

6

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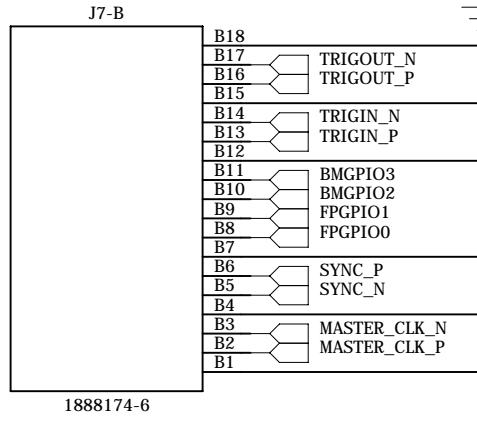
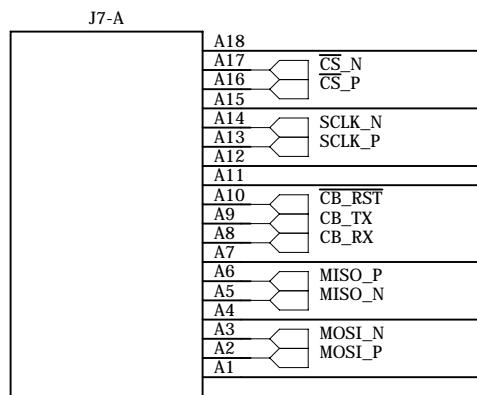
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1

REVISION RECORD

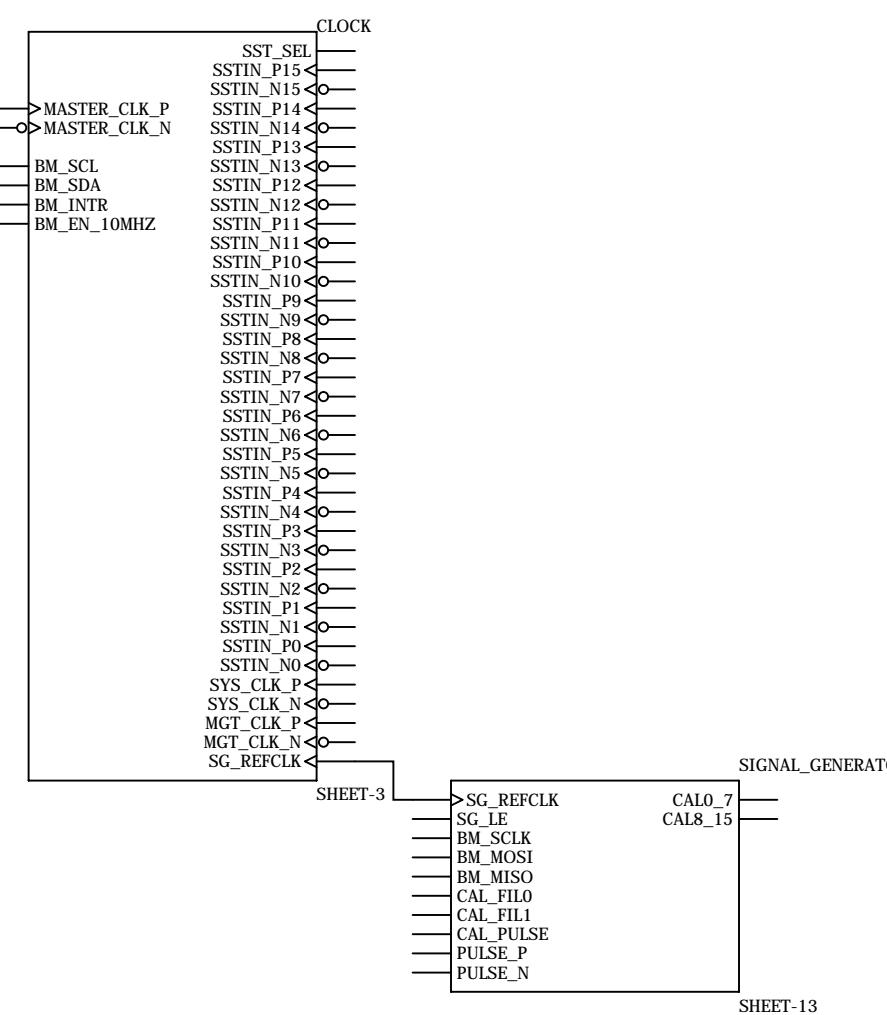
LTR	ECO NO:	APPROVED:	DATE:

D



protection diodes somewhere??

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



SFF-8087 connector

Cable is designed with 8 differential pairs

TRIGIN+/-

TRIGOUT+/-

CLK+/-

SYNC+/-

MOSI/GND

MISO/GND (these are implemented as differential pairs!)

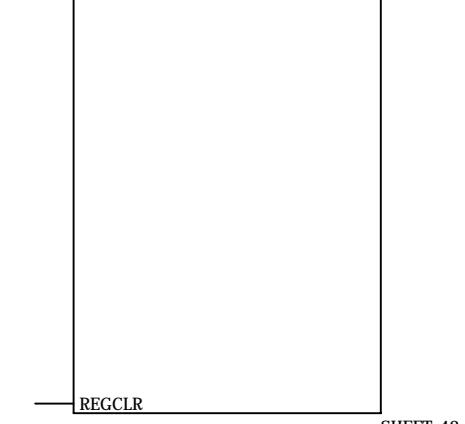
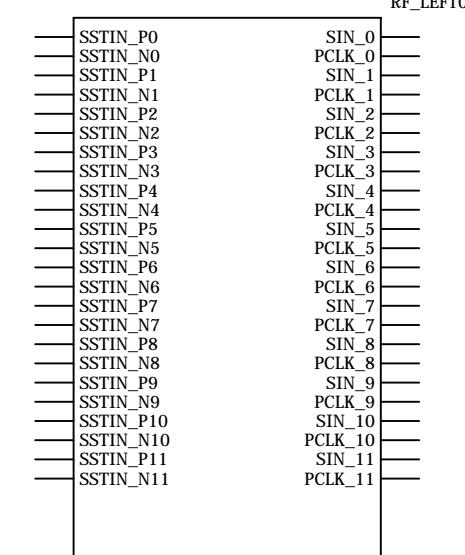
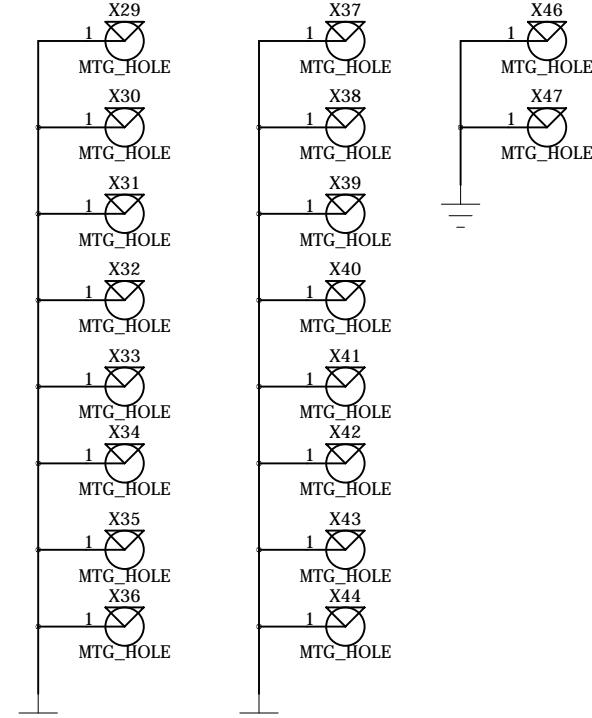
SCLK/GND (allows for a higher-speed FPGA-to-FPGA link)

CS/GND (if used single ended, just drive N side to ground in FPGA)

There are also 8 sideband signals

RX/TX/RST/GND/GPIO[3:0]

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



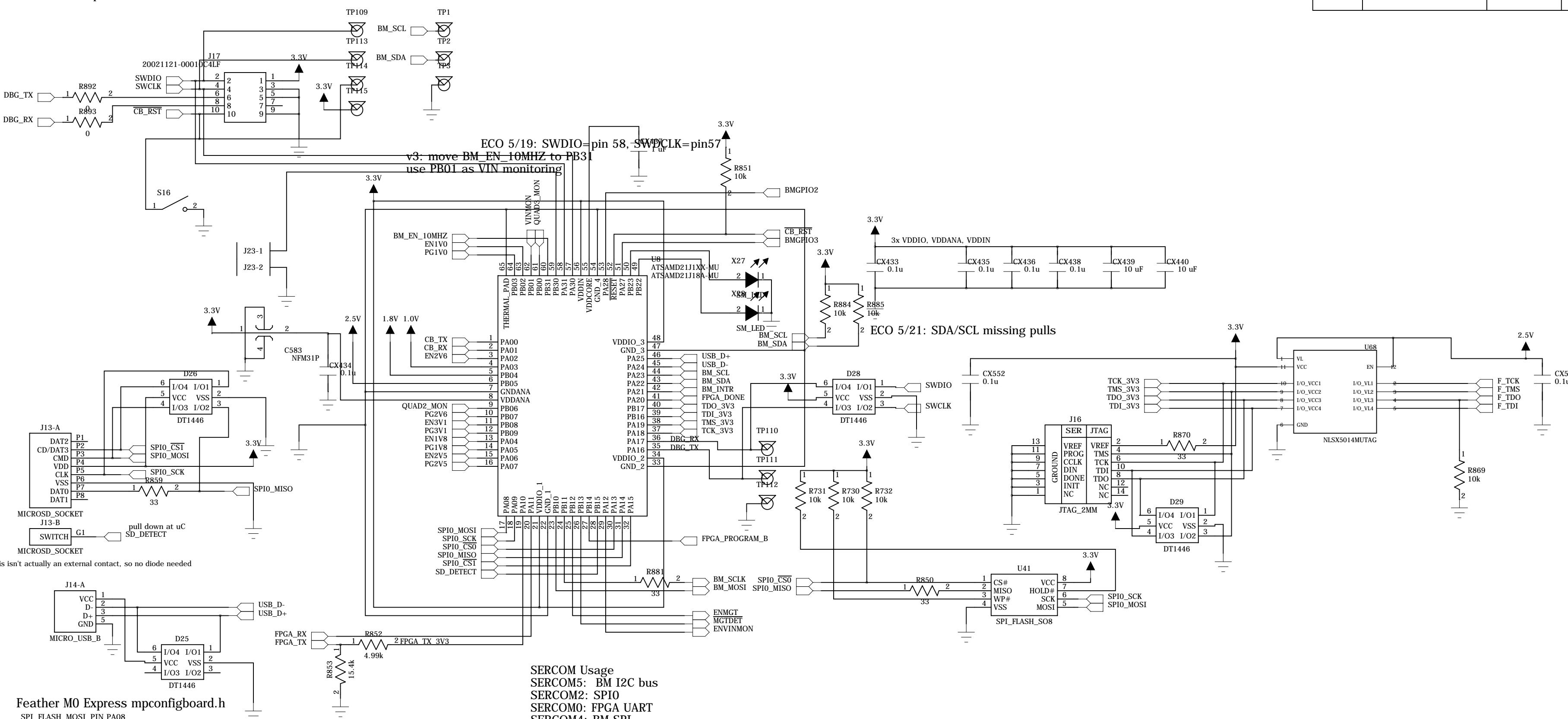
REGCLR

SHEET-42

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: 1B		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

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		
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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CODE:	SIZE:	DESIGN	REV:
4	C	RADIANT	3
Sheet: 20F	74		

6

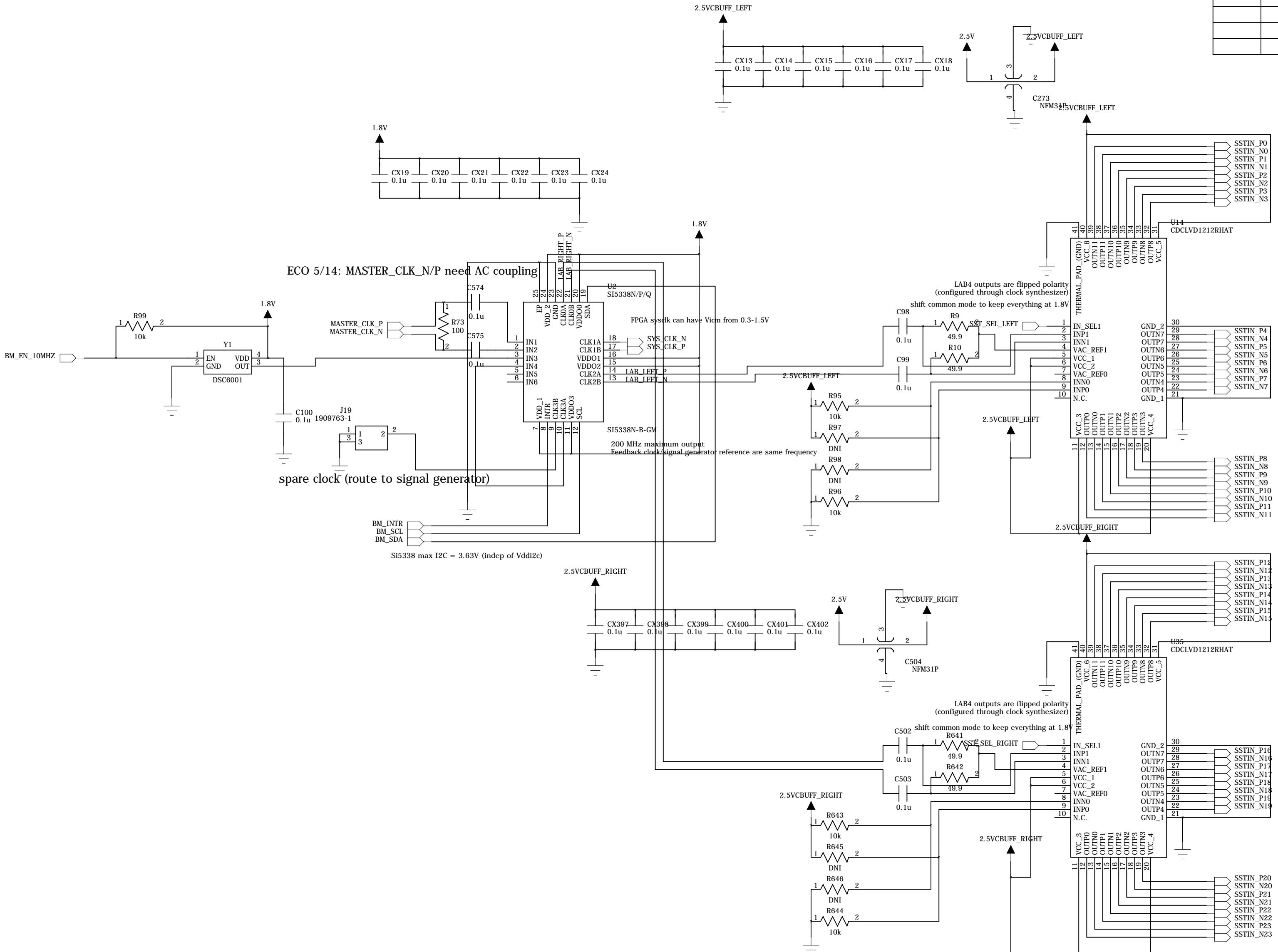
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4

