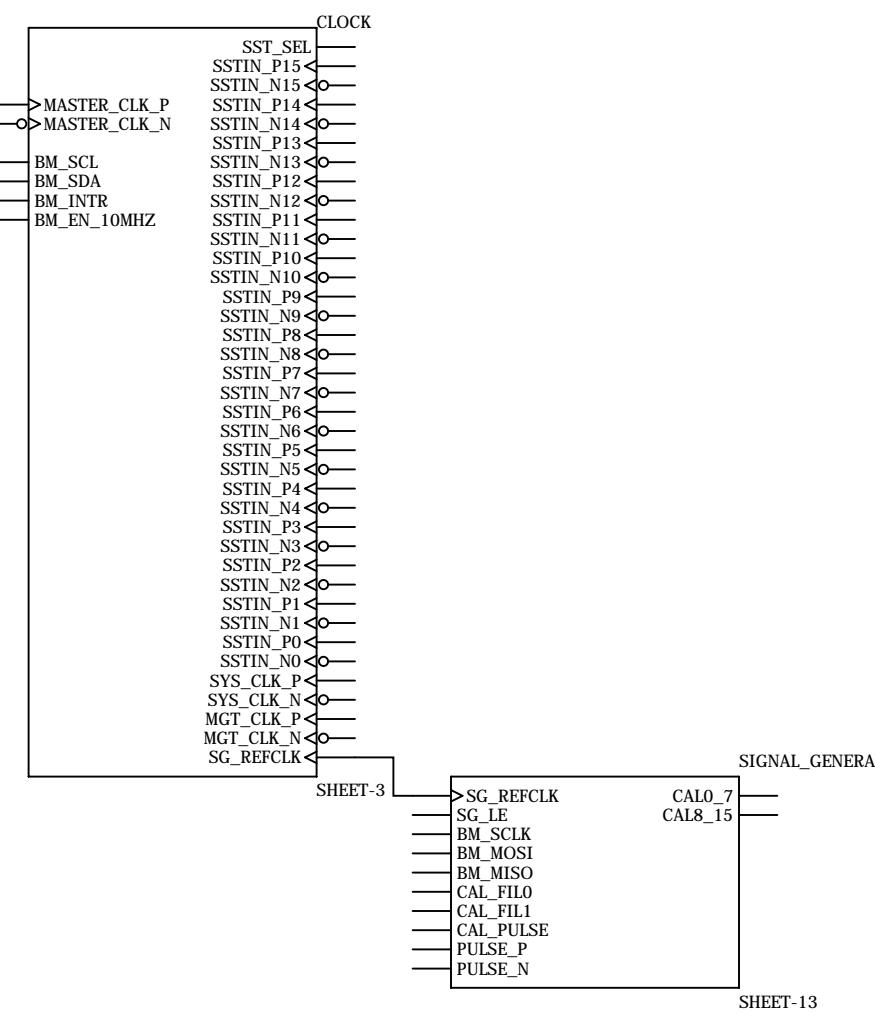
REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

D



protection diodes somewhere??

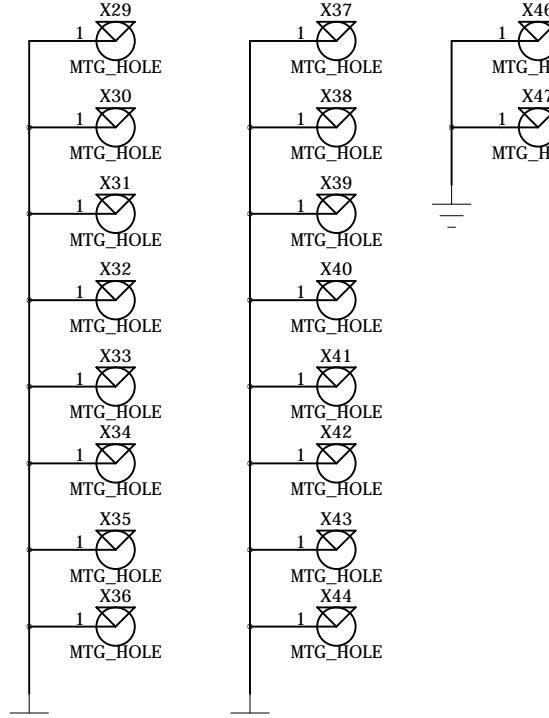
ECO 6/2: swap A/B on sideband signals



SHEET-42

C

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



B

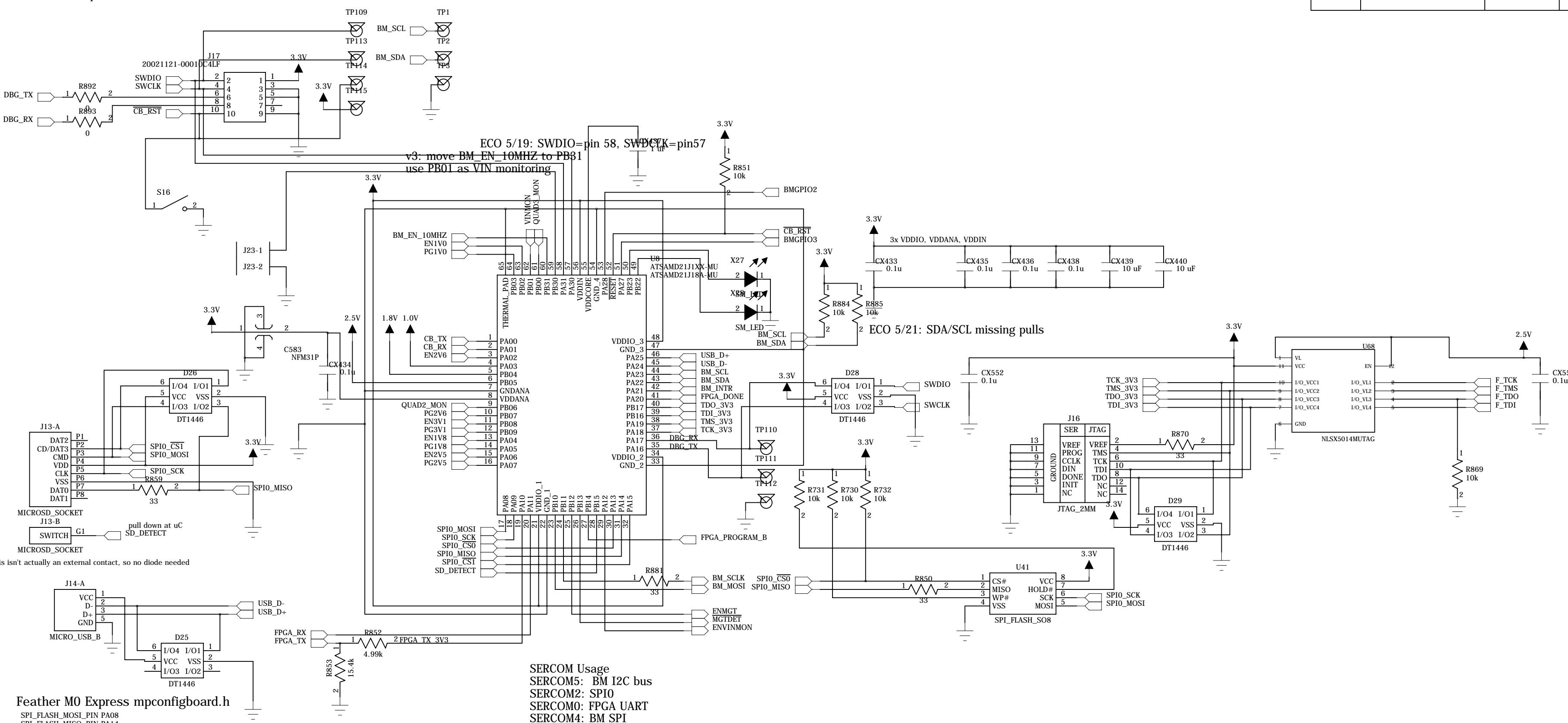
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COMPANY:	Ohio State University		
SHEET:	TOP		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		
CODE:	SIZE:	DESIGN:	REV:
4	C	RADIANT	3
SHEET: 1 of 74		SHEET: 1 of 74	

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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

COMPANY:	Ohio State University		
SHEET:	BOARD_MANAGER		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		
CODE:	C	SIZE:	RADIANT
REV:	3	74	20F

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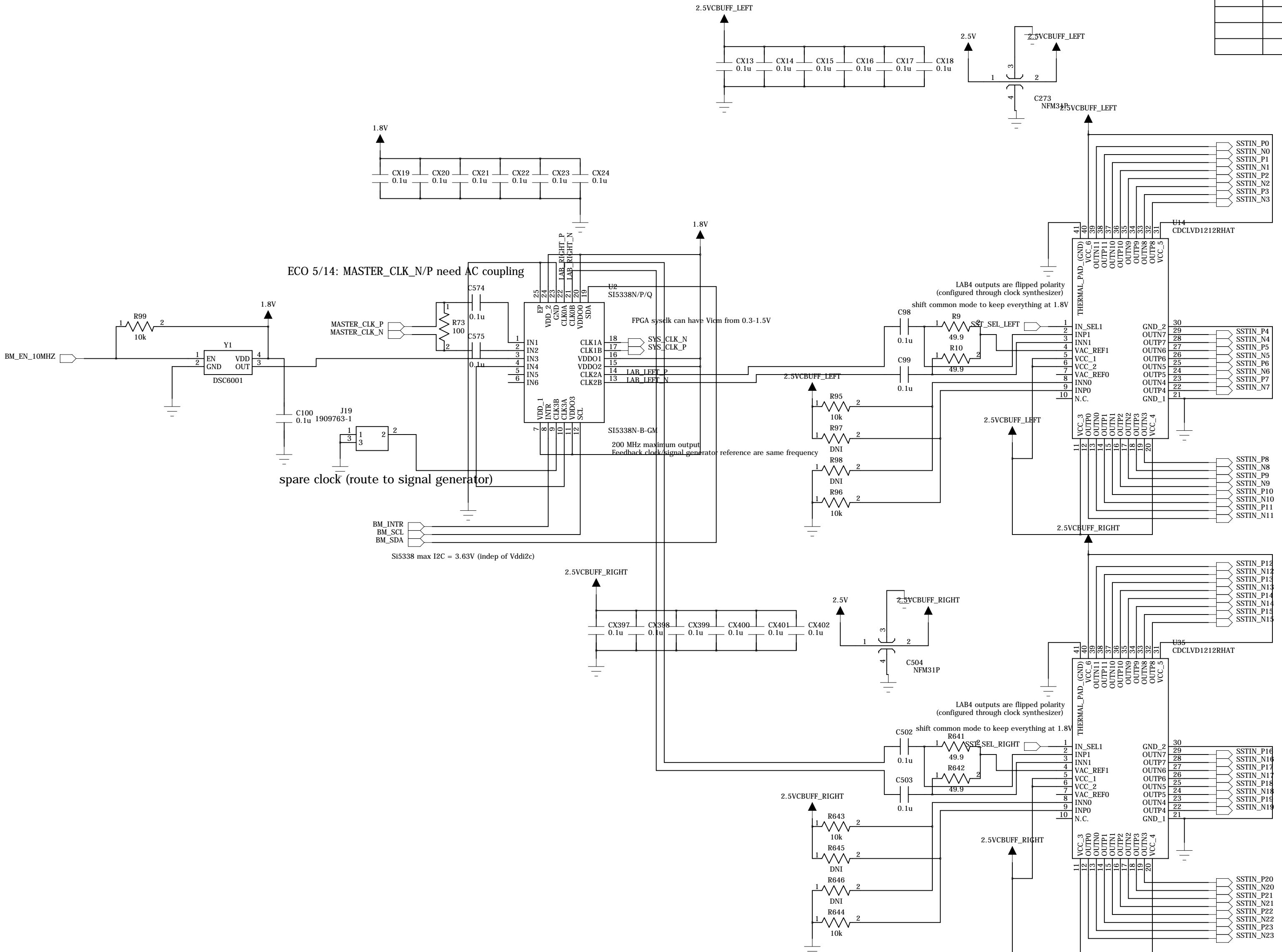
5

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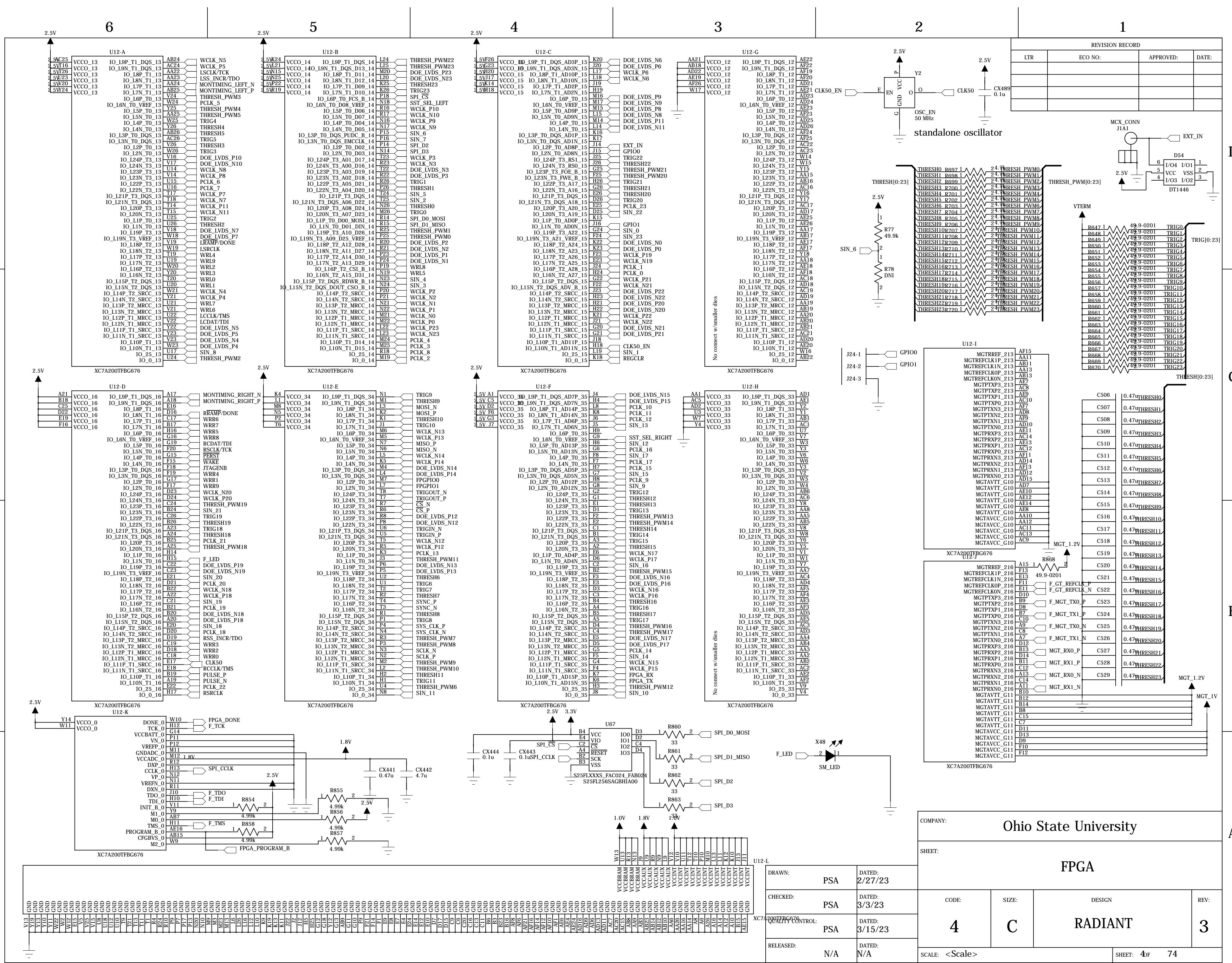
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COMPANY:	Ohio State University		
SHEET:	CLOCK		
CODE:	SIZE:	DESIGN	REV:
4	C	RADIANT	3
SCALE: <Scale>	SHEET: 3D		74



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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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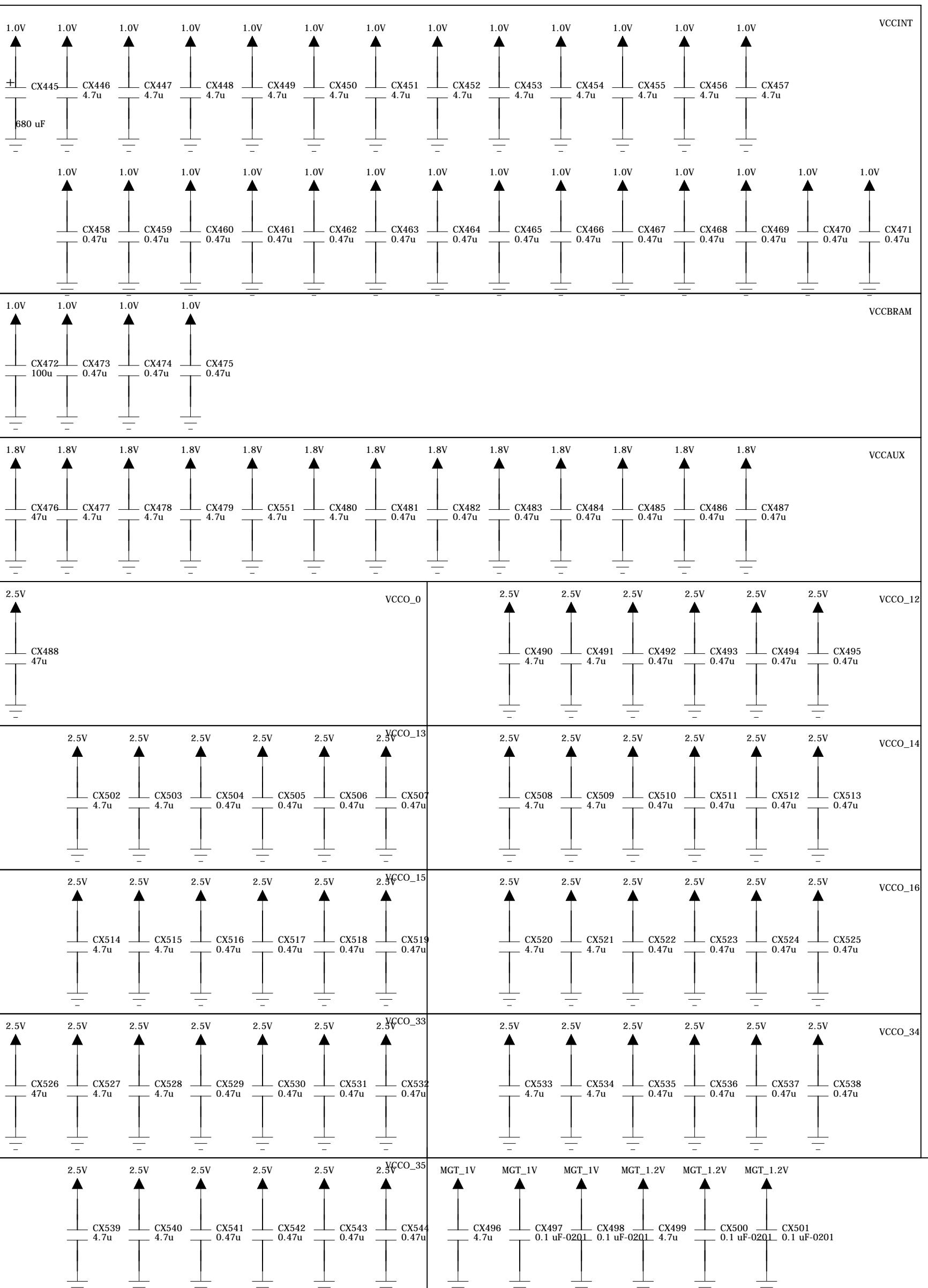
C

B

B

A

A



MGTAVCC/MGTAVTT (G11)

COMPANY:	Ohio State University		
SHEET:	FPGA_DECUPLE		
DRAWN:	PSA	DATED: 2/27/23	
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
SCALE:	<Scale>		
CODE:	C	DESIGN:	RADIANT
SIZE:		REV:	3
Sheet:	5	Scale:	74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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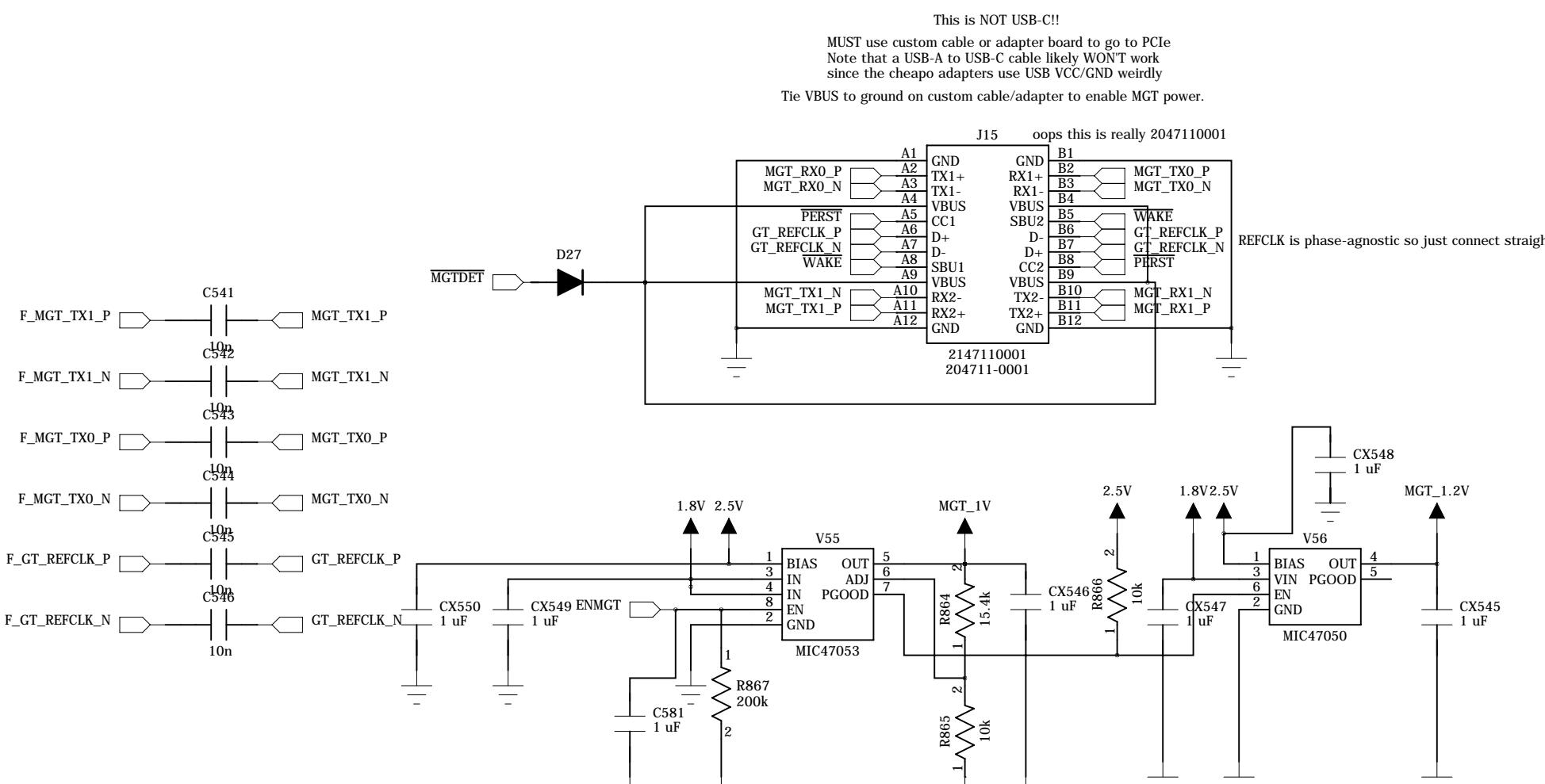
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A



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

COMPANY:	Ohio State University		
SHEET:	FPGA-PCIE		
DRAWN:	PSA	DATED: 2/27/23	
CHECKED:	PSA	DATED: 3/3/23	CODE:    SIZE:    DESIGN
QUALITY CONTROL:	PSA	DATED: 3/15/23	RADIANT    REV: 3
RELEASED:	N/A	DATED: N/A	SCALE: <Scale>    SHEET: 6 of 74

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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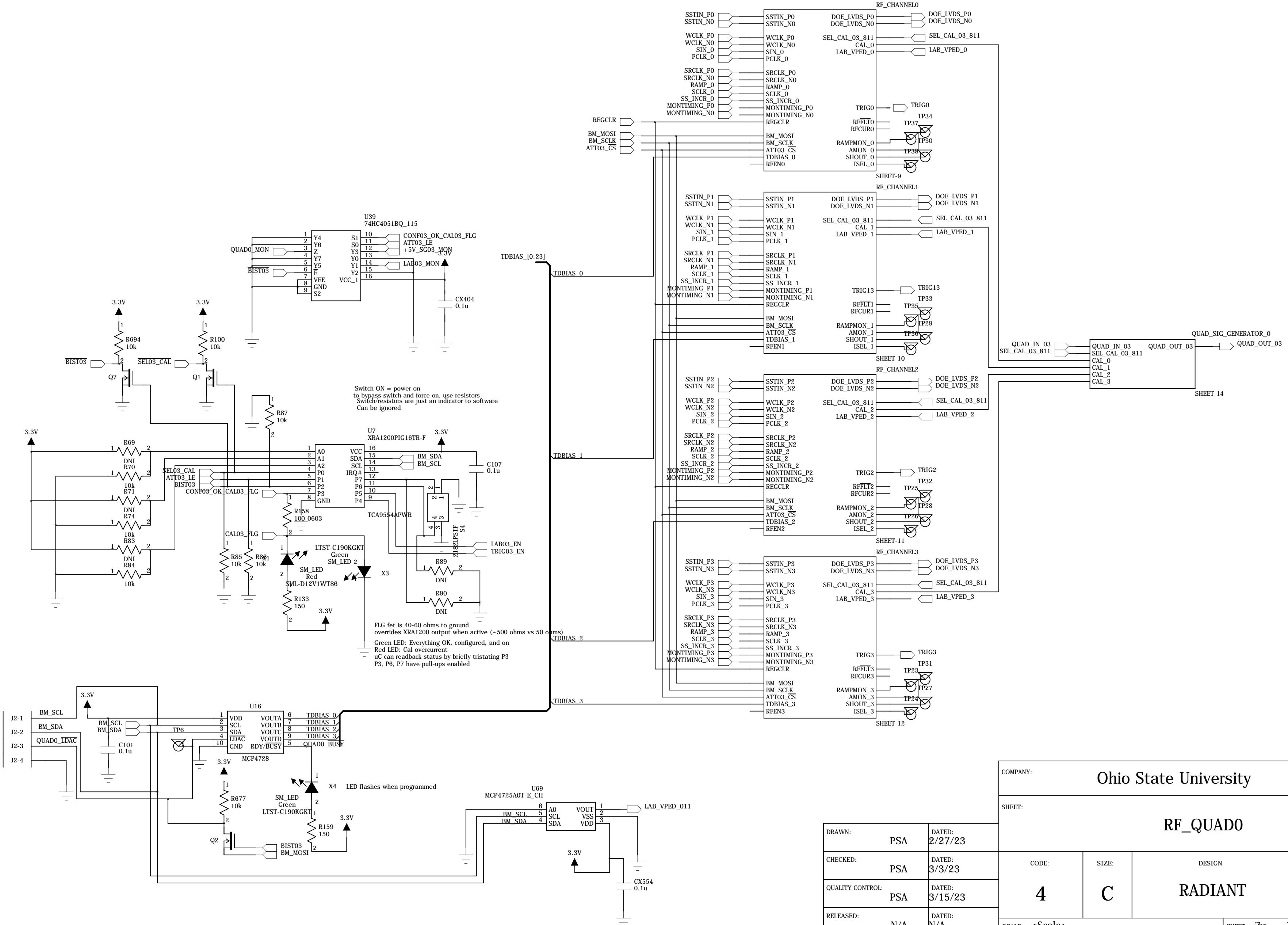
C

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A



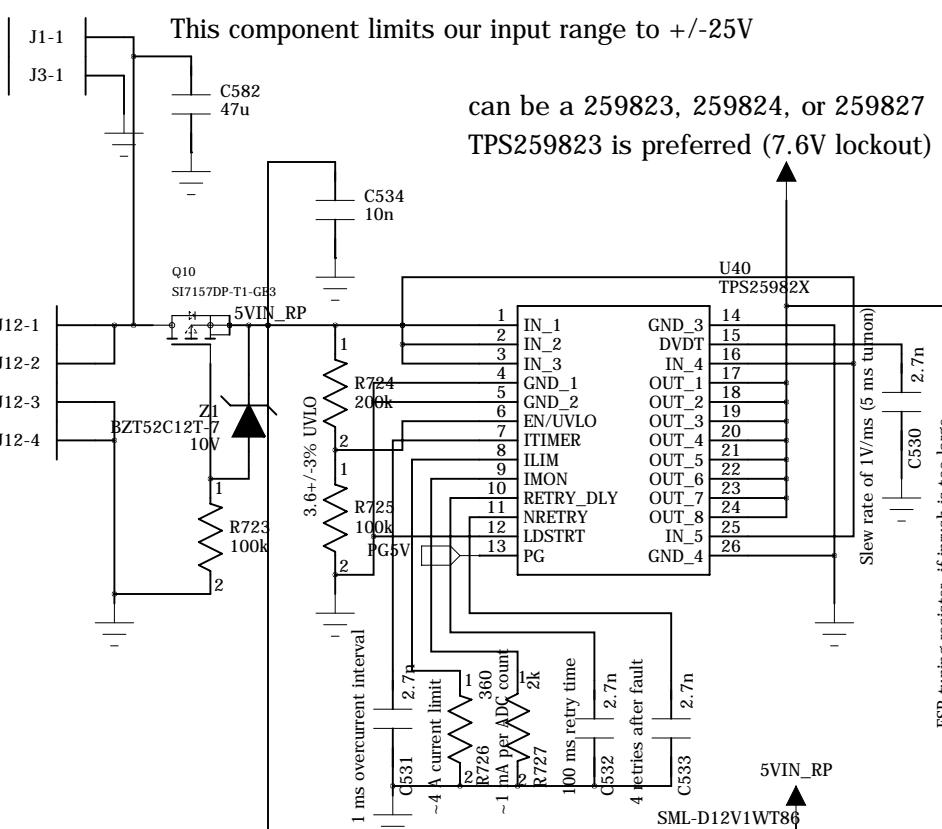
REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

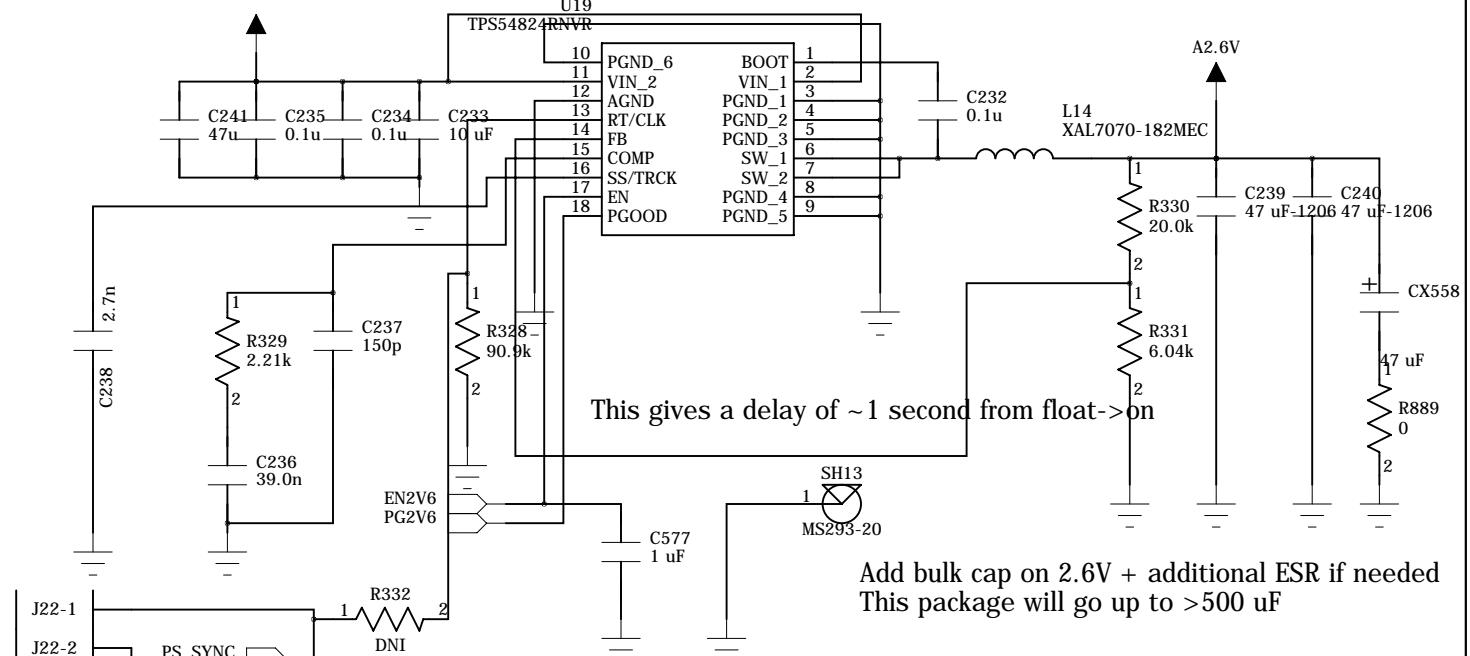
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D

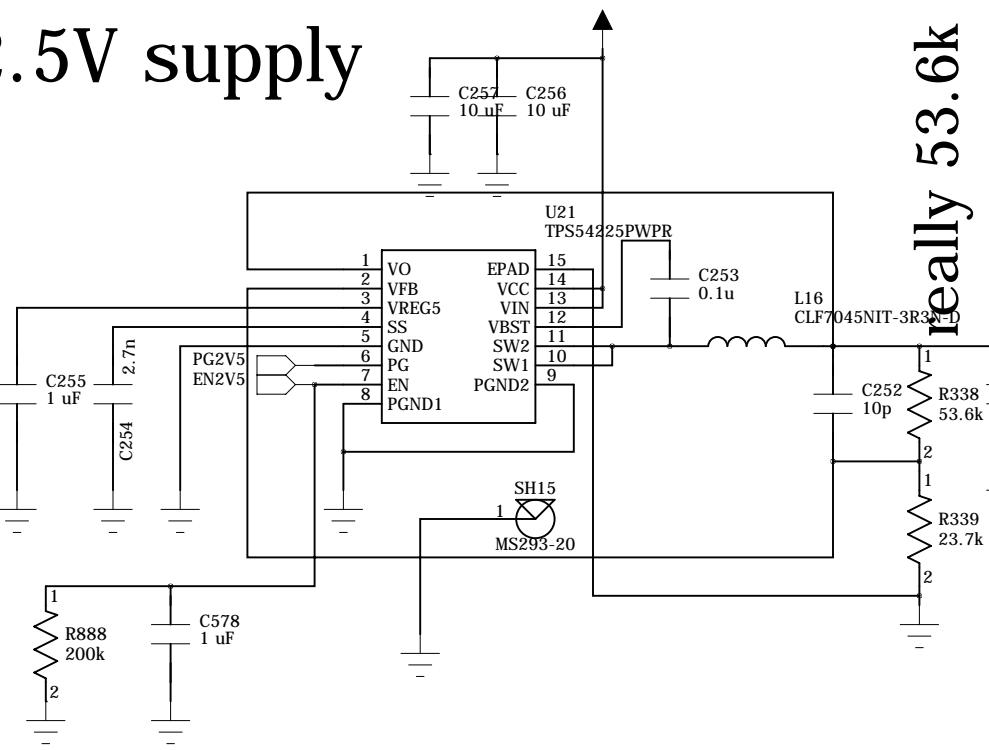
## Input power protection



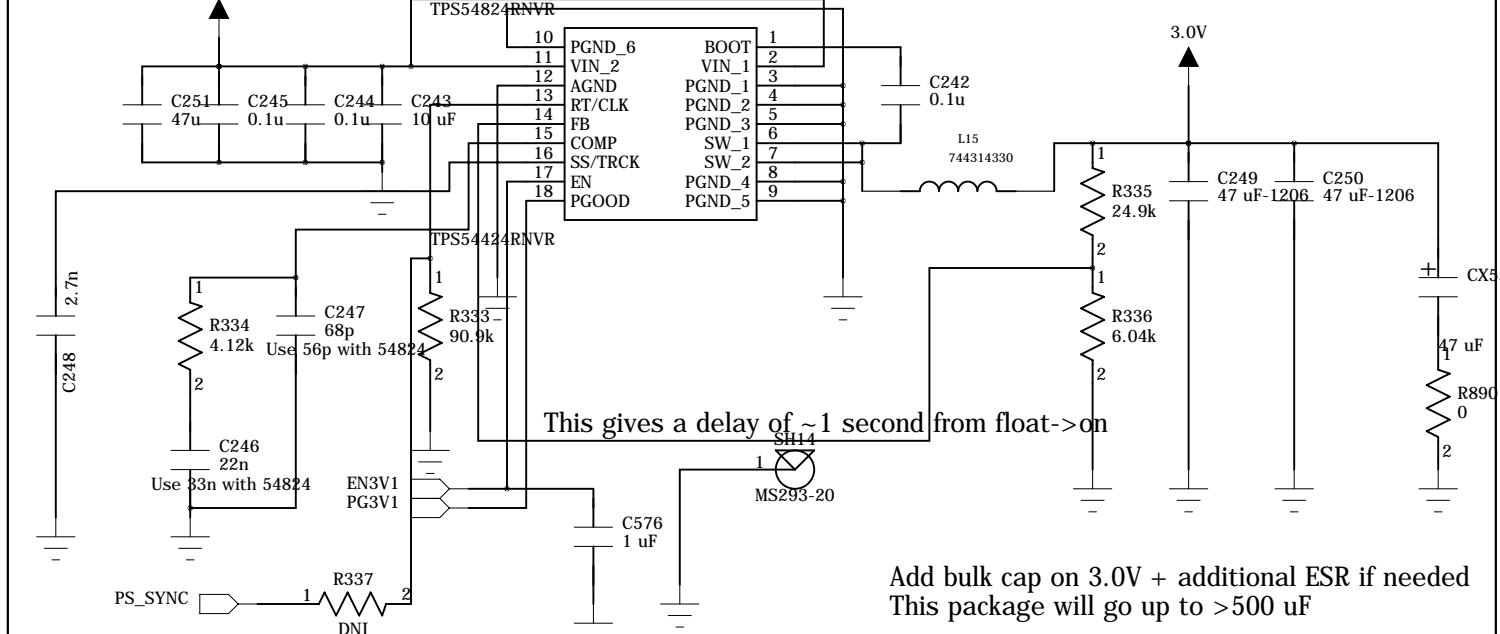
## LAB4D supply (2.6V, regulated to 2.5V)