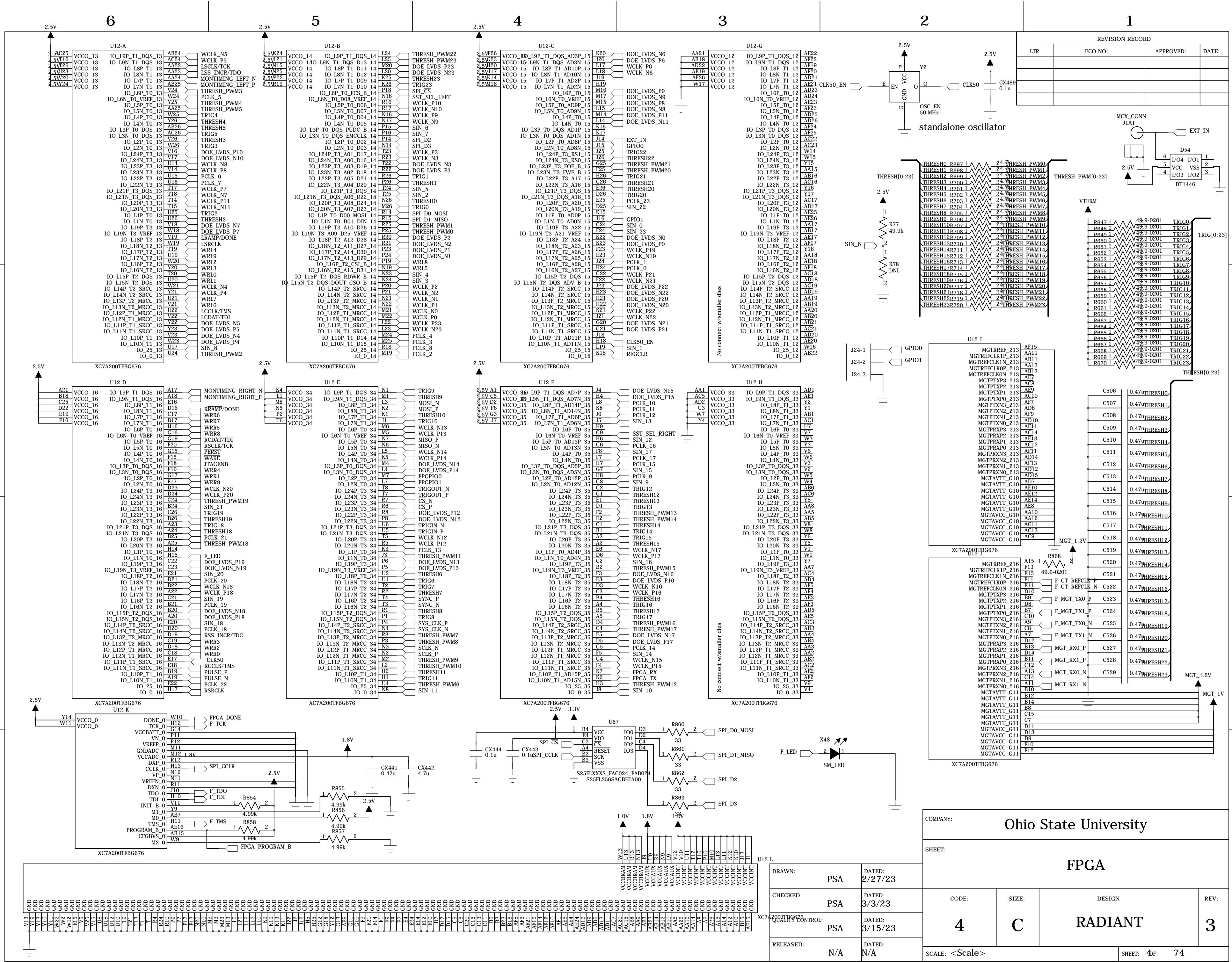
3

2

1



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



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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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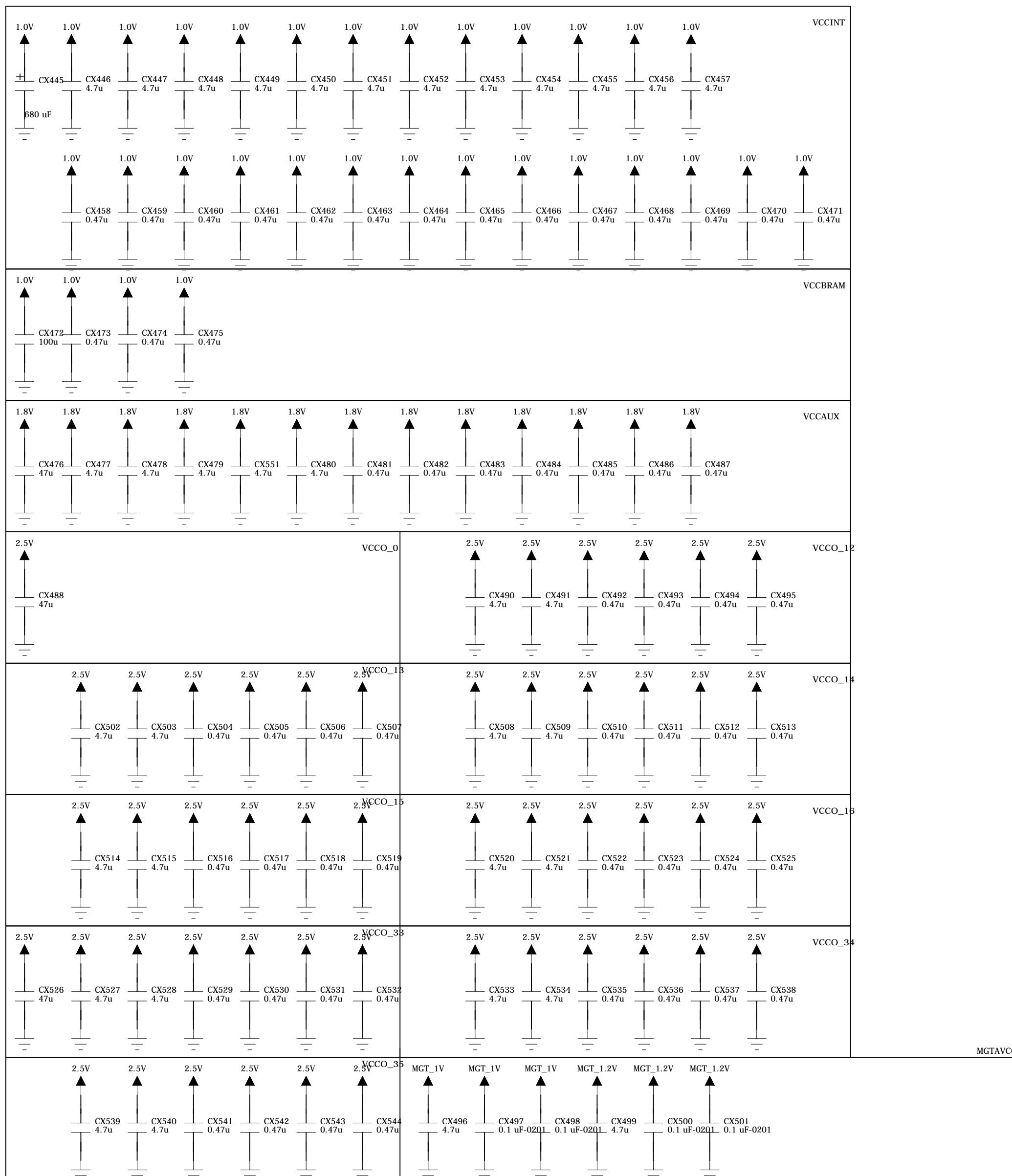
C

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A



COMPANY:	Ohio State University		
SHEET:	FPGA_DECOPPLE		
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: 5F		74	

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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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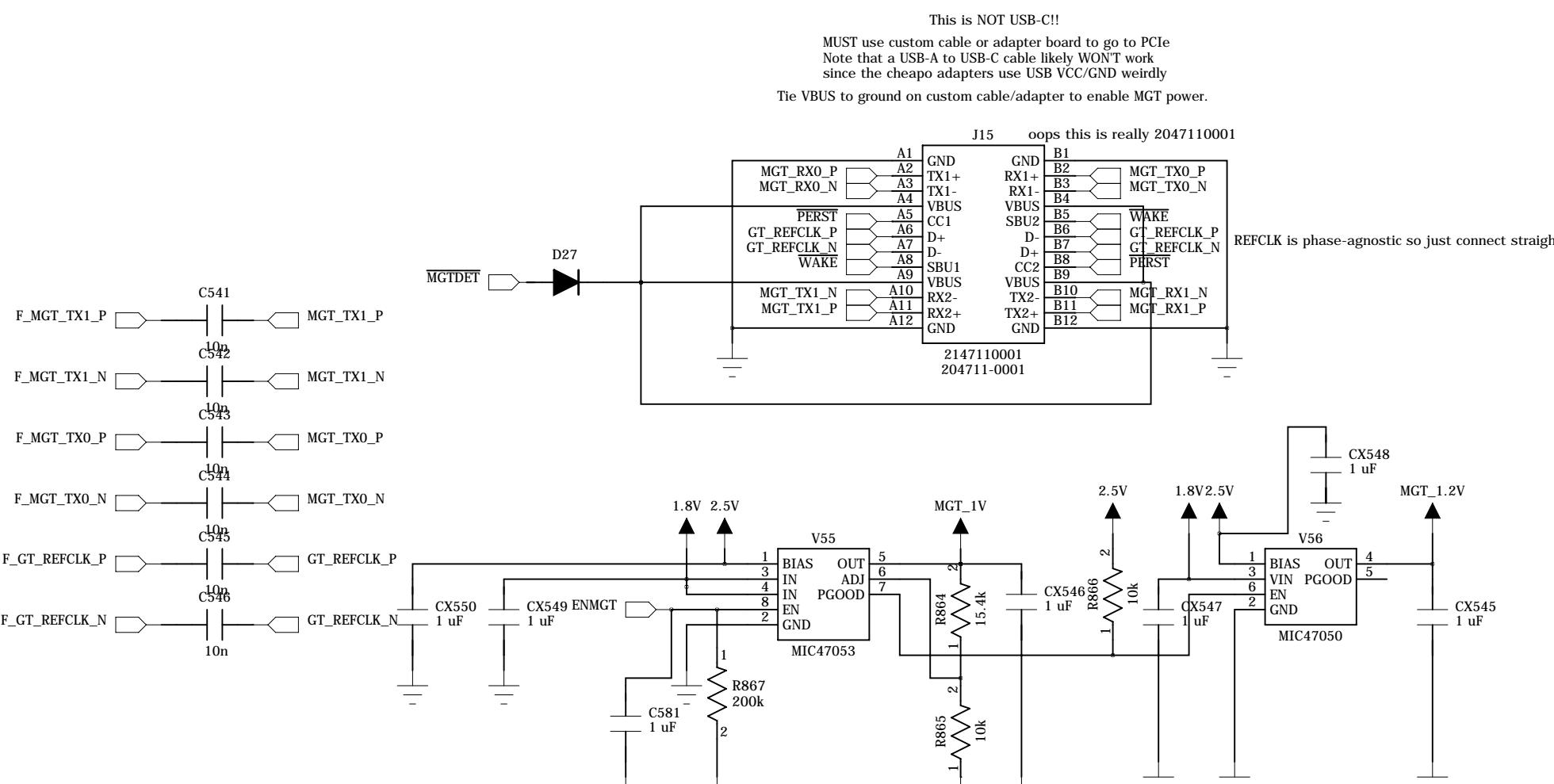
C

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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		
CODE:	SIZE:	DESIGN	REV:
4	C	RADIANT	3
SCALE: <Scale>	SHEET: 6F 74		

REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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C

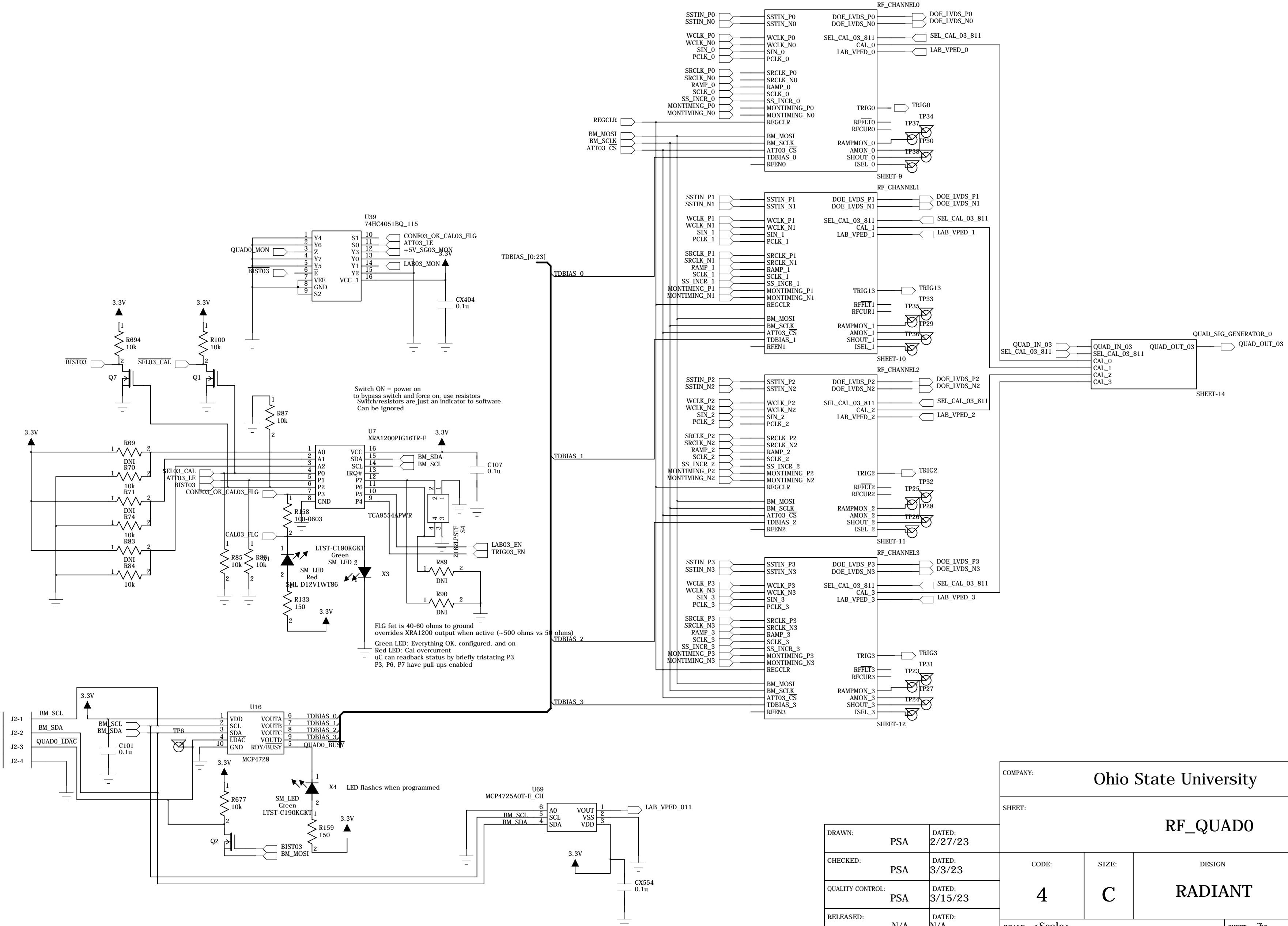
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B

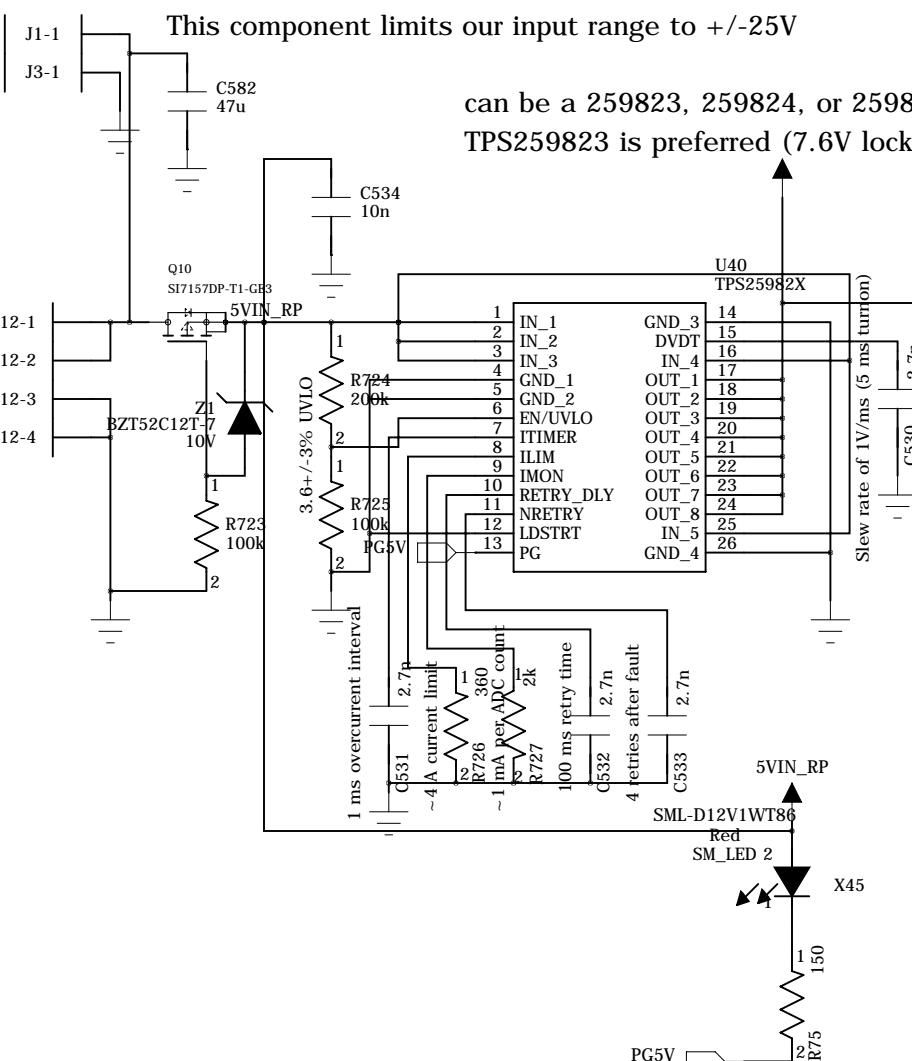
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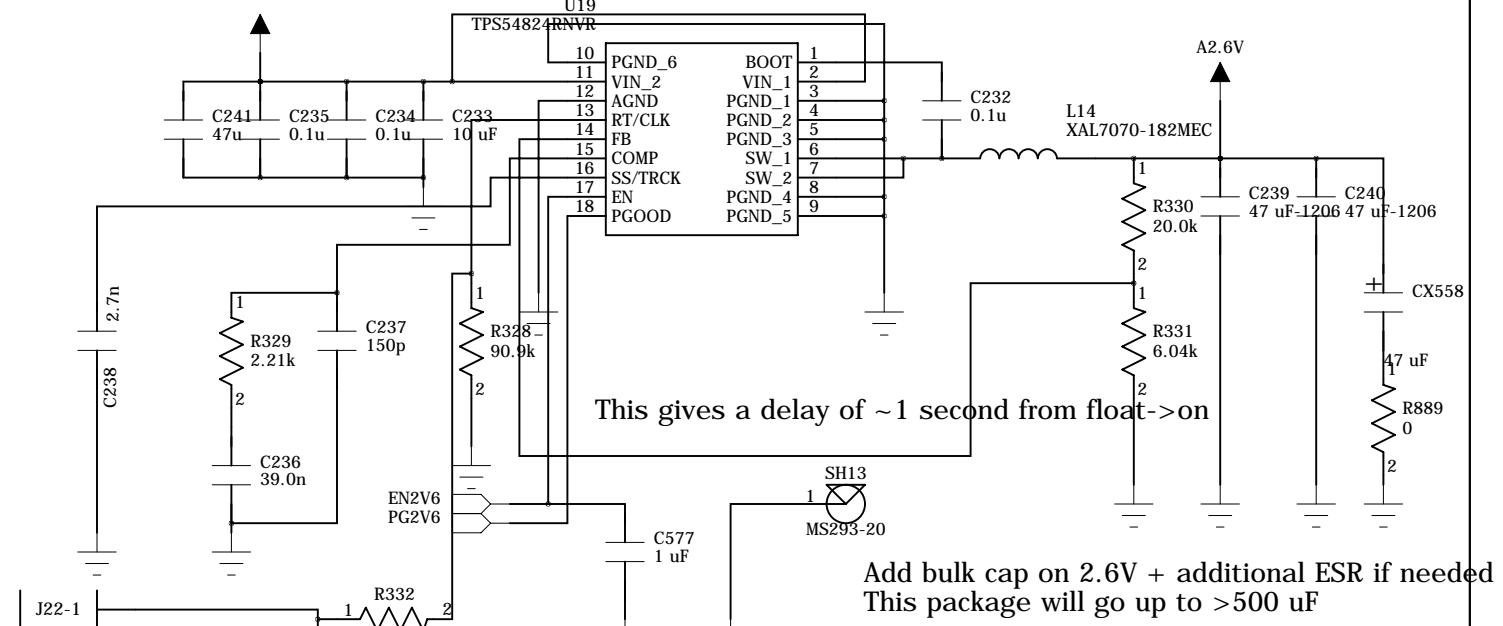
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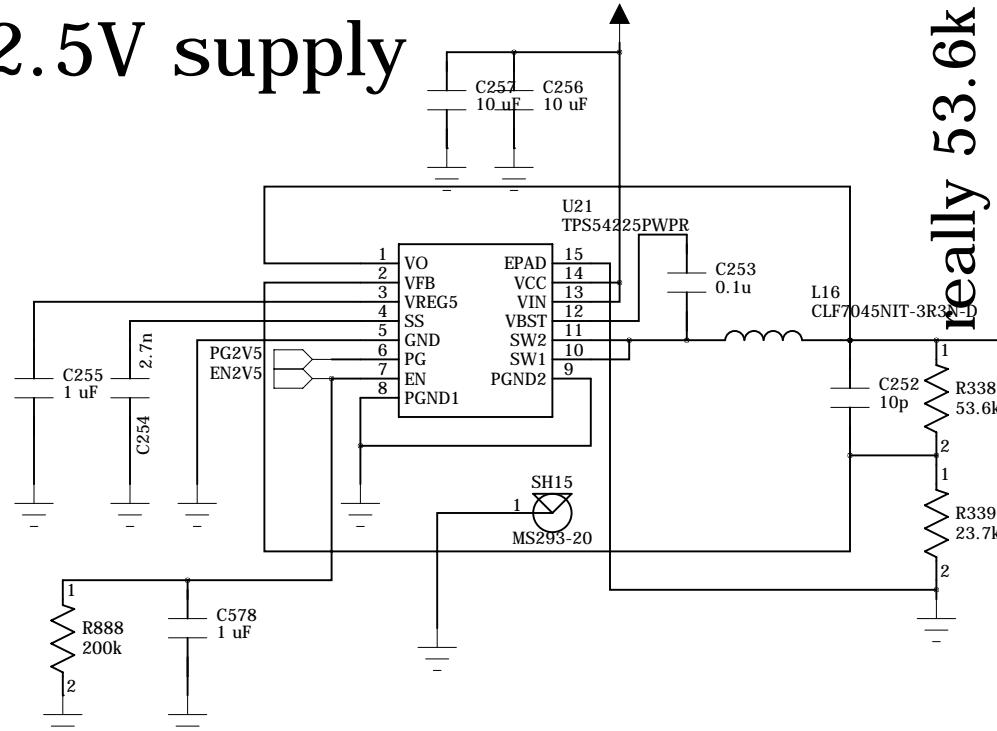
Input power protection



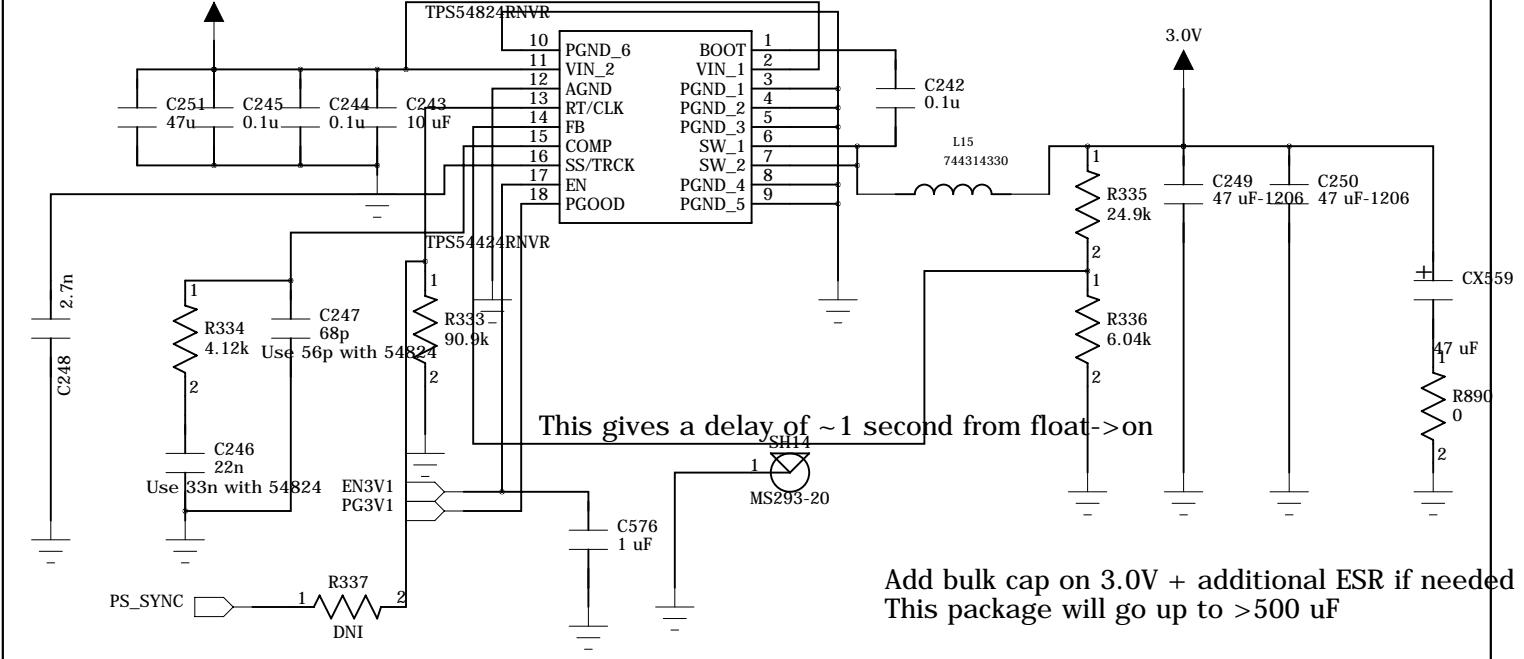
LAB4D supply (2.6V, regulated to 2.5V)