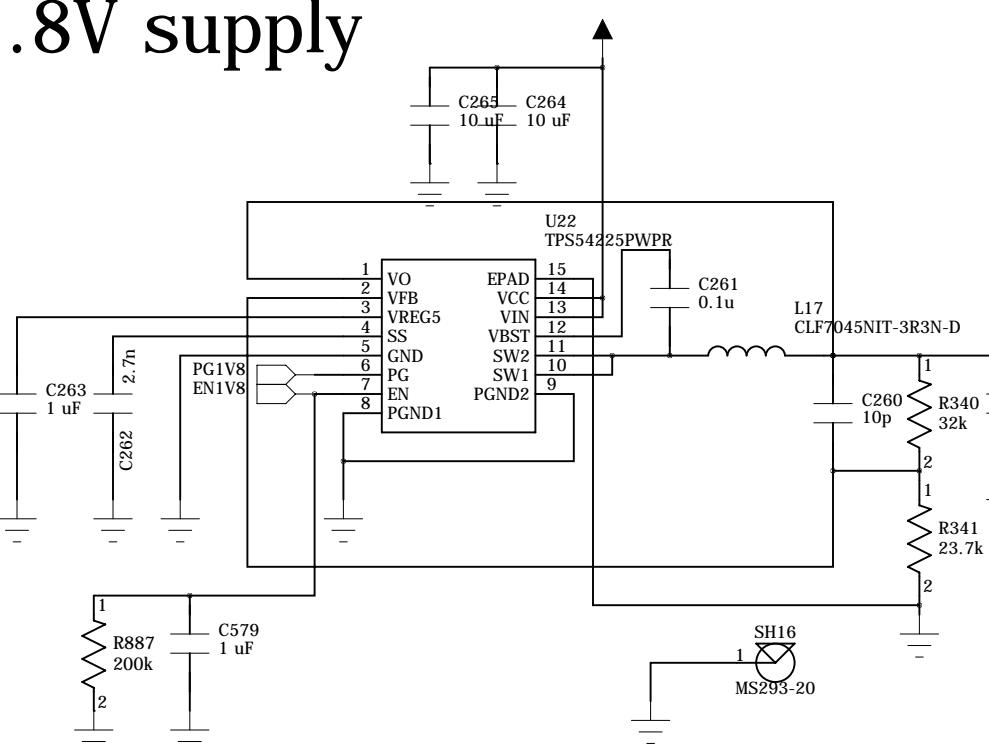
## 2.5V supply



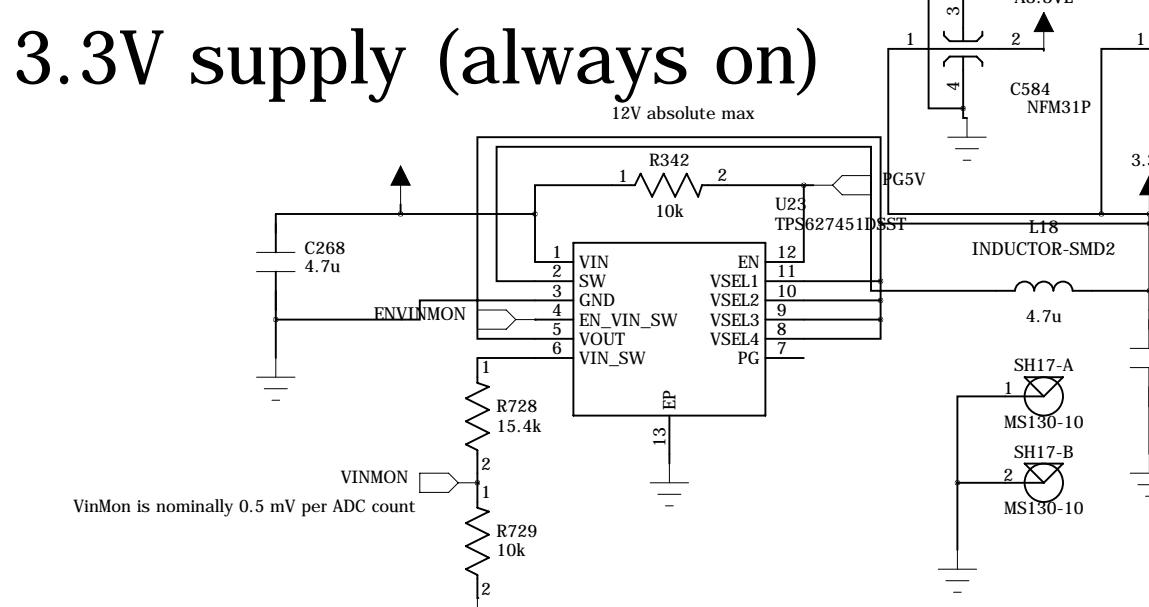
## Trigger supply (3.07V, regulated to 3.0V)



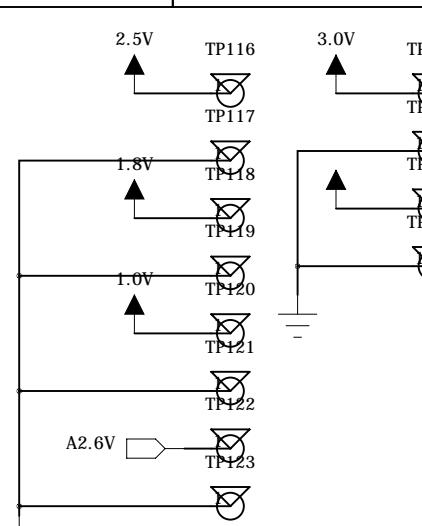
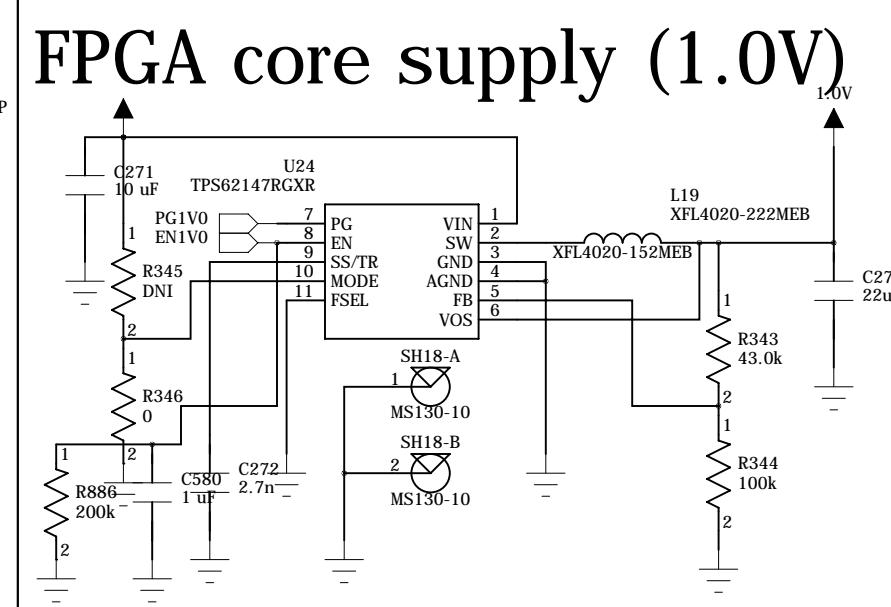
## 1.8V supply



## 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
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		
CODE:	C	SIZE:	DESIGN
REV:	3	RADIANT	3
SHEET:	80F	74	

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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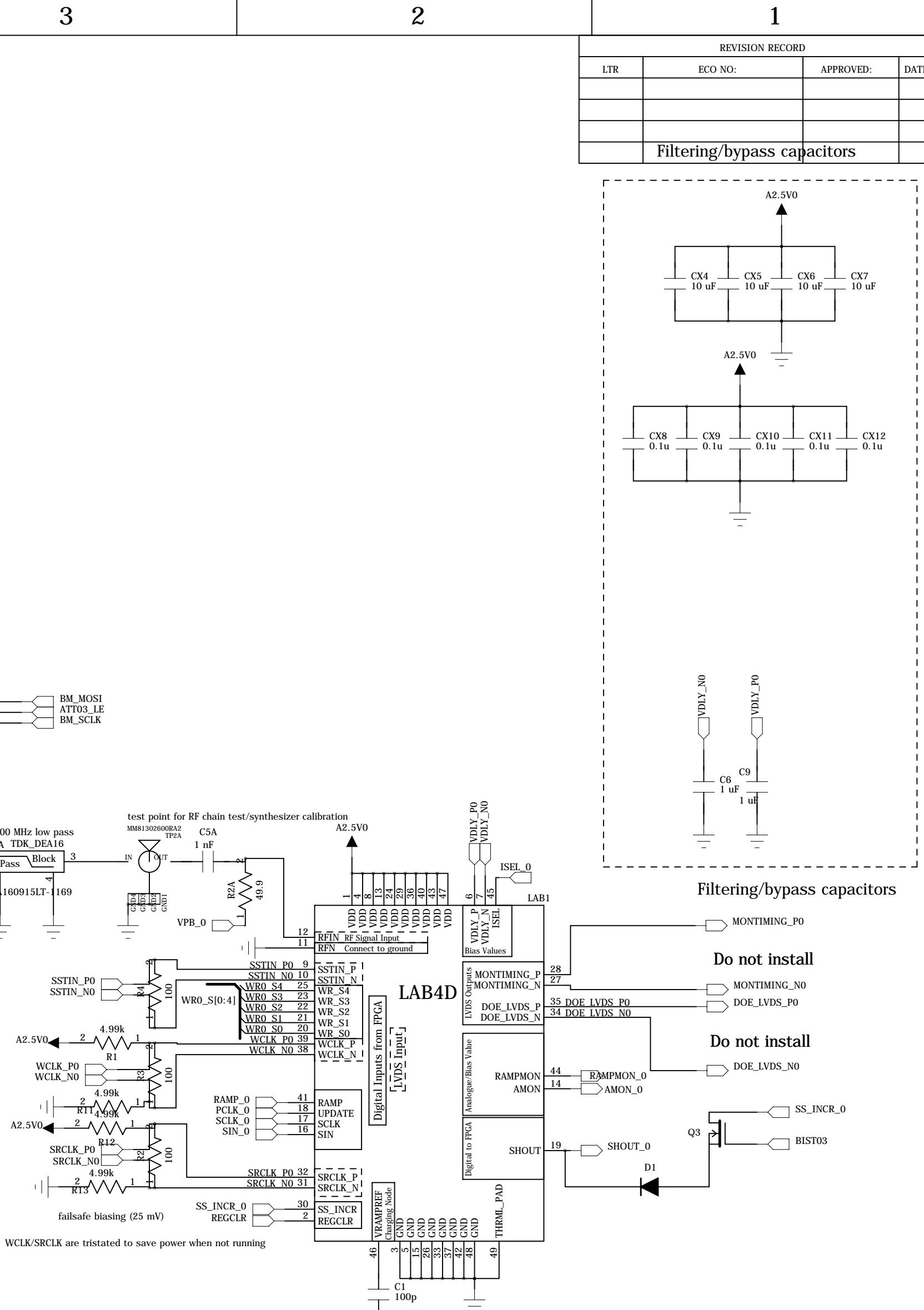
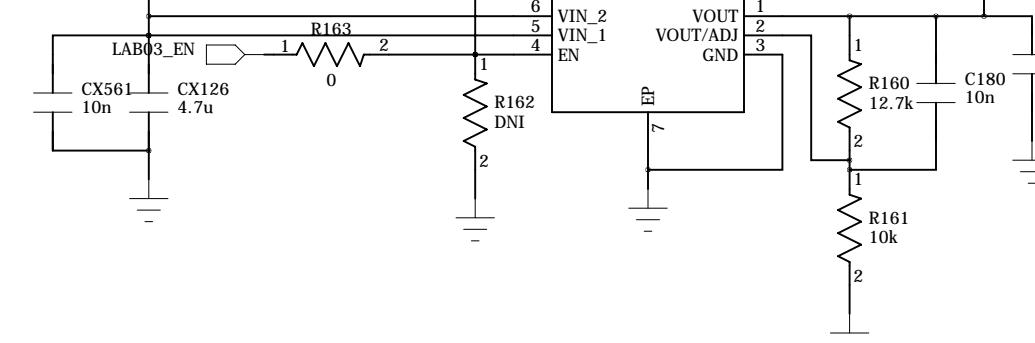
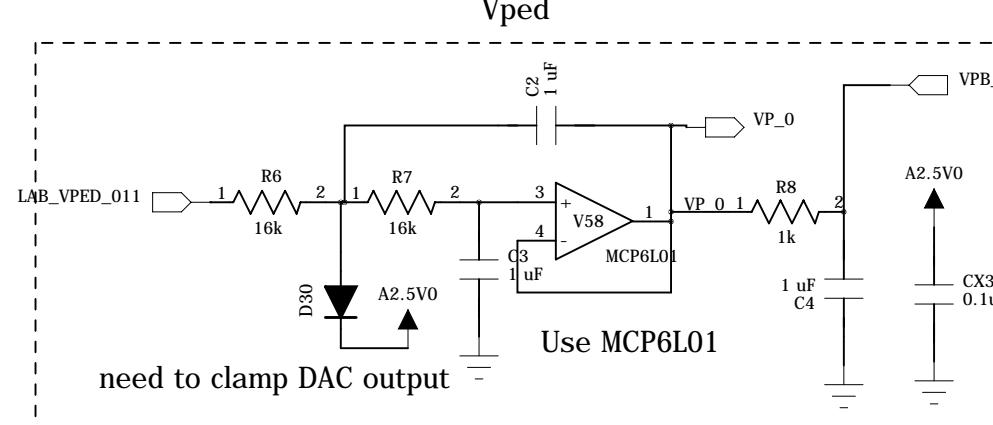
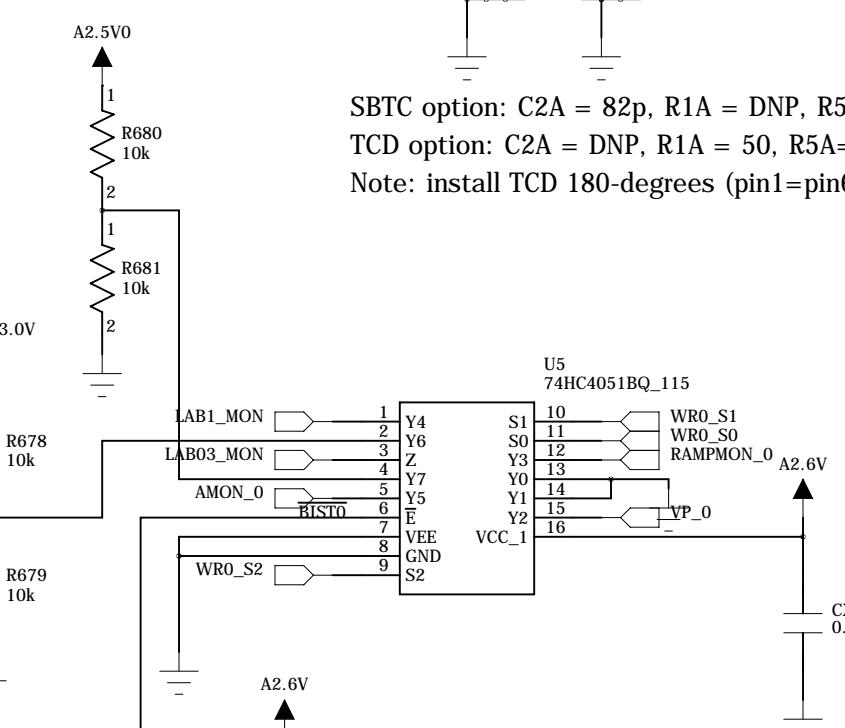
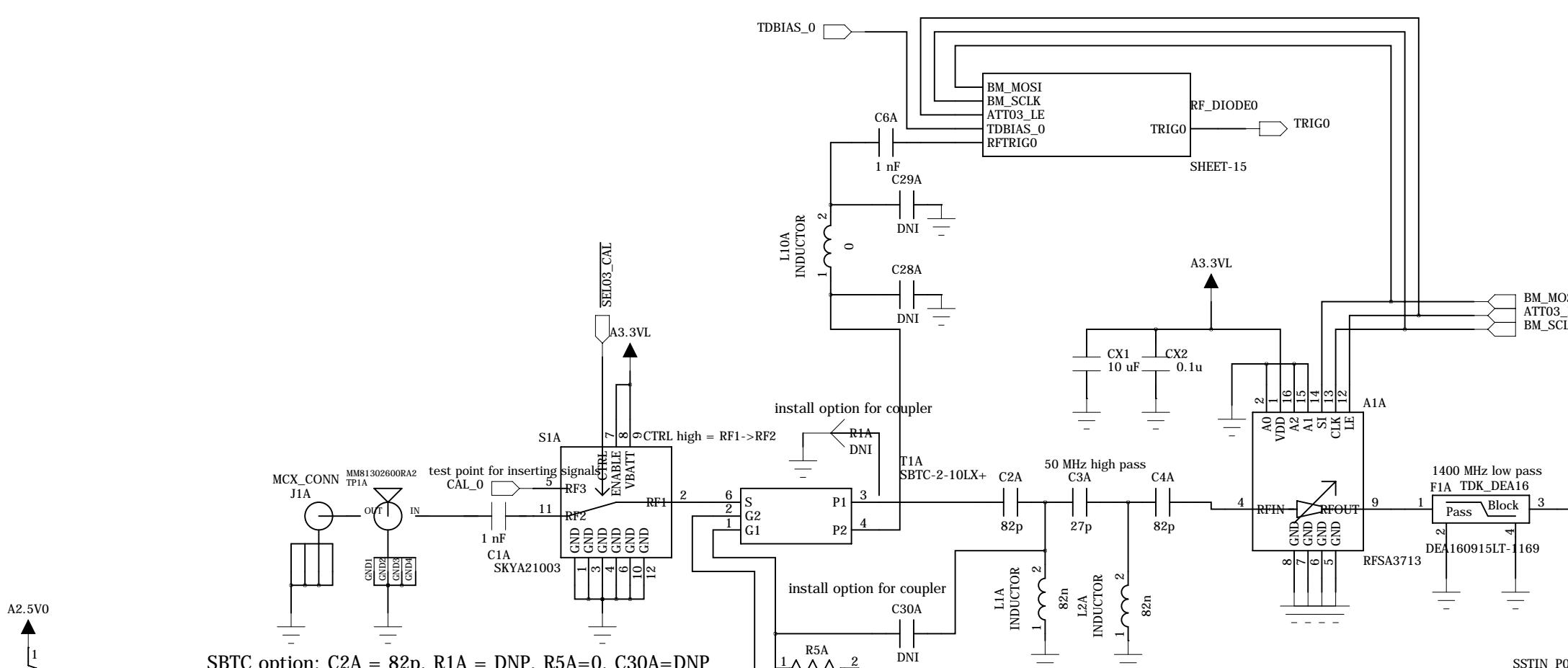
C

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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

Ohio State University

RF\_CHANNEL0

RADIANT

3

SCALE: &lt;Scale&gt; SHEET: 9 of 74

## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

D

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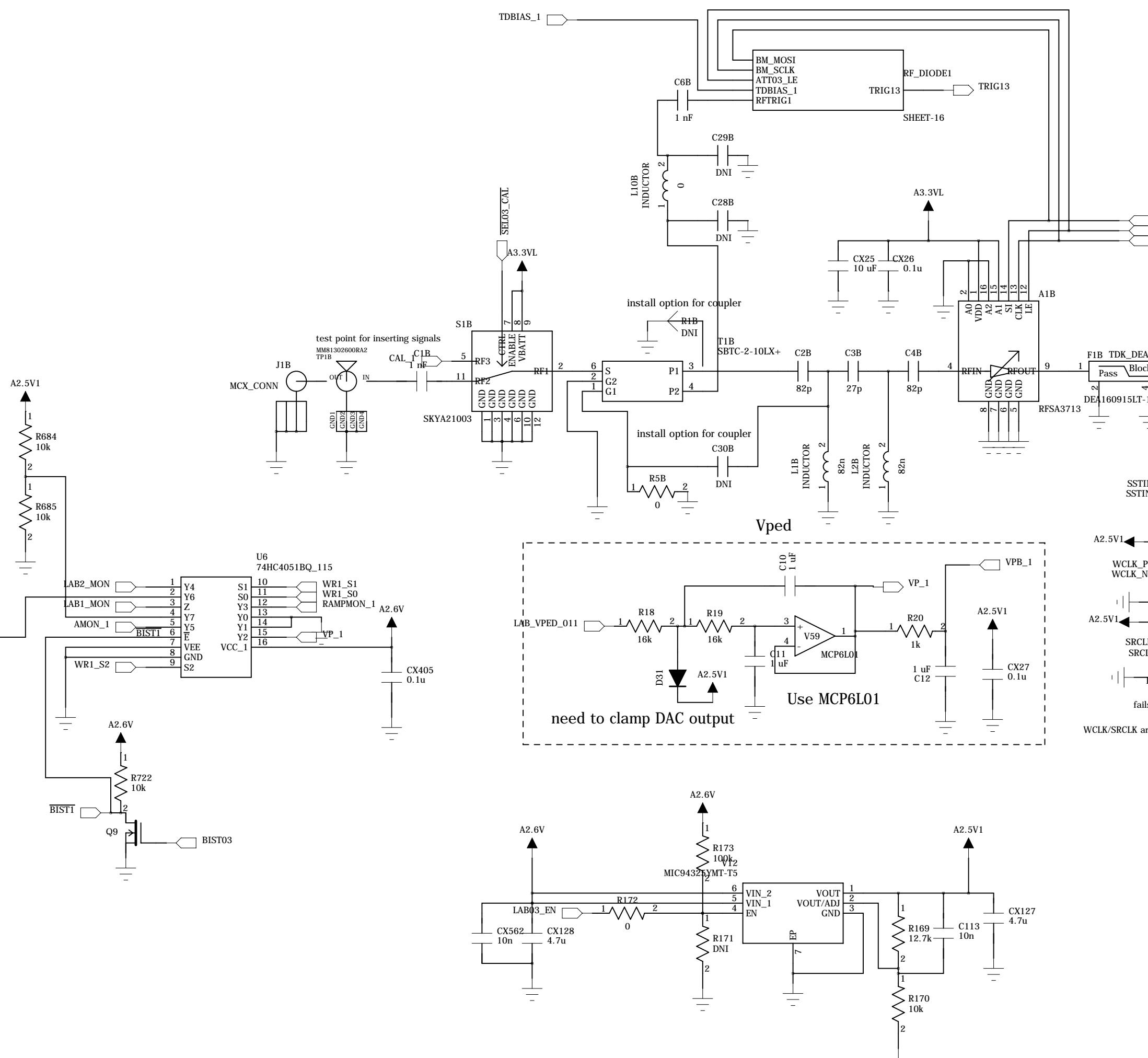
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COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL1		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>	SHEET:	10 74

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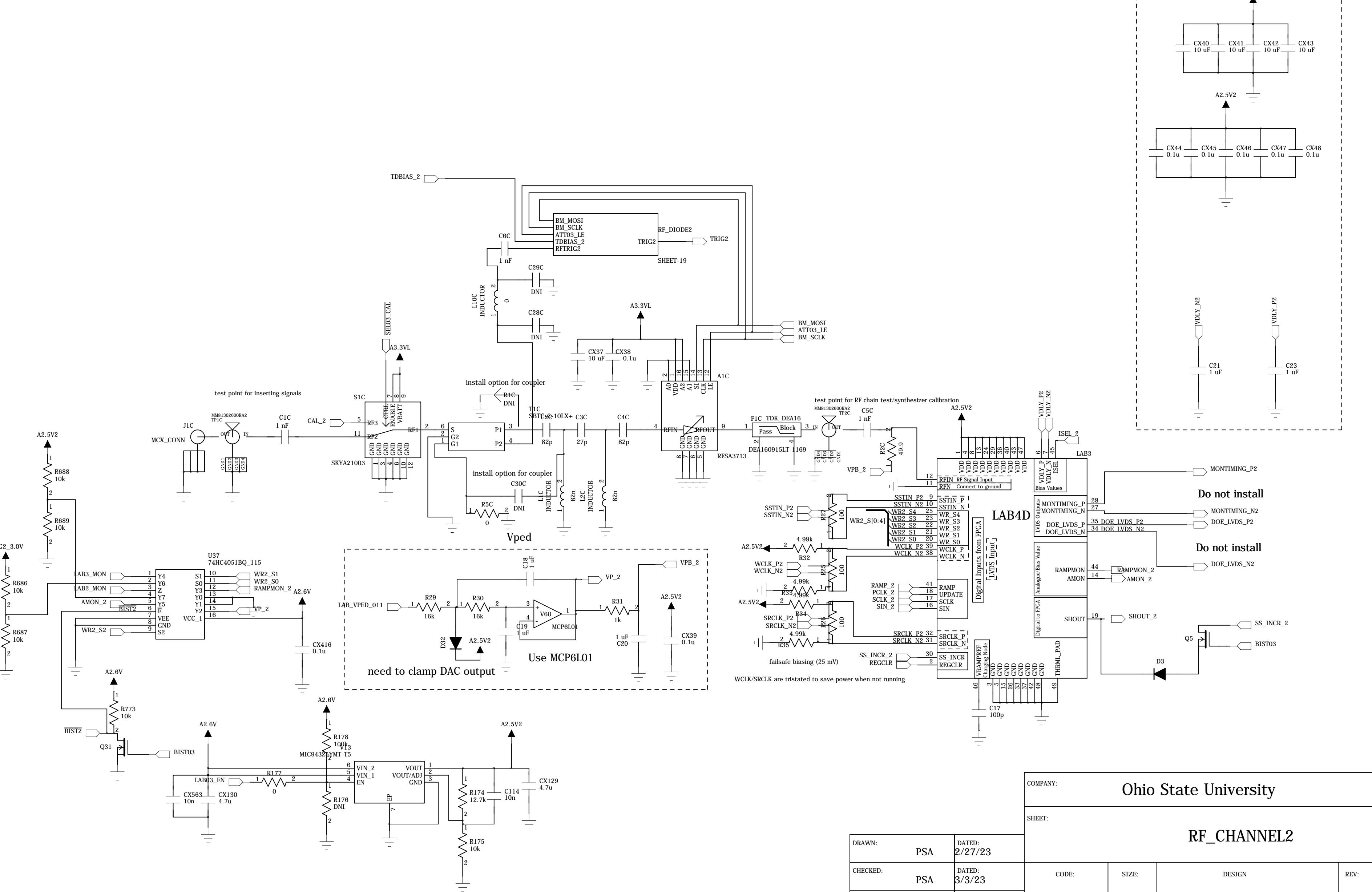
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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:
<b>Filtering/bypass capacitors</b>			



QUALITY CONTROL: PSA	DATED: 3/15/23	4	C	RADIANT	3
RELEASED: N/A	DATED: N/A	SCALE: <Scale>	SHEET: 10f	74	

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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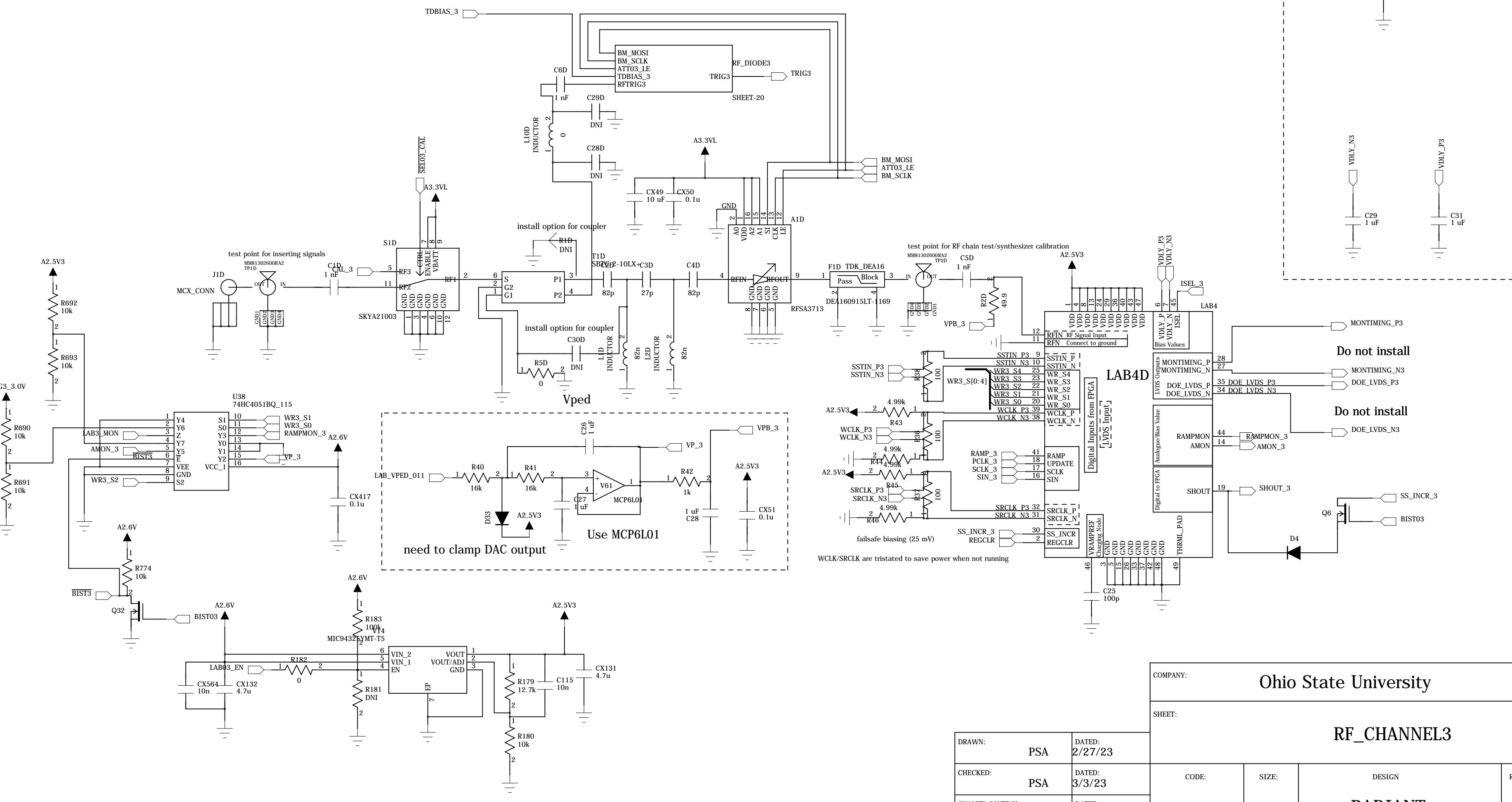
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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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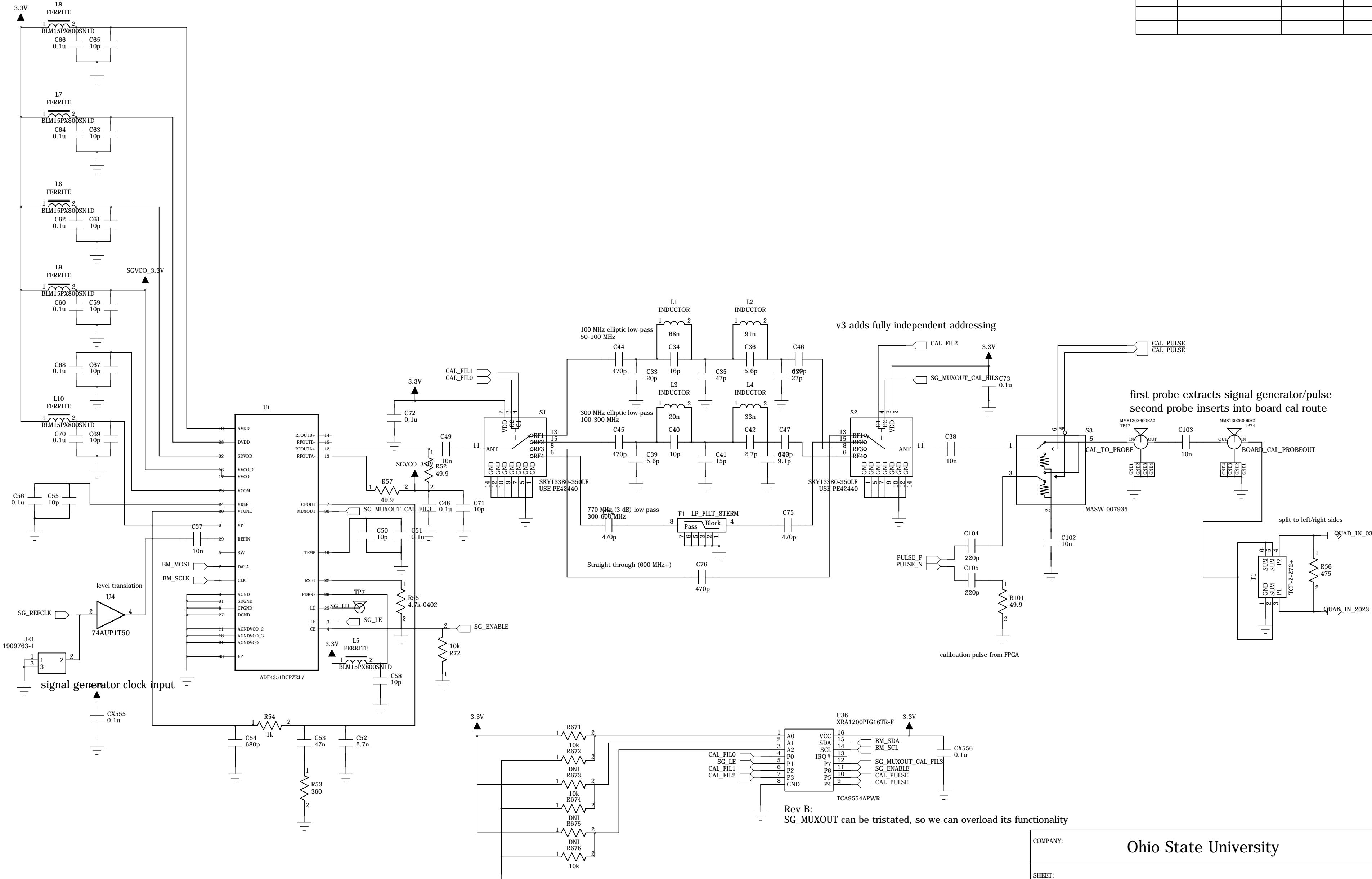
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COMPANY:	Ohio State University		
SHEET:	SIGNAL_GENERATOR		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		
CODE:	C	SIZE:	RADIANT
REV:	3		
Sheet:	18	74	

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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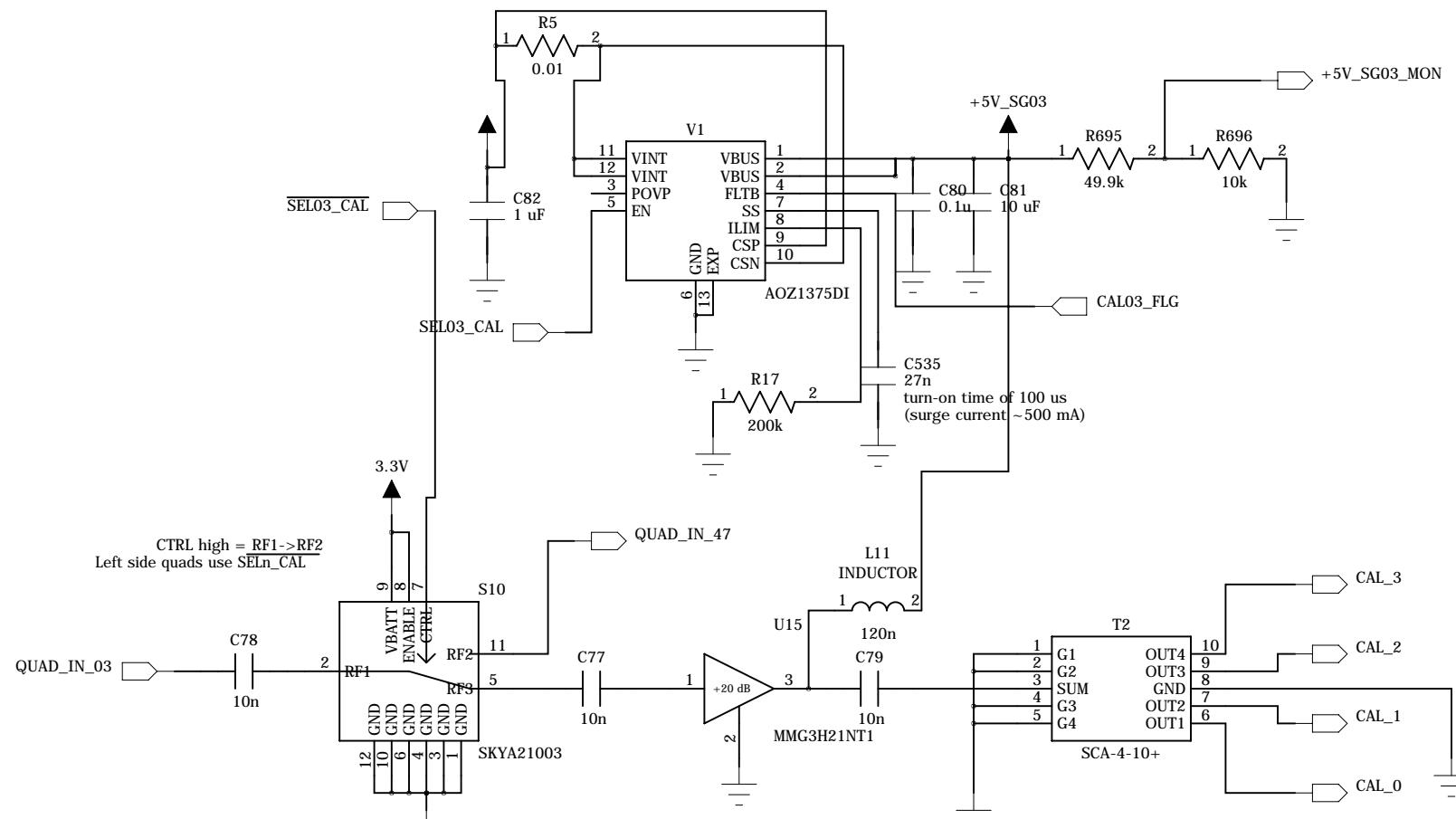
C

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COMPANY:	Ohio State University		
SHEET:	QUAD_SIG_GENERATOR_0		
DRAWN:	PSA	DATED: 2/27/23	
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
CODE:	C	SIZE:	DESIGN RADIANT
REV:	4		3
SCALE:	<Scale>		Sheet: 14 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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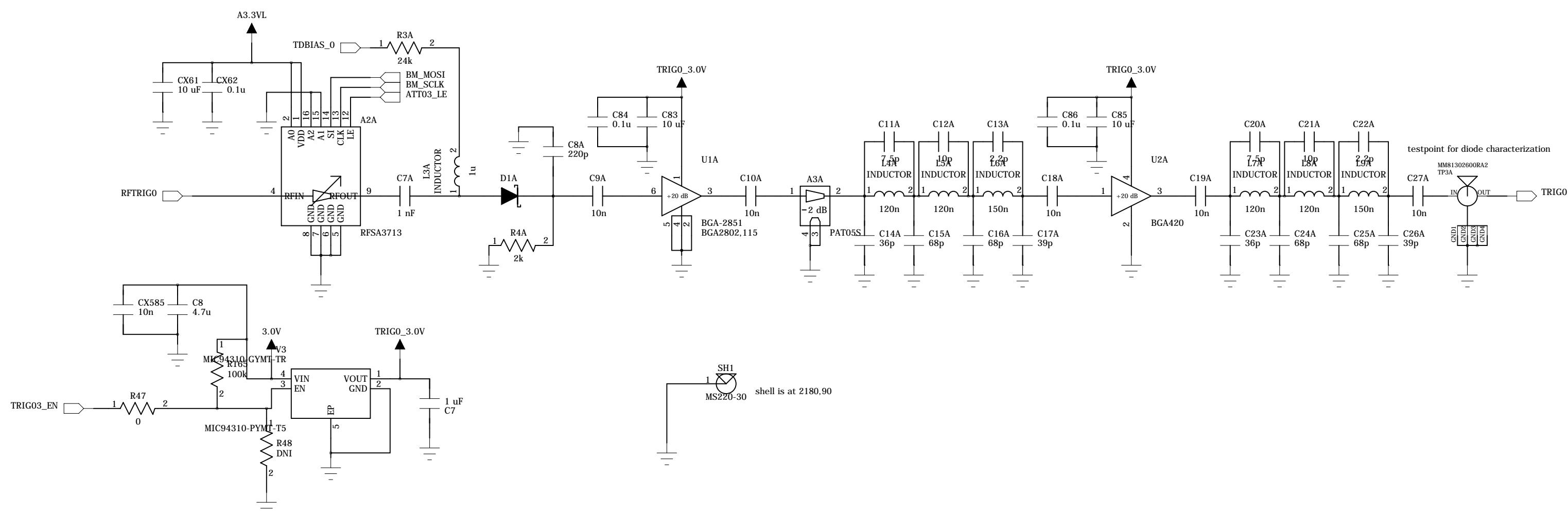
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COMPANY:	Ohio State University		
SHEET:	RF_DIODEO		
DRAWN:	PSA	DATED: 2/27/23	
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
CODE:	C	SIZE:	DESIGN RADIANT
REV:	4		3
SCALE:	<Scale>		SCALE: <Scale>
SCALE:	15 74		SCALE: <Scale>