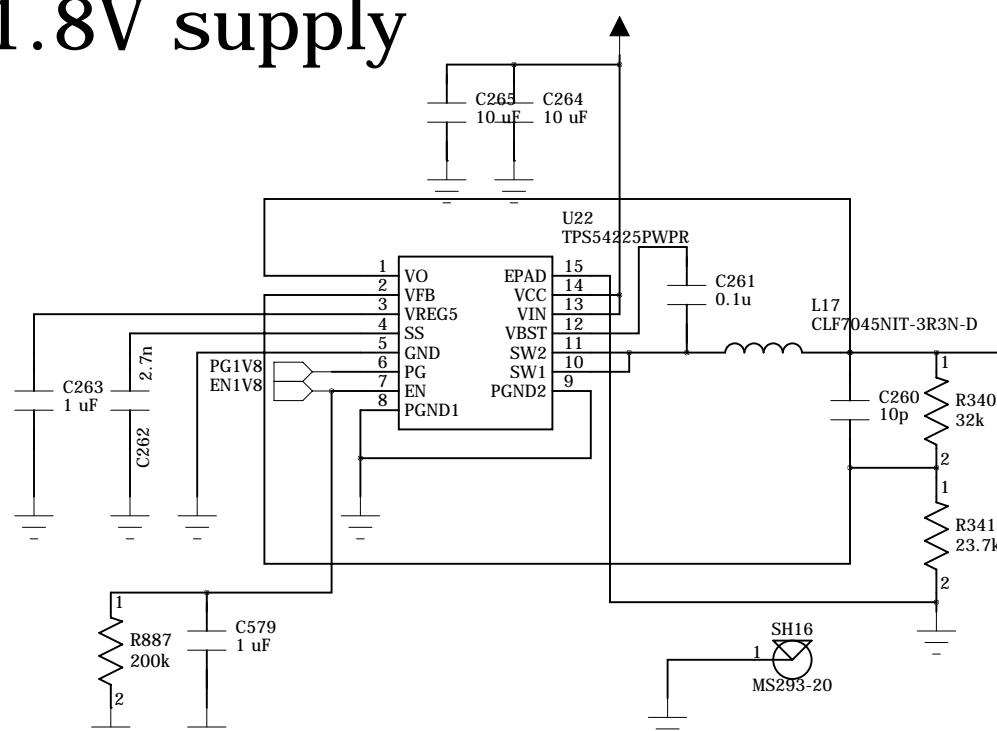
2.5V supply



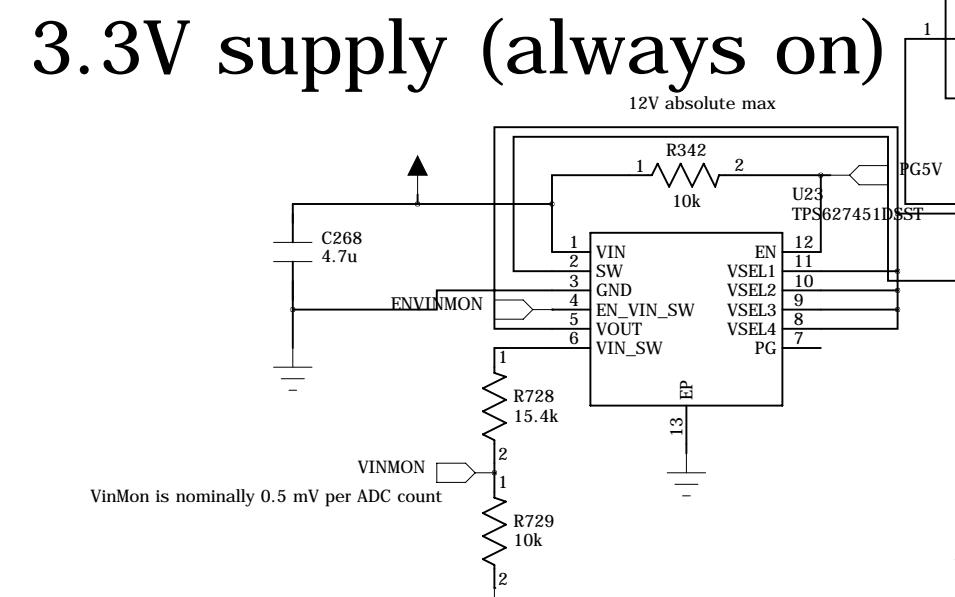
Trigger supply (3.07V, regulated to 3.0V)



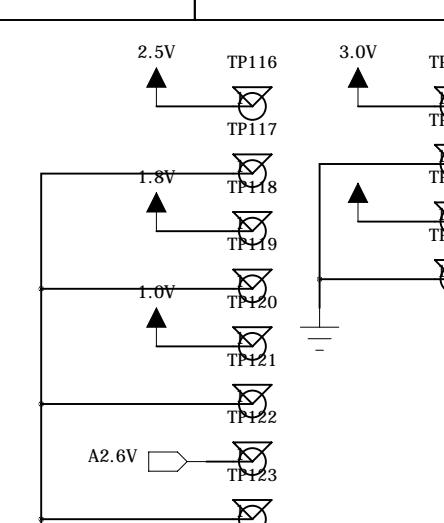
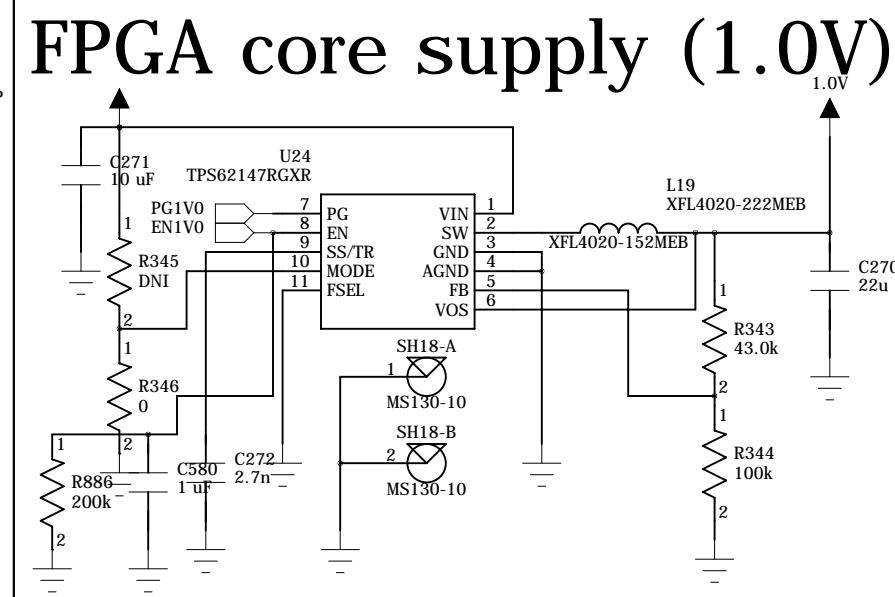
1.8V supply



3.3V supply (always on)



FPGA core supply (1.0V)



Ohio State University

POWER

PSA	DATED: 2/27/23					
HECKED:	PSA	DATED: 3/3/23	CODE:	SIZE:	DESIGN	REV:
UALITY CONTROL:	PSA	DATED: 3/15/23	4	C	RADIANT	3
ELEASED:	N/A	DATED: N/A	SCALE: <Scale>		SHEET: 8F	74

REVISION RECORD

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

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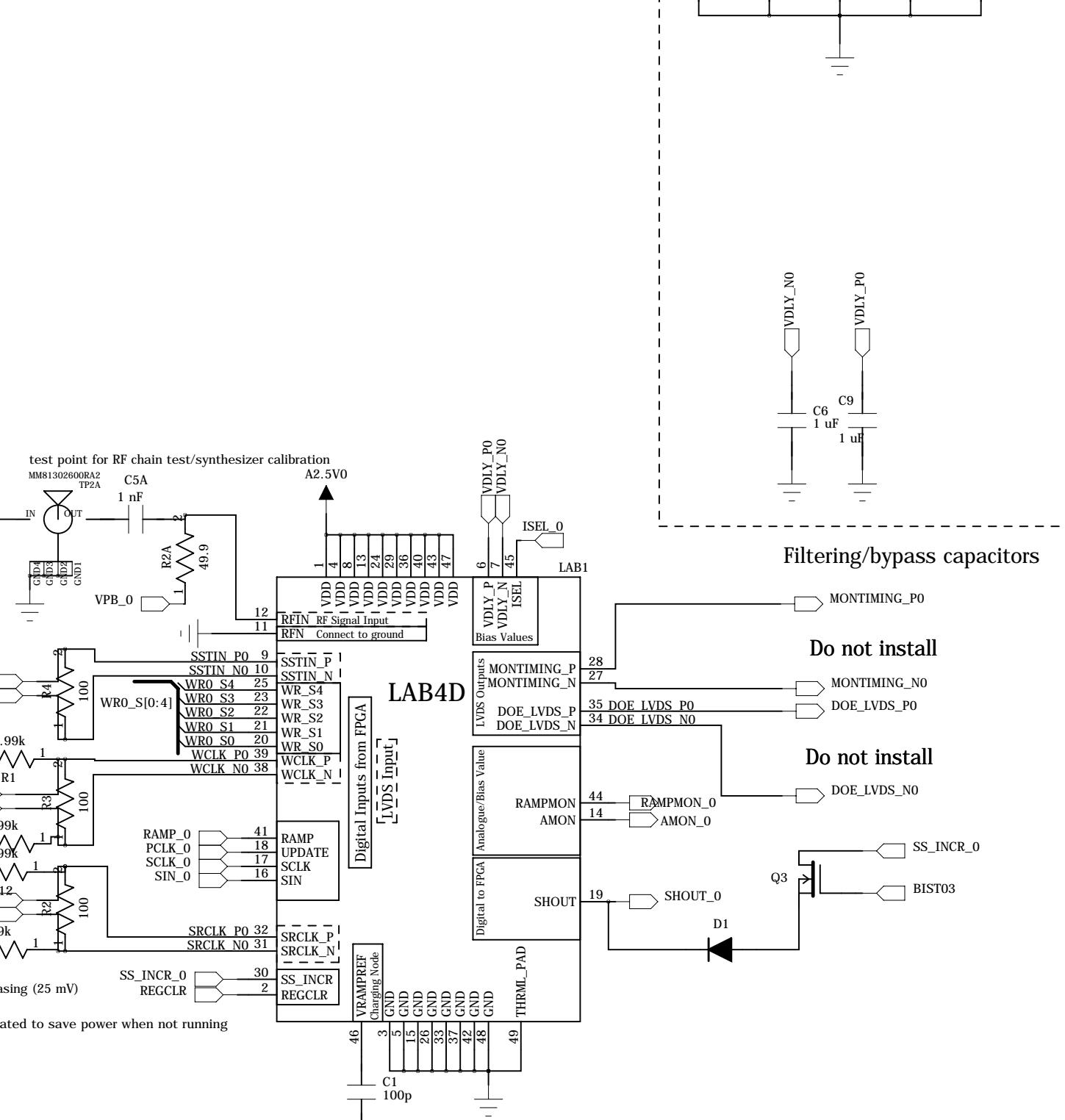
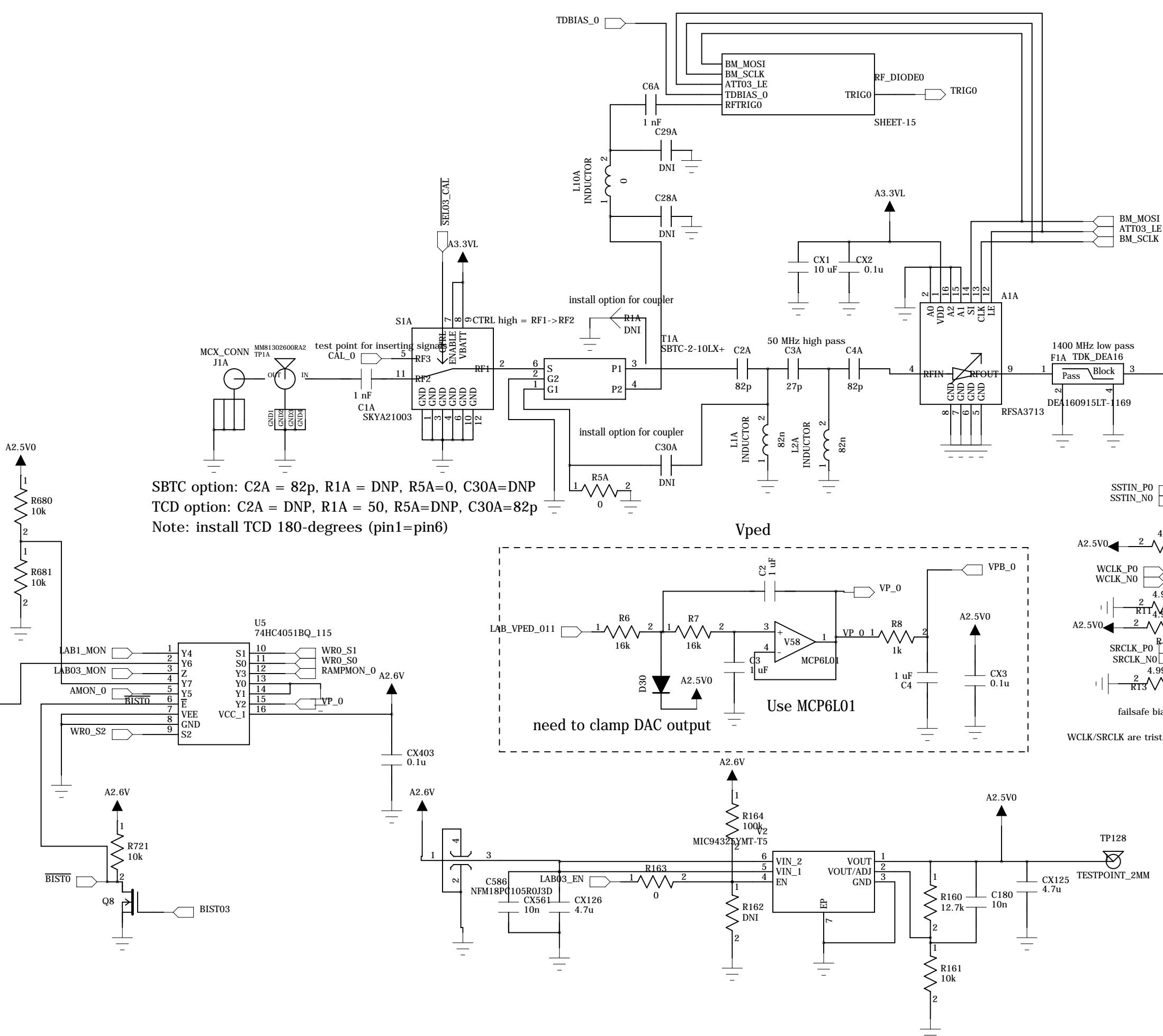
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