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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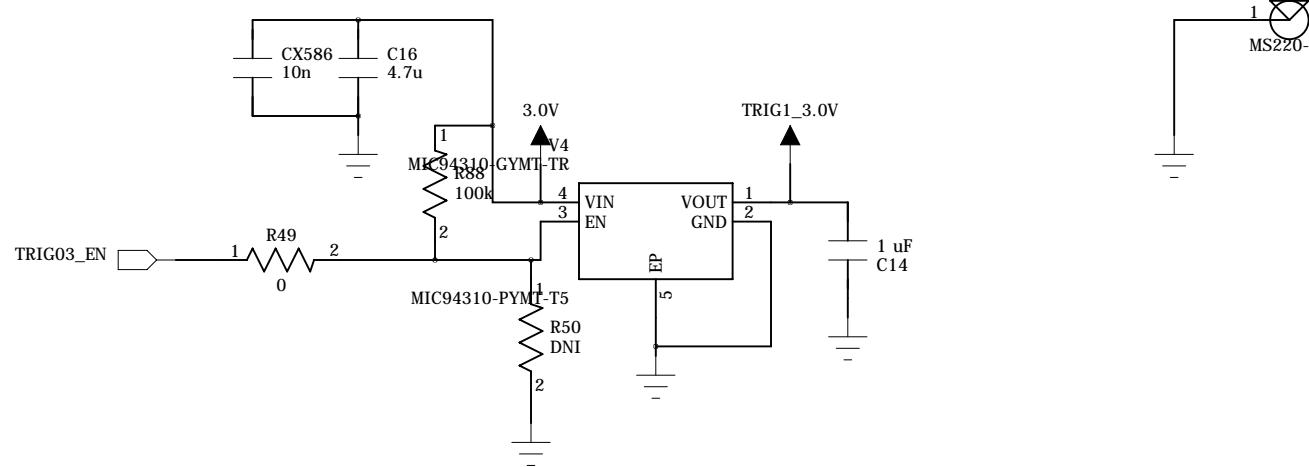
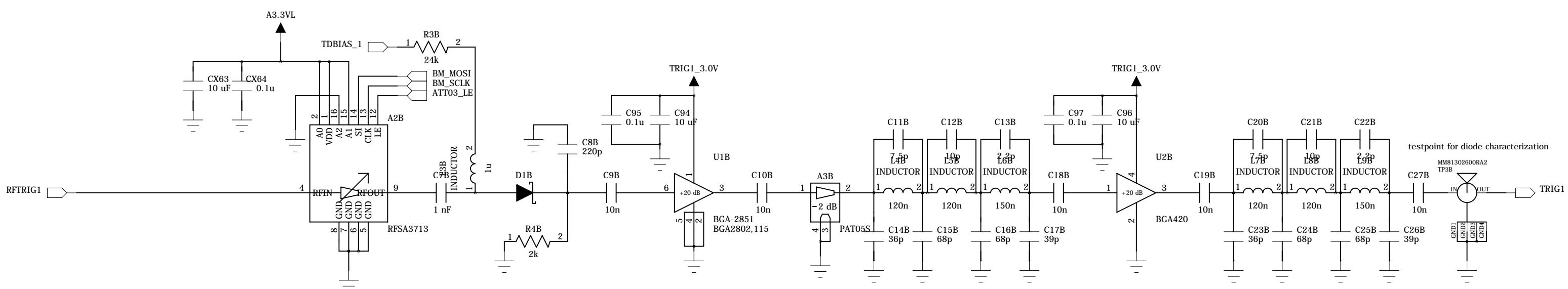
C

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COMPANY:	Ohio State University		
SHEET:	RF_DIODE1		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		
CODE:	SIZE:	DESIGN:	REV:
4	C	RADIANT	3
Sheet: 16	74		

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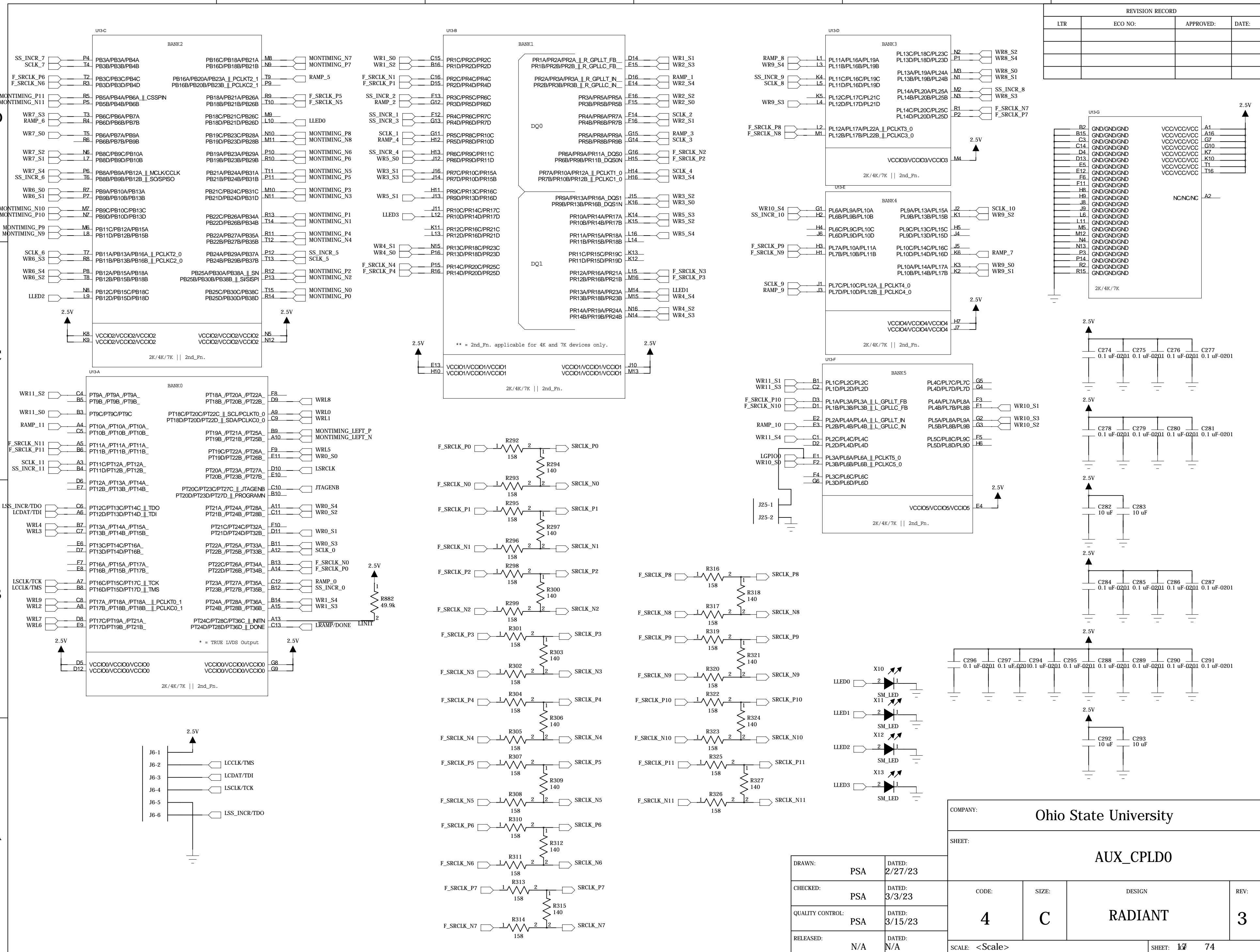
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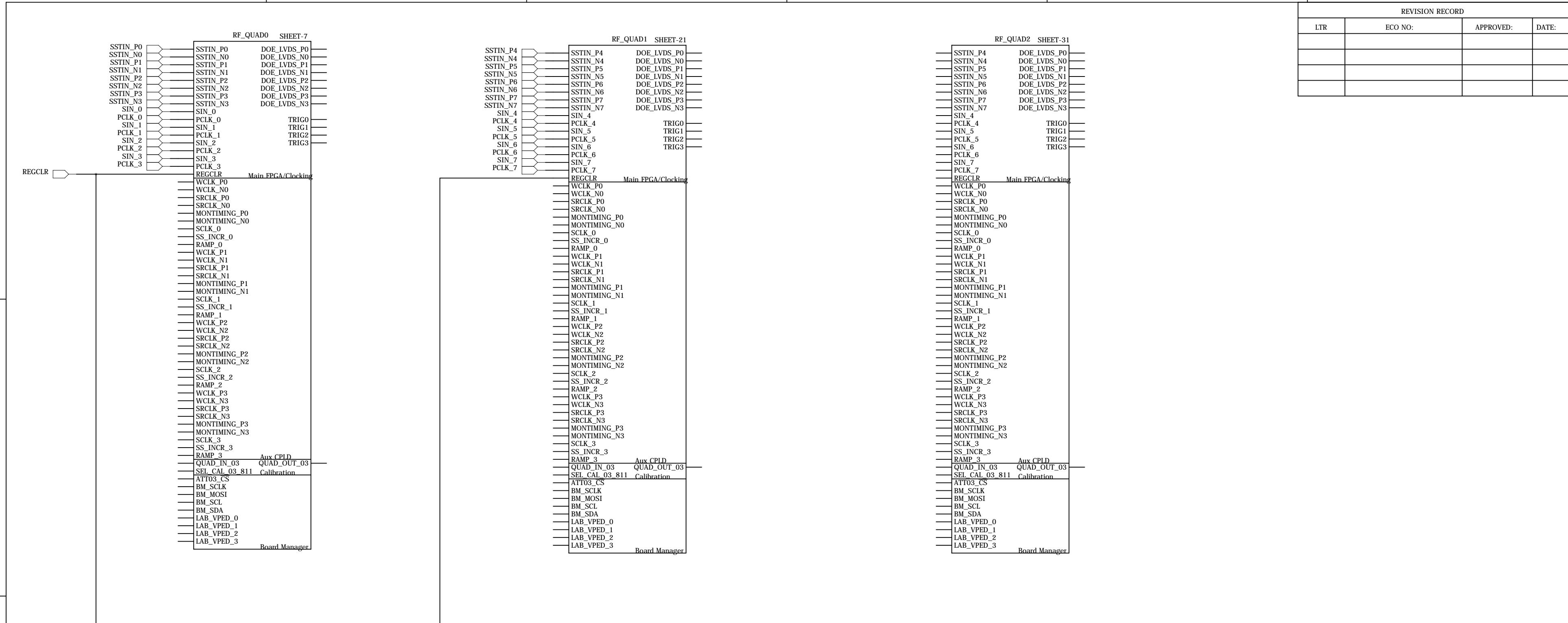
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COMPANY:		Ohio State University	
SHEET:		RF_LEFT	
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE: <Scale>		SHEET: 18 74	
CODE:	SIZE:	DESIGN:	REV:
4	C	RADIANT	3

6

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## REVISION RECORD

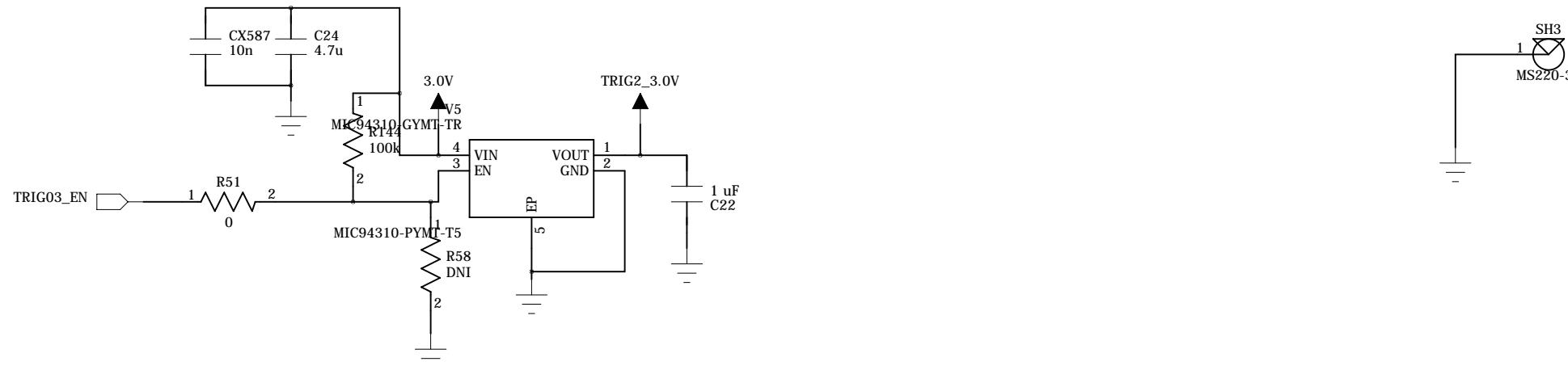
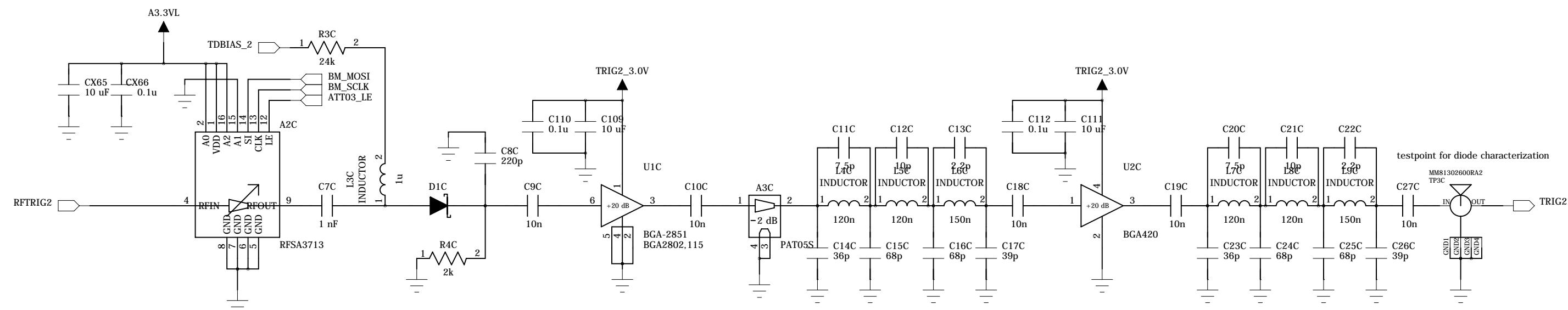
LTR	ECO NO:	APPROVED:	DATE:

D

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C

C



COMPANY:	Ohio State University		
SHEET:	RF_DIODE2		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		74
CODE:	C	SIZE:	RADIANT
REV:	4	3	
Sheet:	10	74	

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## REVISION RECORD

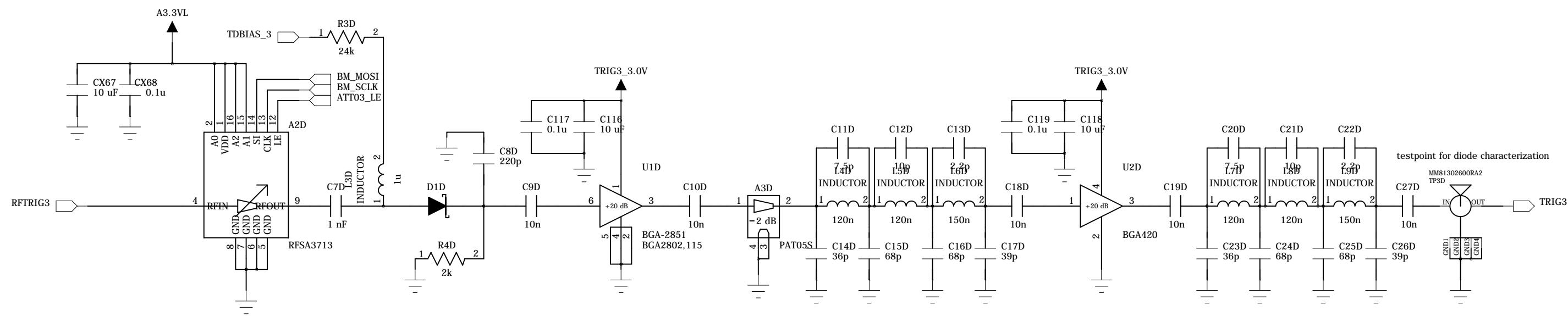
LTR	ECO NO:	APPROVED:	DATE:

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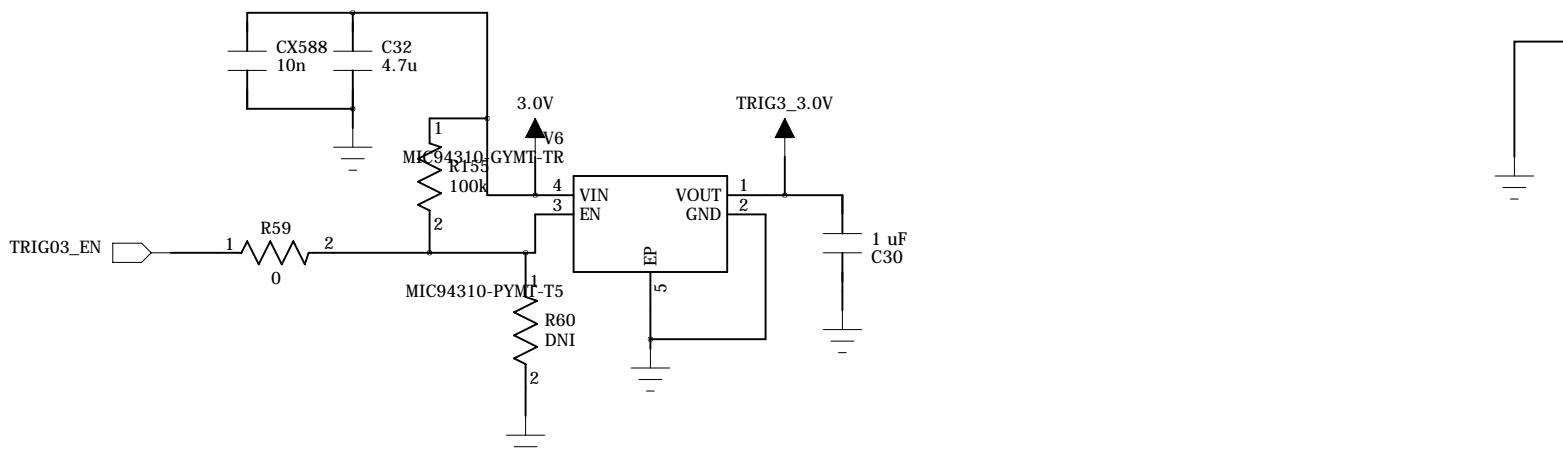
C

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COMPANY:	Ohio State University		
SHEET:	RF_DIODE3		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		
CODE:	C	SIZE:	DESIGN
	RADIANT		
REV:	4	3	
SCALE:	20	74	

## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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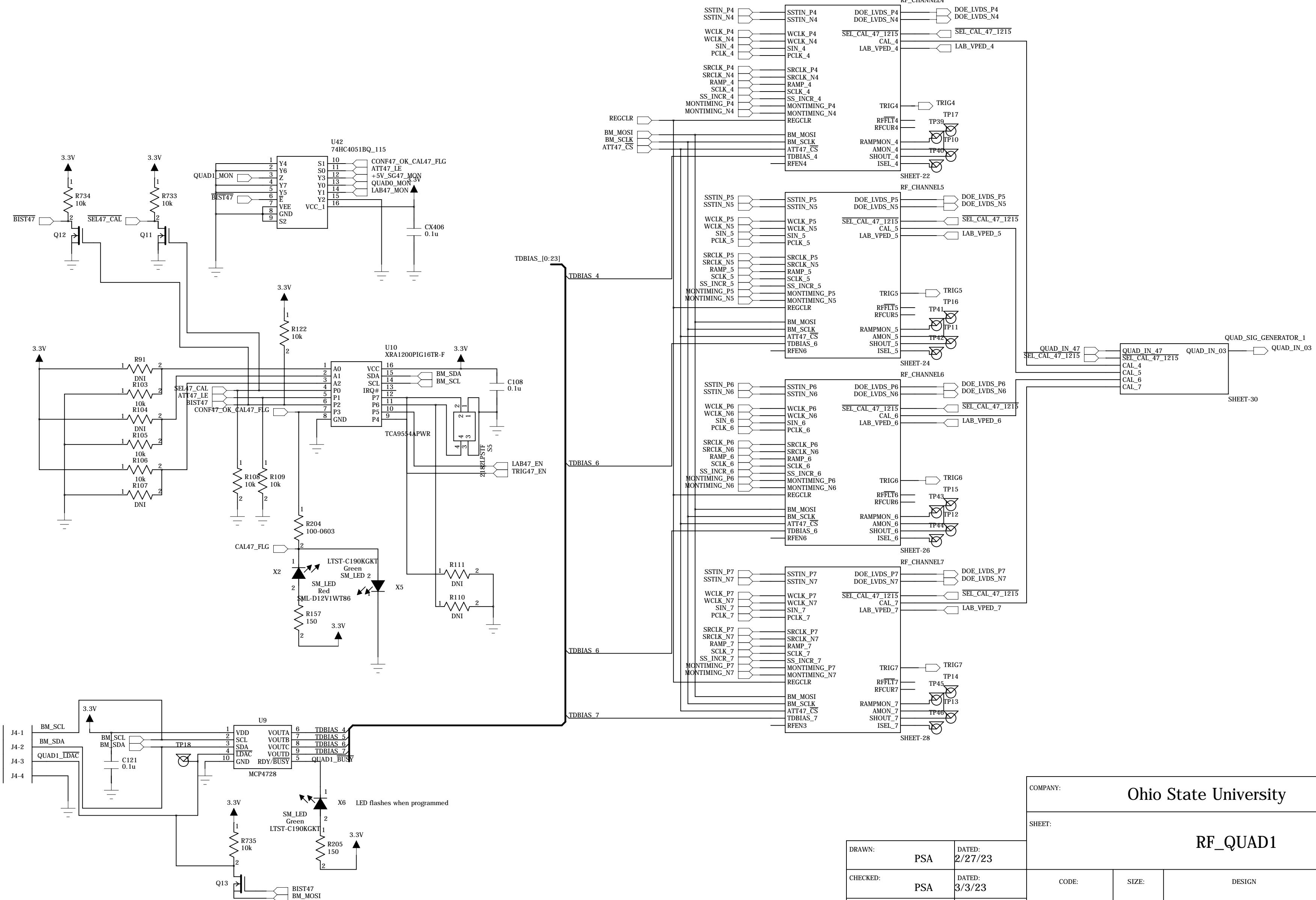
C

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COMPANY:	Ohio State University		
SHEET:	RF_QUAD1		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		
CODE:	SIZE:	DESIGN	REV:
4	C	RADIANT	3
Sheet: 21	74		

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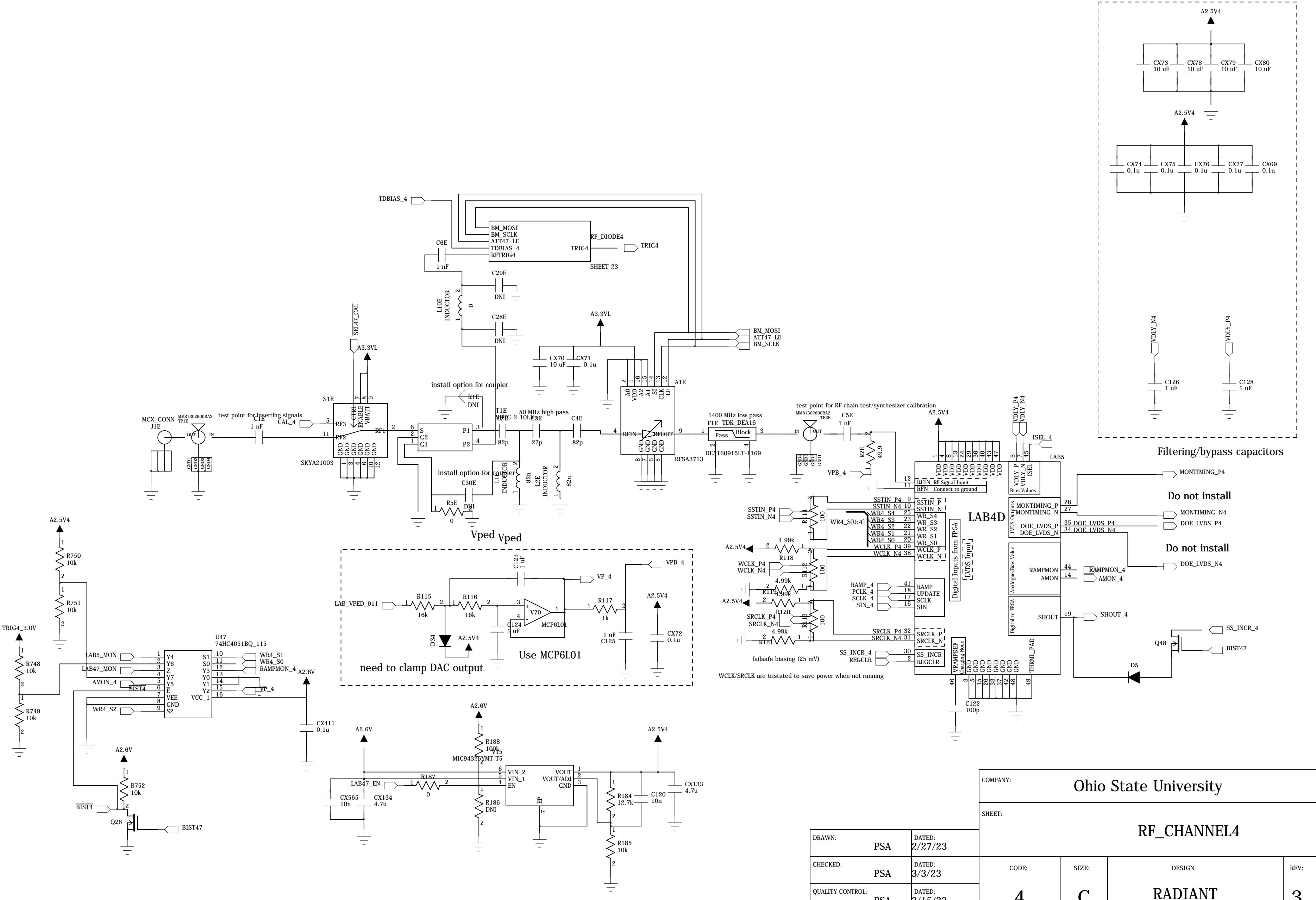
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REVISION RECORD			
TR	ECO NO:	APPROVED:	DATE:
	Filtering/bypass capacitors		



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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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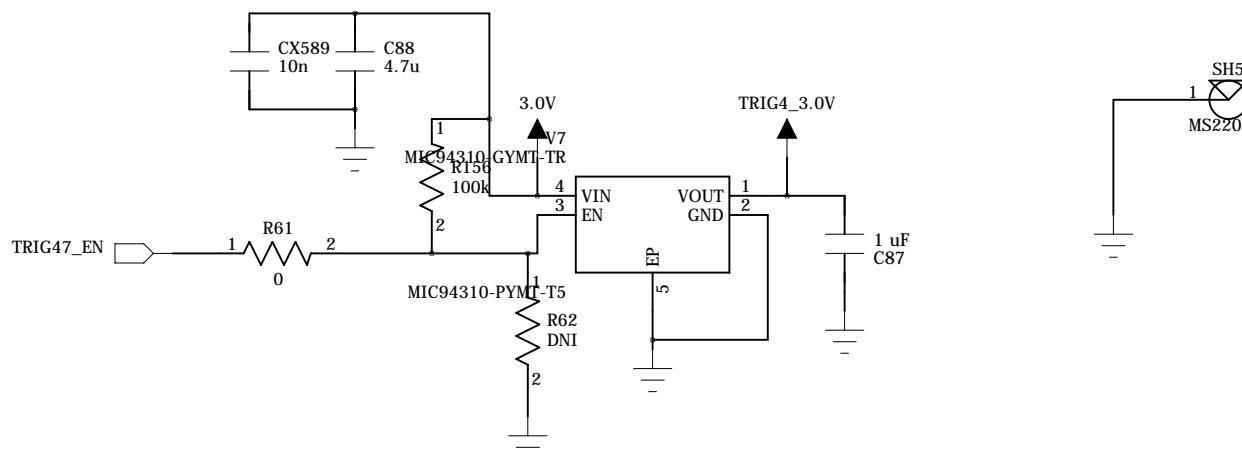
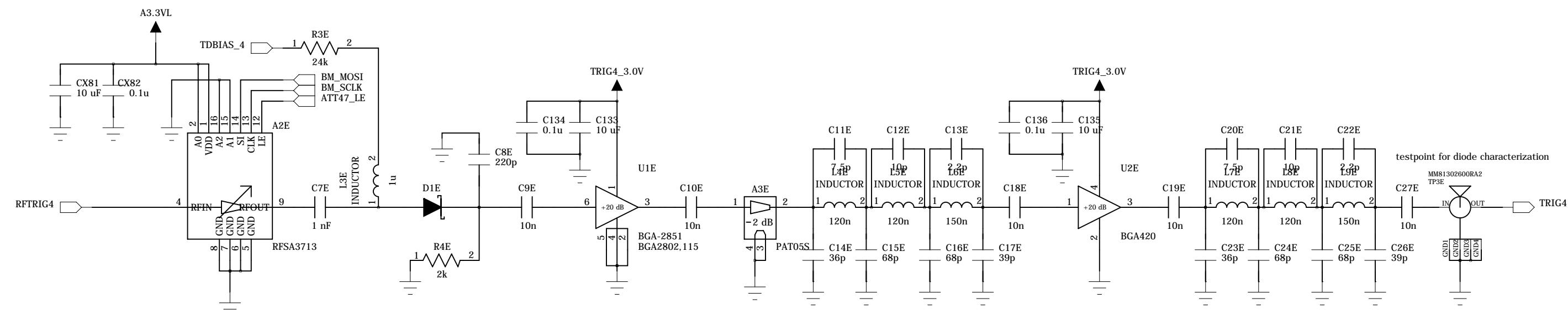
C

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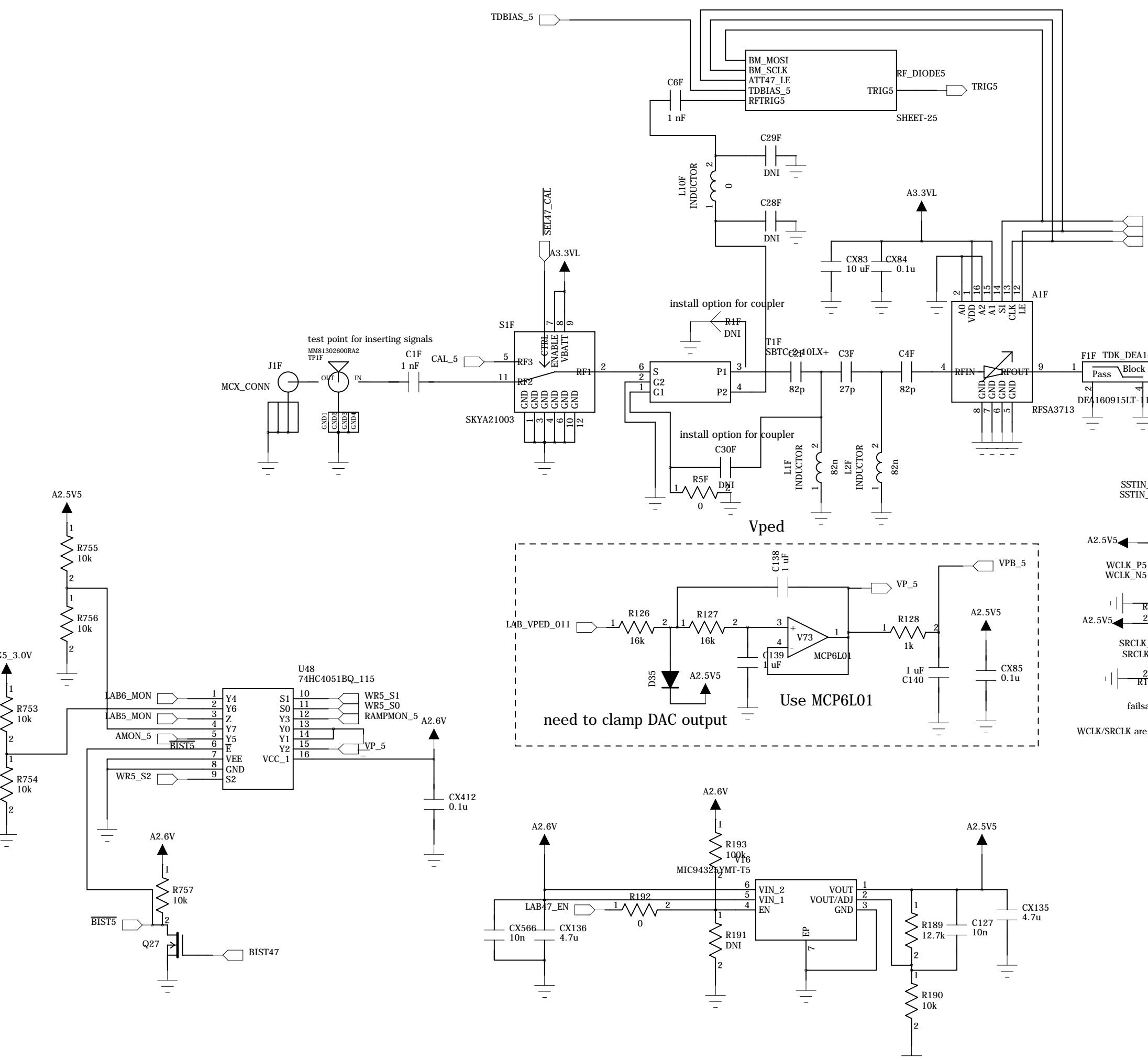


COMPANY:	Ohio State University		
SHEET:	RF_DIODE4		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		
CODE:	C	SIZE:	DESIGN
			RADIANT
REV:	4	3	
SCALE:	28	74	SHEET:

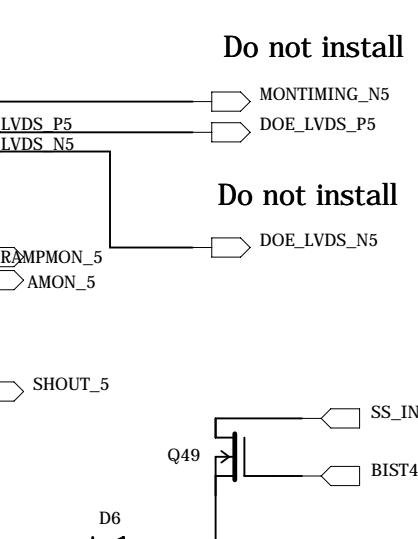
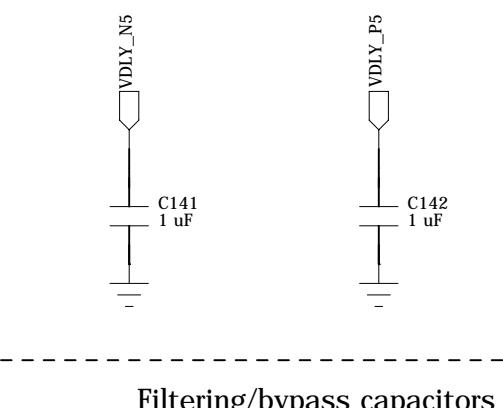
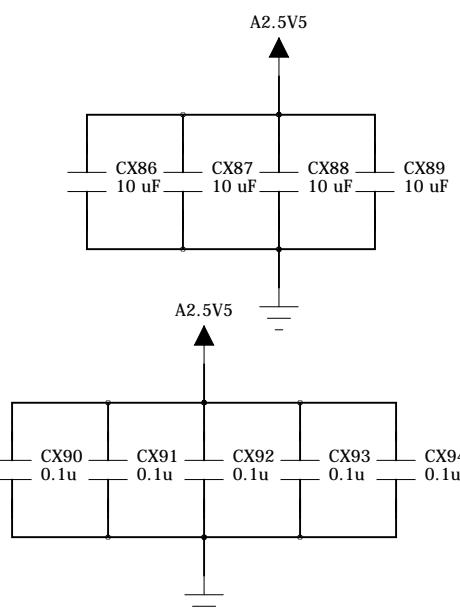
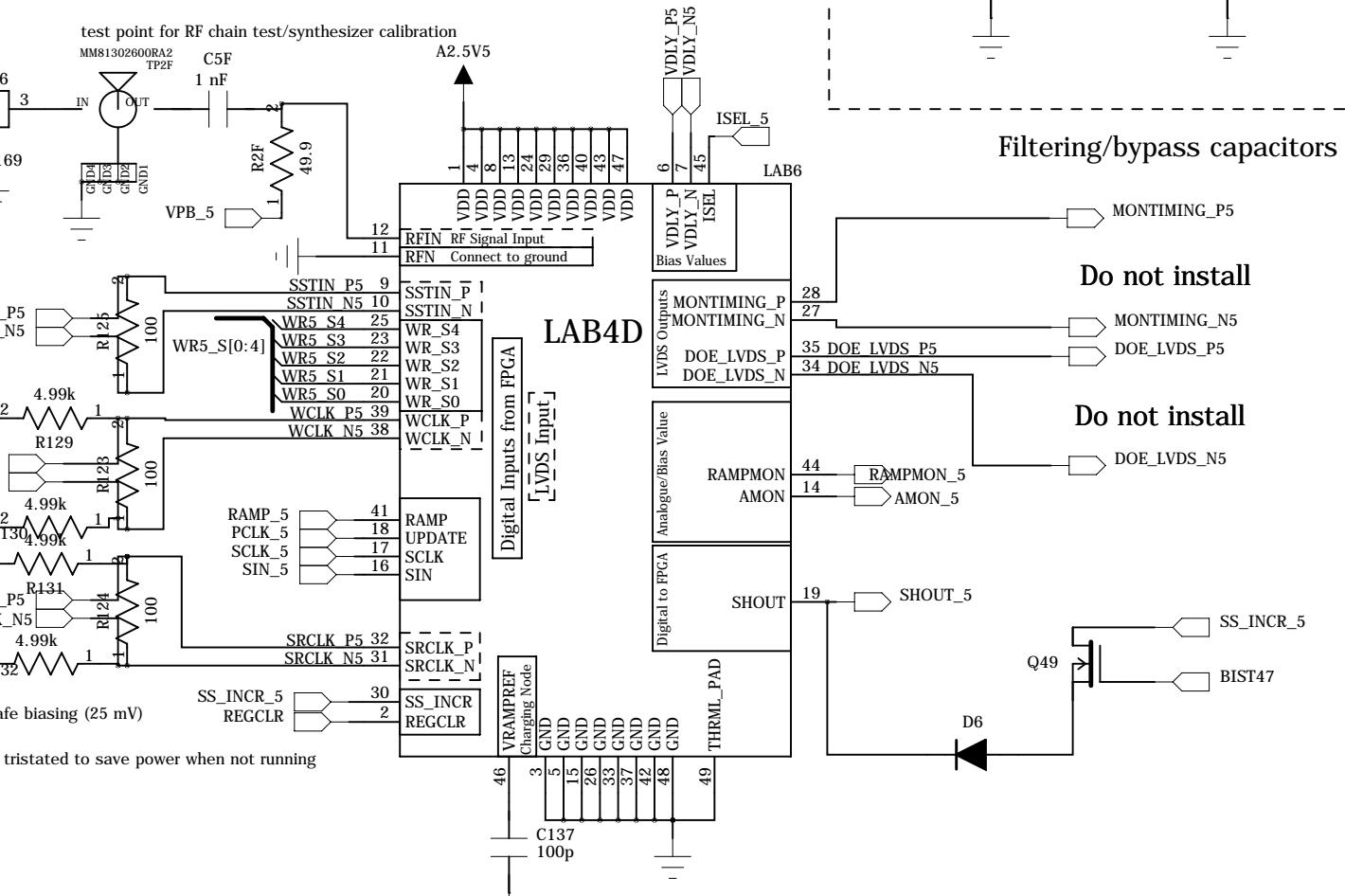
## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors



COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL5		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>	SHEET:	24 74



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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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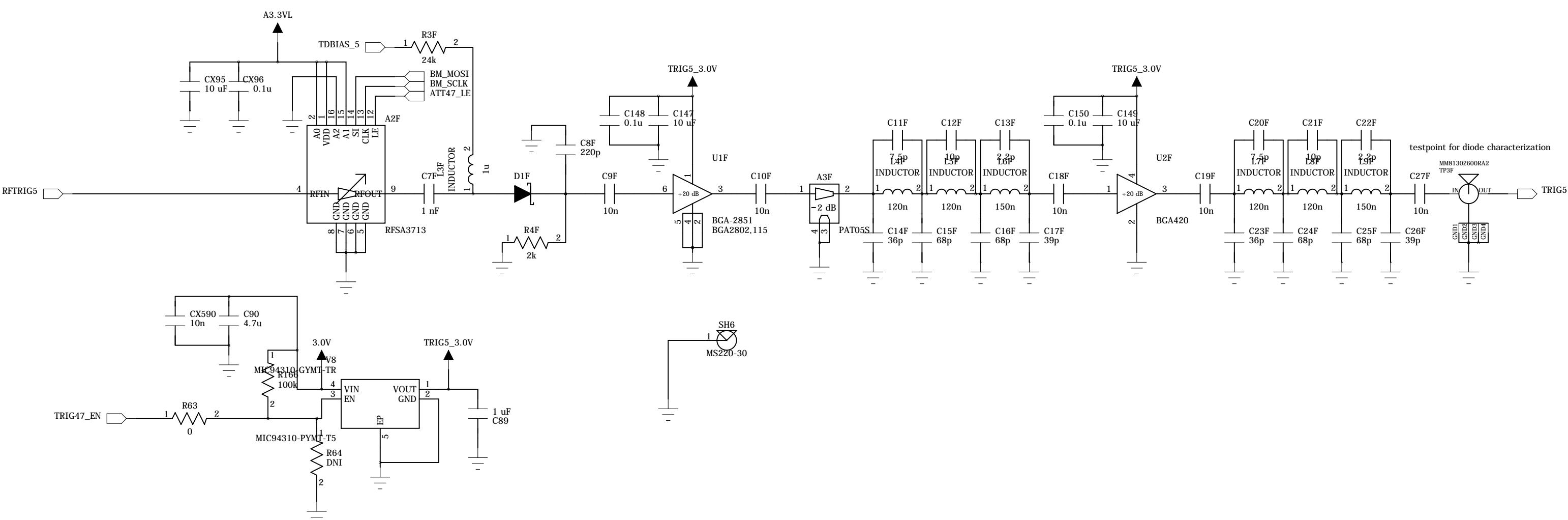
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COMPANY:	Ohio State University		
SHEET:	RF_DIODE5		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		Sheet: 25 74

## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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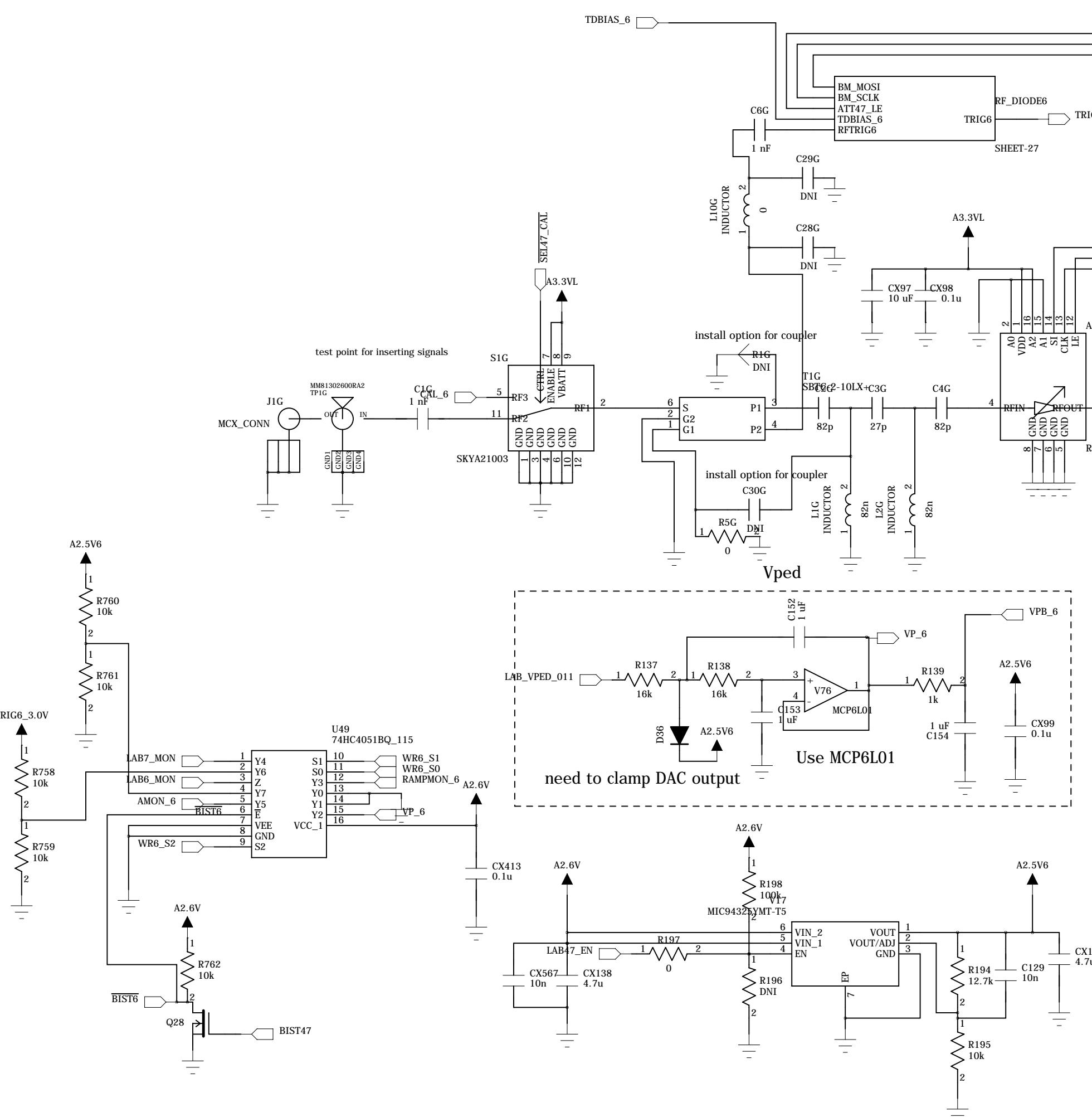
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

COMPANY: Ohio State University

SHEET: RF\_CHANNEL6

CODE: 4 SIZE: C DESIGN: RADIANT REV: 3

SCALE: <Scale> SHEET: 26 74

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## REVISION RECORD

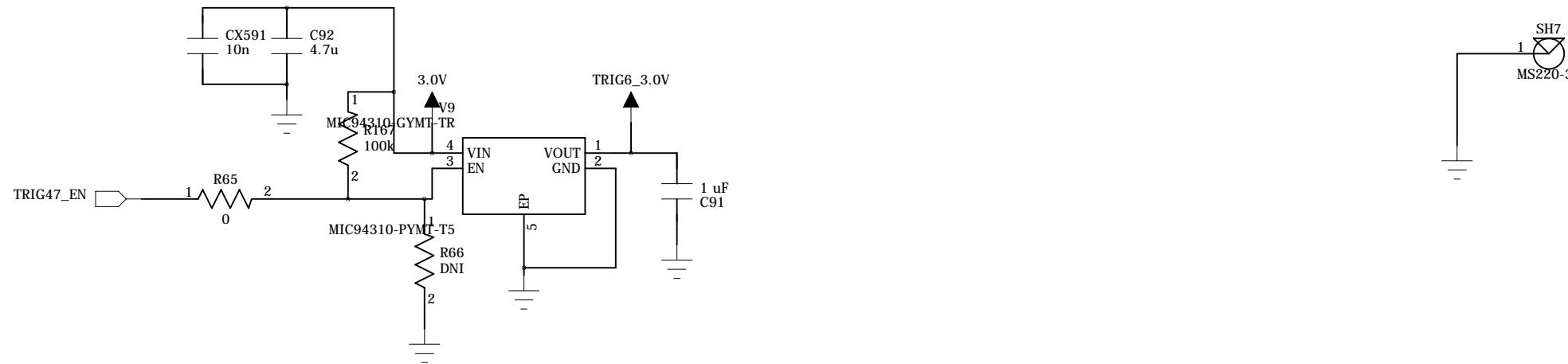
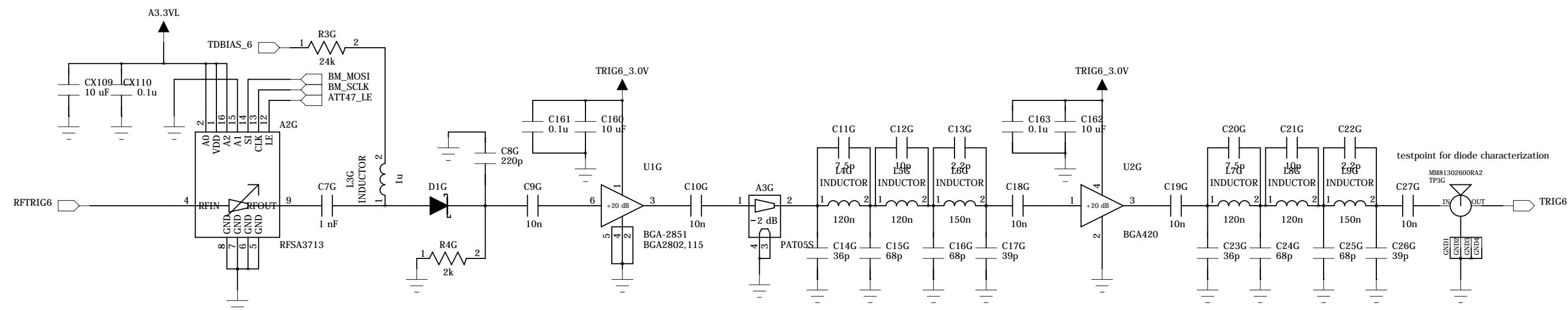
LTR	ECO NO:	APPROVED:	DATE:

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COMPANY:

Ohio State University

SHEET:

RF\_DIODE6

DRAWN:	PSA	DATED: 2/27/23	CODE: <b>4</b>	SIZE: <b>C</b>	DESIGN: <b>RADIANT</b>	REV: <b>3</b>
CHECKED:	PSA	DATED: 3/3/23				
QUALITY CONTROL:	PSA	DATED: 3/15/23				
RELEASED:	N/A	DATED: N/A				

SCALE: &lt;Scale&gt; SHEET: 27 74

## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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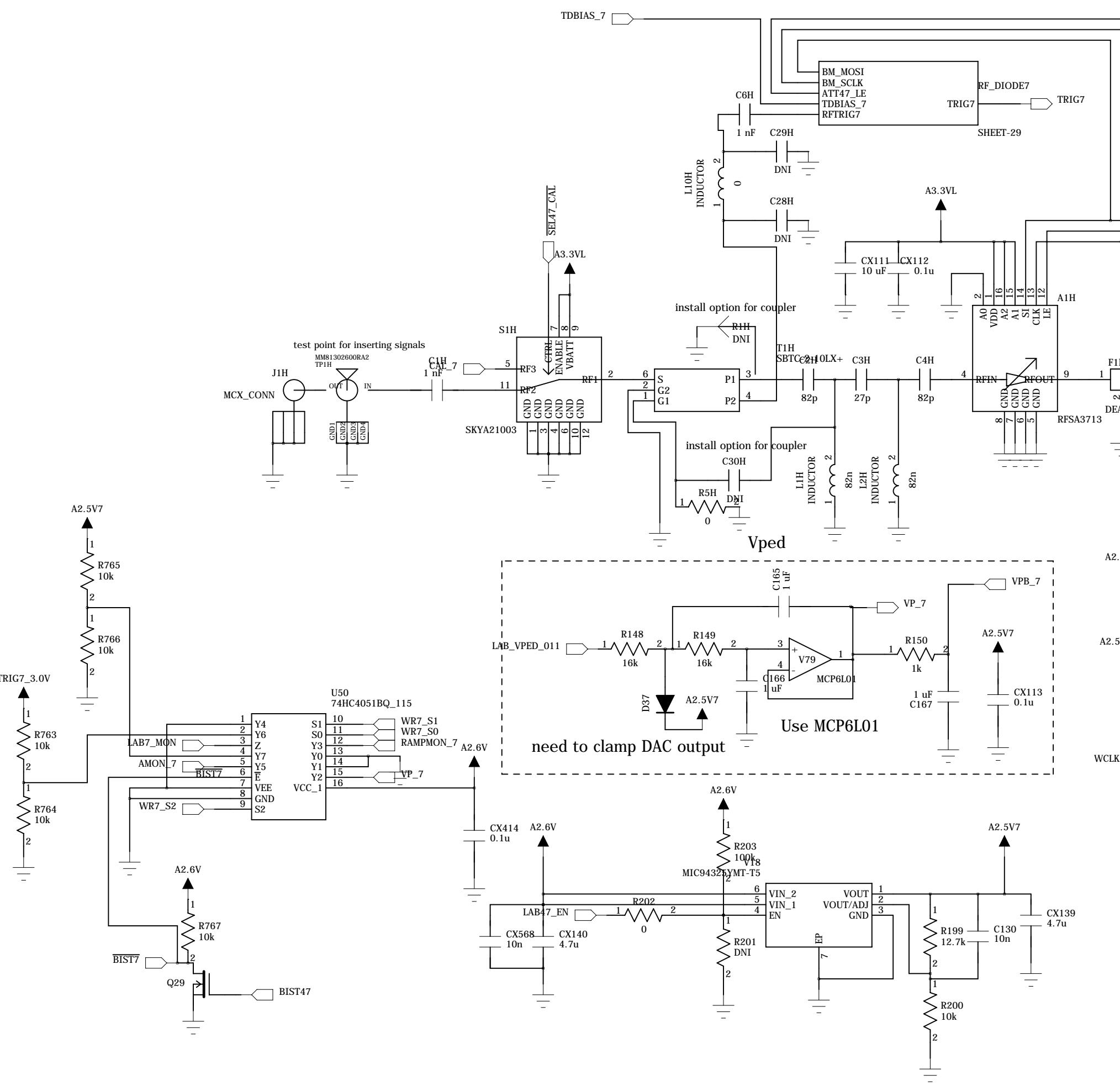
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failsafe biasing (25 mV)

WCLK/SRCLK are tristated to save power when not running

DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

Ohio State University

RF\_CHANNEL7

CODE:	SIZE:	DESIGN	REV:
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SCALE: &lt;Scale&gt; SHEET: 28 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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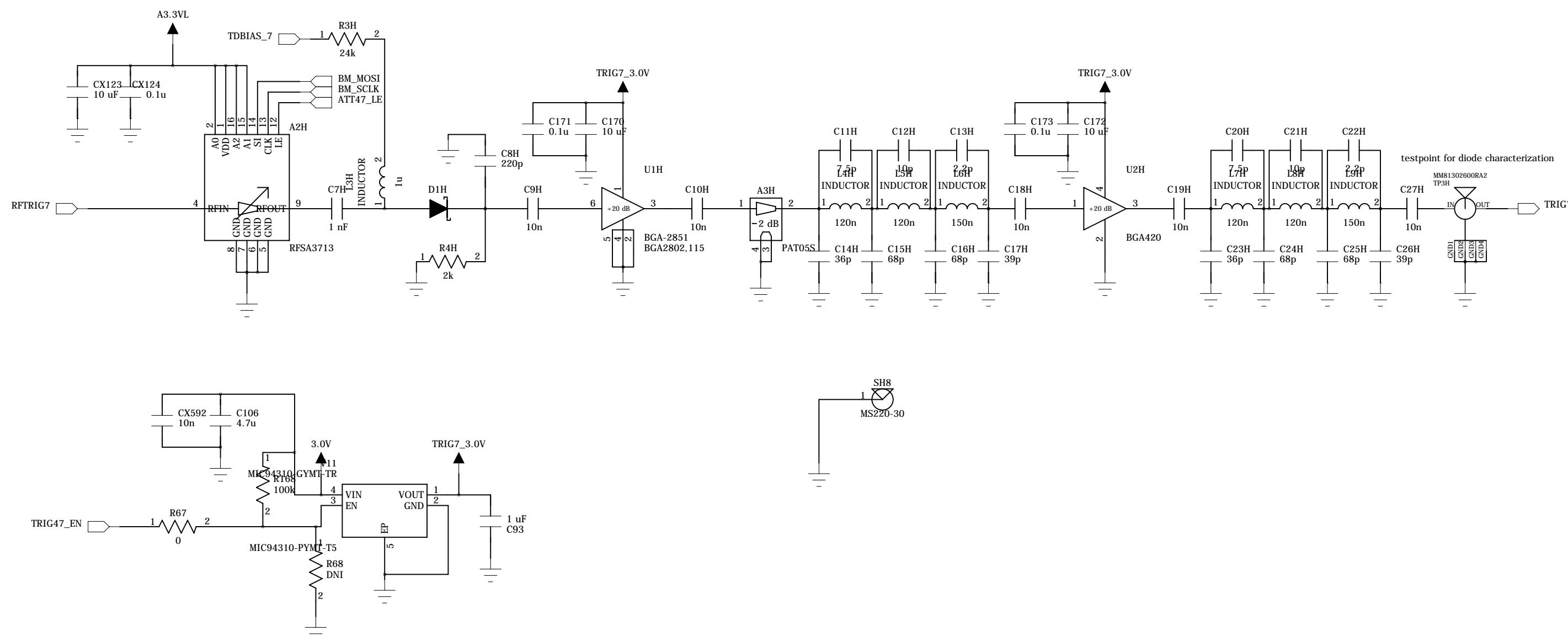
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COMPANY:	Ohio State University		
SHEET:	RF_DIODE7		
DRAWN:	PSA	DATED: 2/27/23	
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
SCALE:	<Scale>		SCALE: <Scale>
	SHEET: 29 74		SCALE: <Scale>
CODE:	4	SIZE: C	DESIGN: RADIANT
REV:	3		

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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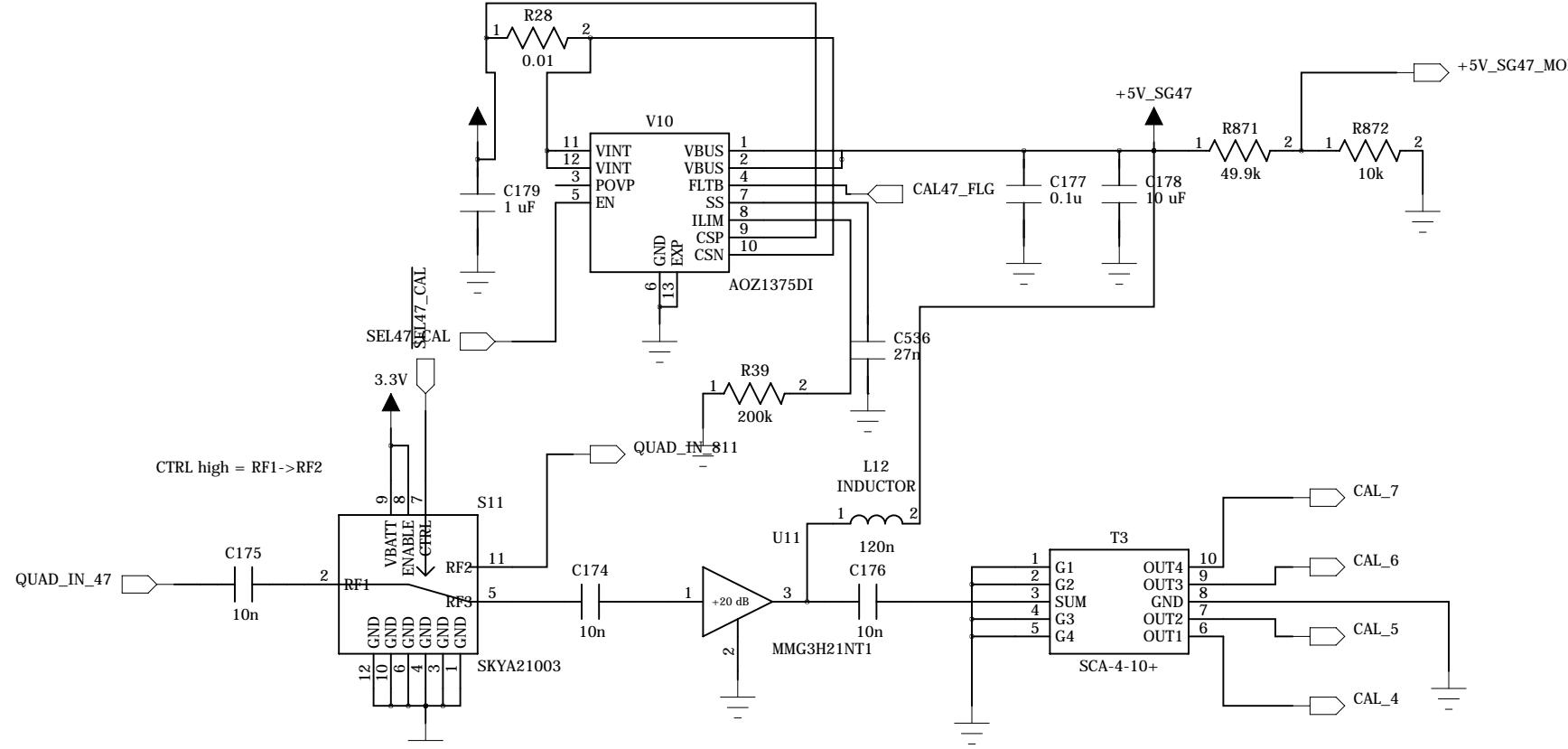
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COMPANY:		Ohio State University	
SHEET:		QUAD_SIG_GENERATOR 1	
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE: <Scale>		SIZE: 30 74	
CODE: 4	SIZE: C	DESIGN: RADIANT	REV: 3

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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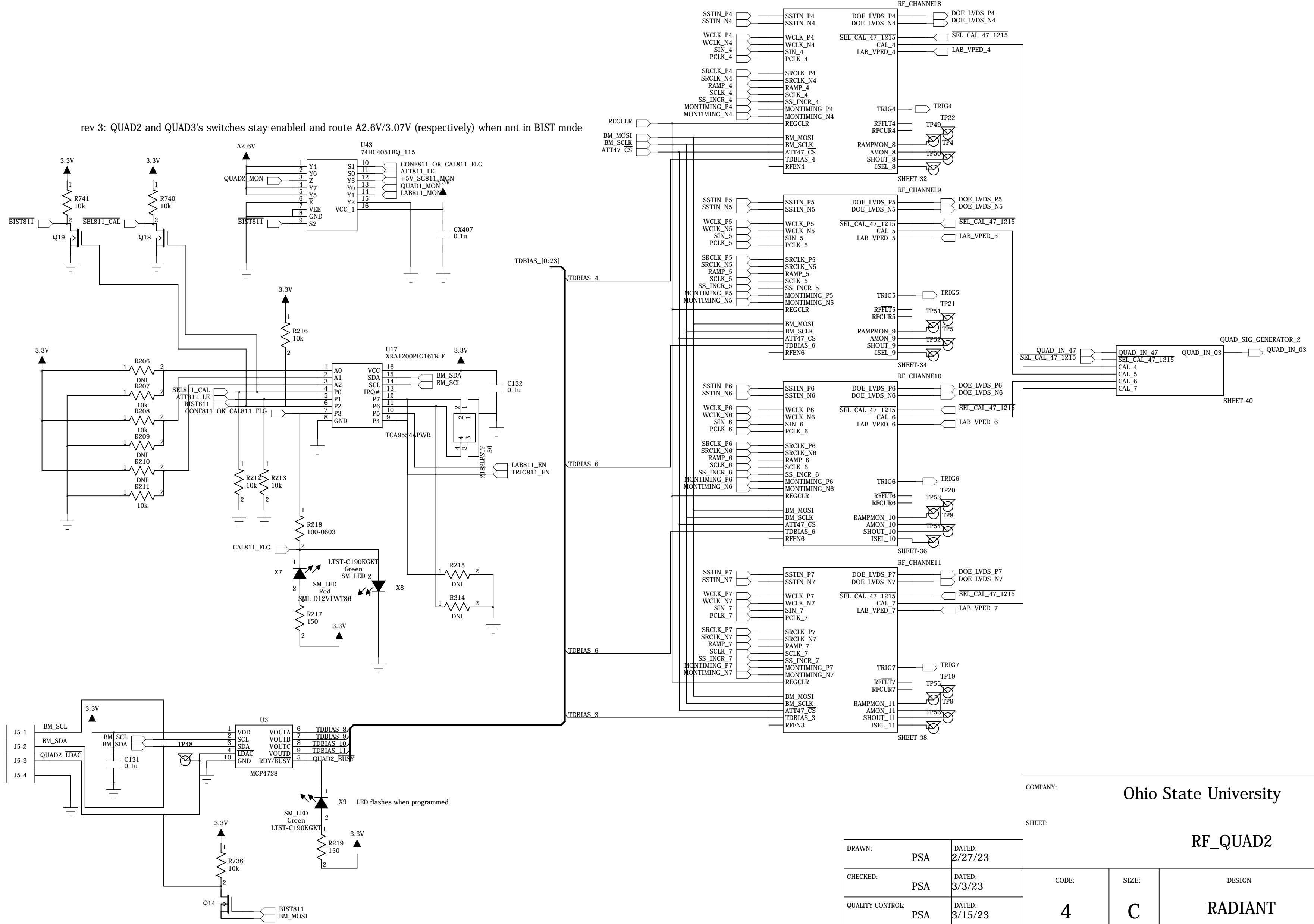
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rev 3: QUAD2 and QUAD3's switches stay enabled and route A2.6V/3.07V (respectively) when not in BIST mode



COMPANY: Ohio State University

RF\_QUAD2

DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

SCALE: &lt;Scale&gt; SHEET: 31 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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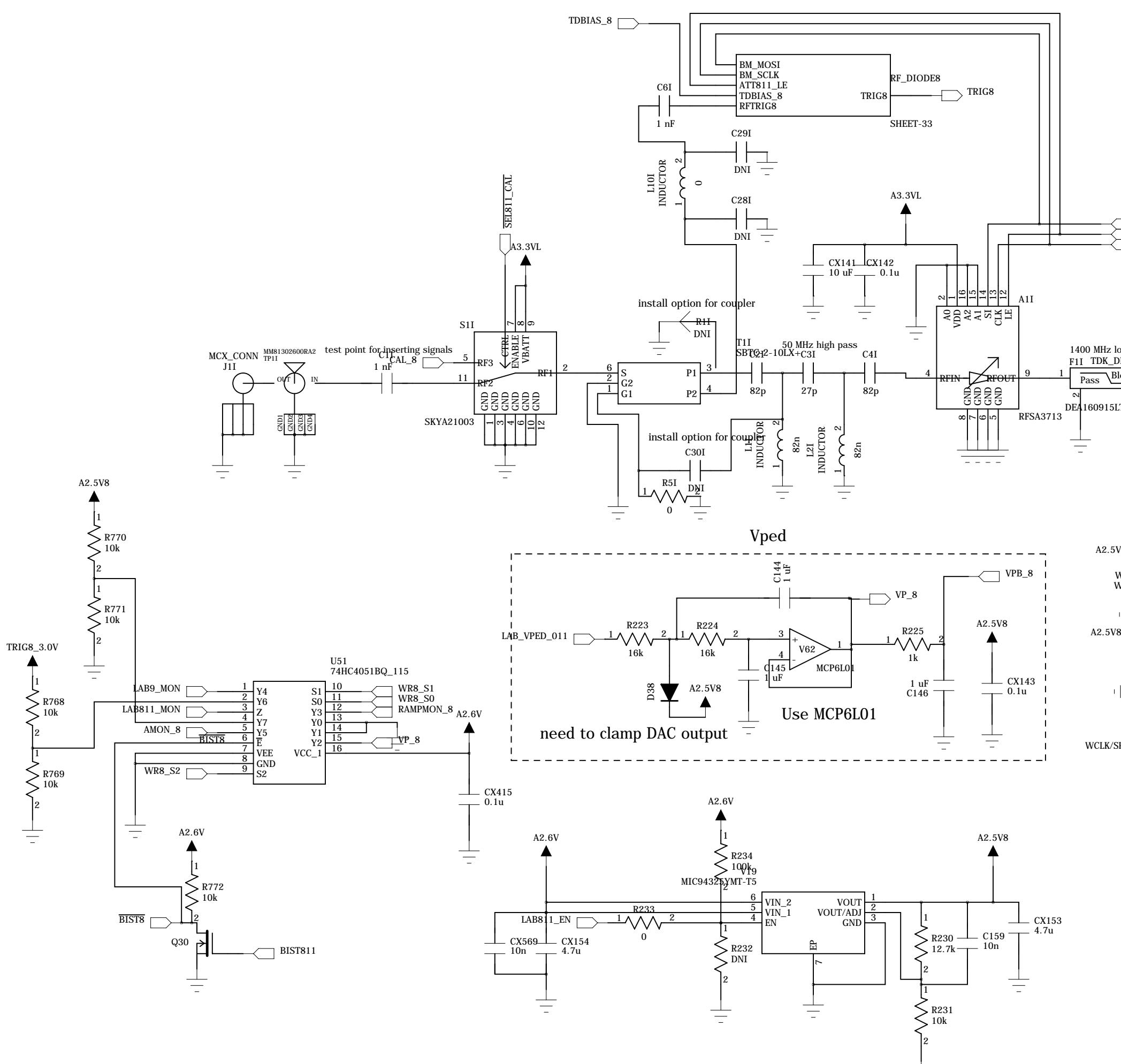
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COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL8		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>	SHEET:	32 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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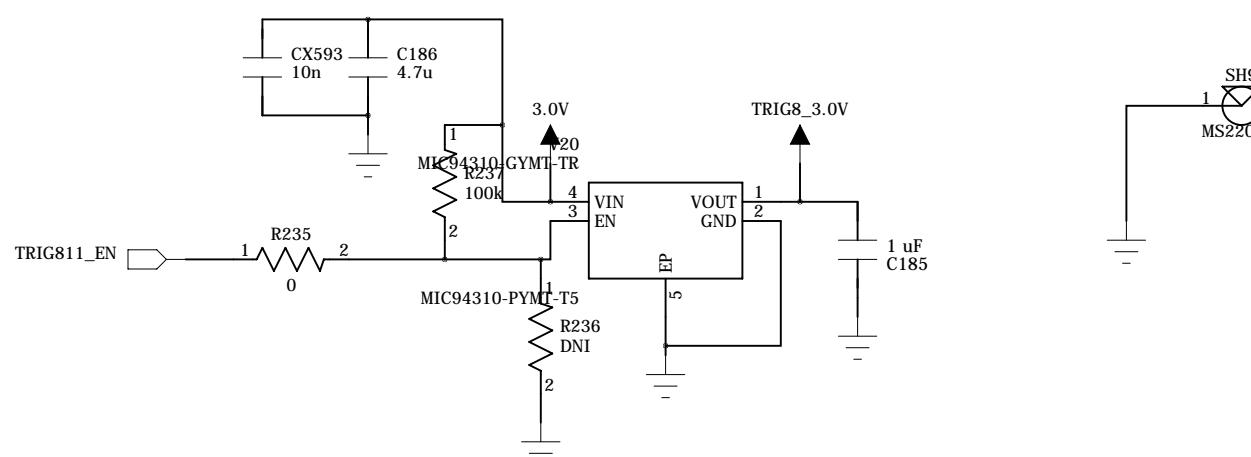
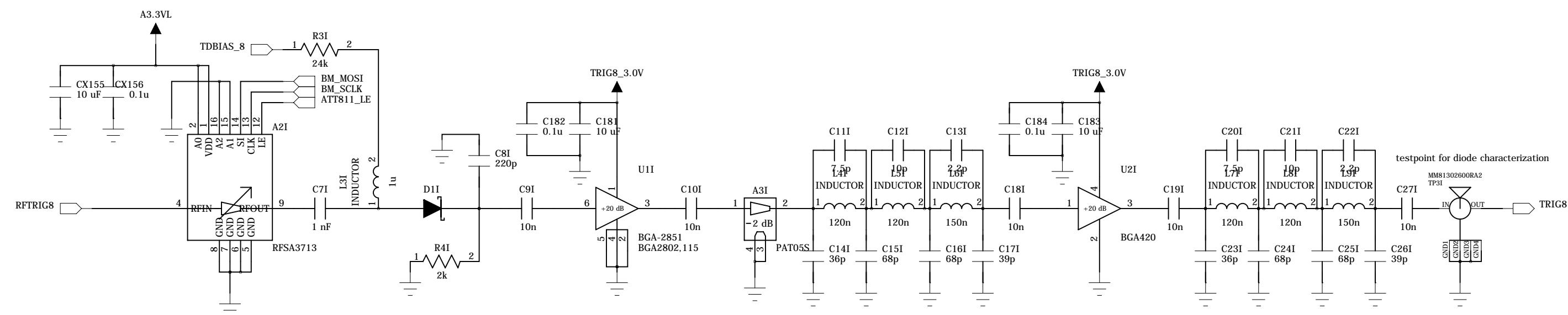
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DRAWN:	PSA	DATED:	2/27/23	CODE: 4	SIZE: C	DESIGN: RADIANT	REV: 3
CHECKED:	PSA	DATED:	3/3/23				
QUALITY CONTROL:	PSA	DATED:	3/15/23				
RELEASED:	N/A	DATED:	N/A				

COMPANY:	Ohio State University		
SHEET:	RF_DIODE8		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>	SHEET:	38 74

## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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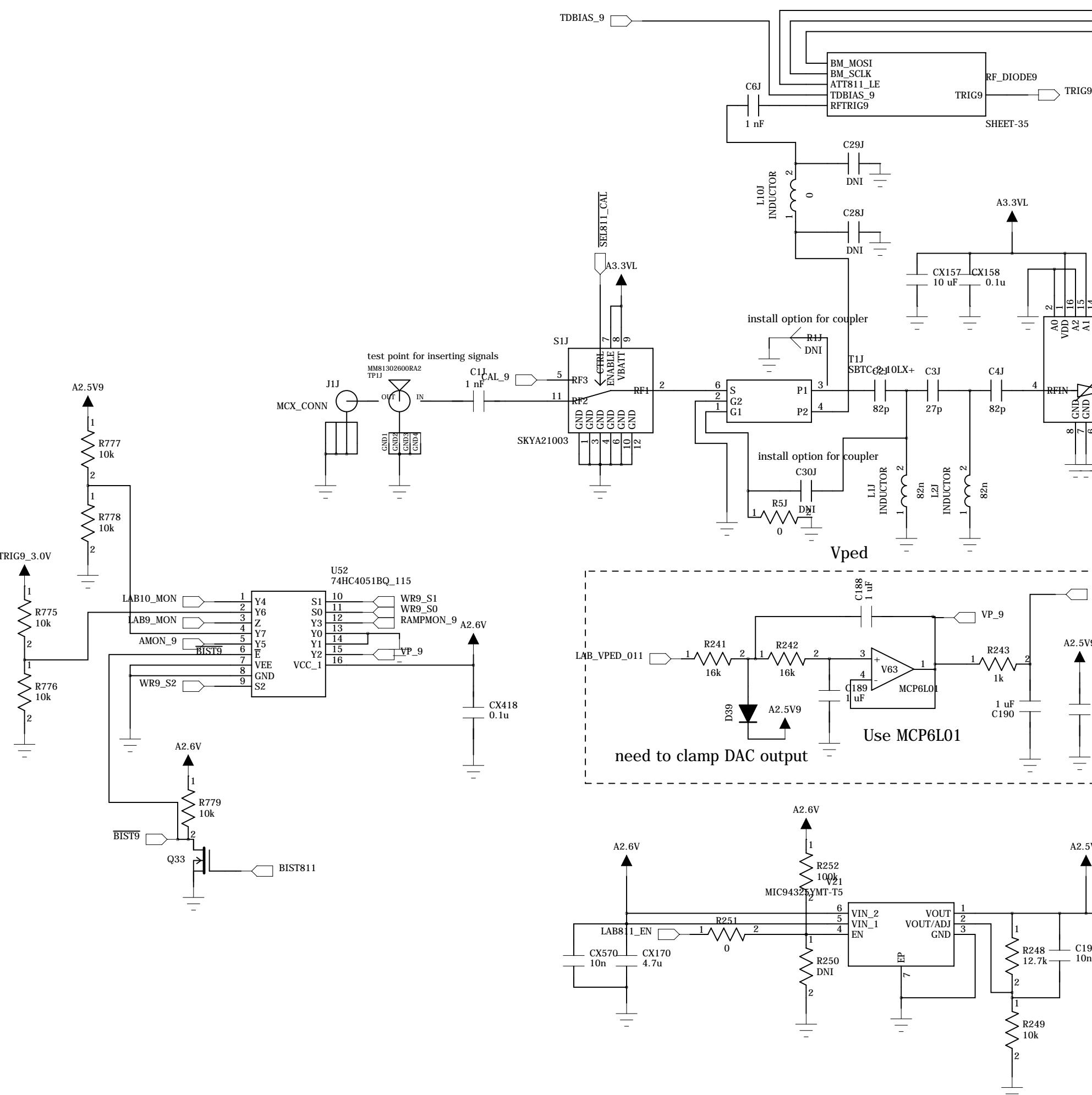
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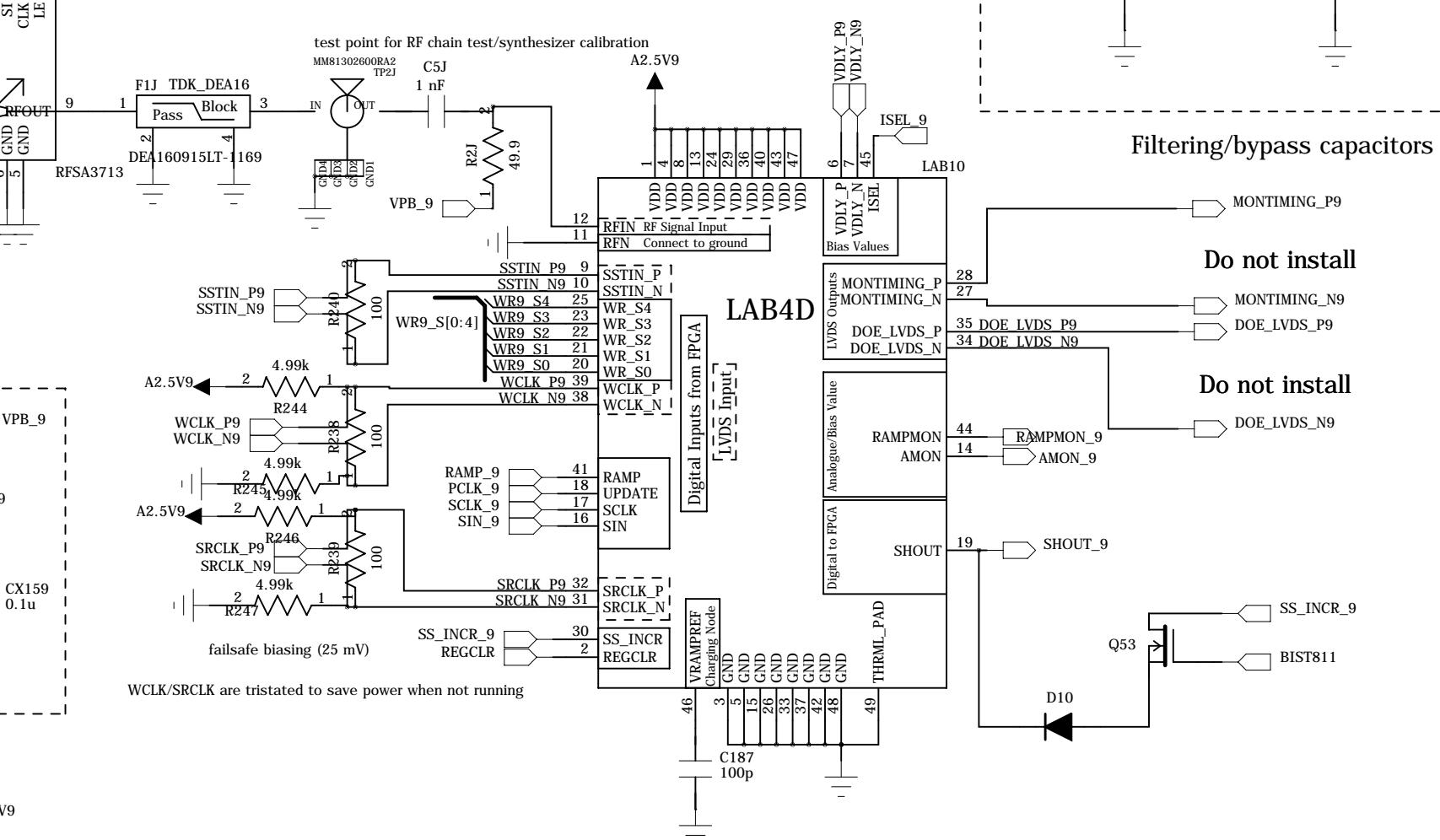
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

COMPANY: Ohio State University  
 SHEET: RF\_CHANNEL9  
 CODE: 4 SIZE: C DESIGN: RADIANT REV: 3  
 SCALE: <Scale> SHEET: 34 74