COMPANY: Ohio State University

SHEET: RF_CHANNEL0

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

SCALE: <Scale> SHEET: 9F 74

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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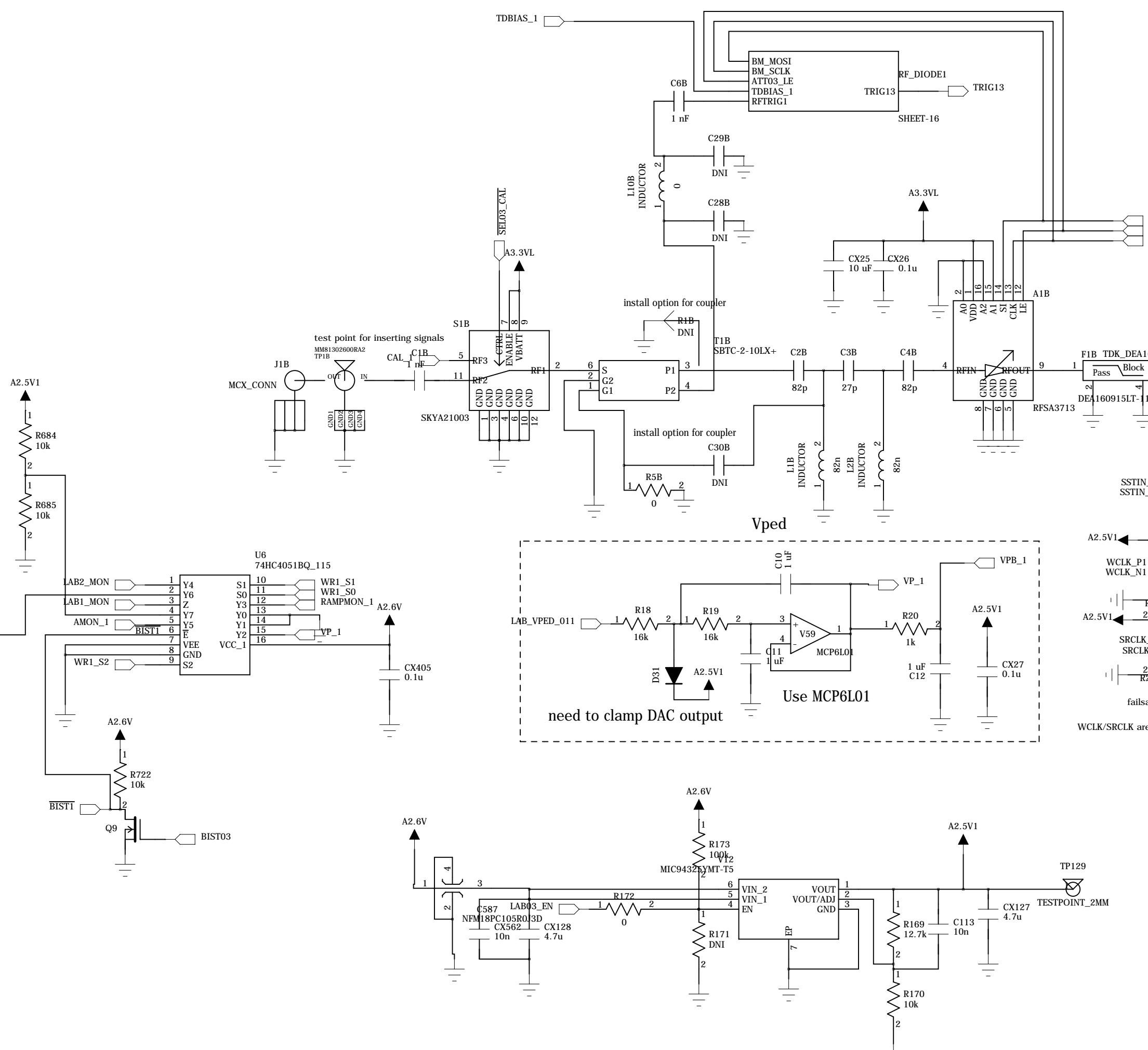
C

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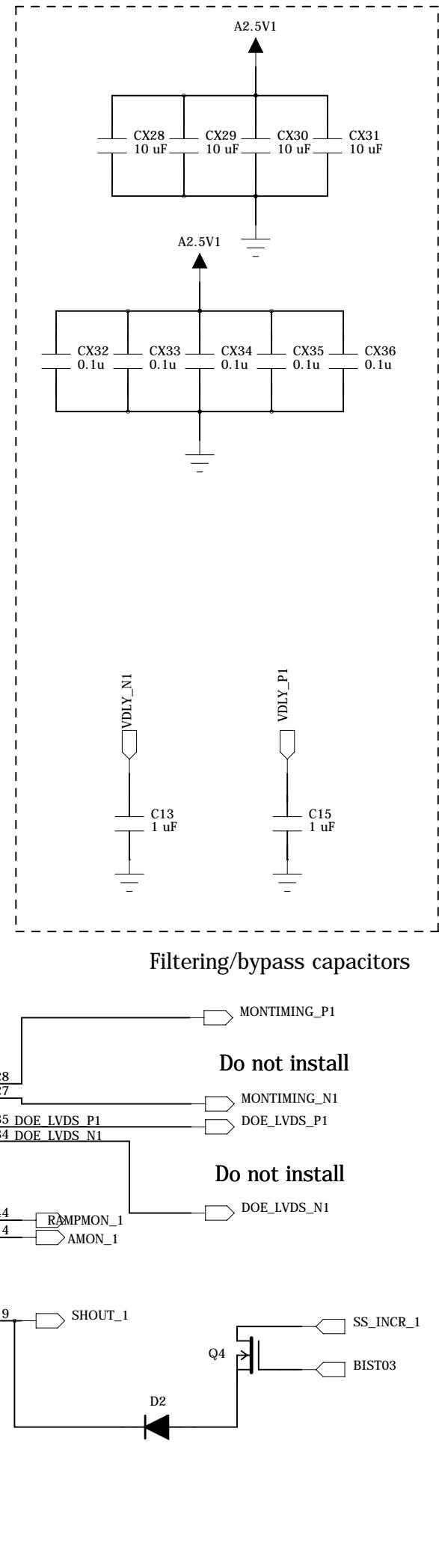
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A



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_CHANNEL1
CODE: 4 SIZE: C DESIGN: RADIANT REV: 3
SCALE: <Scale> SHEET: 10 74



REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

D

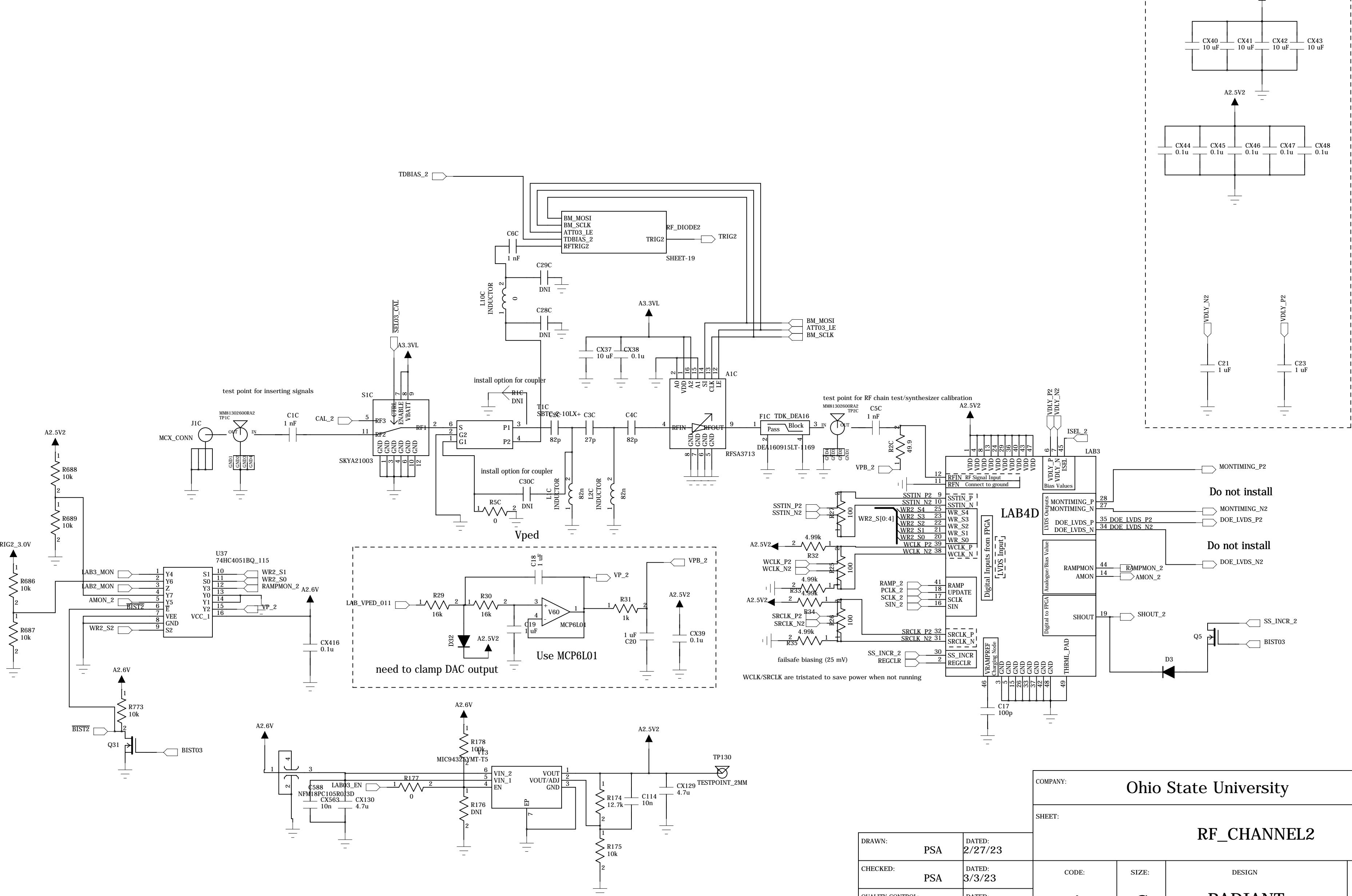
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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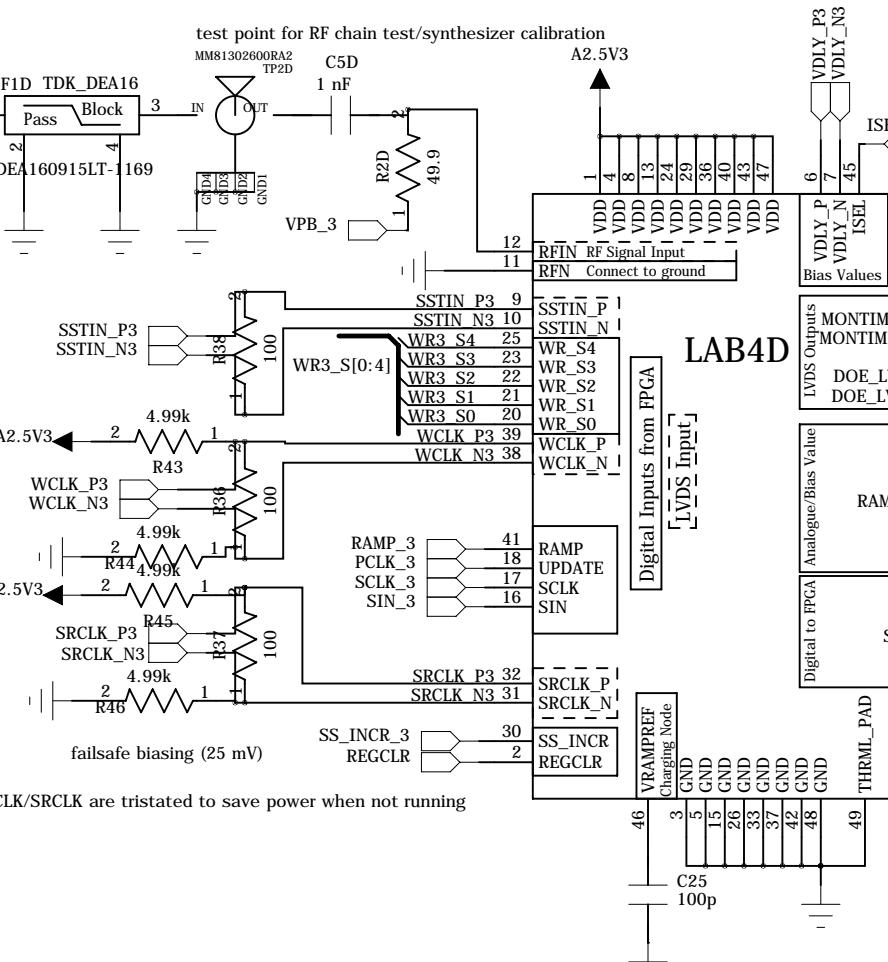
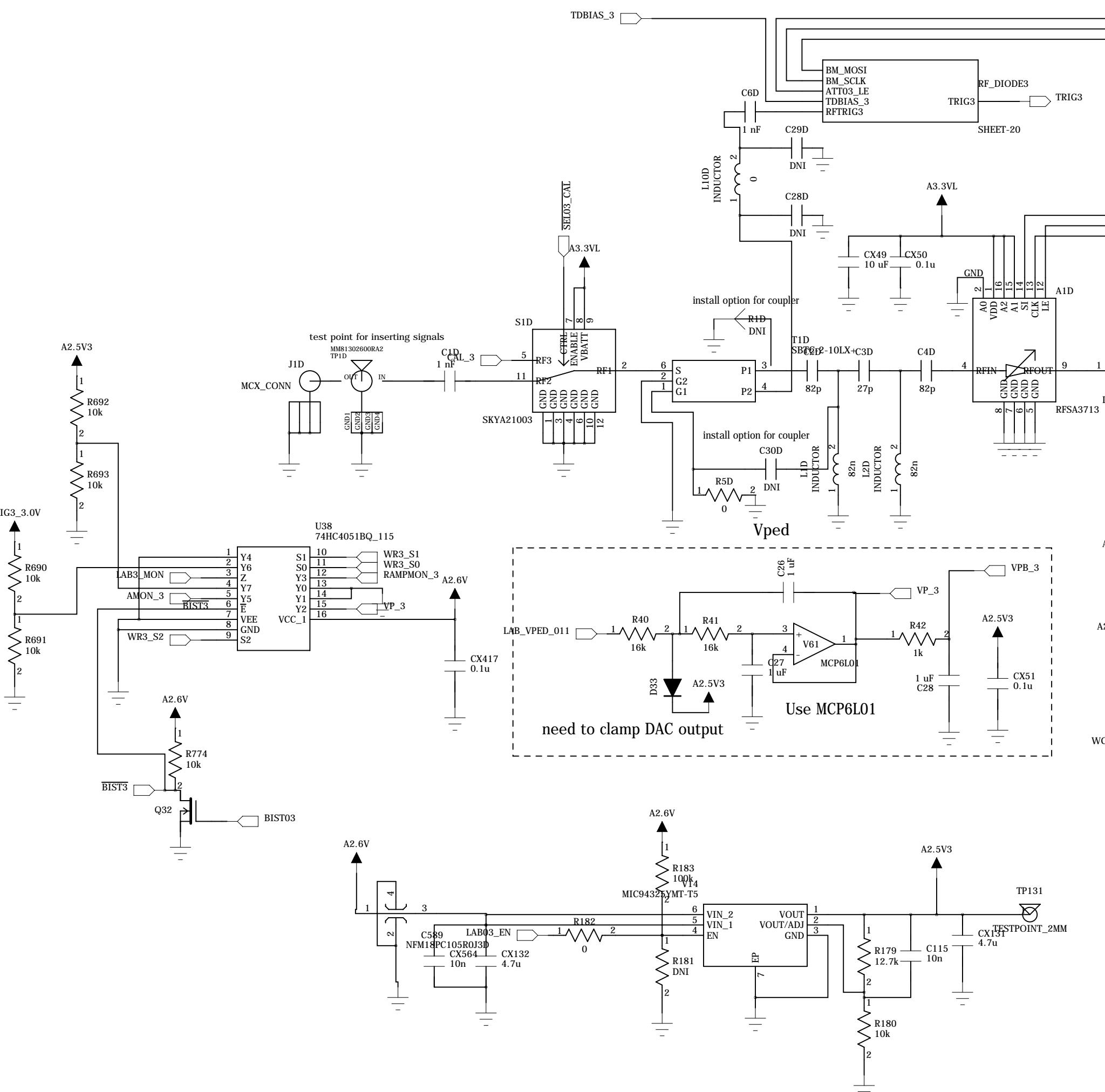
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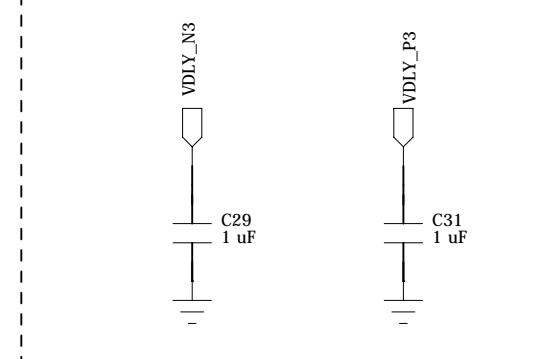
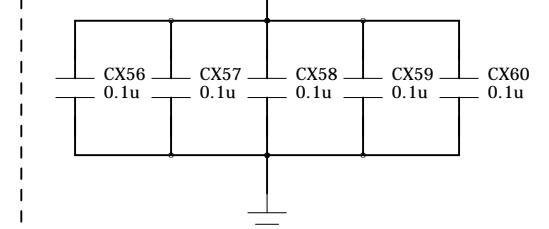
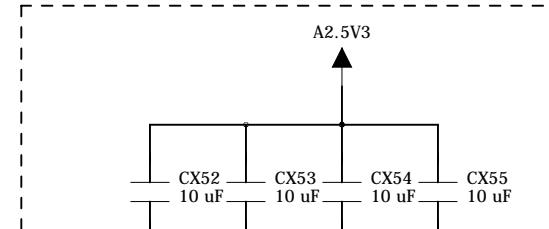
B

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COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL3		
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:	4
		SIZE:	C
		DESIGN:	RADIANT
		REV:	3



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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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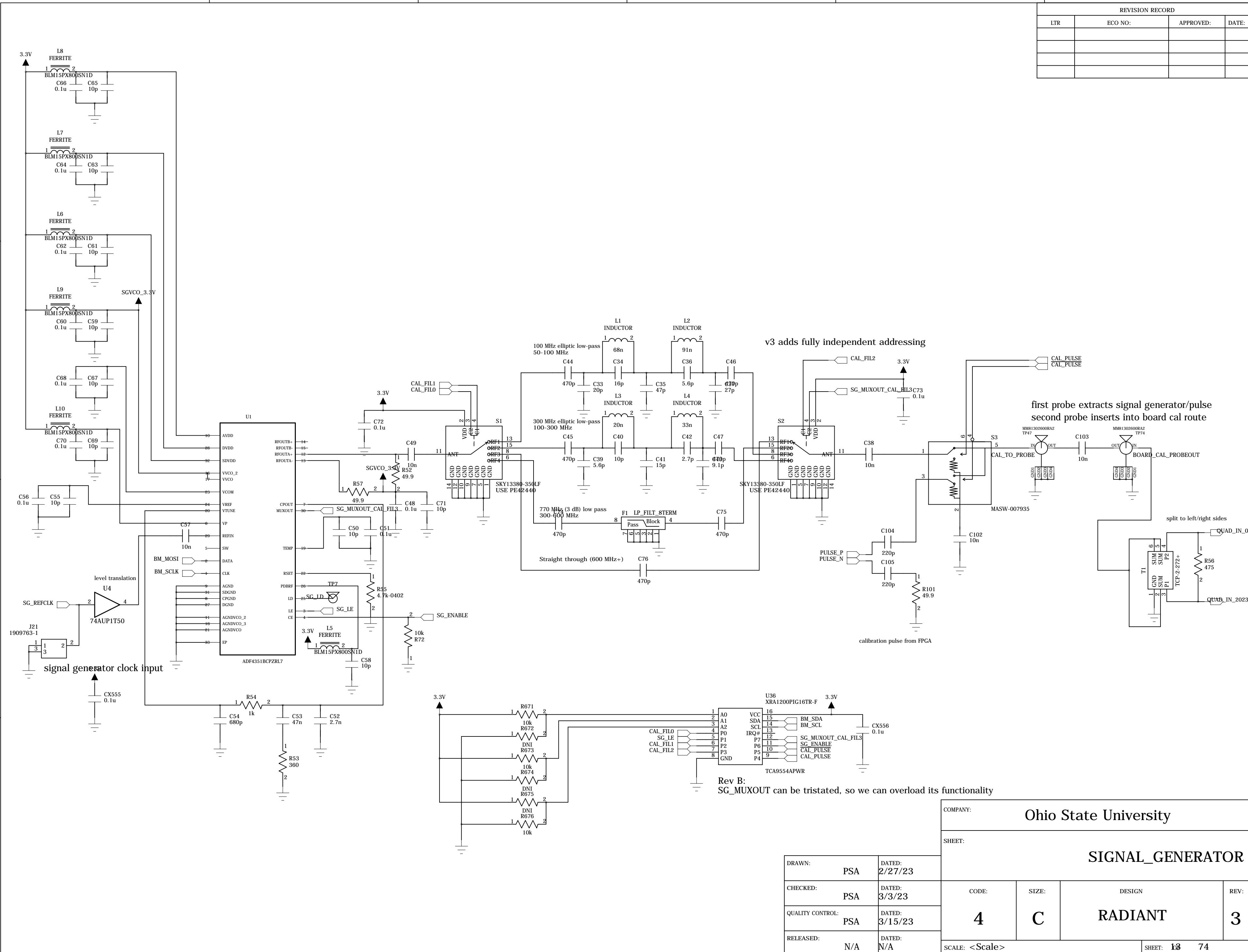
C

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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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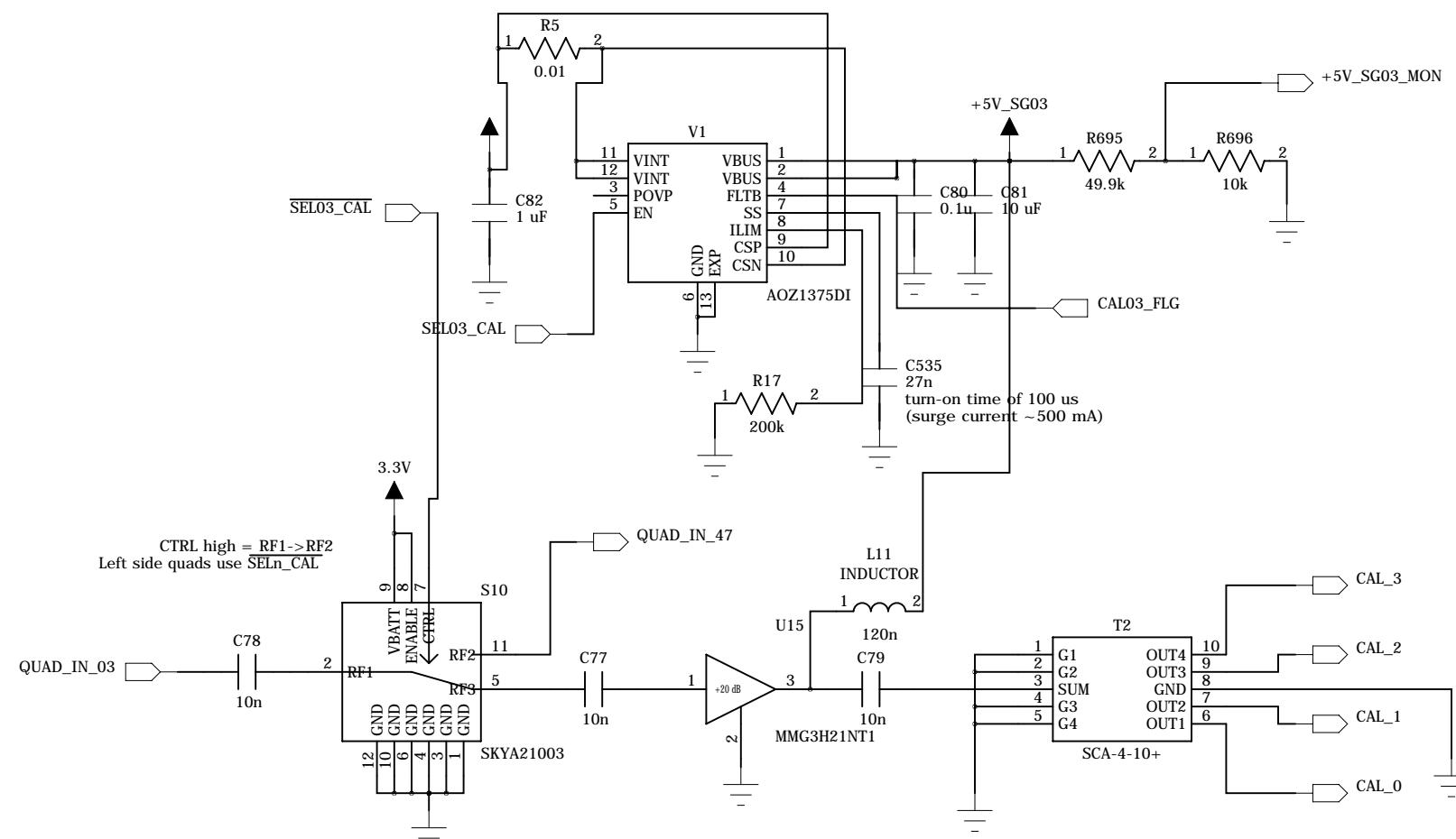
C

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COMPANY:	Ohio State University		
SHEET:	QUAD_SIG_GENERATOR_0		
CODE:	SIZE:	DESIGN	REV:
4	C	RADIANT	3
SCALE: <Scale>	SHEET: 14 74		

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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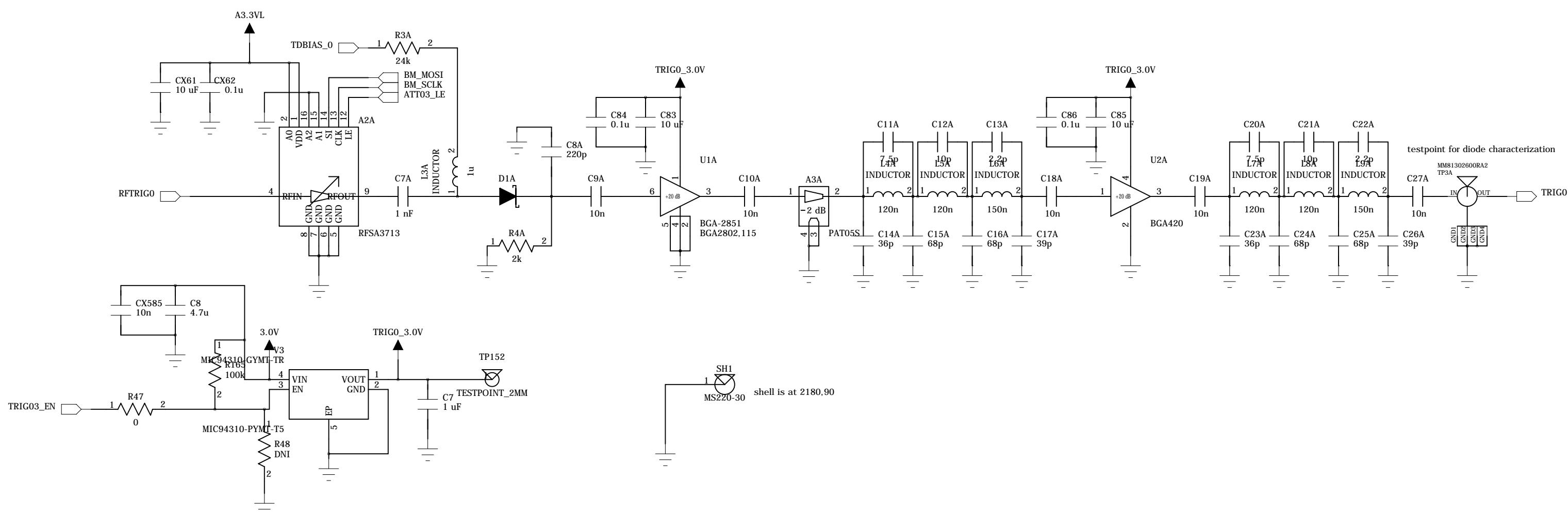
C

B

B

A

A



COMPANY:	Ohio State University		
SHEET:	RF_DIODE0		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
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CODE:	4	SIZE:	RADIANT
REV:	3	DESIGN:	
SCALE:	<Scale>		
SCALE:	15 74		