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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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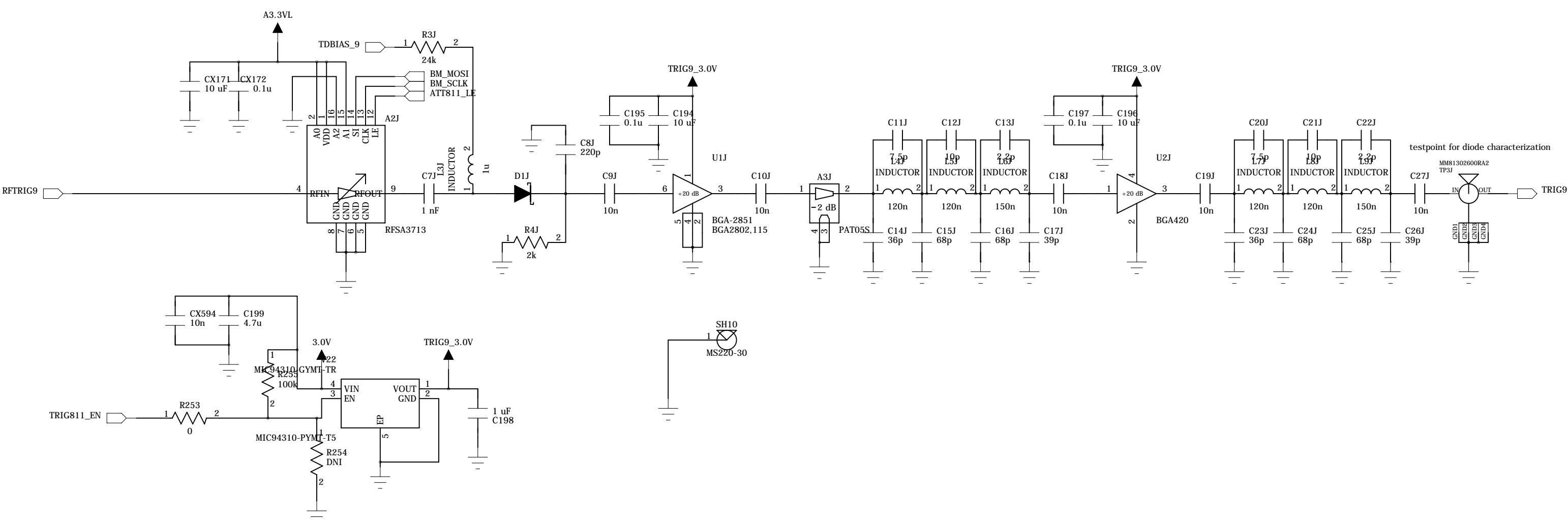
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COMPANY:	Ohio State University		
SHEET:	RF_DIODE9		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
CODE:	4	SIZE:	RADIANT
REV:	3	SCALE: <Scale>	Sheet: 35 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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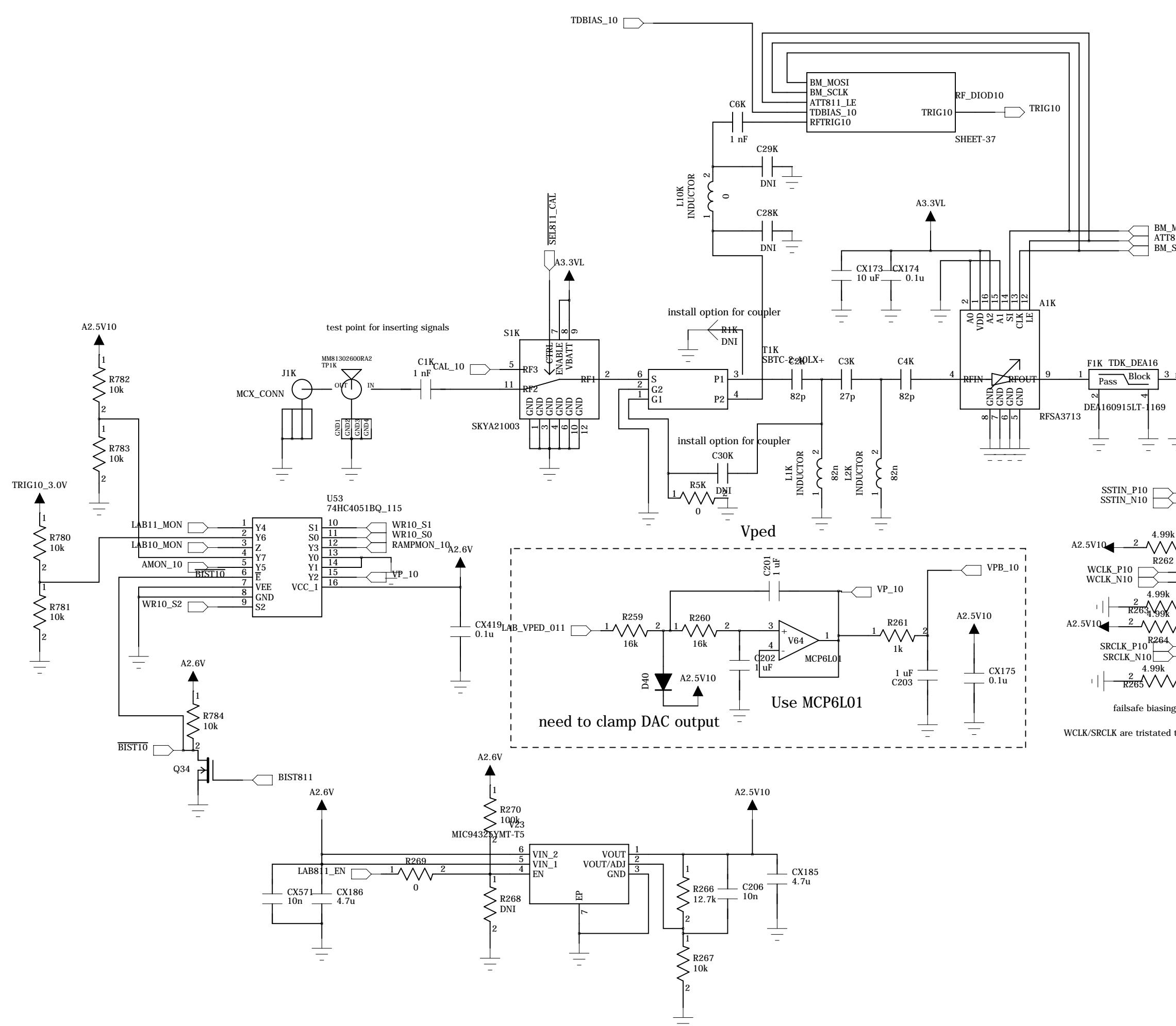
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DRAWN:	PSA	DATED:	2/27/23	CODE: 4 SIZE: C DESIGN: RADIANT REV: 3
CHECKED:	PSA	DATED:	3/3/23	
QUALITY CONTROL:	PSA	DATED:	3/15/23	
RELEASED:	N/A	DATED:	N/A	

COMPANY: Ohio State University  
 SHEET: RF\_CHANNEL10  
 DRAWN: PSA DATED: 2/27/23  
 CHECKED: PSA DATED: 3/3/23  
 QUALITY CONTROL: PSA DATED: 3/15/23  
 RELEASED: N/A DATED: N/A  
 SCALE: <Scale> SHEET: 36 74

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## REVISION RECORD

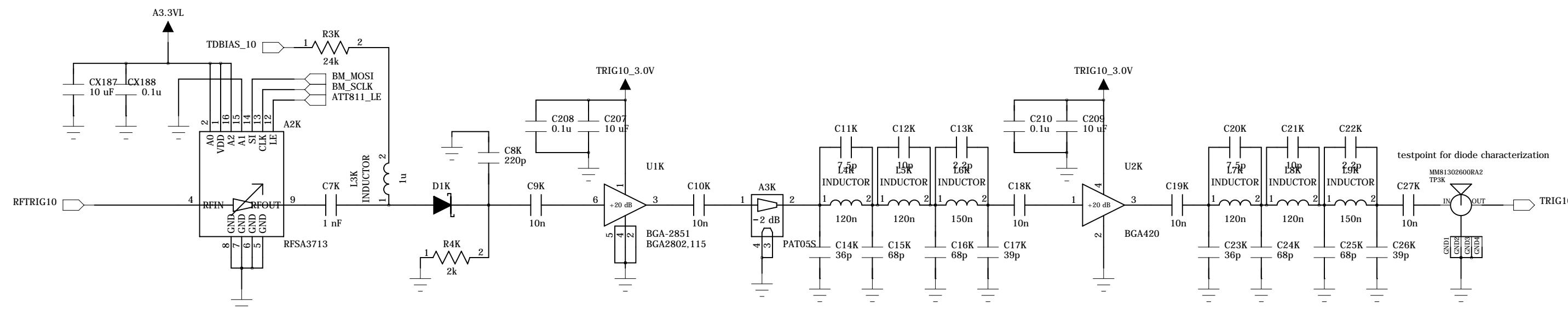
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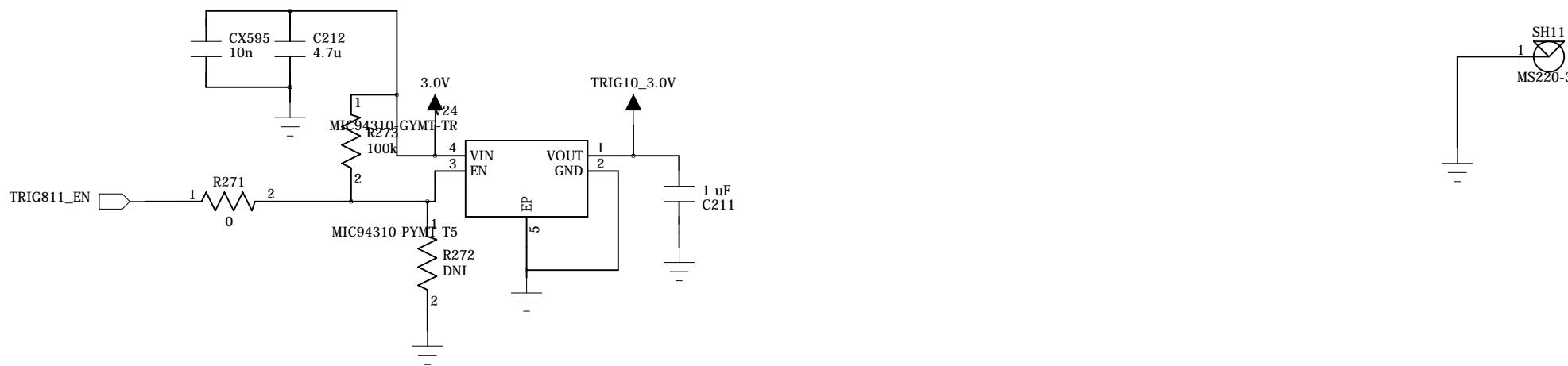
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD10		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		
CODE:	C	SIZE:	DESIGN
			RADIANT
REV:	4	3	
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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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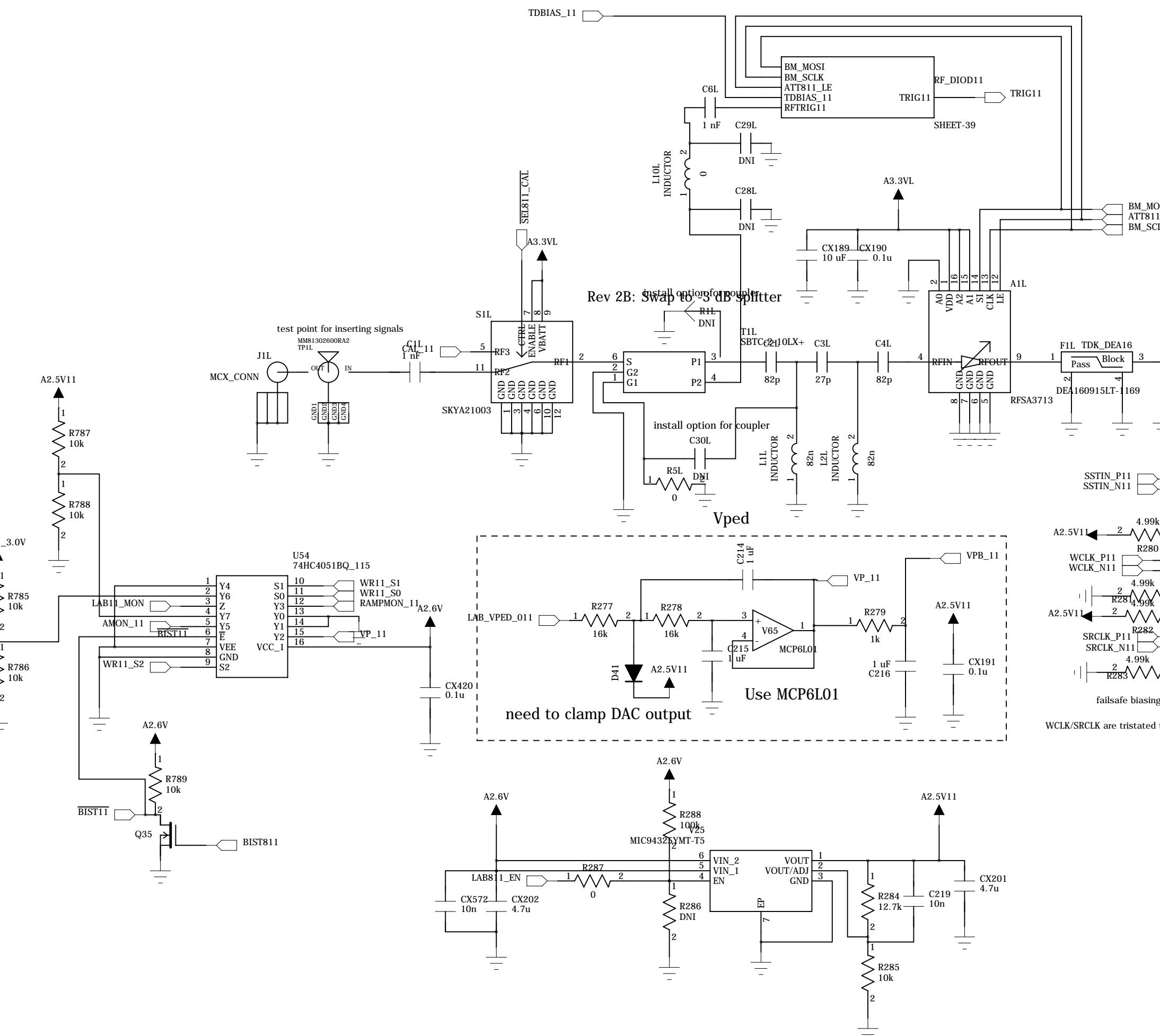
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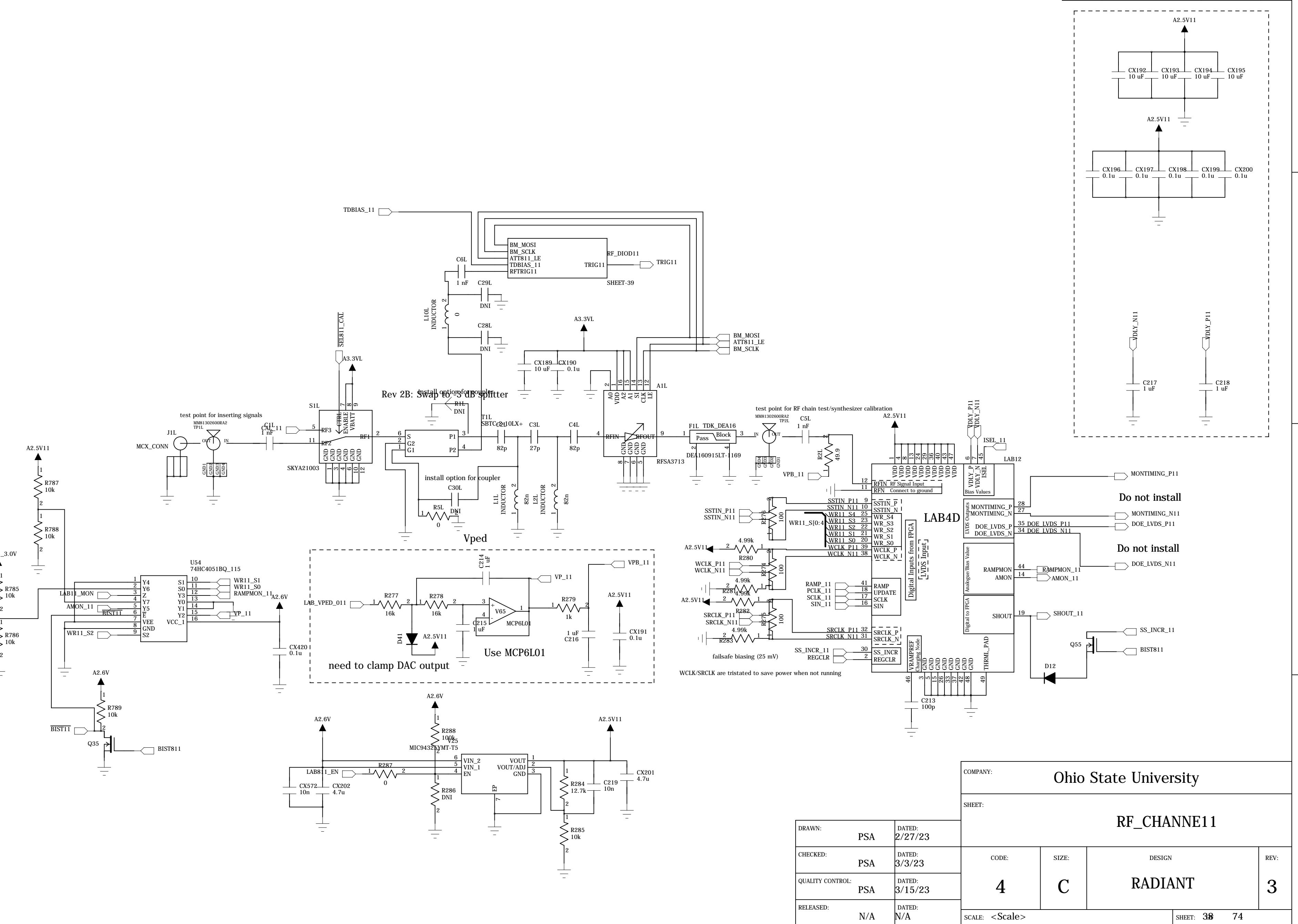
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DRAWN:	PSA	DATED:	2/27/23	CODE: 4 SIZE: C DESIGN: RADIANT REV: 3
CHECKED:	PSA	DATED:	3/3/23	
QUALITY CONTROL:	PSA	DATED:	3/15/23	
RELEASED:	N/A	DATED:	N/A	



Ohio State University

RF\_CHANNEL11

SHEET: 38 74

COMPANY:

SHEET:

RF\_CHANNEL11

SHEET: 38 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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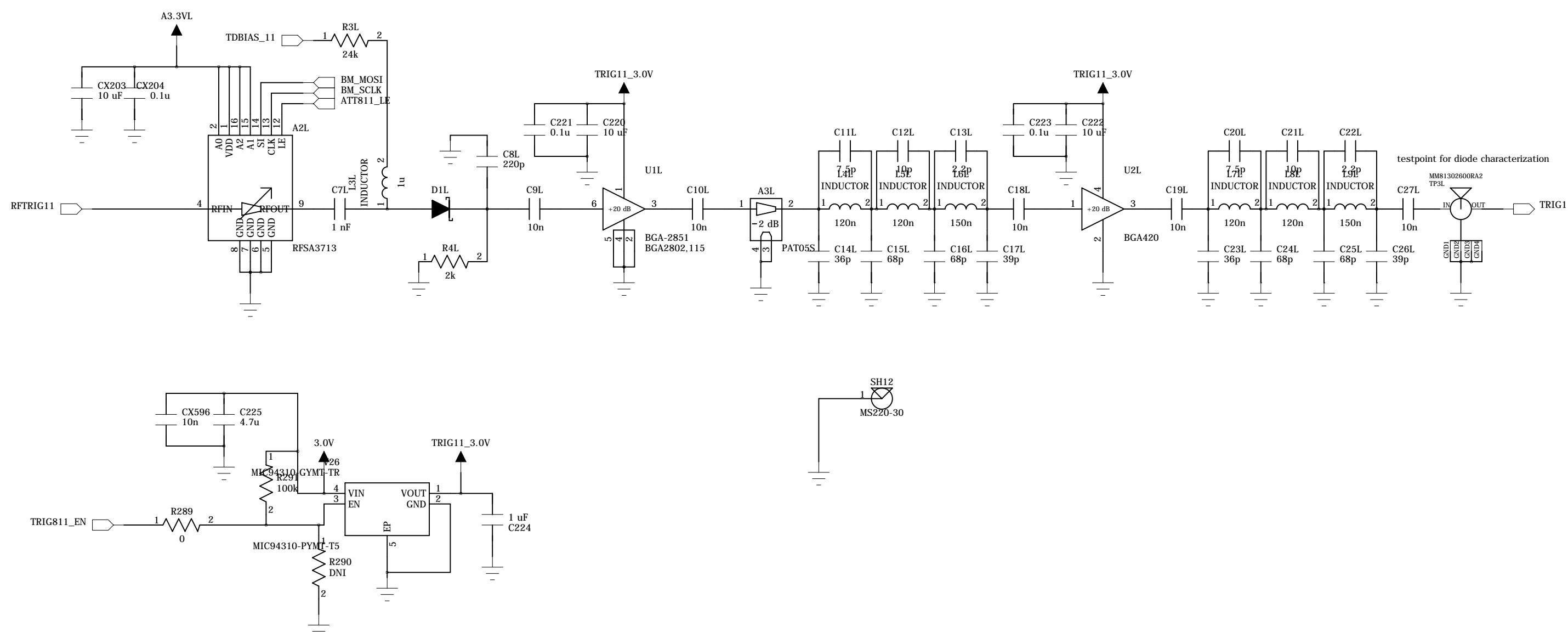
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD11		
DRAWN:	PSA	DATED: 2/27/23	
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
CODE:	C	SIZE:	DESIGN RADIANT
REV:	3		
SCALE:	<Scale>		
HEET:	39	74	

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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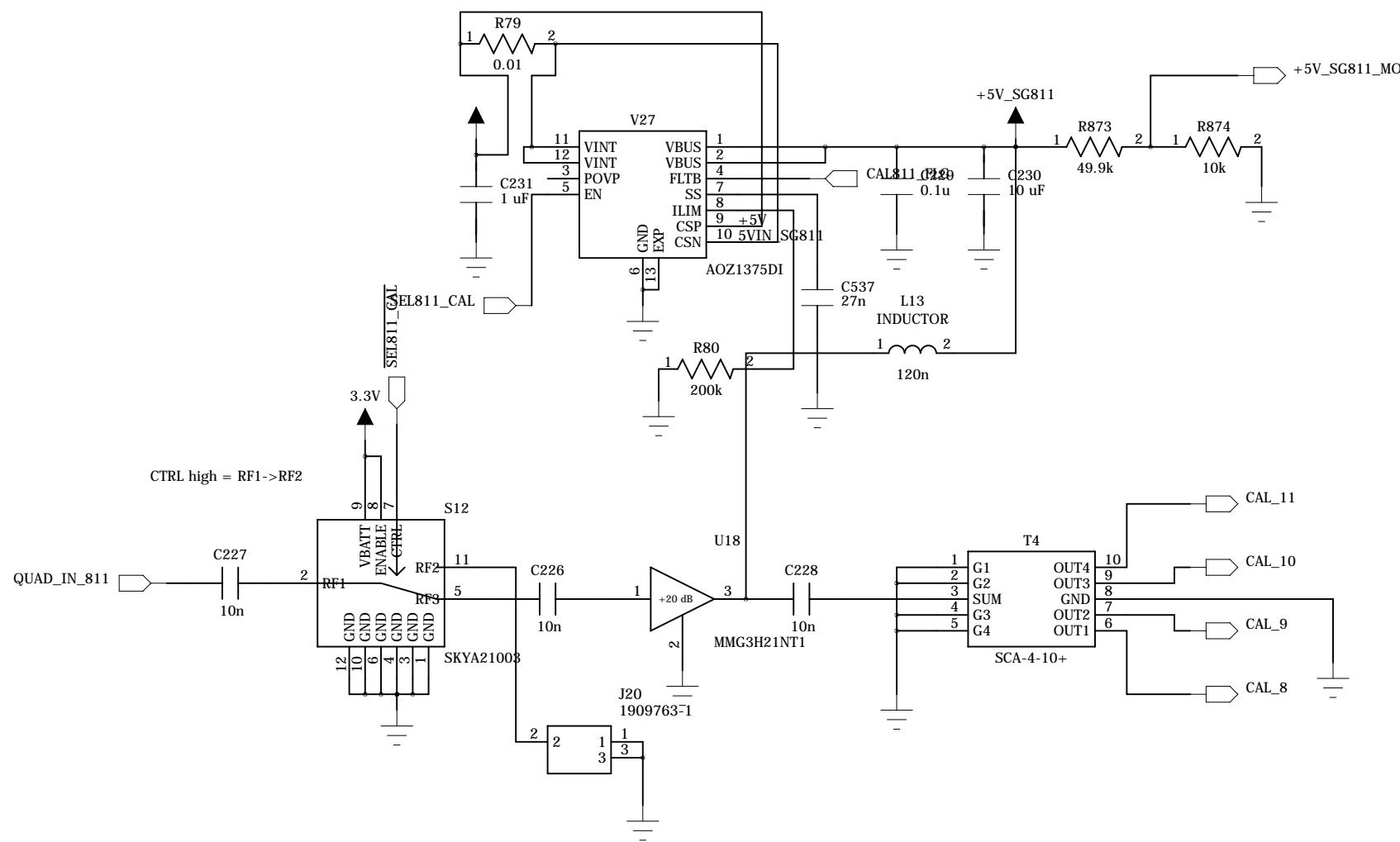
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COMPANY:	Ohio State University		
SHEET:	QUAD_SIG_GENERATOR_2		
DRAWN:	PSA	DATED: 2/27/23	CODE: 4 SIZE: C DESIGN: RADIANT REV: 3
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
SCALE: <Scale>	SCALE: <Scale> SHEET: 40 74		

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there's stuff here, it's just off-sheet cuz it's too big

COMPANY:	Ohio State University				
SHEET:	AUXCPLDS				
DRAWN:	PSA	DATED: 2/27/23	CODE: <b>4</b>		
CHECKED:	PSA	DATED: 3/3/23		SIZE: <b>C</b>	
QUALITY CONTROL:	PSA	DATED: 3/15/23			DESIGN: <b>RADIANT</b>
RELEASED:	N/A	DATED: N/A			
REV: <b>3</b>			SCALE: <Scale>		
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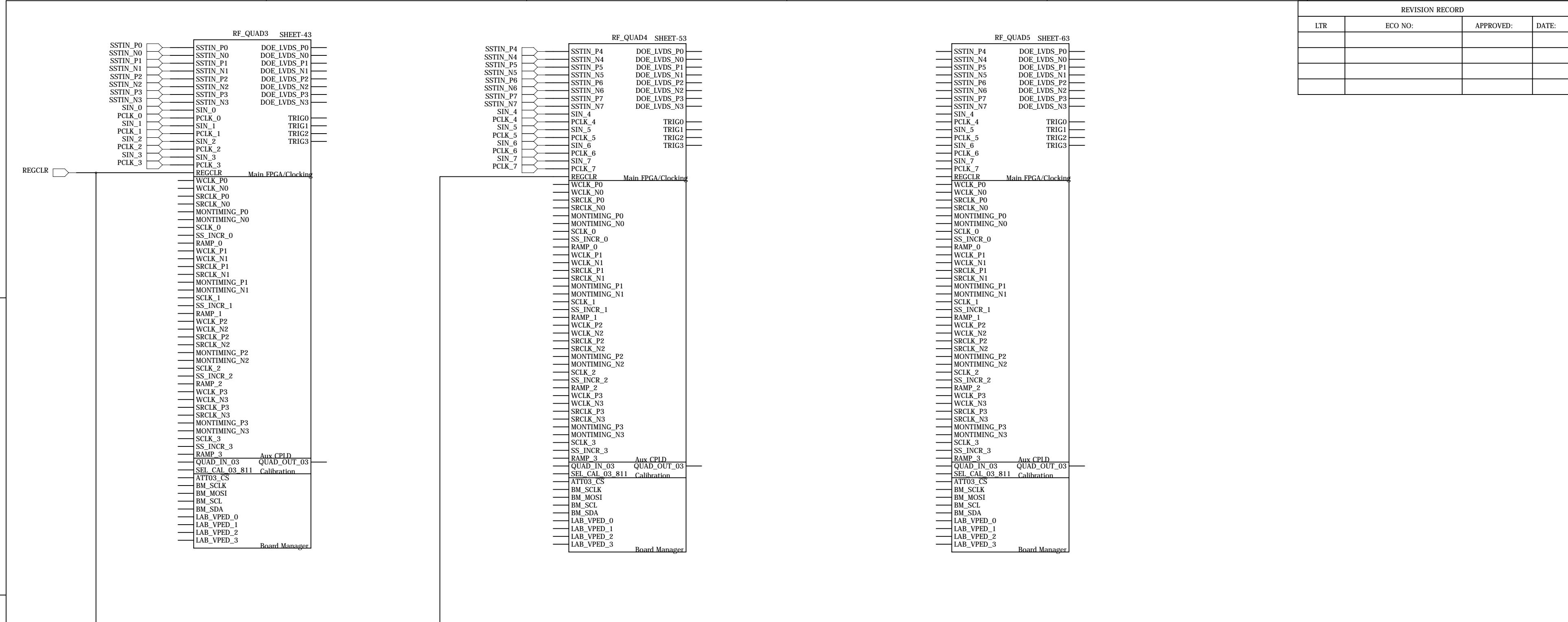
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COMPANY:		Ohio State University		
SHEET:		RF_LEFT0		
DRAWN:	PSA	DATED:	2/27/23	
CHECKED:	PSA	DATED:	3/3/23	
QUALITY CONTROL:	PSA	DATED:	3/15/23	
RELEASED:	N/A	DATED:	N/A	
SCALE: <Scale>			SHEET: 42 74	
CODE:	SIZE:	DESIGN		REV:
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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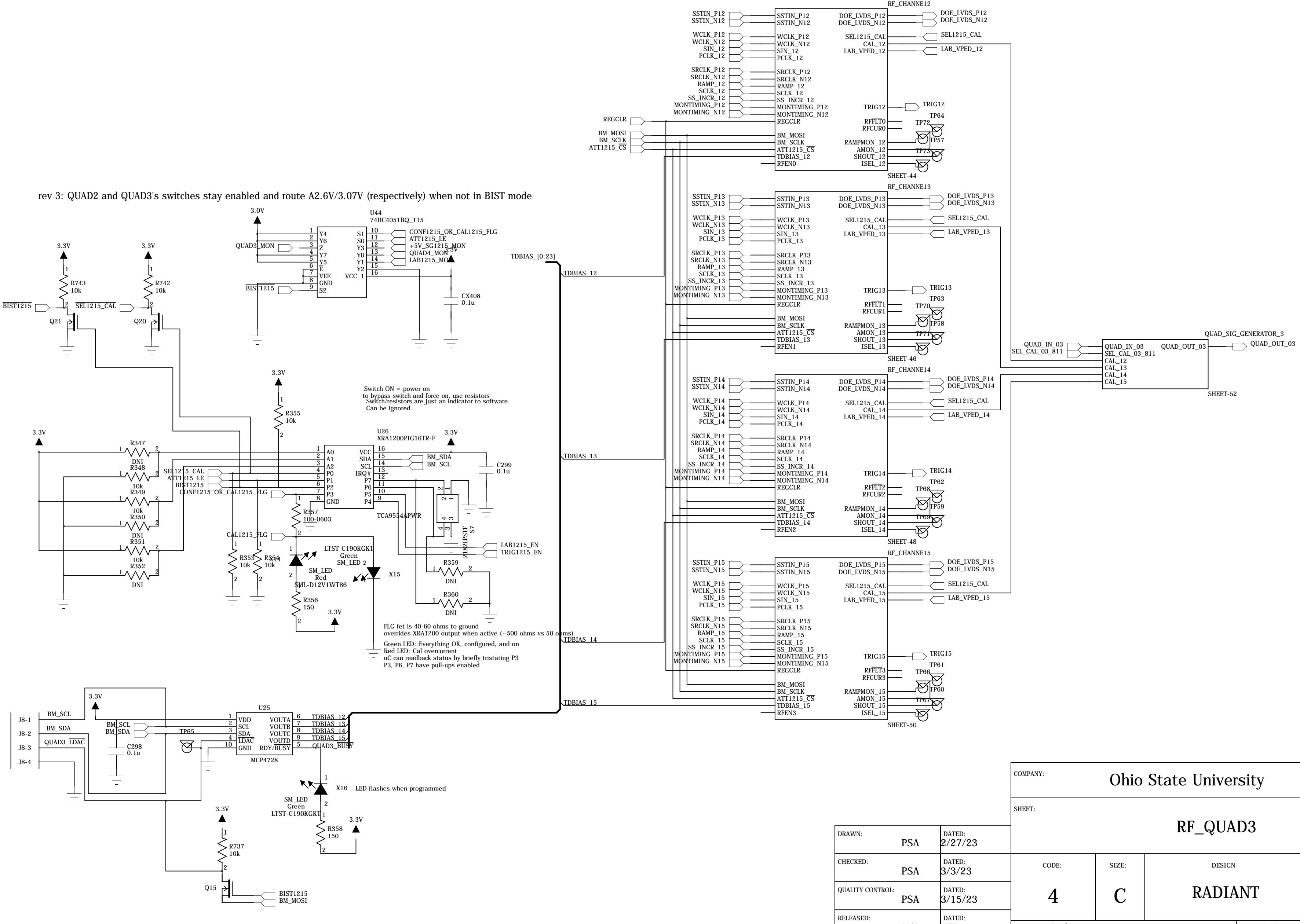
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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:
	Filtering/bypass capacitors		

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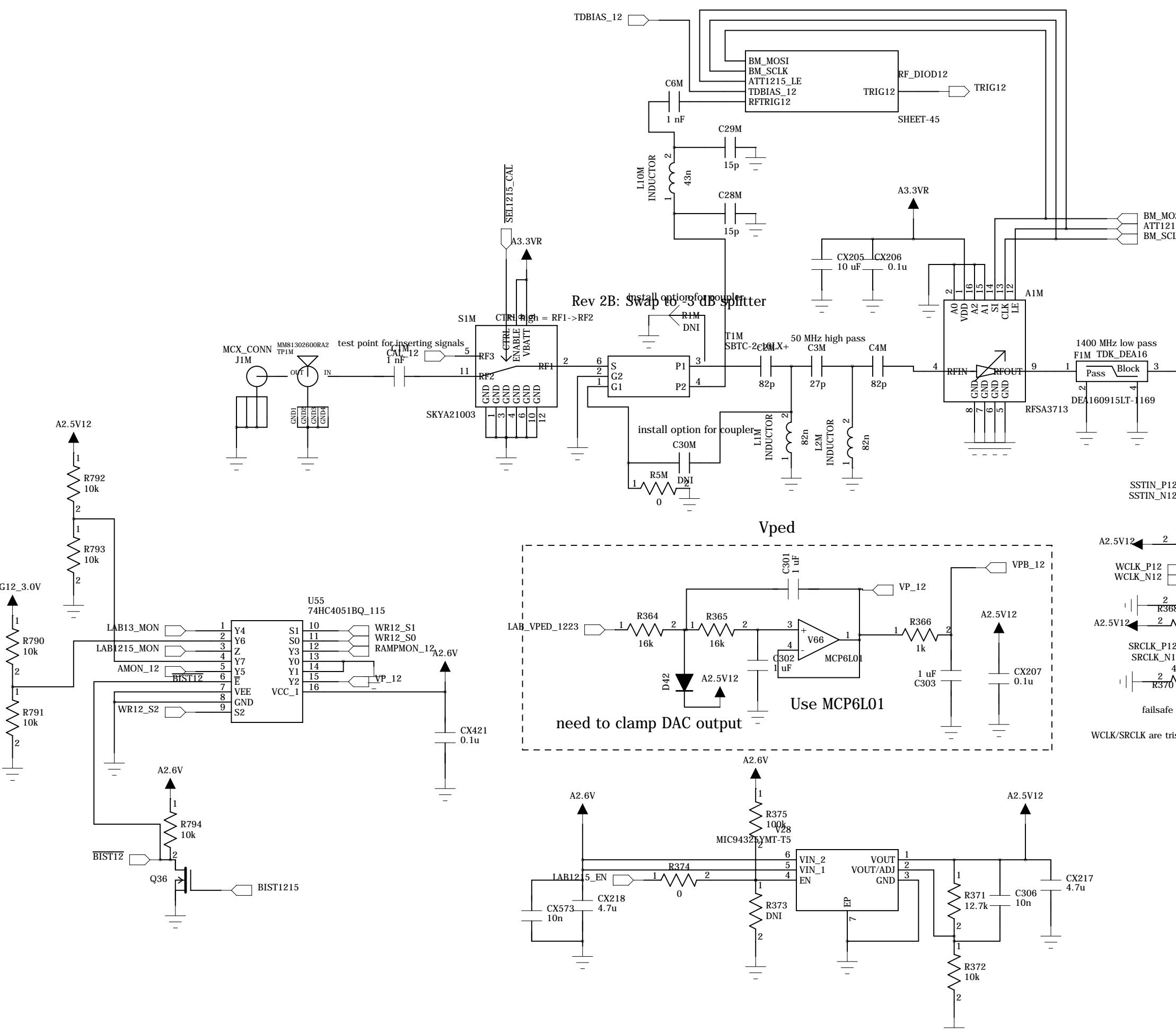
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

CODE: 4 SIZE: C DESIGN: RADIANT REV: 3

COMPANY: Ohio State University

SHEET: RF\_CHANNEL12

SCALE: <Scale> SHEET: 44 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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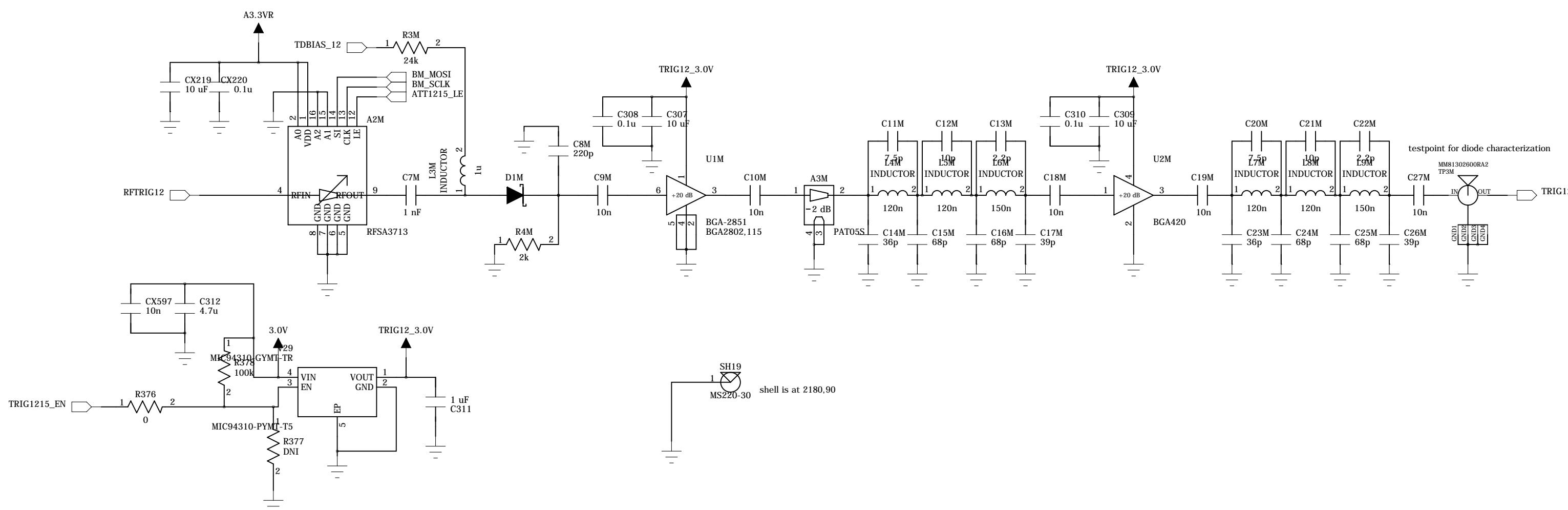
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COMPANY:

Ohio State University

SHEET:

RF\_DIOD12

DRAWN:	PSA	DATED: 2/27/23	CODE: <b>4</b>	SIZE: <b>C</b>	DESIGN: <b>RADIANT</b>	REV: <b>3</b>
CHECKED:	PSA	DATED: 3/3/23				
QUALITY CONTROL:	PSA	DATED: 3/15/23				
RELEASED:	N/A	DATED: N/A				