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

D

D

C

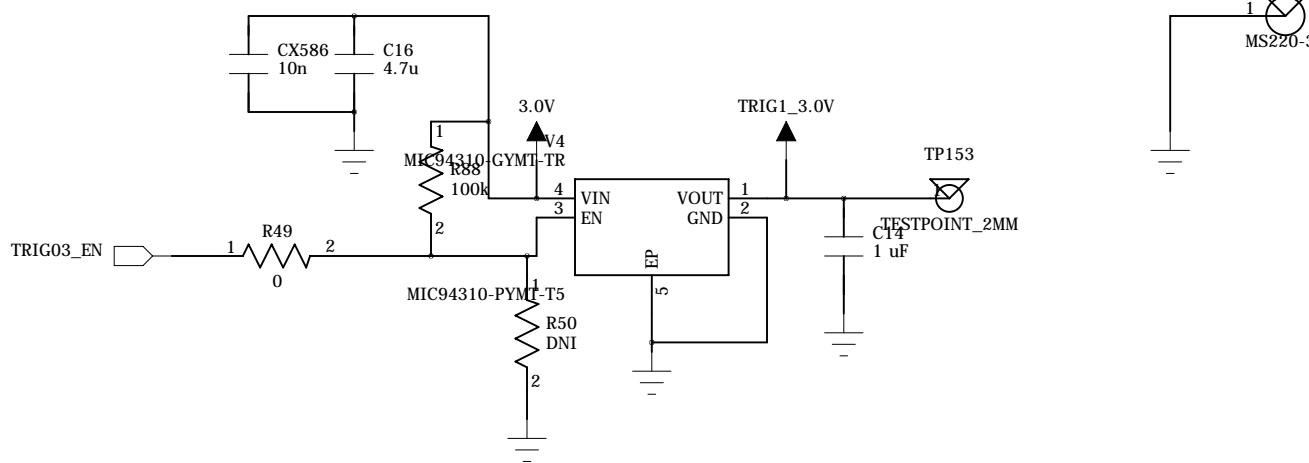
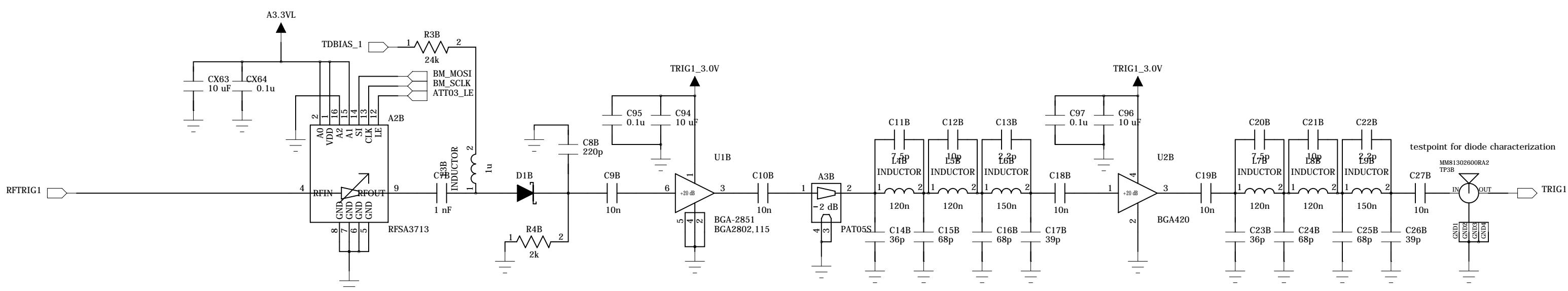
C

B

B

A

A



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
CODE:	SIZE:	DESIGN	REV:
4	C	RADIANT	3
SCALE: <Scale>	Sheet: 16	74	

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

B2	GND/GND/GND	VCC/VCC/VCC	A1
B15	GND/GND/GND	VCC/VCC/VCC	A16
C3	GND/GND/GND	VCC/VCC/VCC	G7
C14	GND/GND/GND	VCC/VCC/VCC	G10
D4	GND/GND/GND	VCC/VCC/VCC	K7
D13	GND/GND/GND	VCC/VCC/VCC	K10
E5	GND/GND/GND	VCC/VCC/VCC	T1
E12	GND/GND/GND	VCC/VCC/VCC	T16
F6	GND/GND/GND		
F11	GND/GND/GND		
H8	GND/GND/GND		
J8	GND/GND/GND		
I6	GND/GND/GND		
L11	GND/GND/GND		
M5	GND/GND/GND		
M12	GND/GND/GND		
N13	GND/GND/GND		
P3	GND/GND/GND		
P14	GND/GND/GND		
R2	GND/GND/GND		
R15	GND/GND/GND		

U13-G			2.5V
B2	GND/GND/GND	VCC/VCC/VCC	A1
B15	GND/GND/GND	VCC/VCC/VCC	A16
C3	GND/GND/GND	VCC/VCC/VCC	G7
C14	GND/GND/GND	VCC/VCC/VCC	G10
D4	GND/GND/GND	VCC/VCC/VCC	K7
D13	GND/GND/GND	VCC/VCC/VCC	K10
E5	GND/GND/GND	VCC/VCC/VCC	T1
E12	GND/GND/GND	VCC/VCC/VCC	T16
F6	GND/GND/GND		
F11	GND/GND/GND		
H8	GND/GND/GND		
J8	GND/GND/GND		
I6	GND/GND/GND		
L11	GND/GND/GND		
M5	GND/GND/GND		
M12	GND/GND/GND		
N13	GND/GND/GND		
P3	GND/GND/GND		
P14	GND/GND/GND		
R2	GND/GND/GND		
R15	GND/GND/GND		

U13-E			2.5V
WR10_S4	SCLK_10	J2	SCLK_10
SS_INCR_10	H2	K1	WR9_S2
PL6A/PL9A/PL10A	J1	J2	PL9B/PL13B/PL10B
PL6B/PL9B/PL10B	K1	K2	PL9C/PL13C/PL10C
PR10A/PR14A/PR17A	K14	K15	PL9D/PL9D/PL10D
PR10B/PR14B/PR17B	K15	K16	PL10C/PL14C/PL16C
PR10D/PR14D/PR17D	J16	J17	PL10D/PL14D/PL16D
PR11A/PR15A/PR18A	J17	J18	PL10A/PL14A/PL17A
PR11B/PR15B/PR18B	J18	J19	PL10B/PL14B/PL17B
PR11C/PR15C/PR19C	J19	J20	PL10C/PL14C/PL16C
PR11D/PR15D/PR19D	J20	J21	PL10D/PL14D/PL16D
PR12A/PR16A/PR21A	J21	J22	PL10A/PL14A/PL17A
PR12B/PR16B/PR21B	J22	J23	PL10B/PL14B/PL17B
PR12C/PR16C/PR21C	J23	J24	PL10C/PL14C/PL16C
PR12D/PR16D/PR21D	J24	J25	PL10D/PL14D/PL16D
PR13A/PR18A/PR23A	J25	J26	PL7C/PL10C/PL12A PCLKT4_0
PR13B/PR18B/PR23B	J26	J27	PL7D/PL10D/PL12B PCLKC4_0
PR14A/PR19A/PR24A	J27	J28	VCCIO4/VCCIO4/VCCIO4
PR14B/PR19B/PR24B	J28	J29	VCCIO4/VCCIO4/VCCIO4

U13-F			2.5V
WR11_S1	B1	C1	WR11_S1
WR11_S2	C2	D2	WR11_S2
PL1C/PL2C/PL2C	E1	F1	WR10_S1
PL1D/PL2D/PL2D	G1	H1	WR10_S3
PL4C/PL7C/PL7C	E2	F2	WR10_S2
PL4D/PL7D/PL7D	G2	H2	WR10_S4
PL1A/PL3A/PL3A L_GPLLT_FB	E3	F3	WR10_S1
PL1B/PL3B/PL3B L_GPLLC_FB	G3	H3	WR10_S3
PL2A/PL4A/PL4A L_GPLLT_IN	E4	F4	WR10_S2
PL2B/PL4B/PL4B L_GPLLC_IN	G4	H4	WR10_S4
RAMP_10	E5	F5	
WR11_S4	E6	F6	
PL2C/PL4C/PL4C	E7	F7	
PL2D/PL4D/PL4D	E8	F8	
LGP10	E9	F9	
WR10_SD	E10	F10	
PL3A/PL6A/PL6A PCLKT5_0	E11	F11	
PL3B/PL6B/PL6B PCLKC5_0	E12	F12	
PL3C/PL6C/PL6C	E13	F13	
PL3D/PL6D/PL6D	E14	F14	

U13-G			2.5V
C274	0.1 uF-0201	C275	0.1 uF-0201
C276	0.1 uF-0201	C277	0.1 uF-0201
C278	0.1 uF-0201	C279	0.1 uF-0201
C280	0.1 uF-0201	C281	0.1 uF-0201

U13-H			2.5V
C282	10 uF	C283	10 uF
C284	0.1 uF-0201	C285	0.1 uF-0201
C286	0.1 uF-0201	C287	0.1 uF-0201

U13-I			2.5V
C296	0.1 uF-0201	C297	0.1 uF-0201
C294	0.1 uF-0201	C295	0.1 uF-0201
C288	0.1 uF-0201	C289	0.1 uF-0201
C290	0.1 uF-0201	C291	0.1 uF-0201

U13-J			2.5V
X10			
LLED0	2	1	
X11	2	1	
SM_LED			
X12	2	1	
SM_LED			
X13	2	1	
SM_LED			
X14	2	1	
SM_LED			
X15	2	1	
SM_LED			
X16	2	1	
SM_LED			
X17	2	1	
SM_LED			
X18	2	1	
SM_LED			
X19	2	1	
SM_LED			
X20	2	1	
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X22	2	1	
SM_LED			
X23	2	1	
SM_LED			
X24	2	1	
SM_LED			
X25	2	1	
SM_LED			
X26	2	1	
SM_LED			
X27	2	1	
SM_LED			
X28	2	1	
SM_LED			
X29	2	1	
SM_LED			
X30	2	1	
SM_LED			
X31	2	1	
SM_LED			
X32	2	1	
SM_LED			
X33	2	1	
SM_LED			
X34	2	1	
SM_LED			
X35	2	1	
SM_LED			</td

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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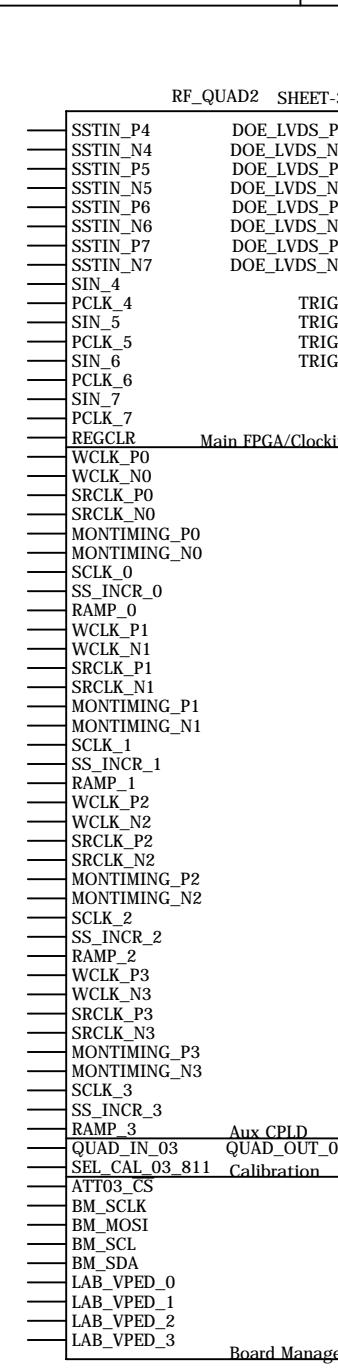
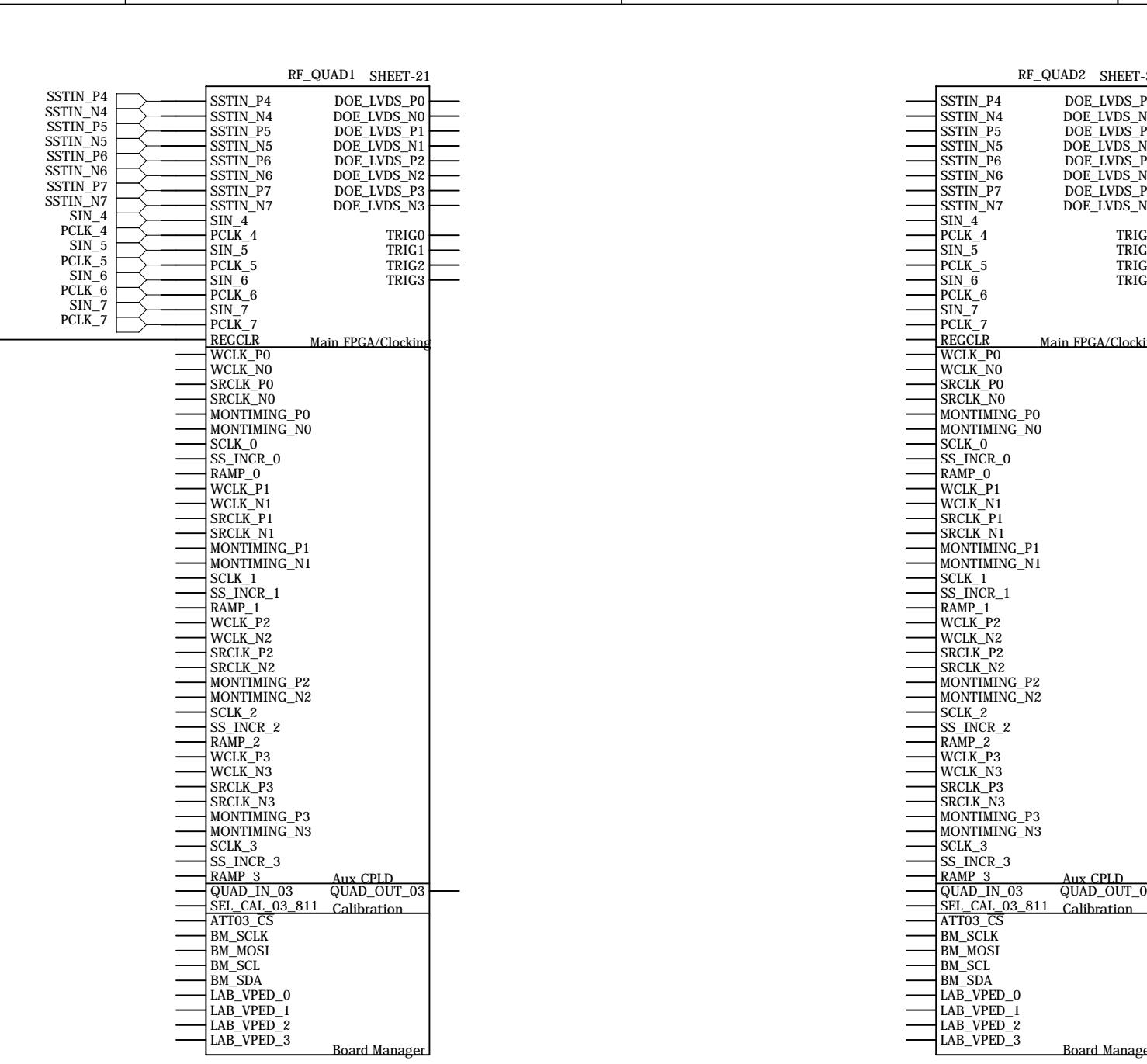
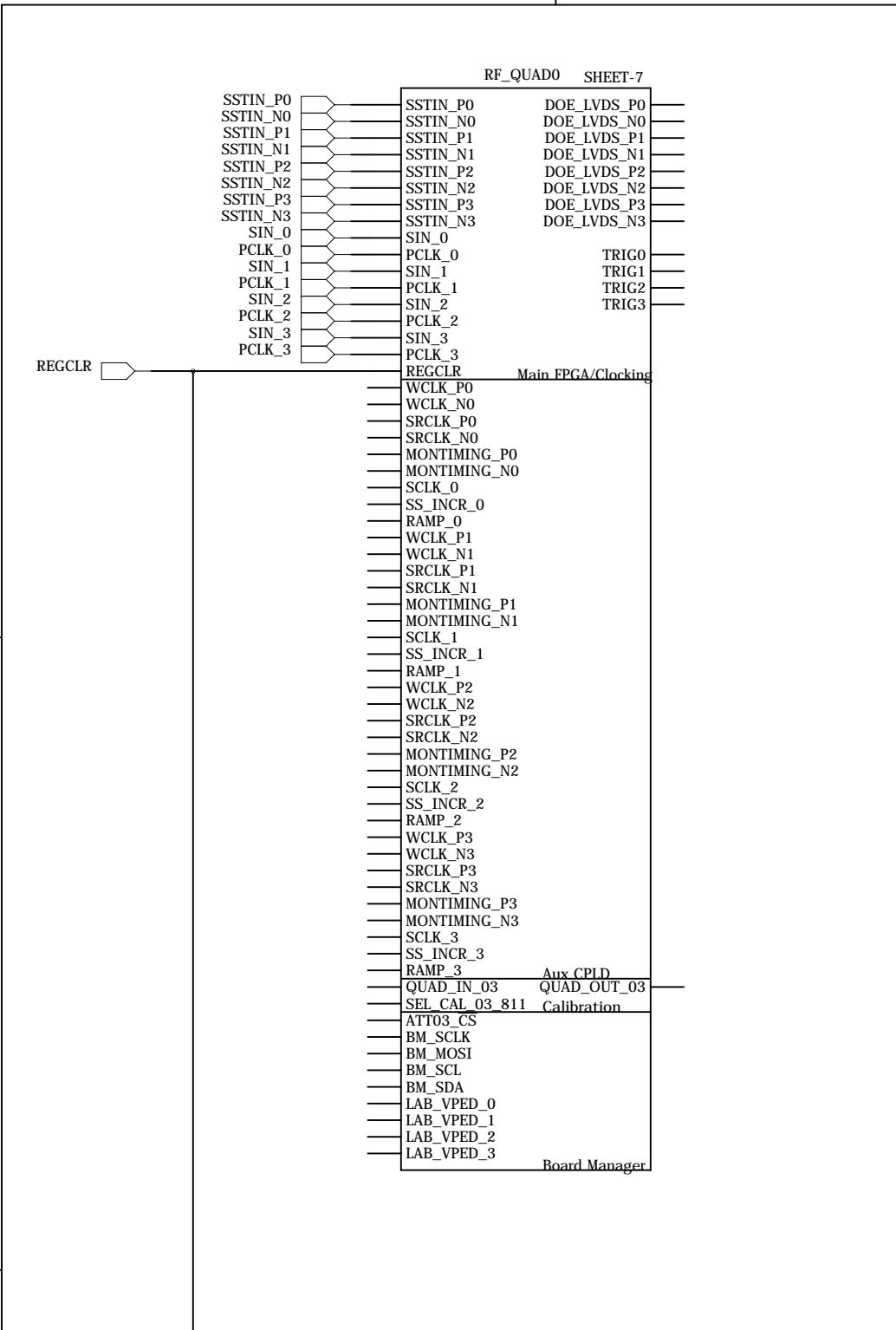
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COMPANY:	Ohio State University		
SHEET:	RF_LEFT		
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CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
CODE:	SIZE:	DESIGN	REV:
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SCALE: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