SCALE: &lt;Scale&gt; SHEET: 45 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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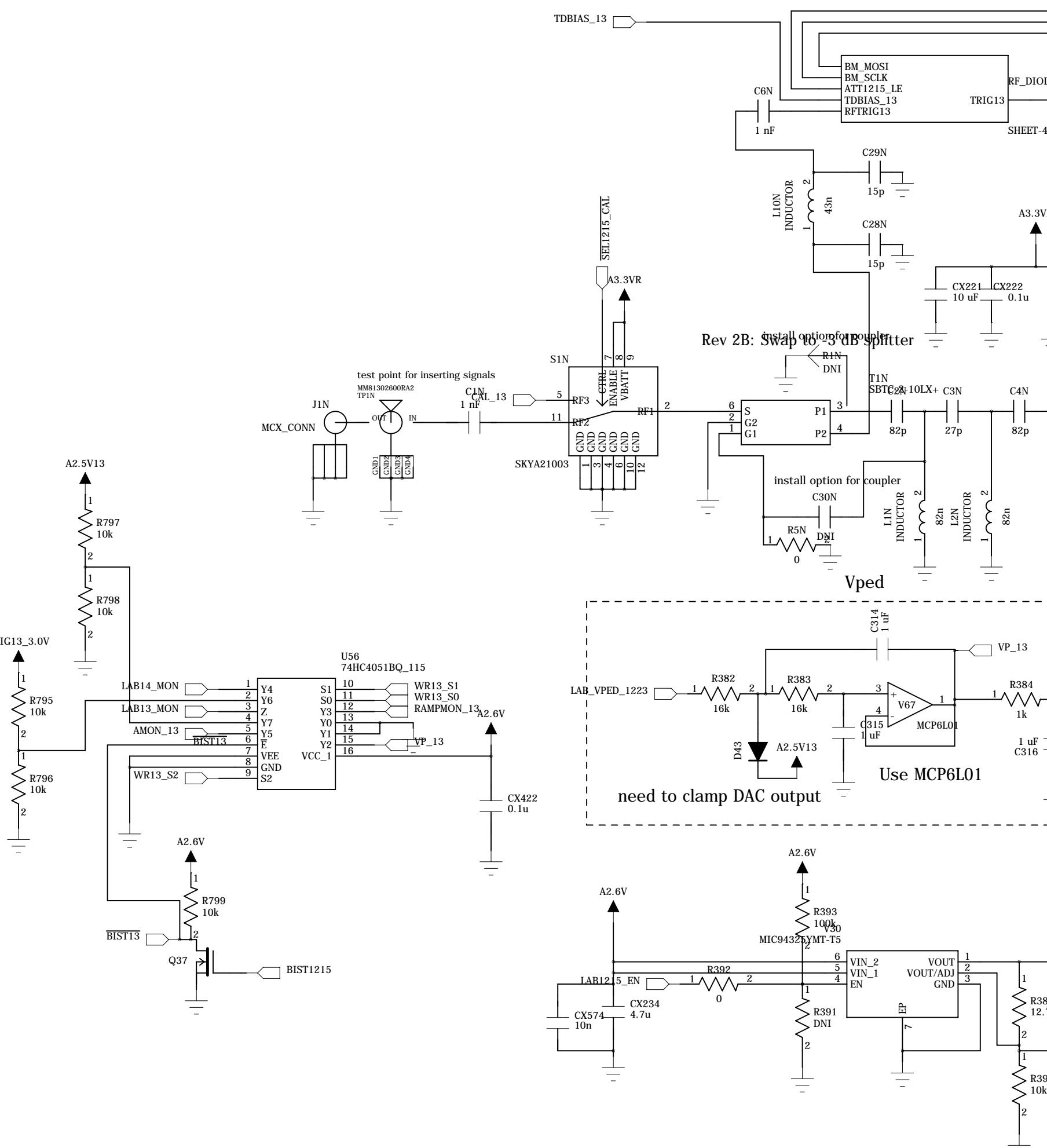
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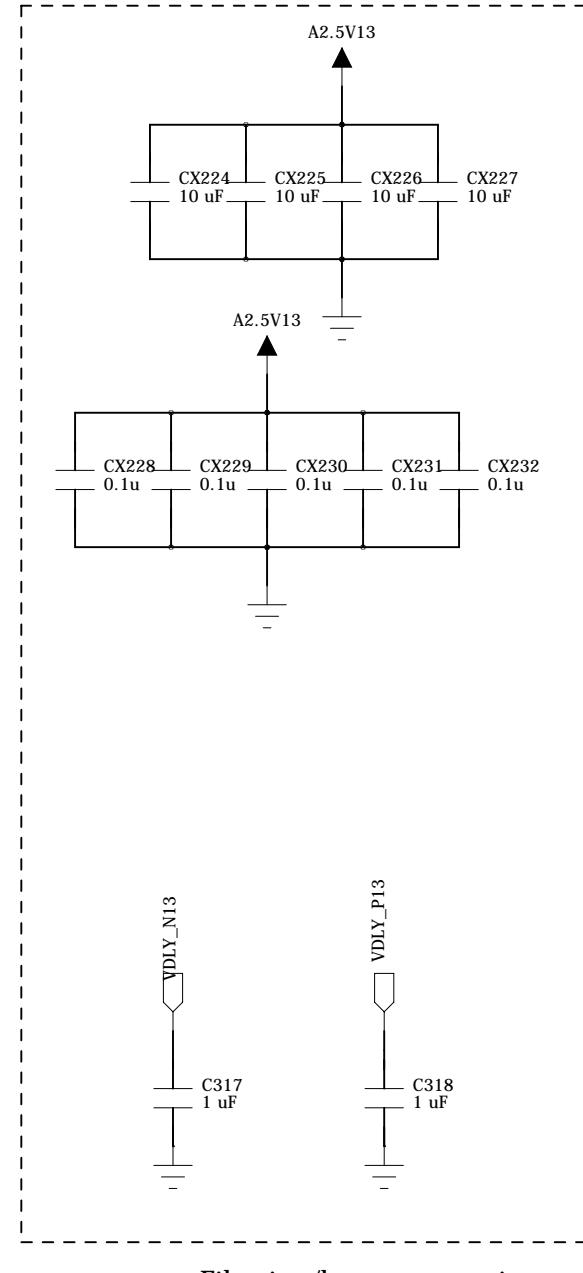
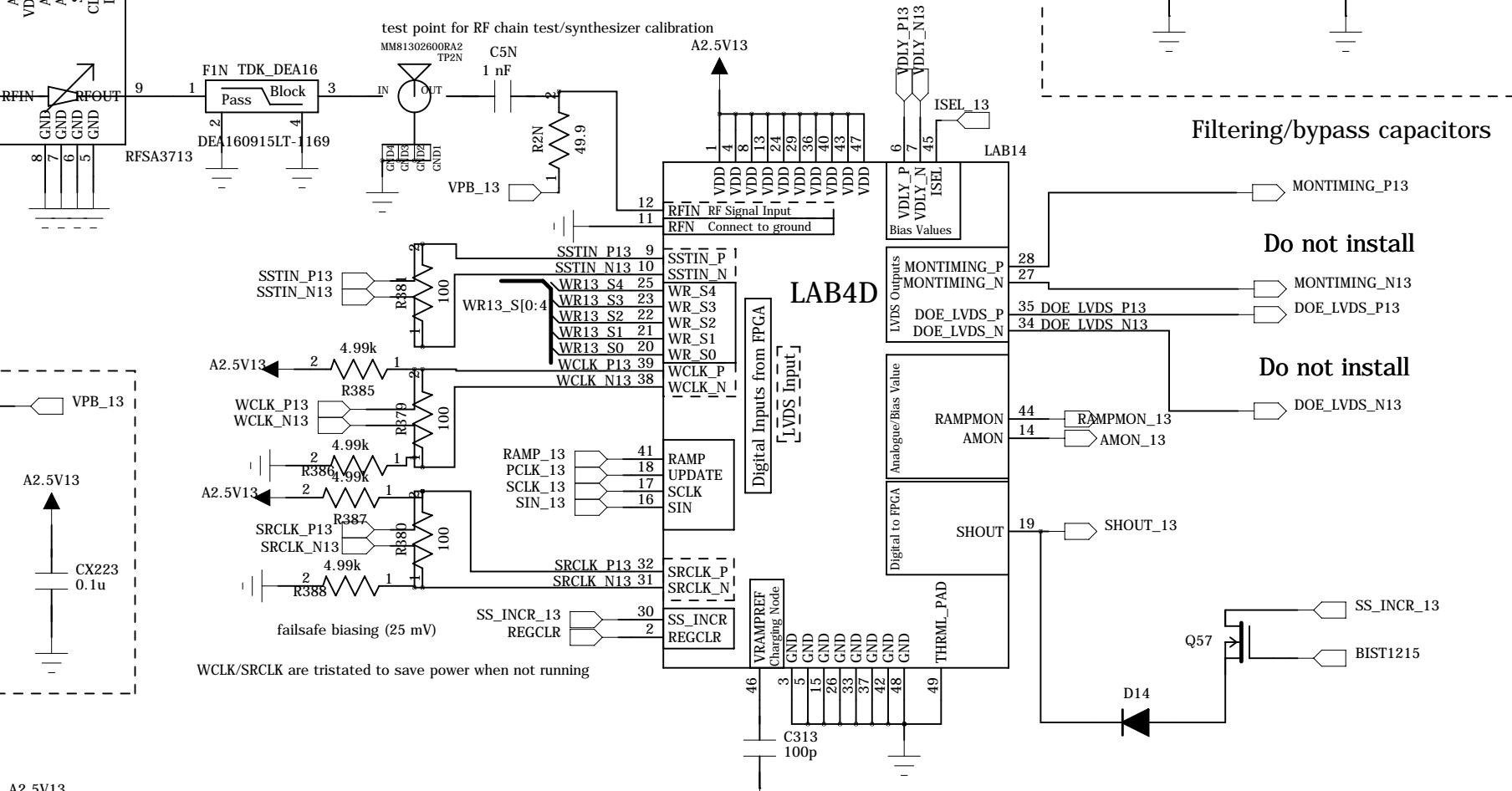
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COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL13		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>	SHEET:	46 74



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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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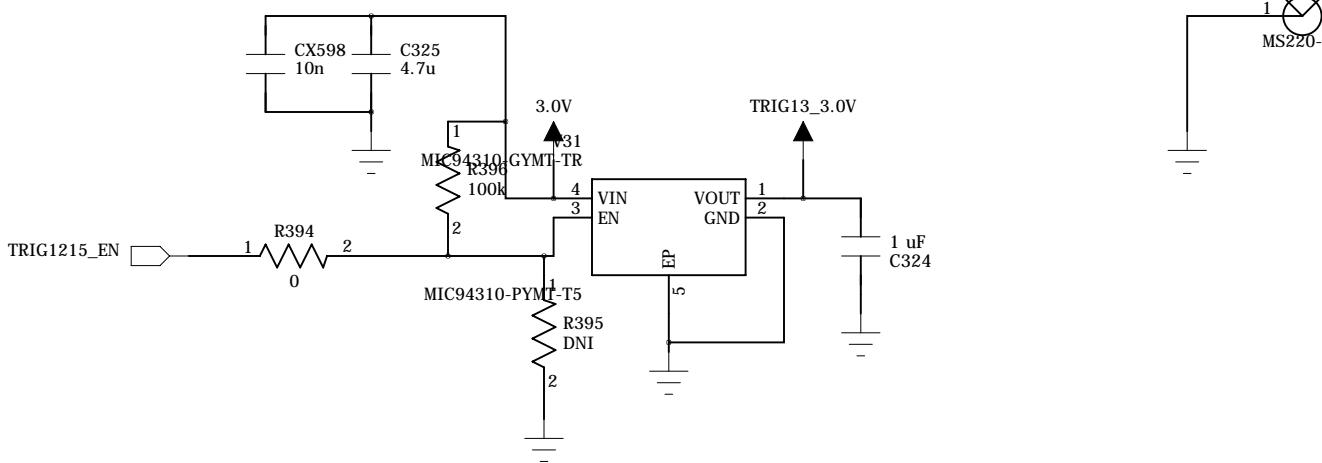
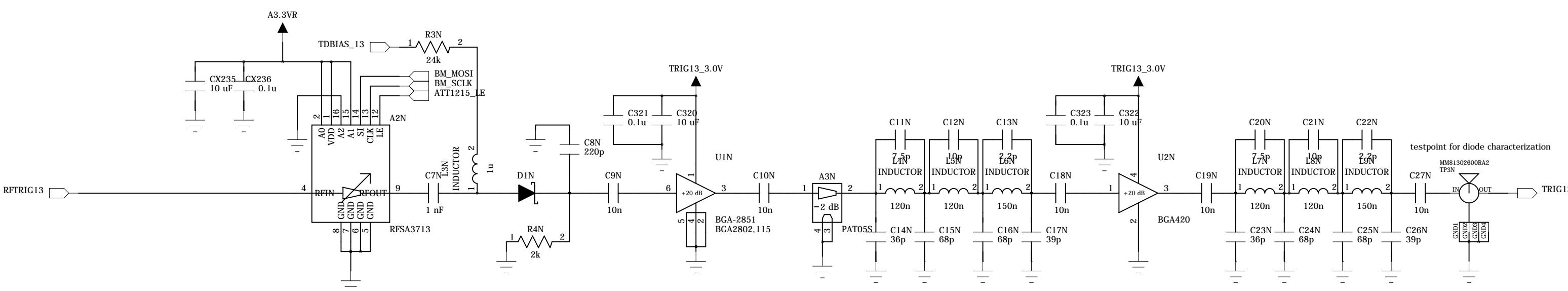
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD13		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
CODE:	SIZE:	DESIGN	REV:
4	C	RADIANT	3
SCALE: <Scale>	Sheet: 47	74	

## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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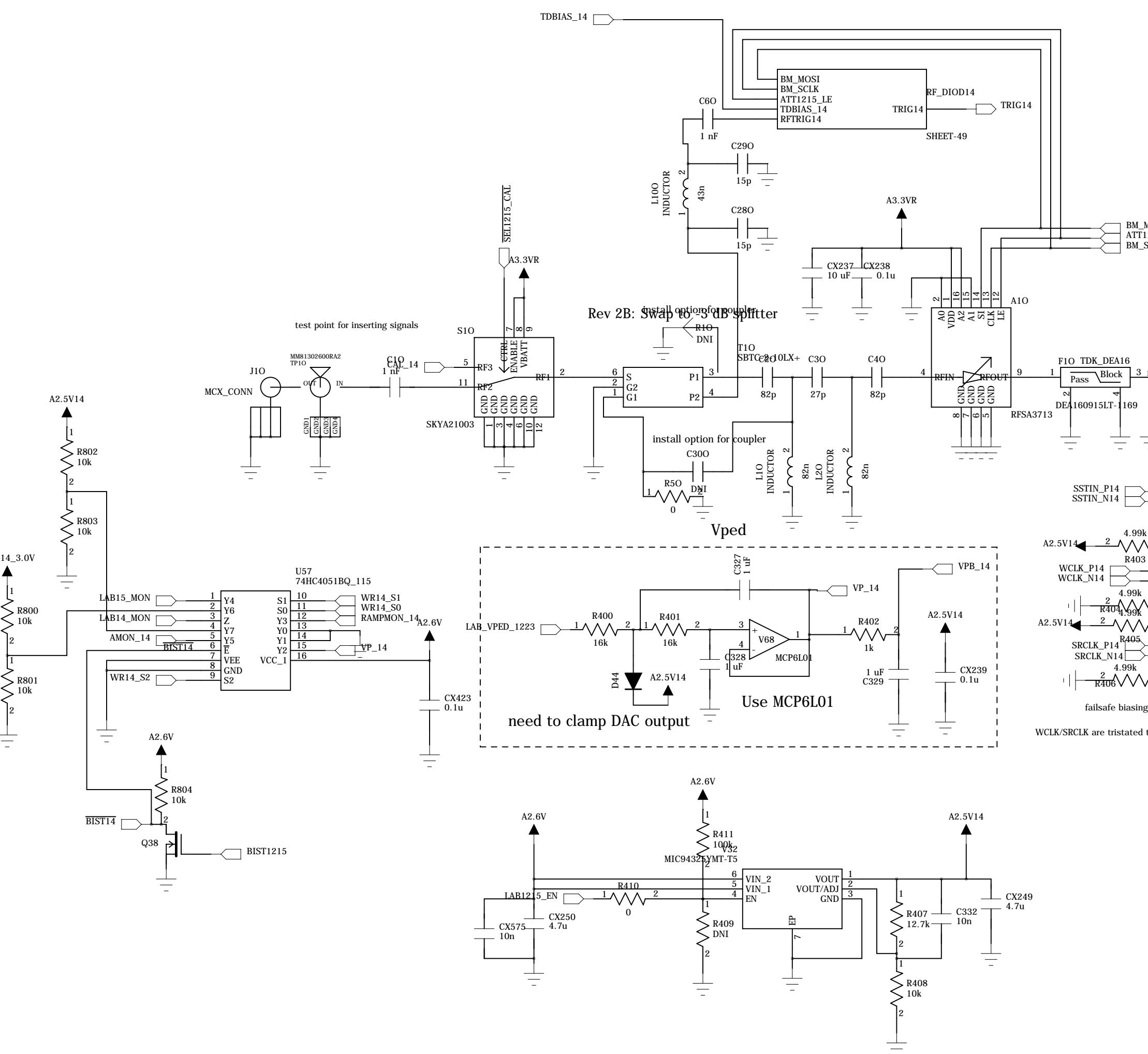
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COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL14		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>	SHEET:	48 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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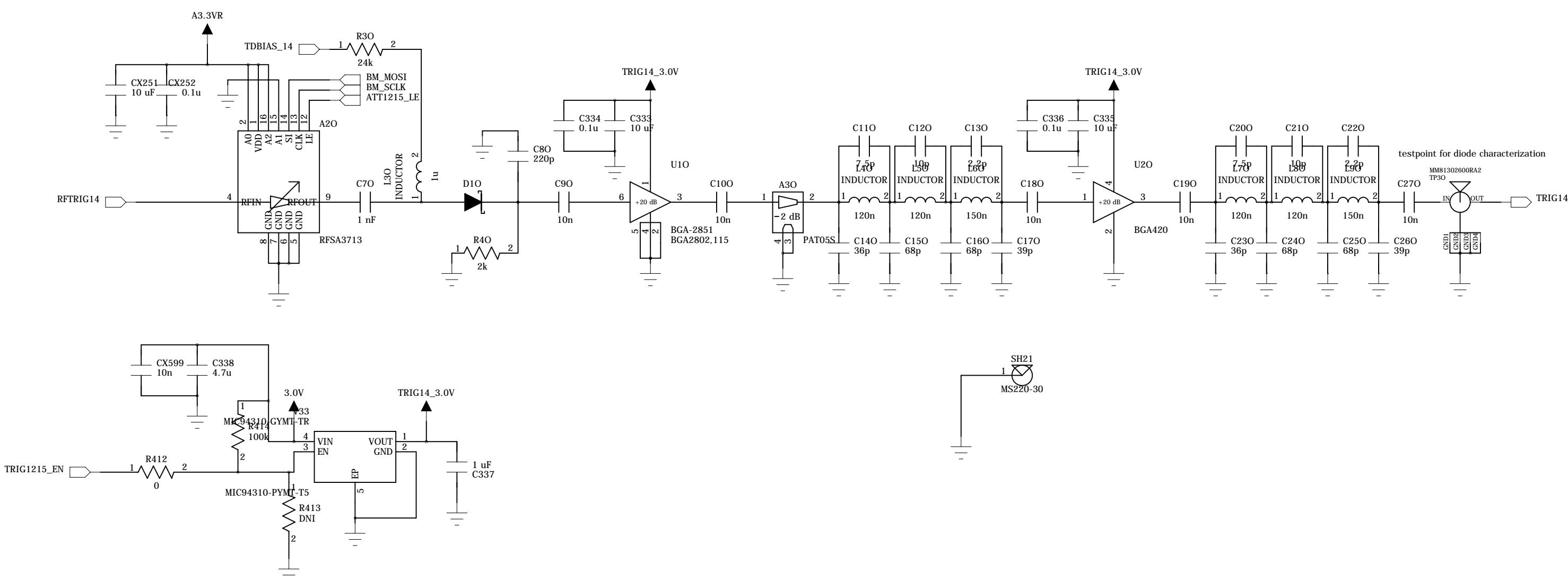
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD14		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
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SCALE:	<Scale>		SCALE: <Scale>
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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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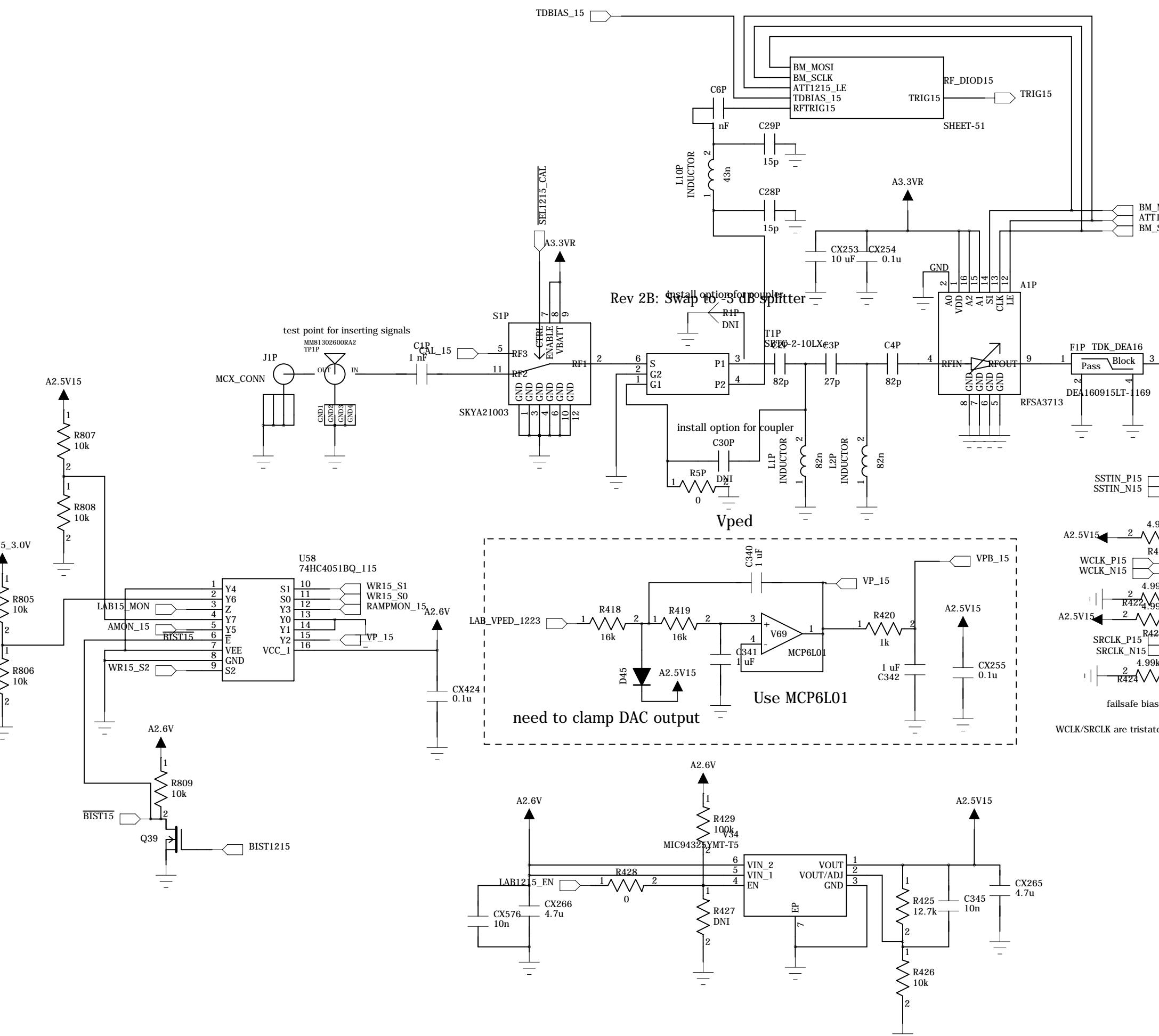
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## REVISION RECORD

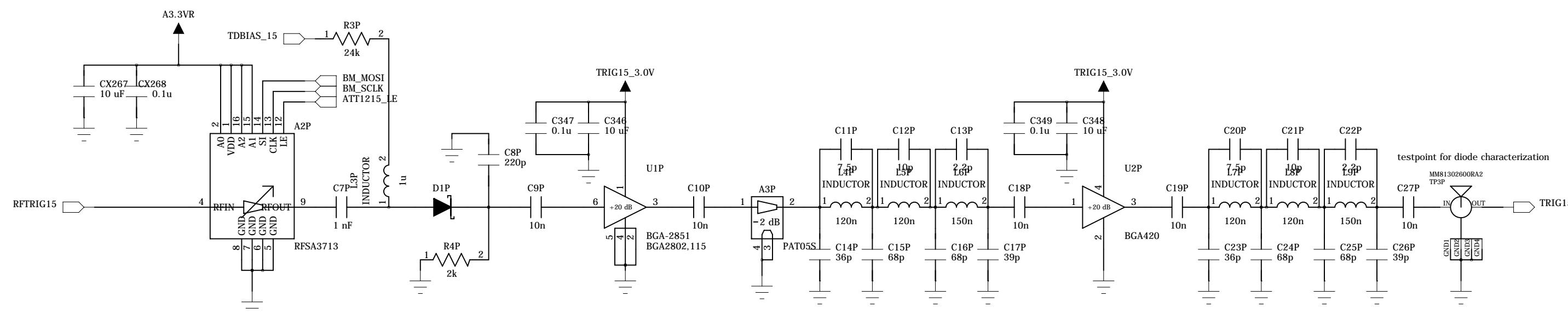
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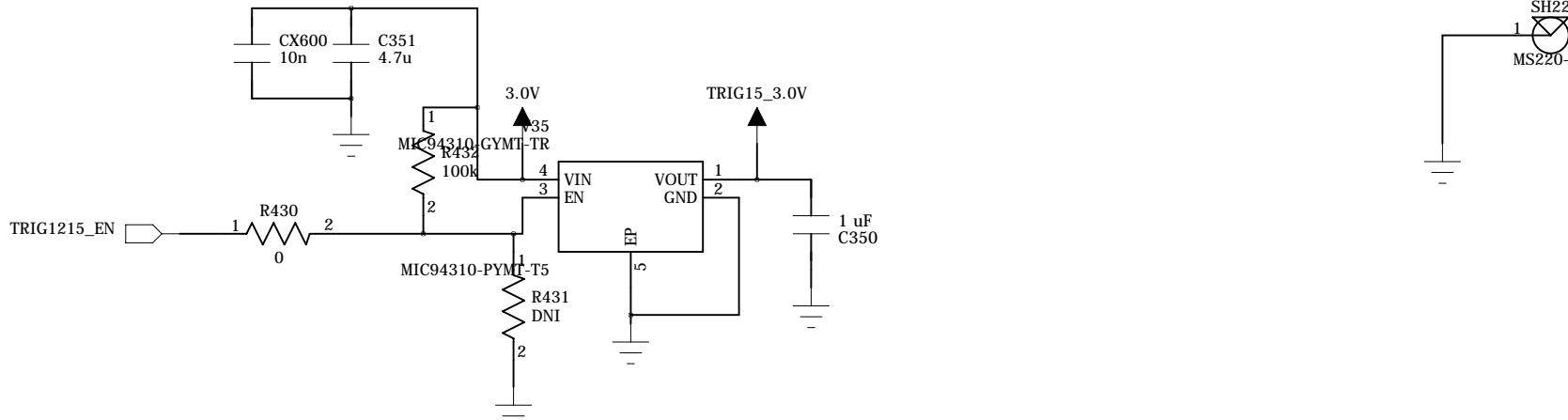
C

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COMPANY:	Ohio State University		
SHEET:	RF_DIOD15		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
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REV:	4	3	
Sheet:	51	74	

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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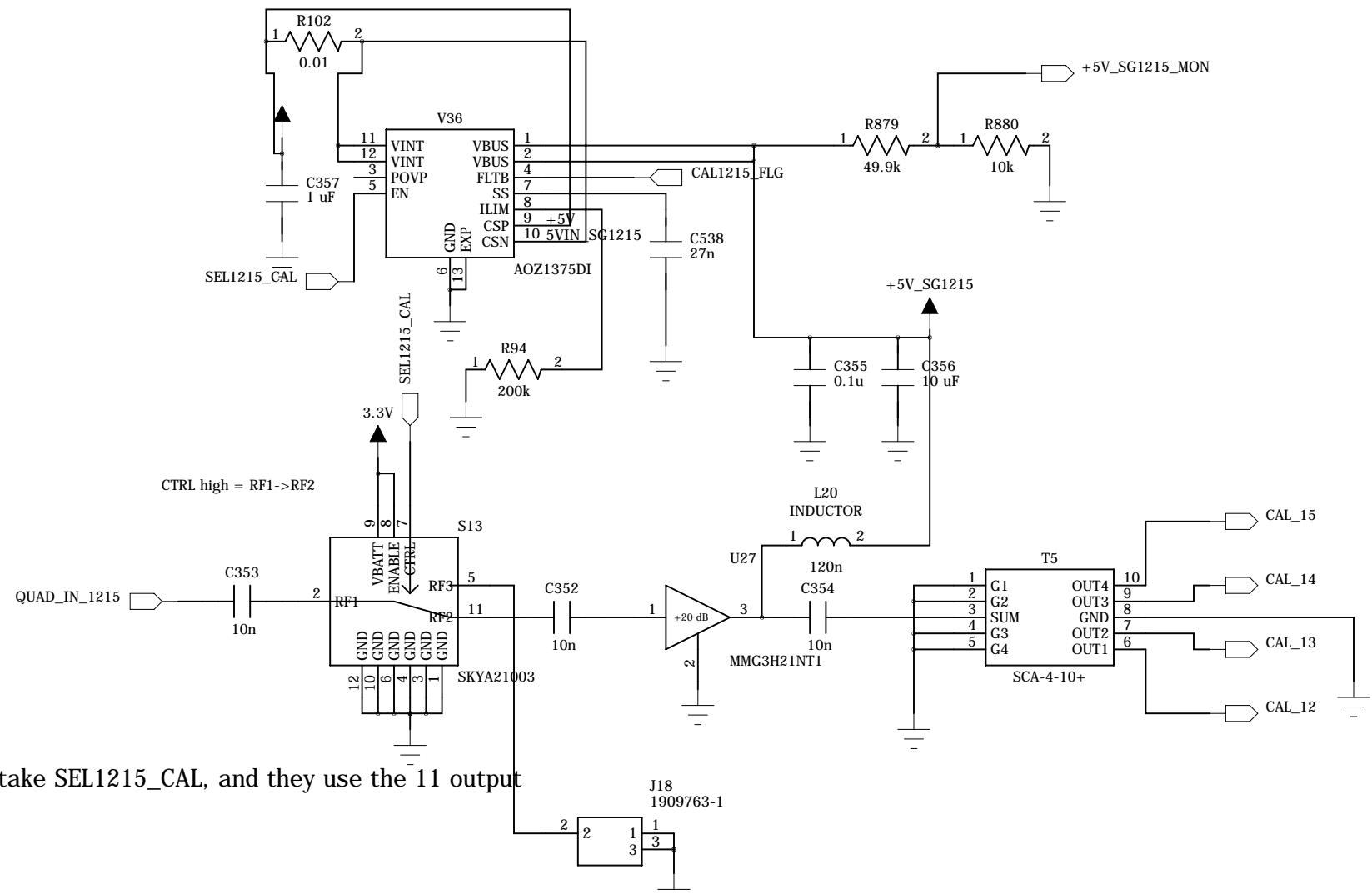
C

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COMPANY:		Ohio State University		
SHEET:		QUAD_SIG_GENERATOR_3		
DRAWN:	PSA	DATED:	2/27/23	
CHECKED:	PSA	DATED:	3/3/23	
QUALITY CONTROL:	PSA	DATED:	3/15/23	
RELEASED:	N/A	DATED:	N/A	
SCALE: <Scale>			SHEET: 52 74	
CODE:	SIZE:	DESIGN		REV:
4	C	RADIANT		3

REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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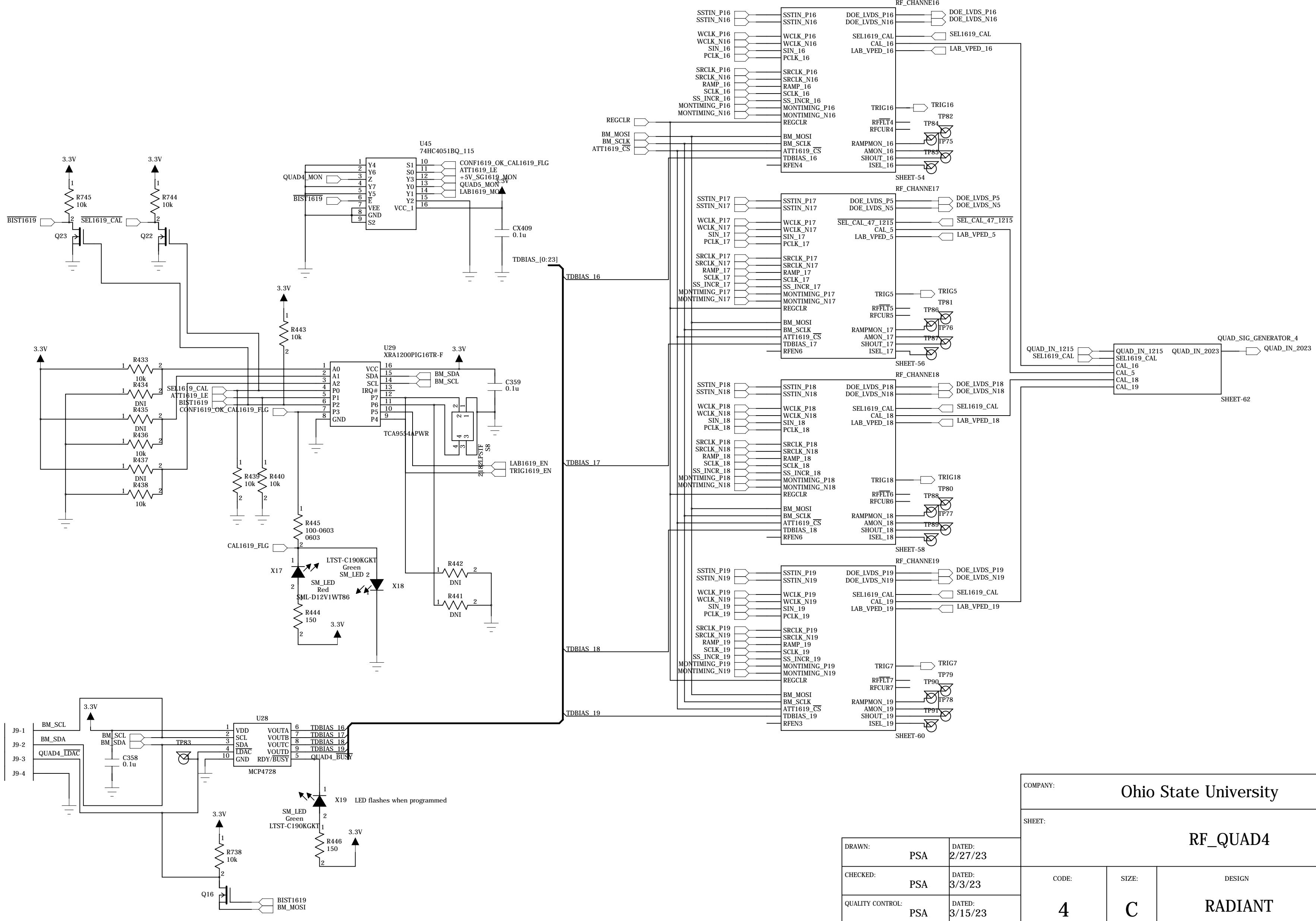
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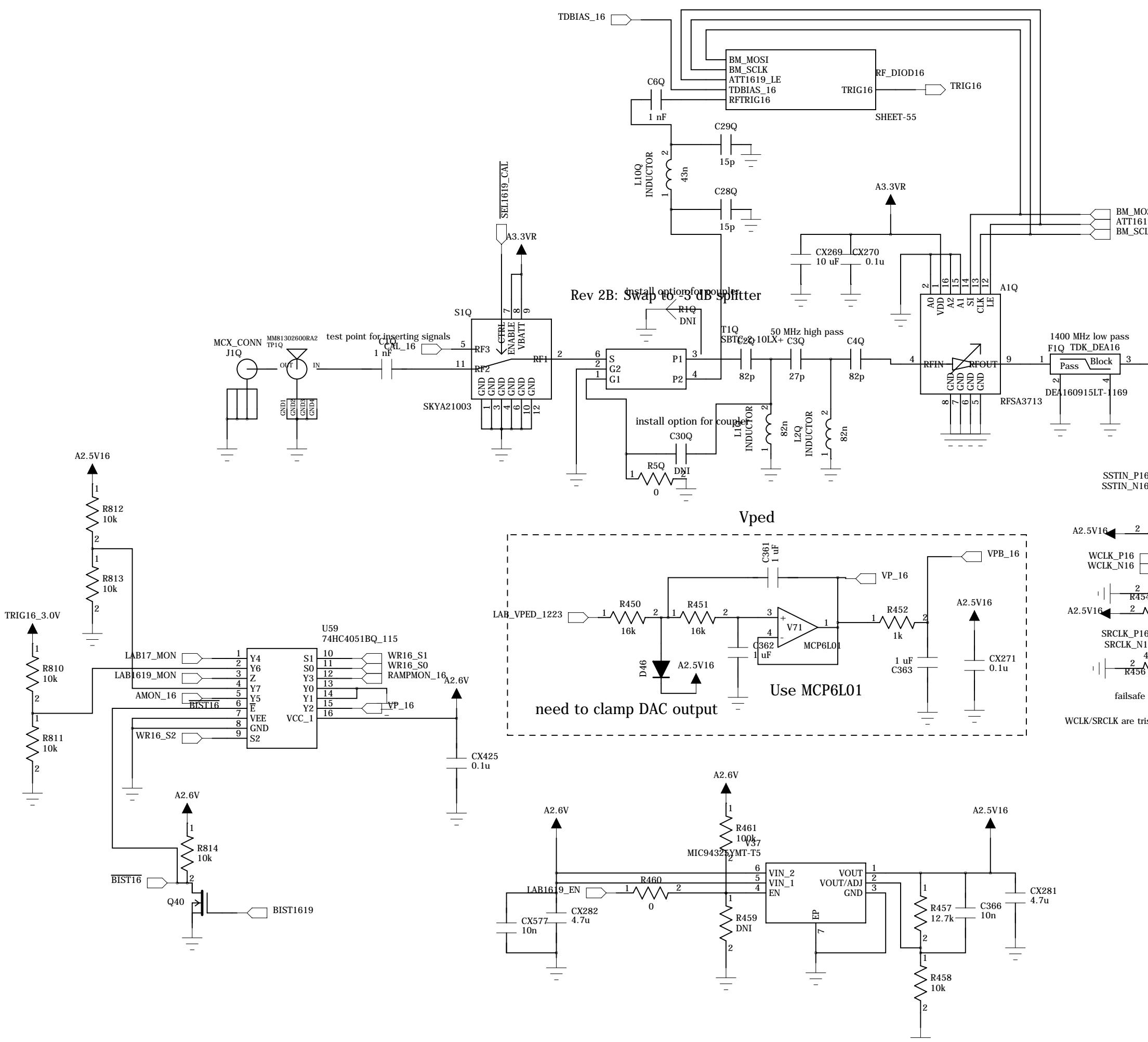


COMPANY:	Ohio State University		
SHEET:	RF_QUAD4		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
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SCALE:	<Scale>		
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Sheet: 58	74		

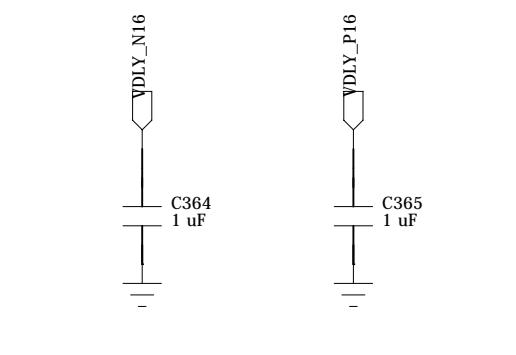
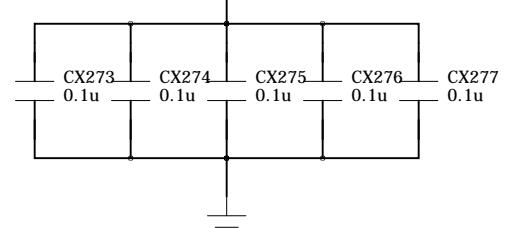
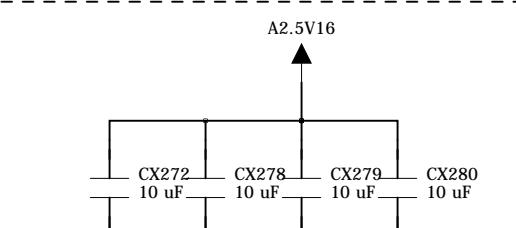
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LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors



COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL16		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		
CODE:	C	SIZE:	RADIANT
REV:	3		
Sheet:	54	74	



Filtering/bypass capacitors

Do not install

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## REVISION RECORD

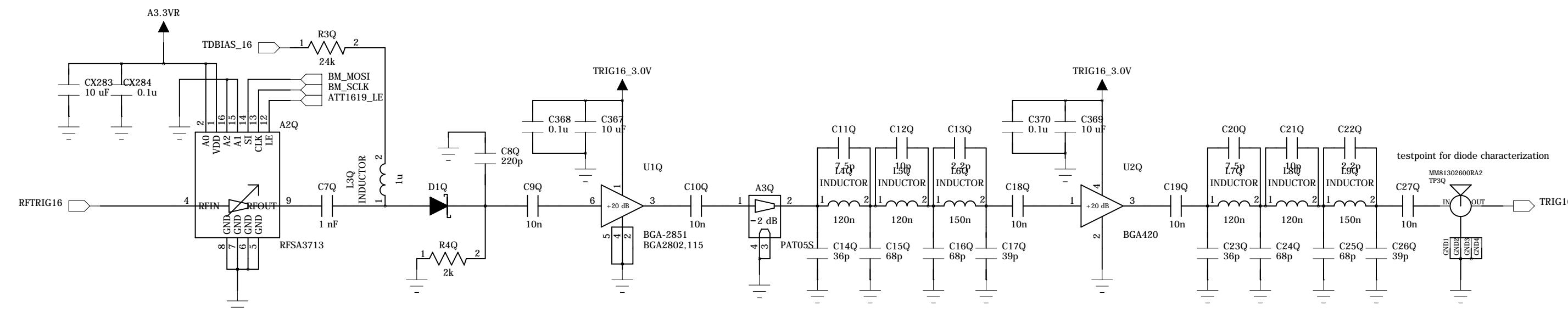
LTR	ECO NO:	APPROVED:	DATE:

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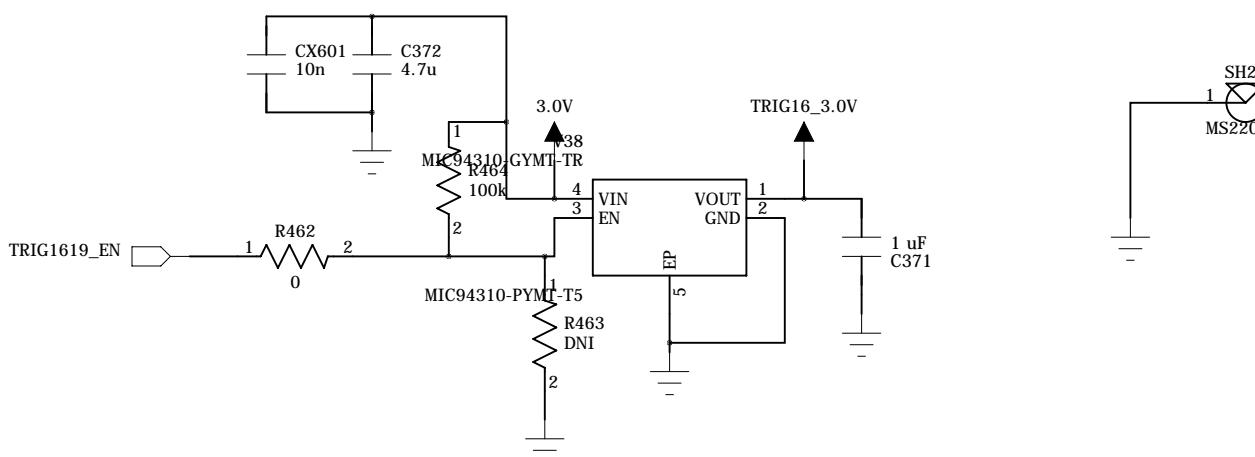
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD16		
DRAWN:	PSA	DATED: 2/27/23	
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
SCALE:	<Scale>		SCALE: <Scale>
			SCALE: 55 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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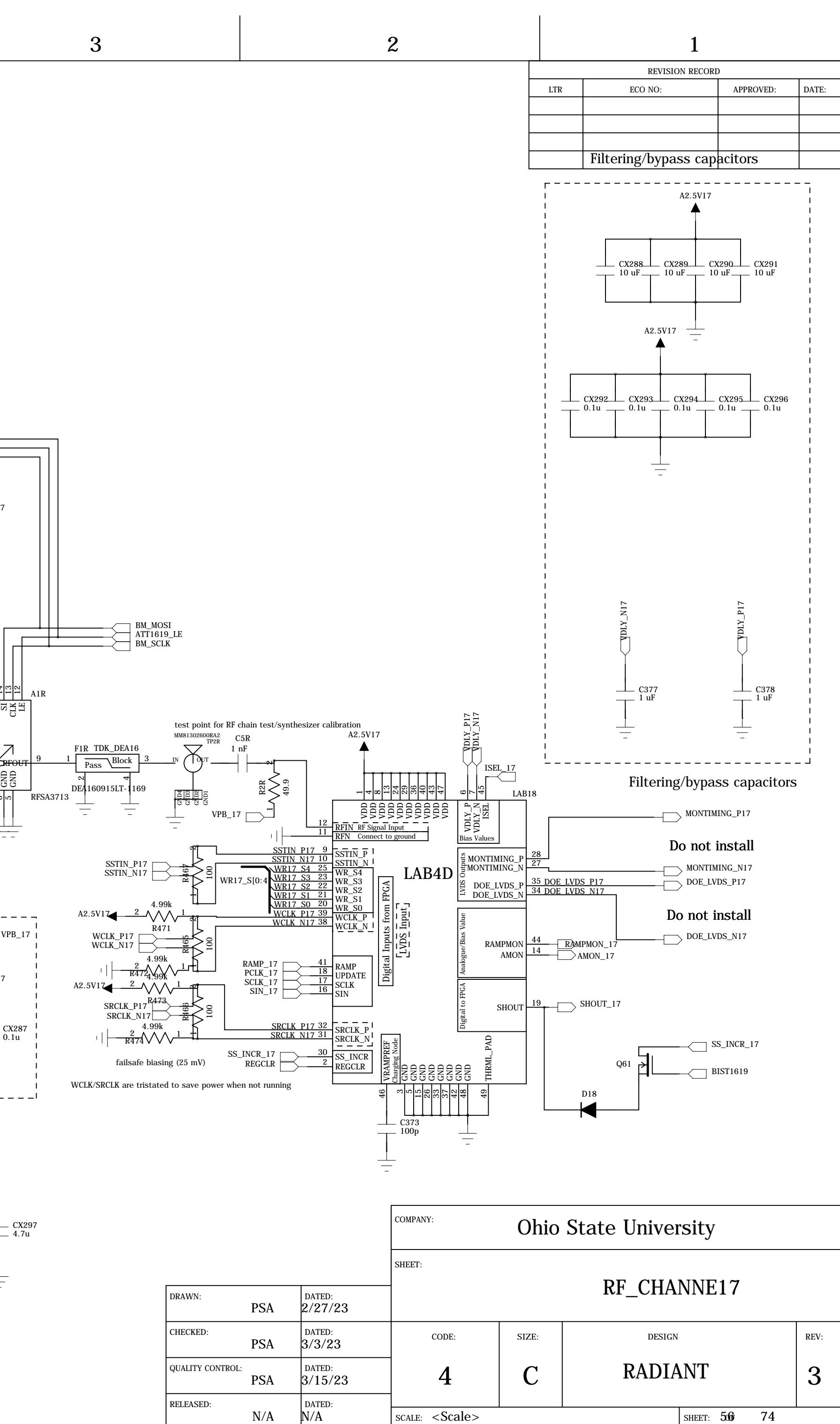
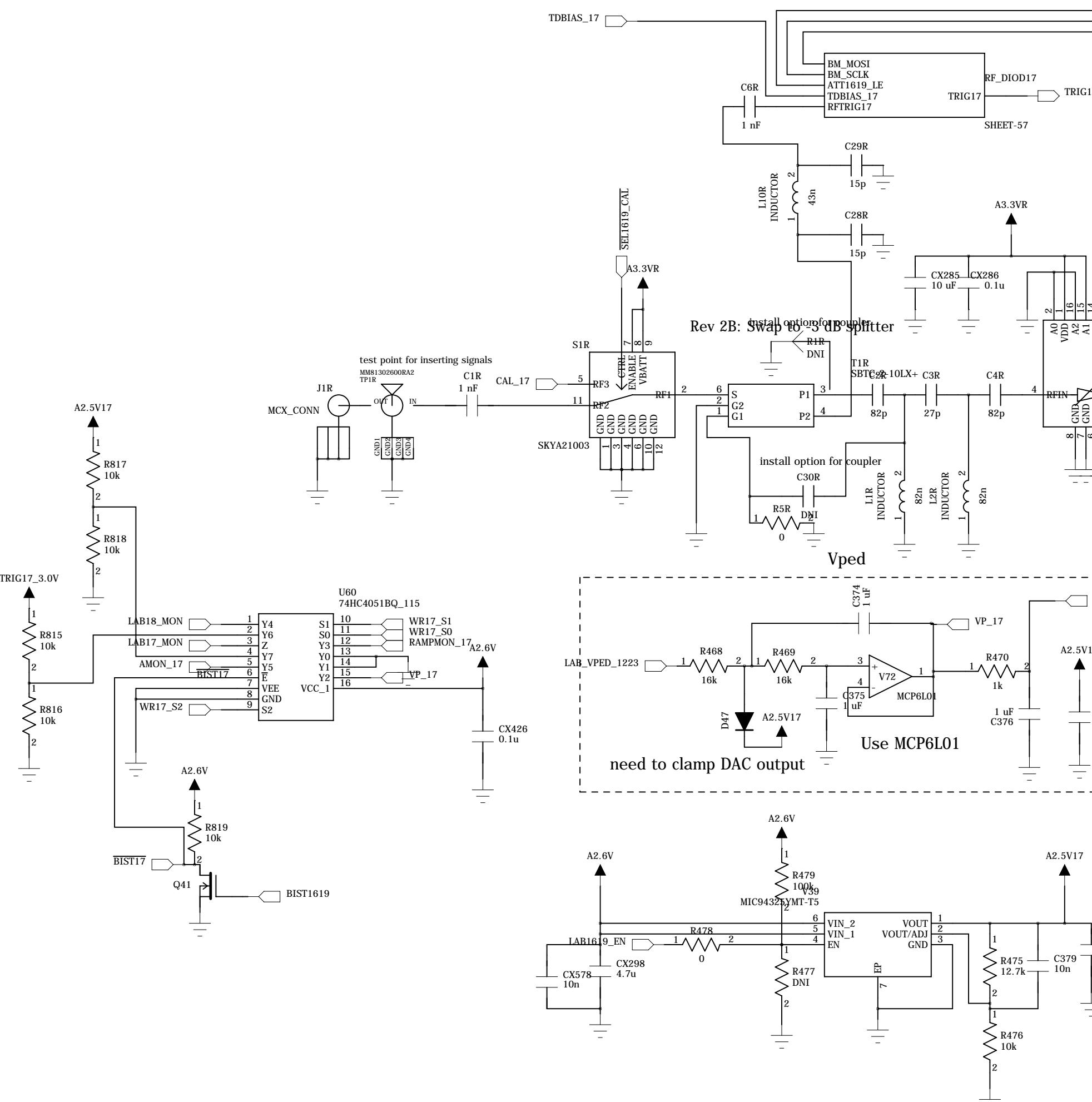
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Ohio State University

RF\_CHANNEL17

COMPANY:	RF_CHANNEL17		
SHEET:			
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

SCALE: &lt;Scale&gt; SHEET: 56 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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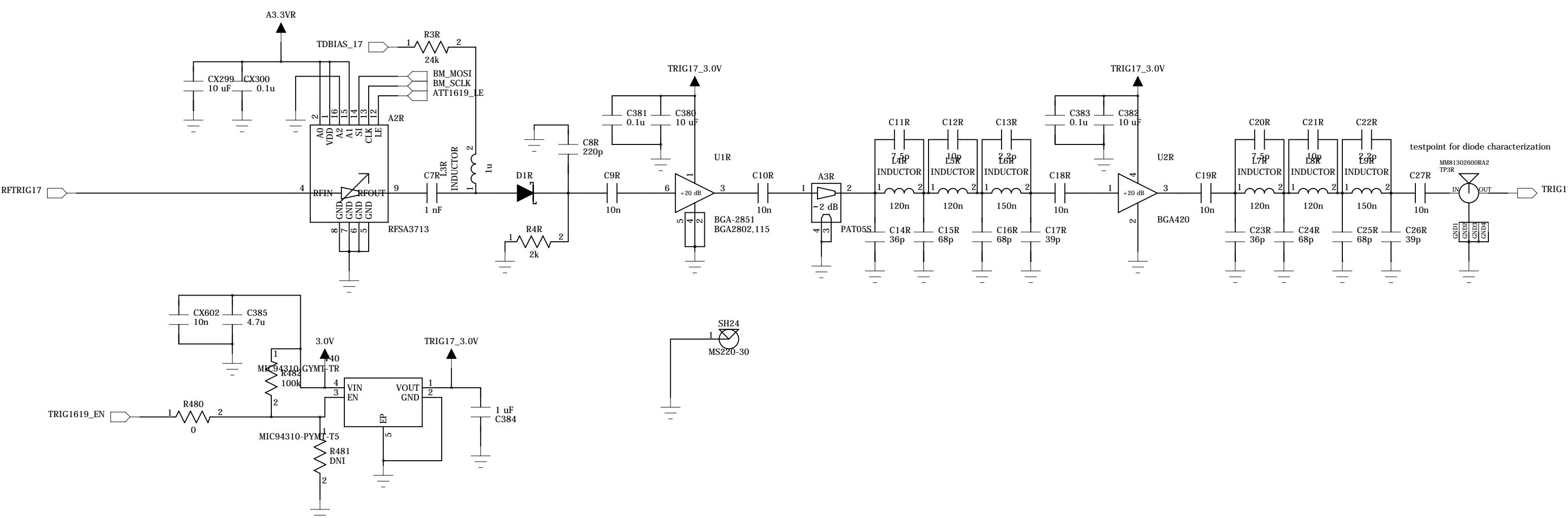
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD17		
DRAWN:	PSA	DATED: 2/27/23	
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
CODE:	C	SIZE:	DESIGN RADIANT
REV:	3		
SCALE:	<Scale>		SCALE: <Scale>
			SCALE: 57 74

## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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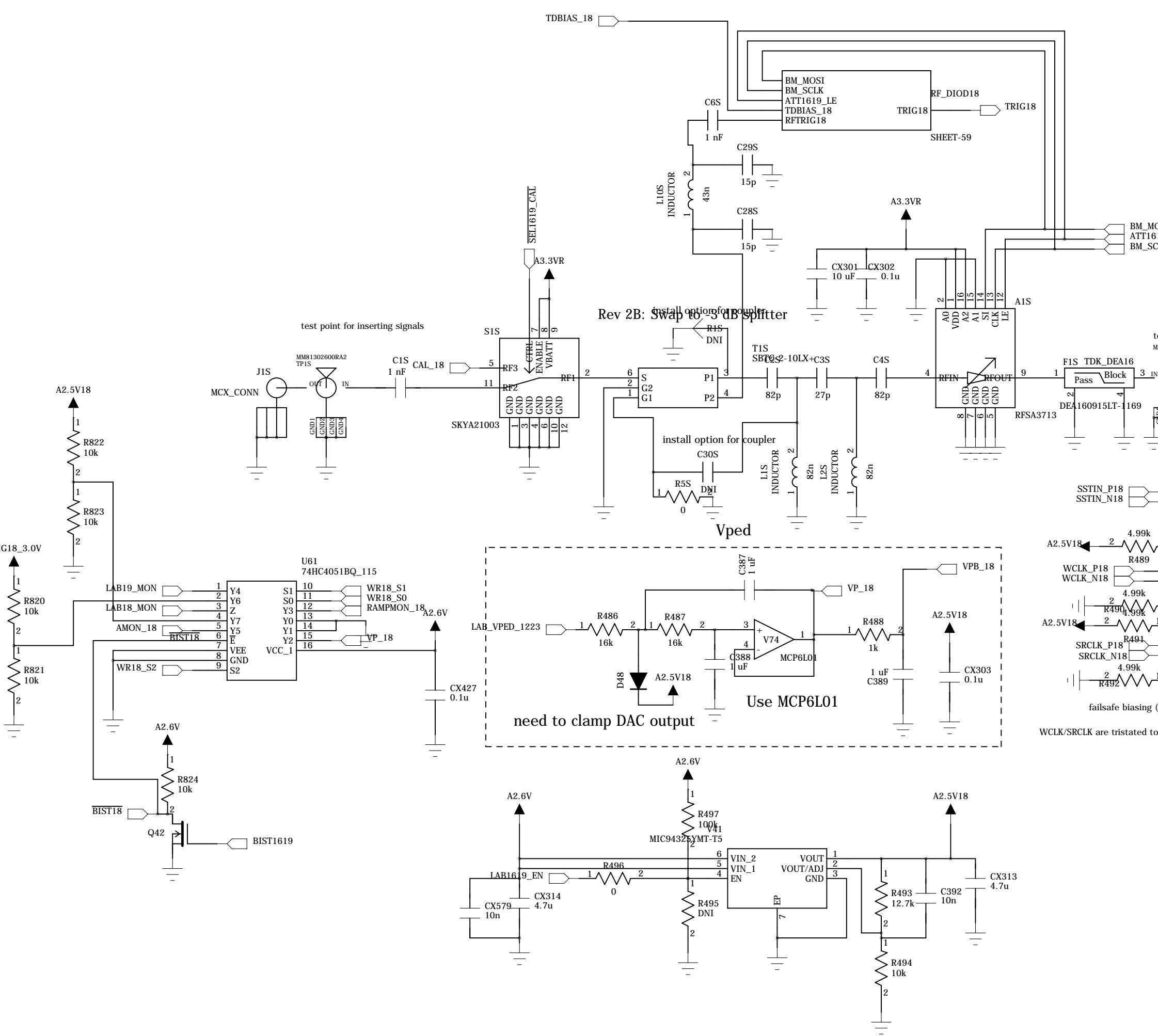
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

COMPANY: Ohio State University  
SHEET: RF\_CHANNEL18  
SCALE: <Scale> SHEET: 58 74

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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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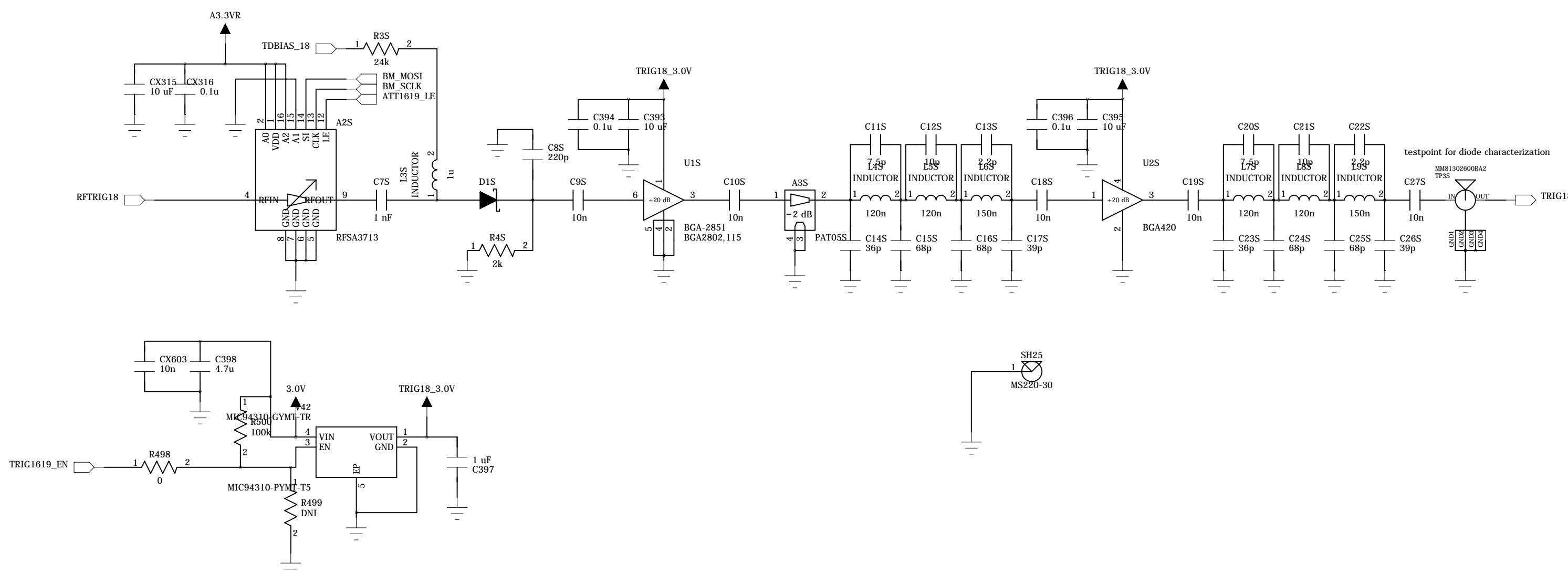
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD18		
CODE:	SIZE:	DESIGN	REV:
4	C	RADIANT	3
SCALE: <Scale>	SHEET: 59		74

## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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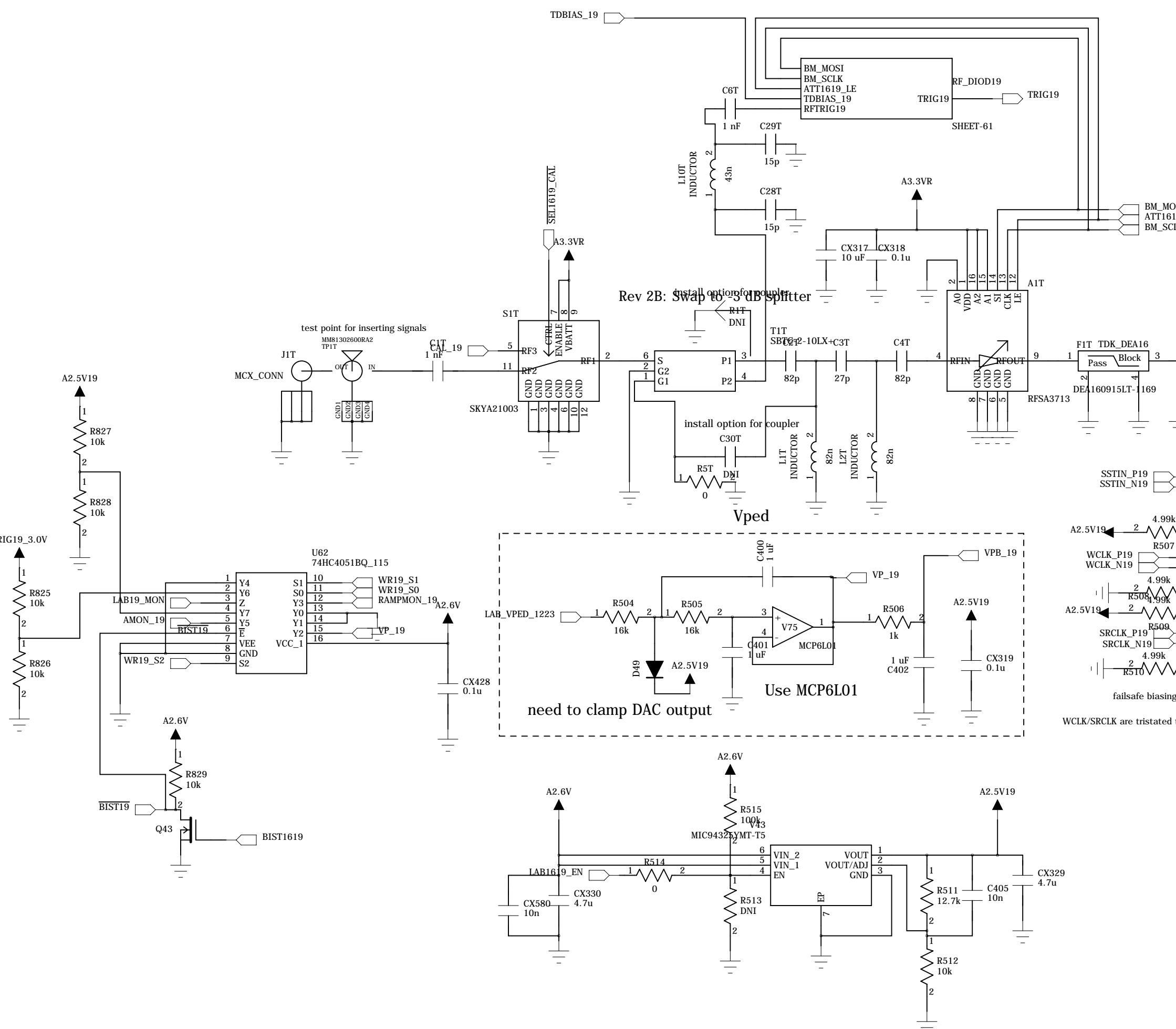
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

COMPANY: Ohio State University  
SHEET: RF\_CHANNEL19  
CODE: 4 SIZE: C DESIGN: RADIANT REV: 3  
SCALE: <Scale> SHEET: 60 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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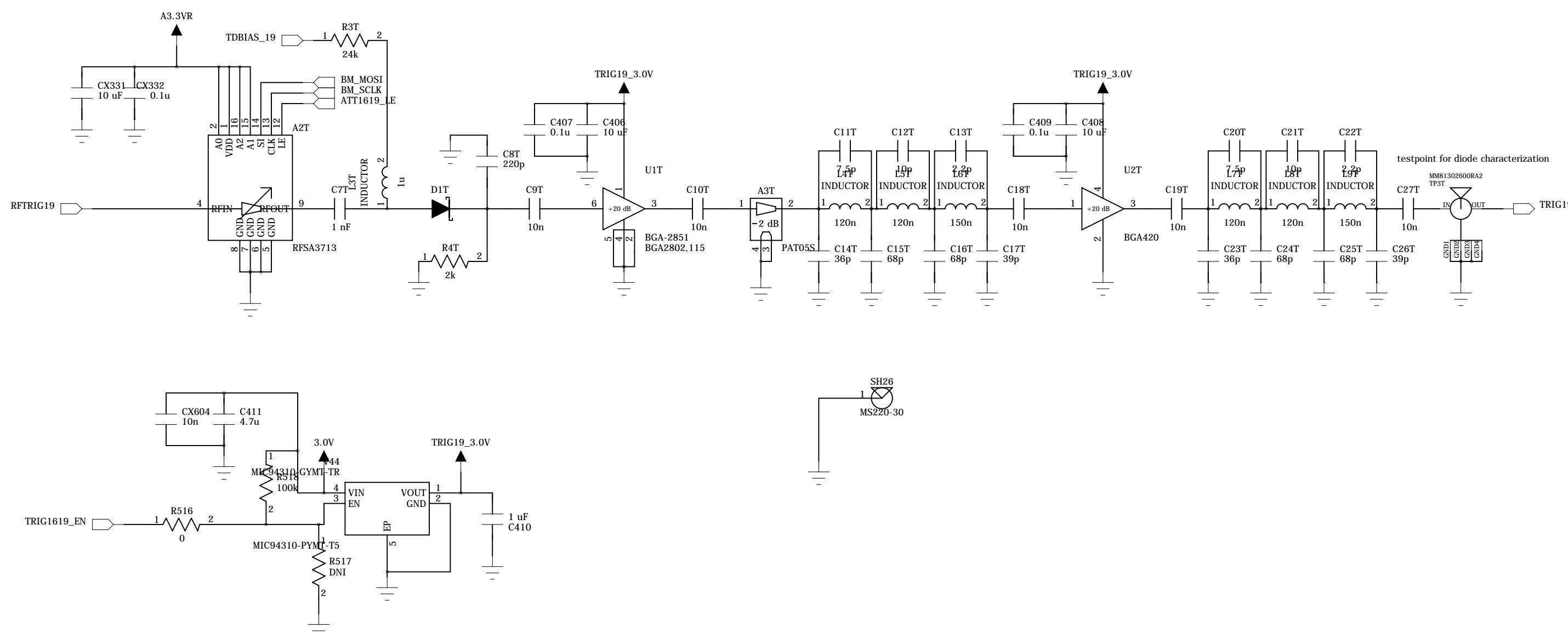
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COMPANY:		Ohio State University		
SHEET:		RF_DIOD19		
DRAWN:	PSA	DATED:	2/27/23	
CHECKED:	PSA	DATED:	3/3/23	
QUALITY CONTROL:	PSA	DATED:	3/15/23	
RELEASED:	N/A	DATED:	N/A	
SCALE: <Scale>			SHEET: 61 74	

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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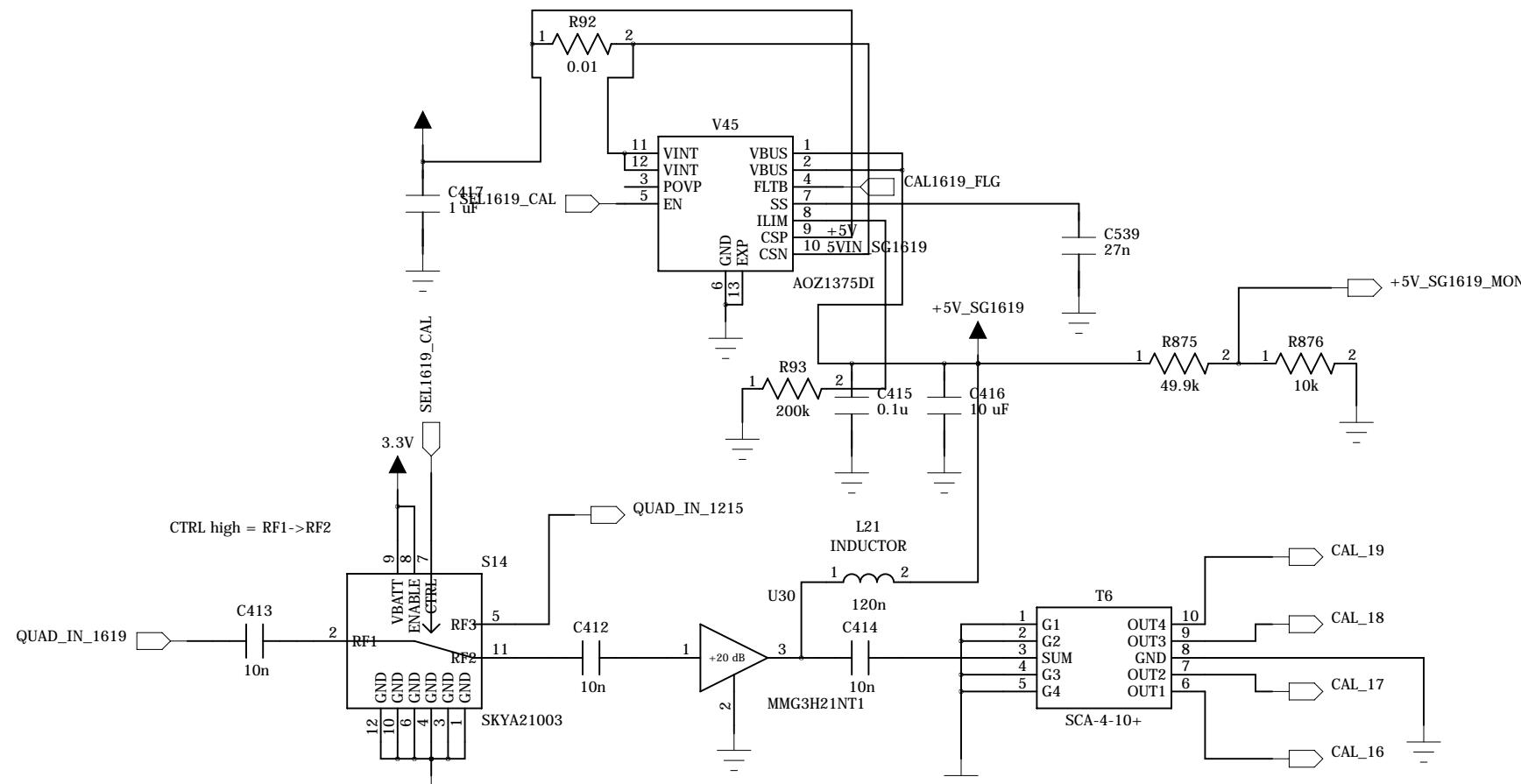
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COMPANY:		Ohio State University	
SHEET:		QUAD_SIG_GENERATOR	
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE: <Scale>		SIZE: 62 74	
CODE: 4	SIZE: C	DESIGN: RADIANT	REV: 3

## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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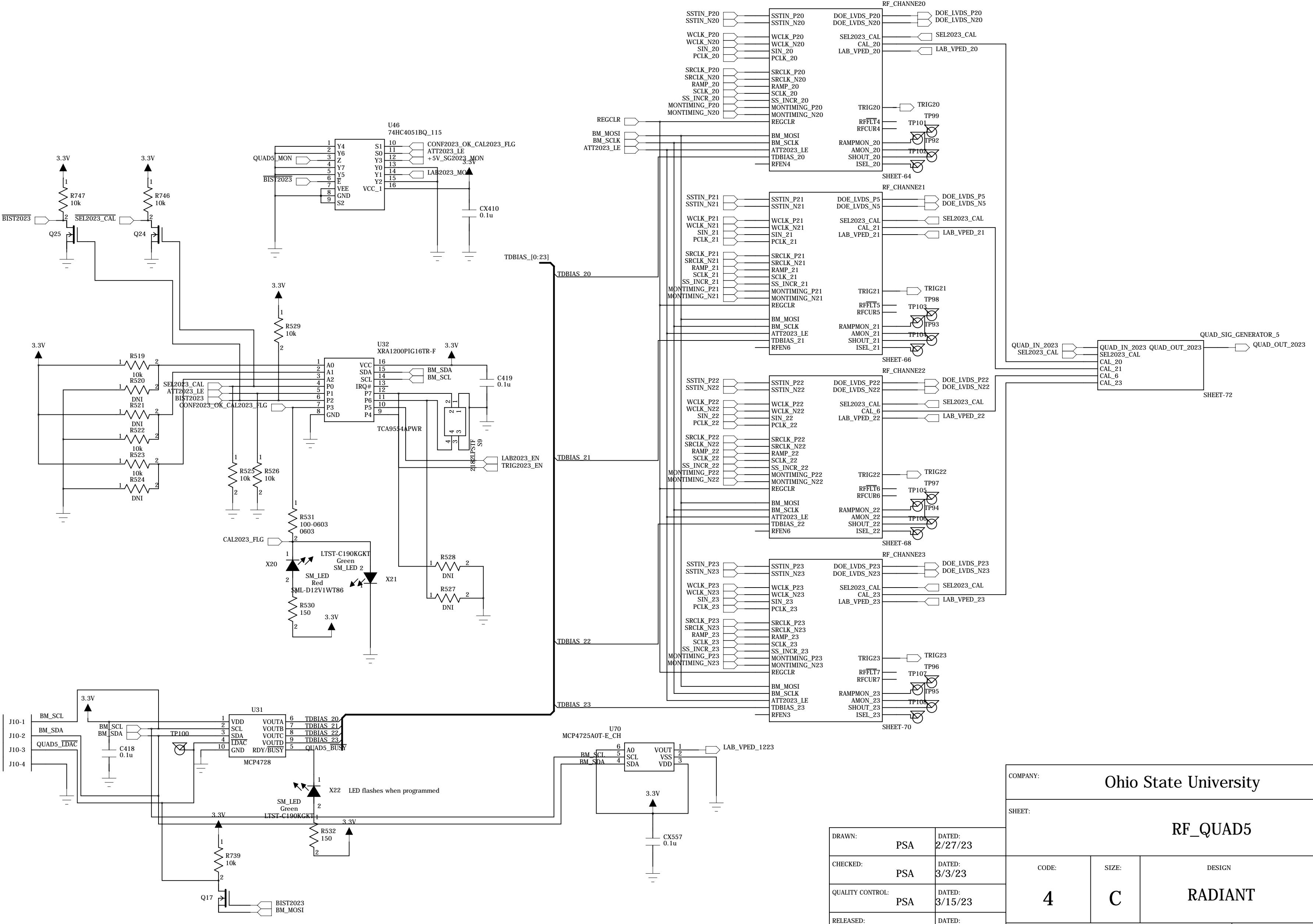
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COMPANY:  
Ohio State University

RF\_QUAD5

DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

SCALE: &lt;Scale&gt; SHEET: 63 74

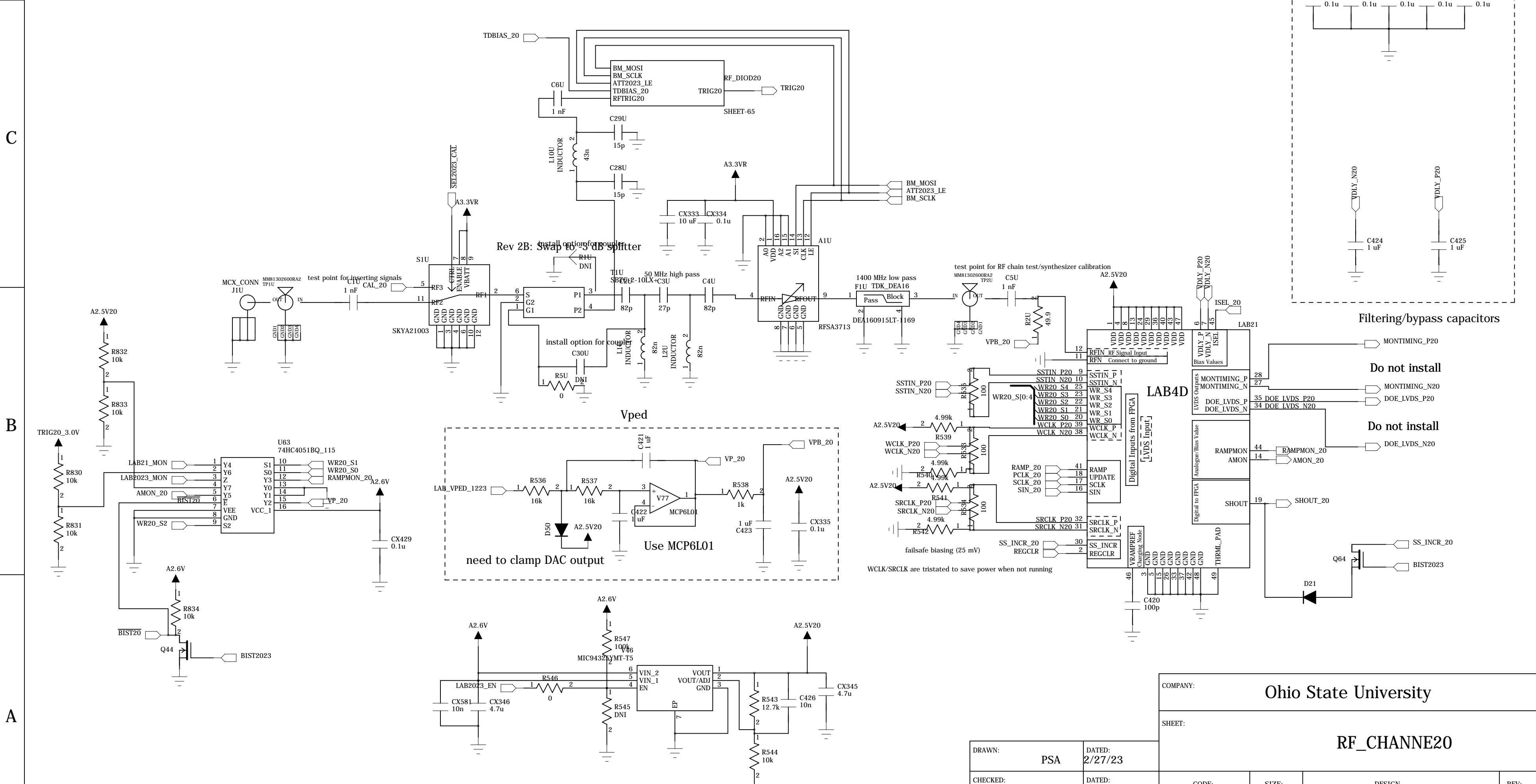
## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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Ohio State University

RF\_CHANNEL20

DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

SCALE: &lt;Scale&gt;

SHEET: 64 74

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## REVISION RECORD

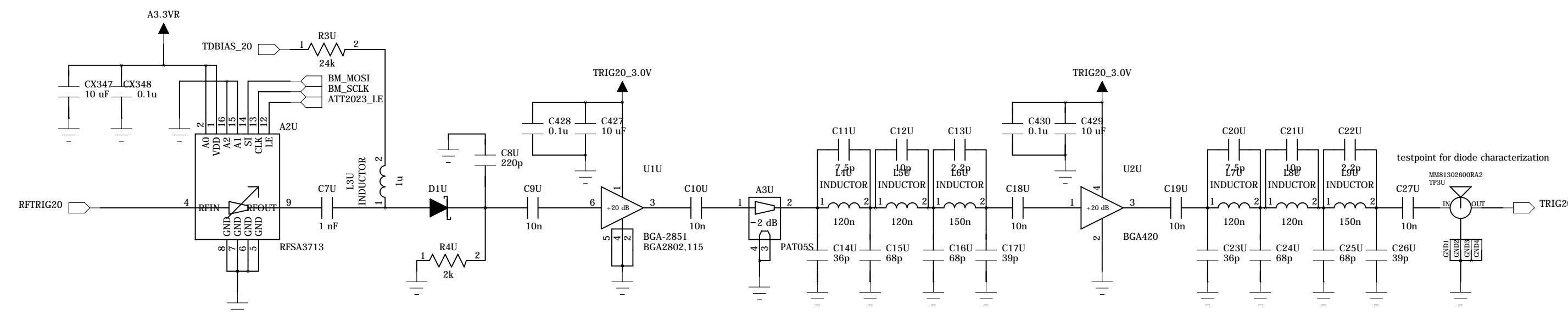
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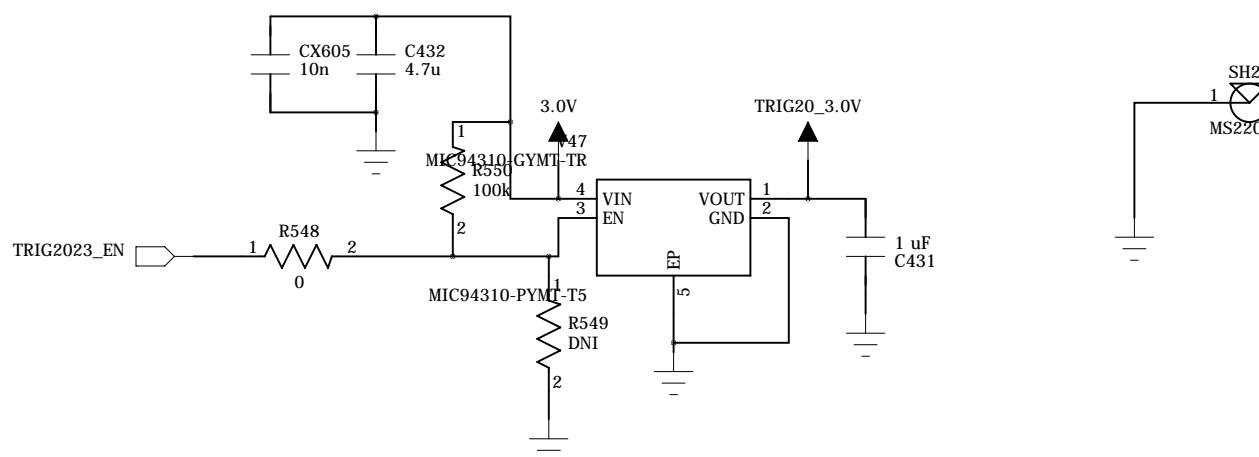
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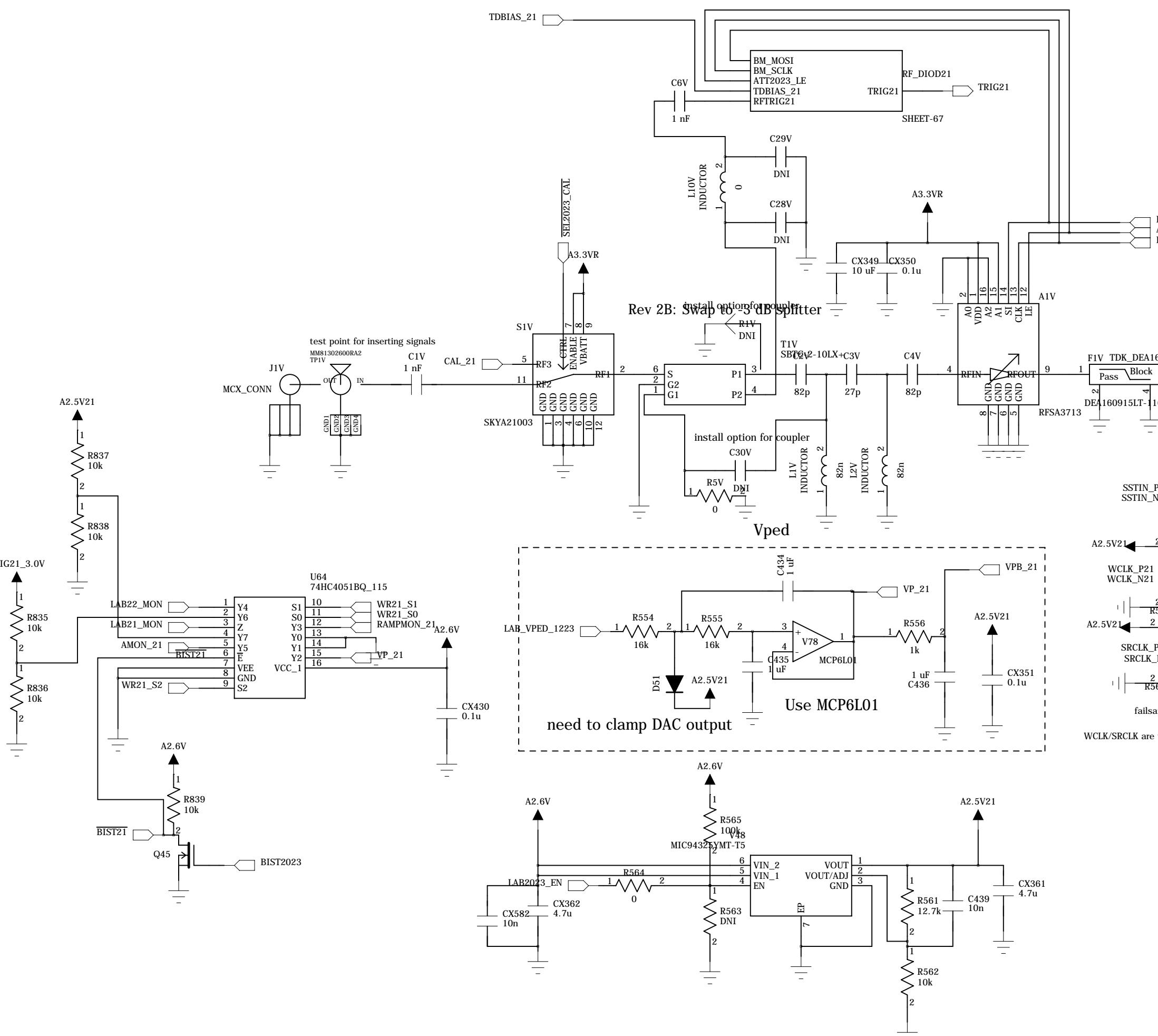
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD20		
DRAWN:	PSA	DATED: 2/27/23	
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
SCALE:	<Scale>		
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SIZE:		REV:	3
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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors



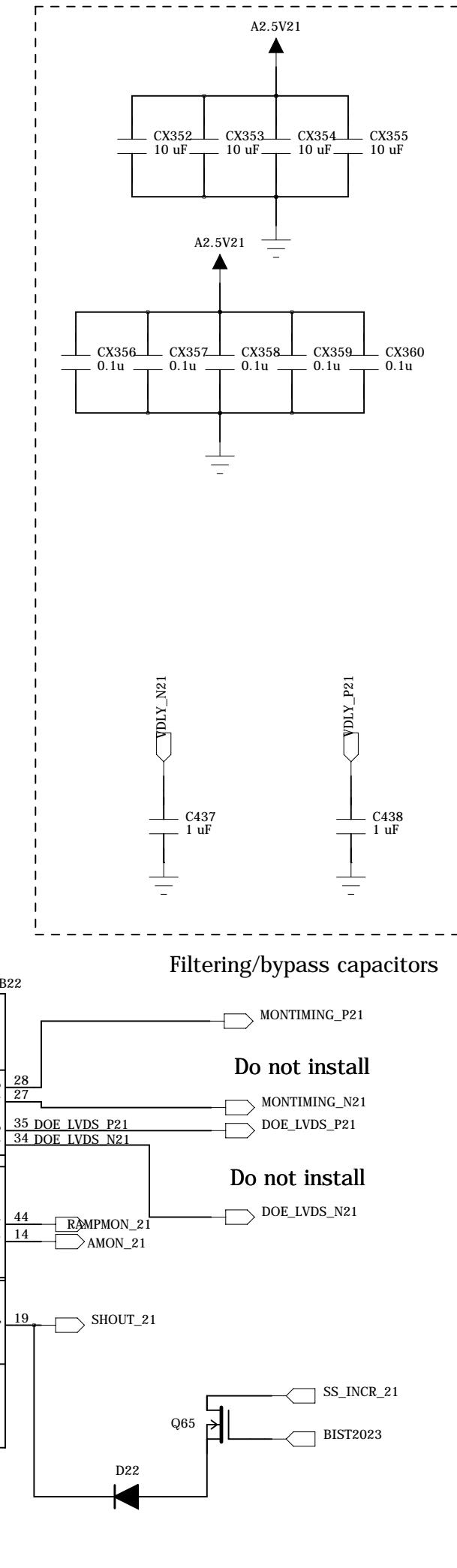
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CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
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COMPANY: Ohio State University

SHEET: RF\_CHANNEL21

CODE: 4 SIZE: C DESIGN: RADIANT REV: 3

SCALE: &lt;Scale&gt; SHEET: 66 74



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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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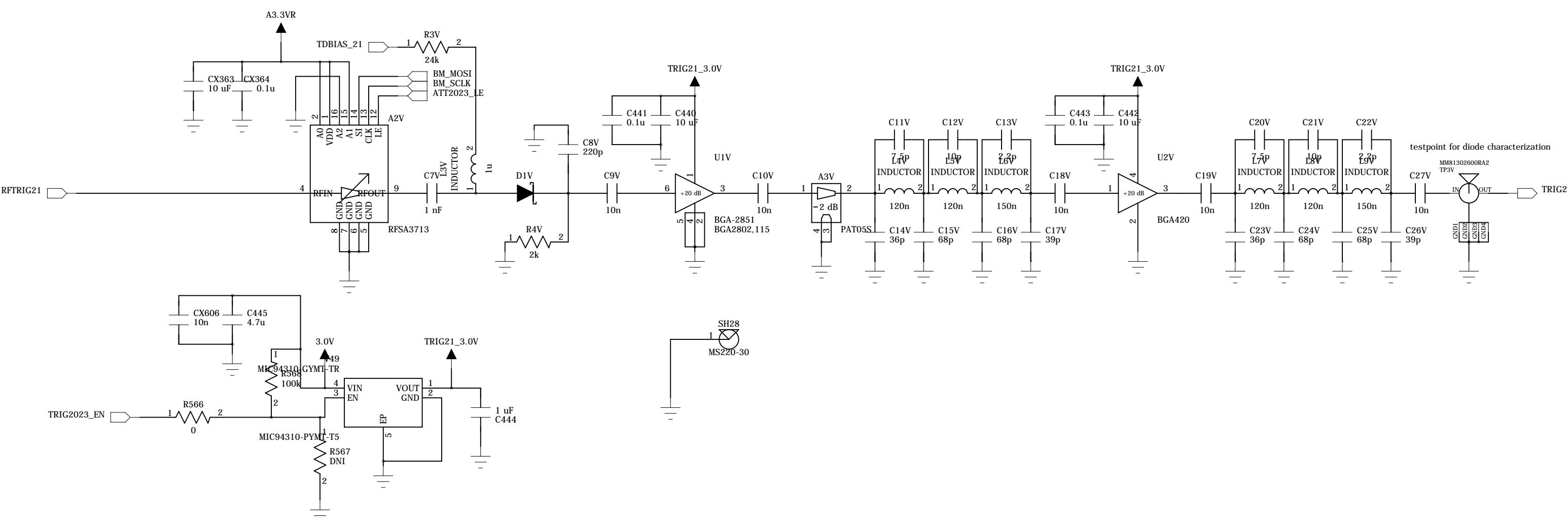
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD21		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
CODE:	4	SIZE:	RADIANT
REV:	3	SCALE:	<Scale>
		SCALE:	67 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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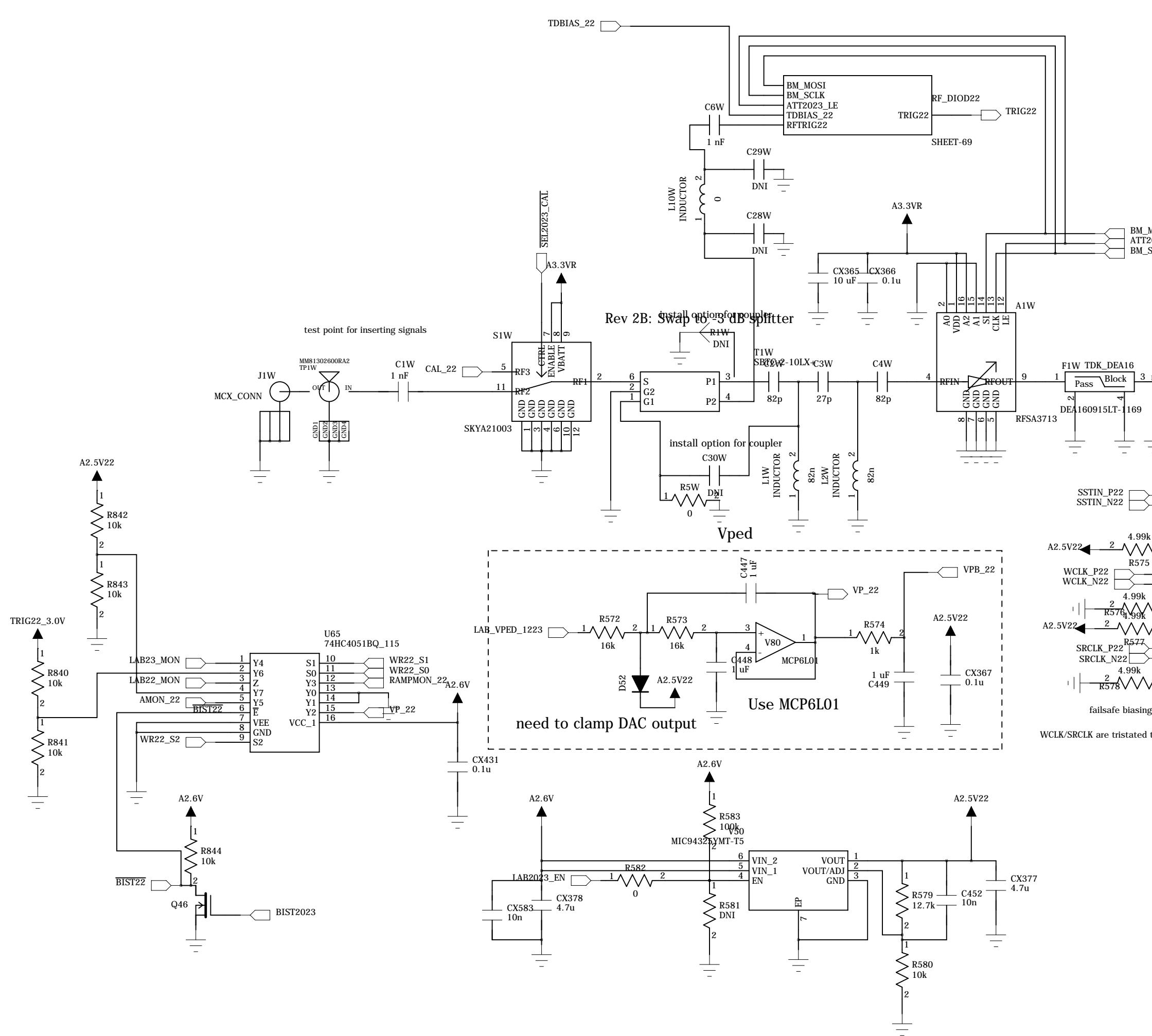
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

COMPANY: Ohio State University

SHEET: RF\_CHANNEL22

CODE: 4 SIZE: C DESIGN: RADIANT REV: 3

SCALE: <Scale> SHEET: 68 74

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## REVISION RECORD

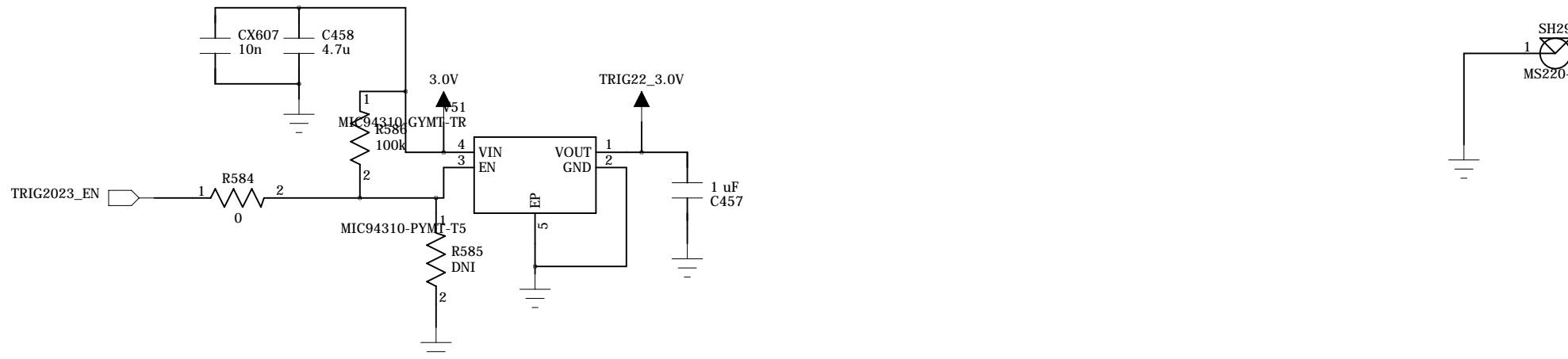
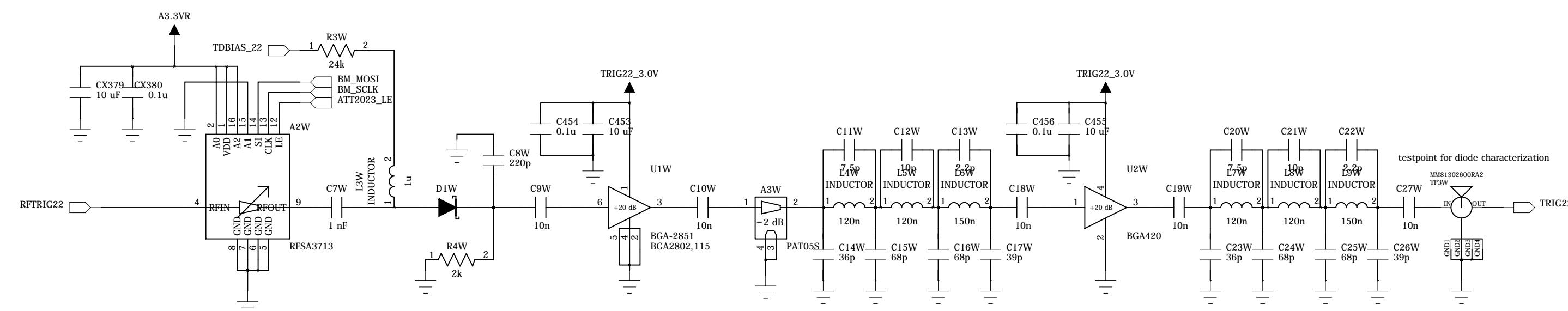
LTR	ECO NO:	APPROVED:	DATE:

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COMPANY:	Ohio State University		
SHEET:	RF_DIOD22		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>		Sheet: 69 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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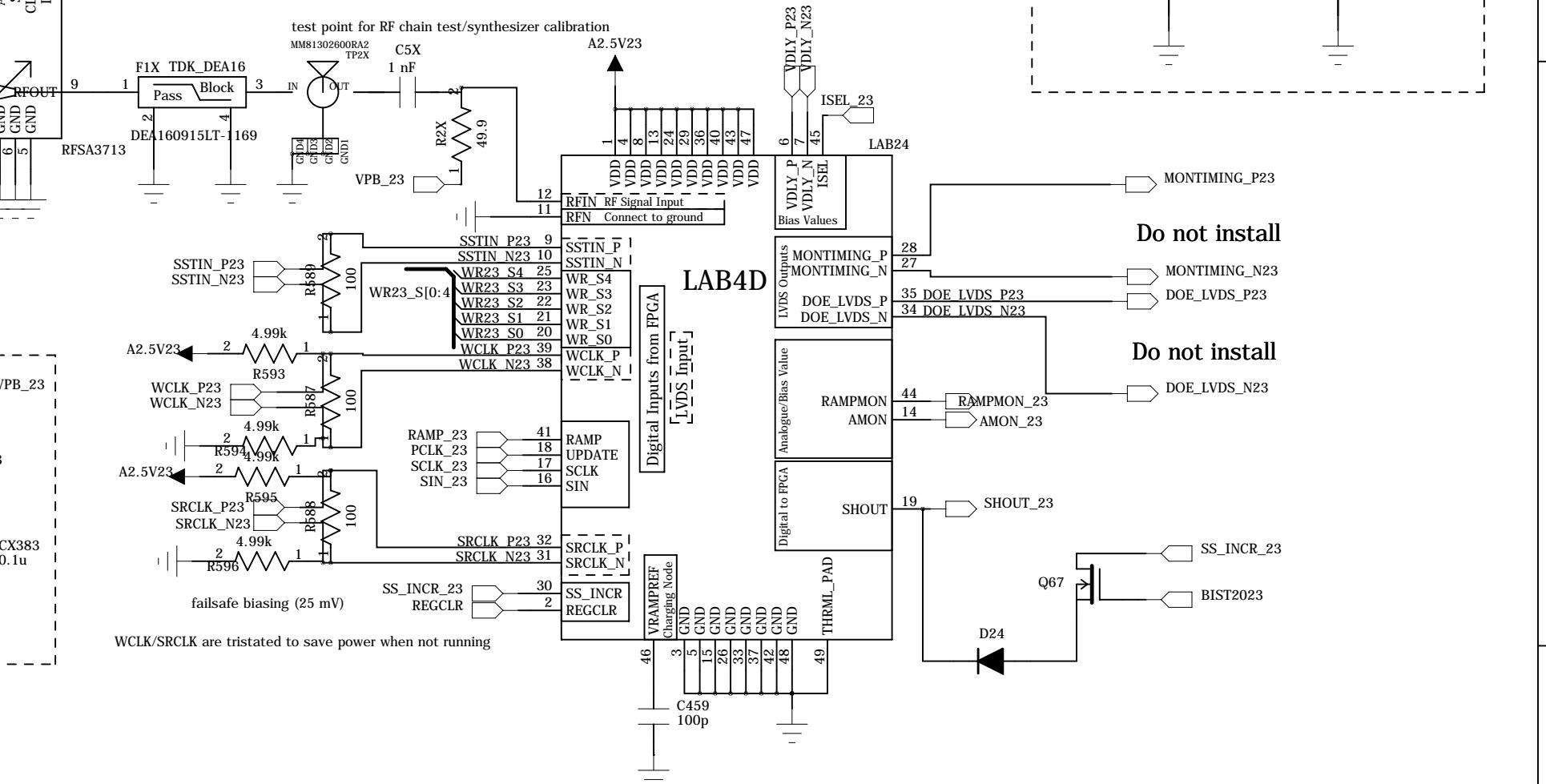
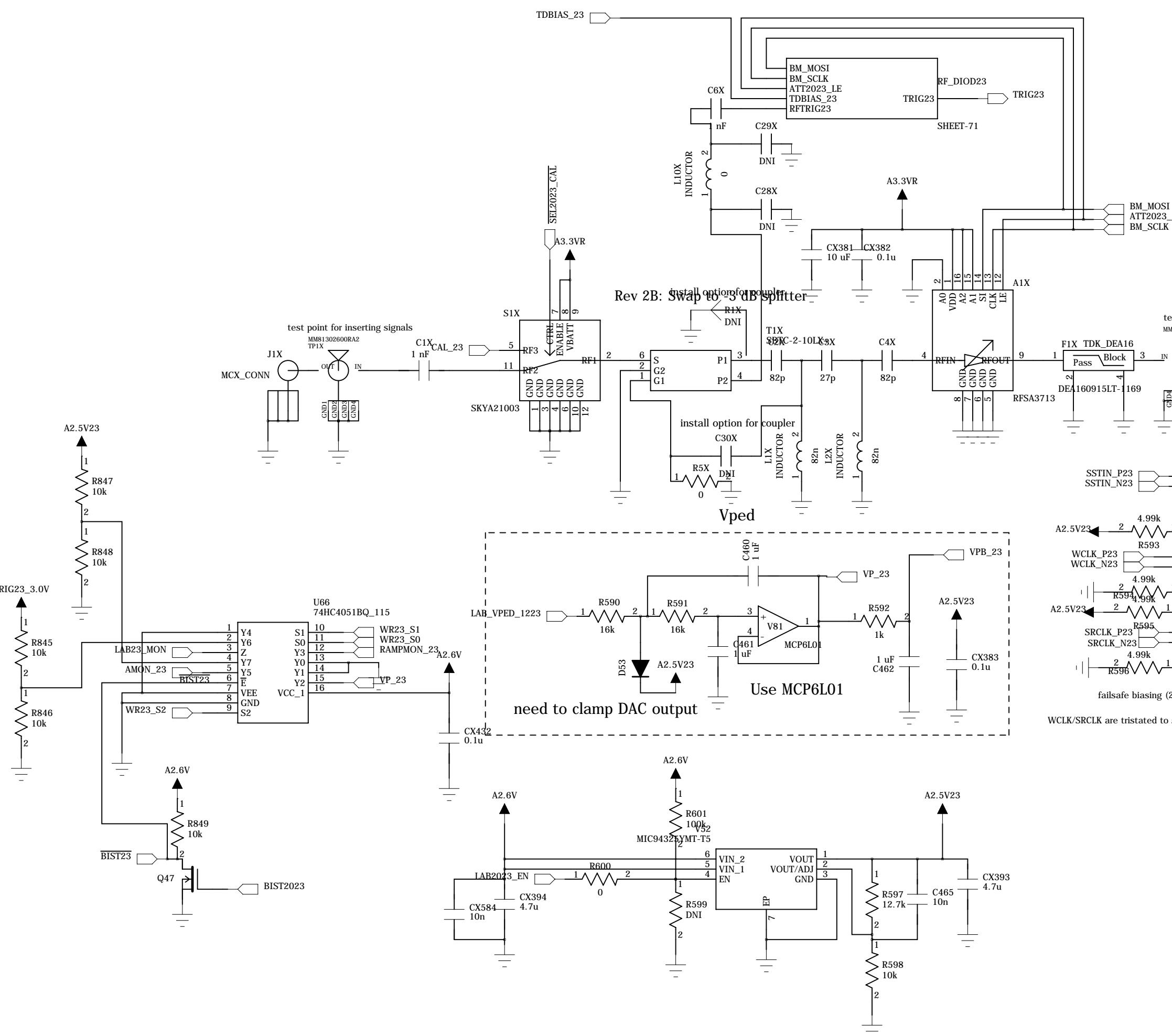
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COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL23		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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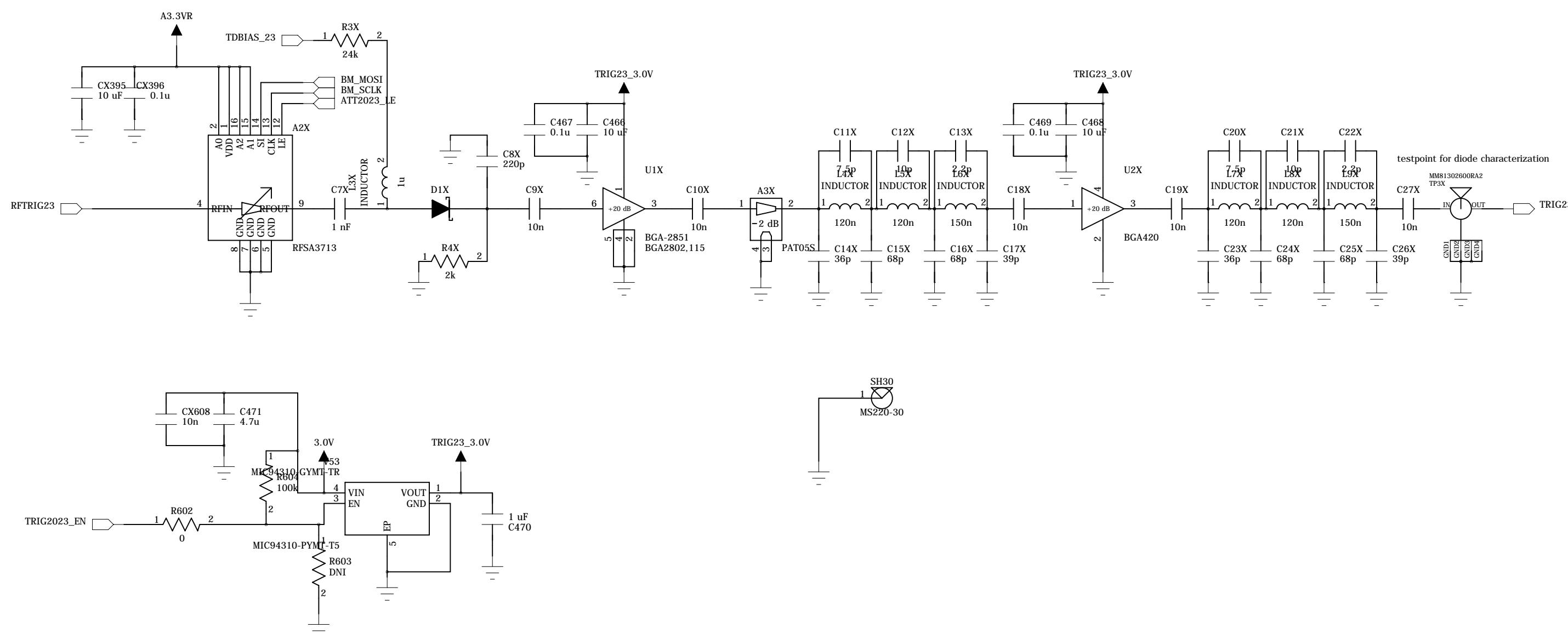
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COMPANY:

Ohio State University

SHEET:

RF\_DIOD23

DRAWN:	PSA	DATED: 2/27/23	CODE: <b>4</b>	SIZE: <b>C</b>	DESIGN: <b>RADIANT</b>	REV: <b>3</b>
CHECKED:	PSA	DATED: 3/3/23				
QUALITY CONTROL:	PSA	DATED: 3/15/23				
RELEASED:	N/A	DATED: N/A				

SCALE: &lt;Scale&gt; SHEET: 74 74

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## REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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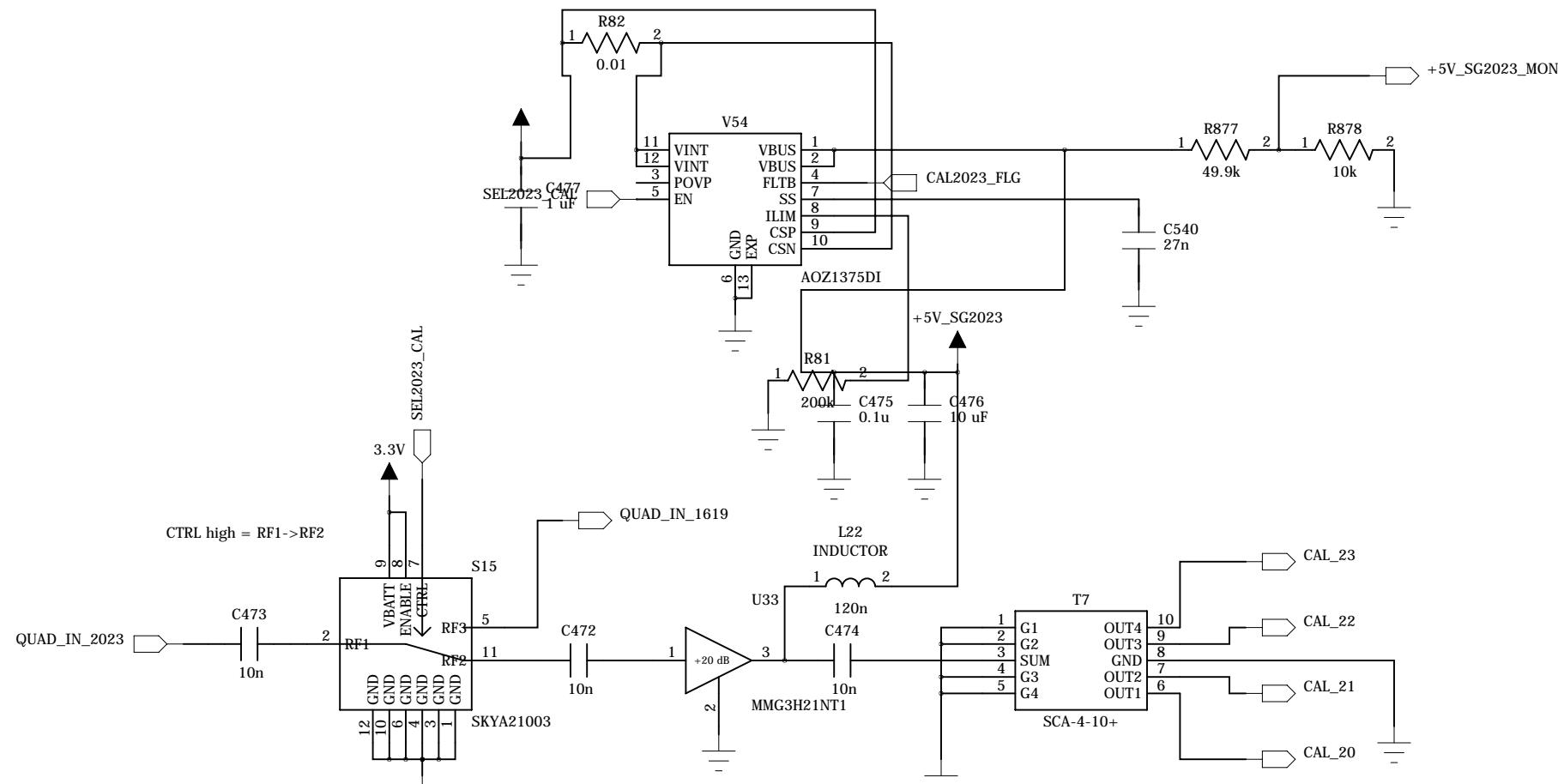
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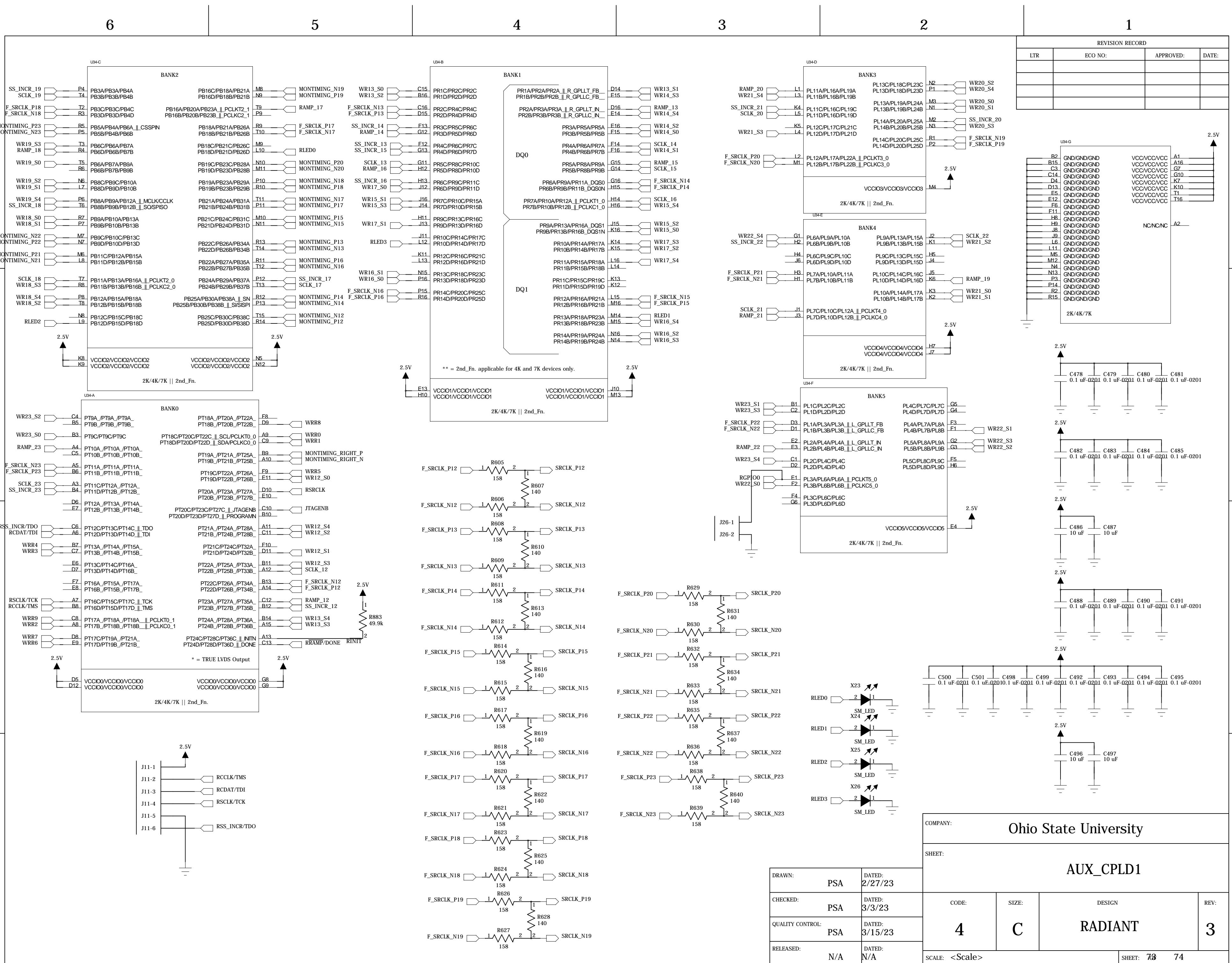
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COMPANY:	Ohio State University		
SHEET:	QUAD_SIG_GENERATOR_5		
DRAWN:	PSA	DATED: 2/27/23	
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
CODE:	SIZE:	DESIGN	REV:
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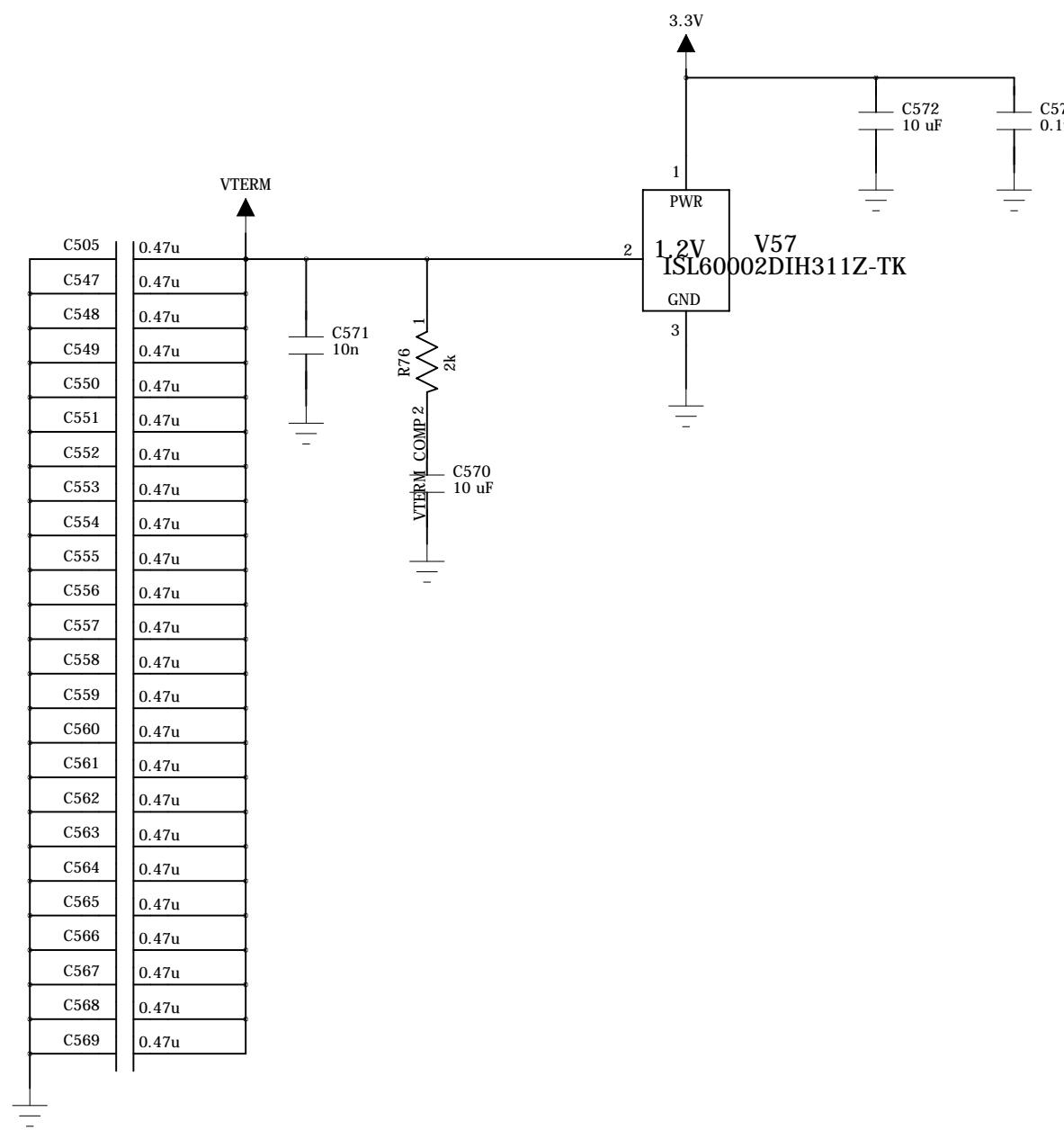
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COMPANY:		Ohio State University		
SHEET:		VTERM		
DRAWN:	PSA	DATED: 2/27/23	CODE:	DESIGN
CHECKED:	PSA	DATED: 3/3/23	C	RADIANT
QUALITY CONTROL:	PSA	DATED: 3/15/23		REV: 3
RELEASED:	N/A	DATED: N/A	SCALE: <Scale>	SHEET: 74 74