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

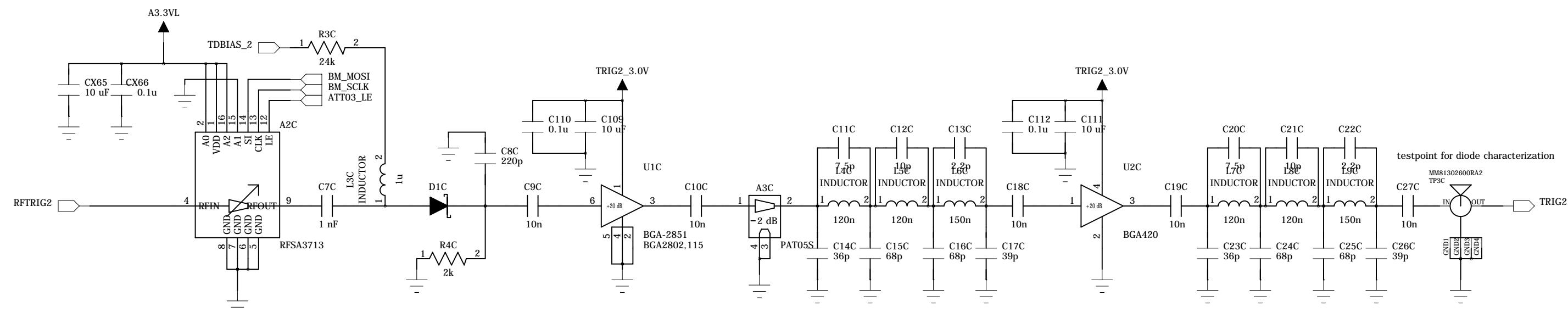
LTR	ECO NO:	APPROVED:	DATE:

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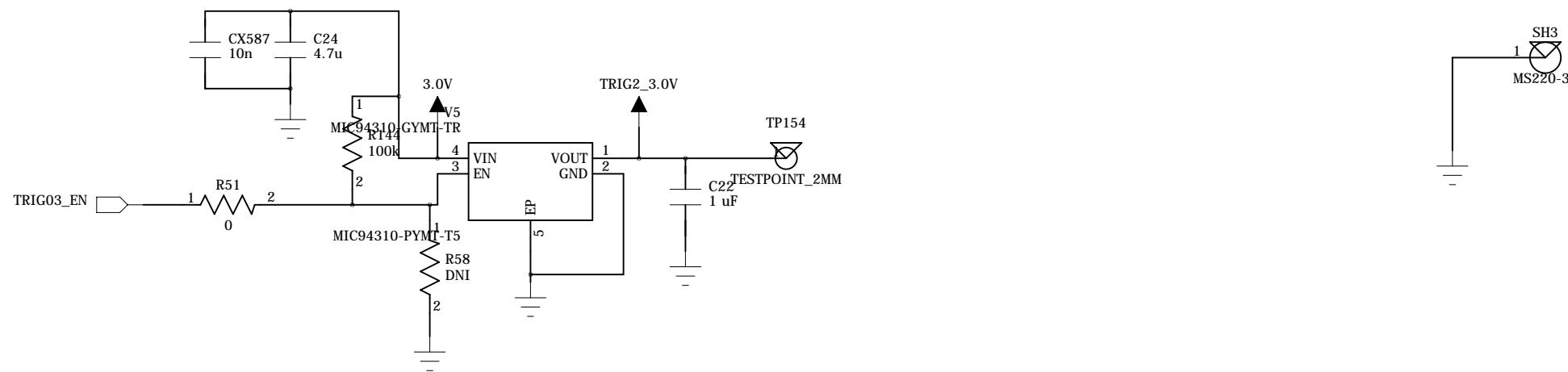
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COMPANY:	Ohio State University		
SHEET:	RF_DIODE2		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
CODE:	4	SIZE:	RADIANT
REV:	3	DESIGN:	
SCALE:	<Scale>		
SCALE:	10 74		

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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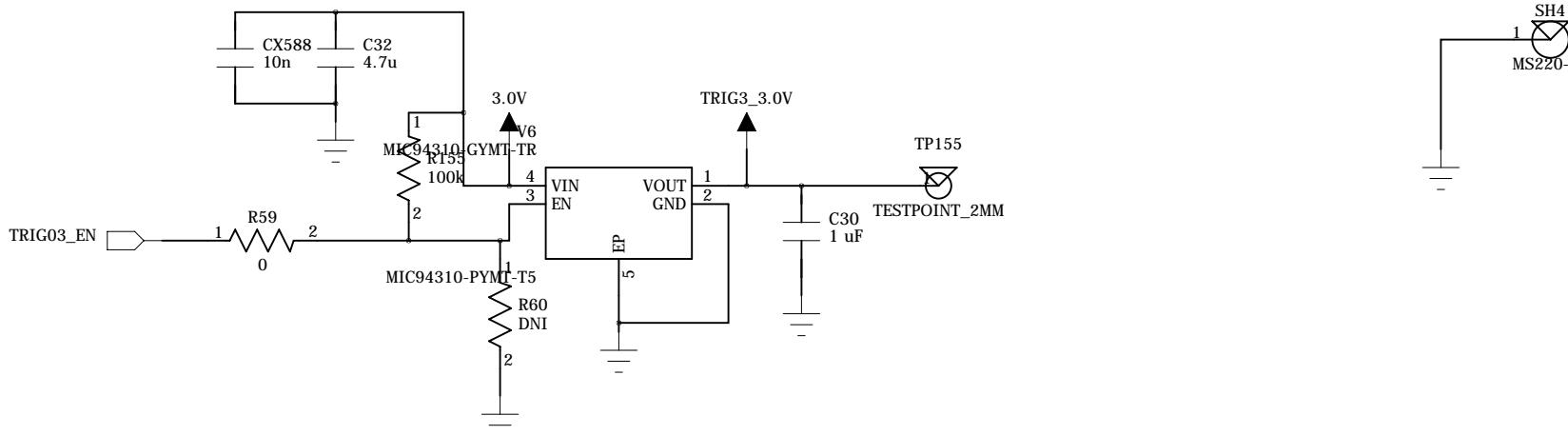
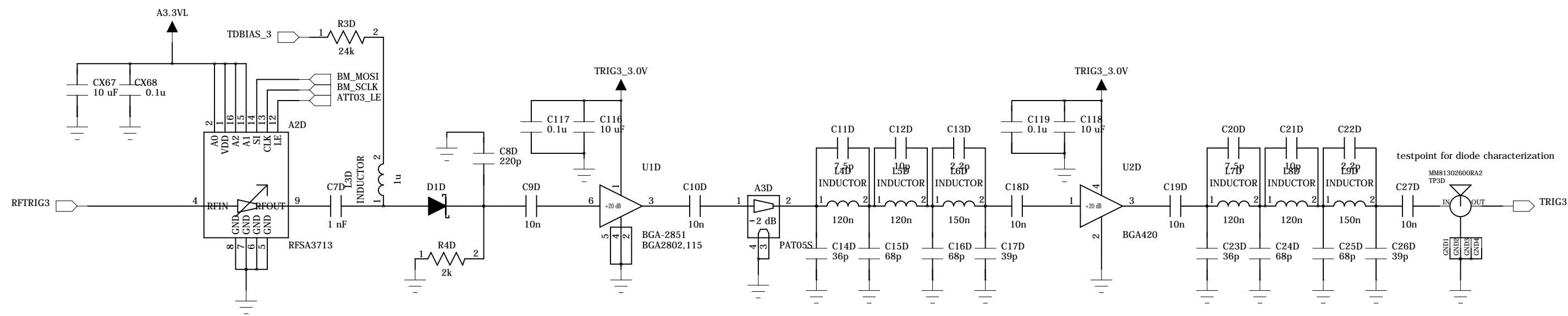
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COMPANY:

Ohio State University

SHEET:

RF_DIODE3

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> SHEET: 20 74

REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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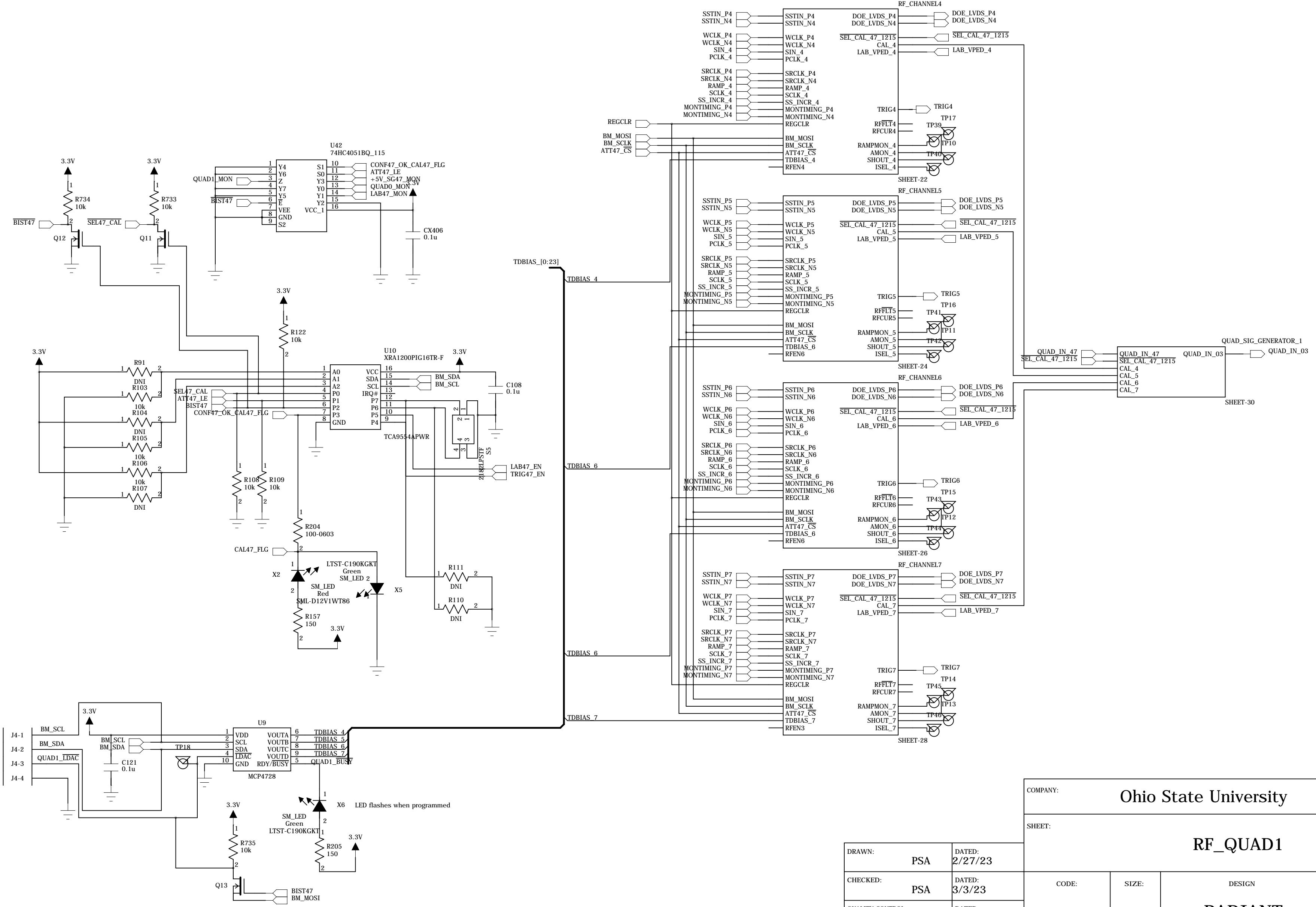
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COMPANY: Ohio State University

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

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

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REVISION RECORD

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

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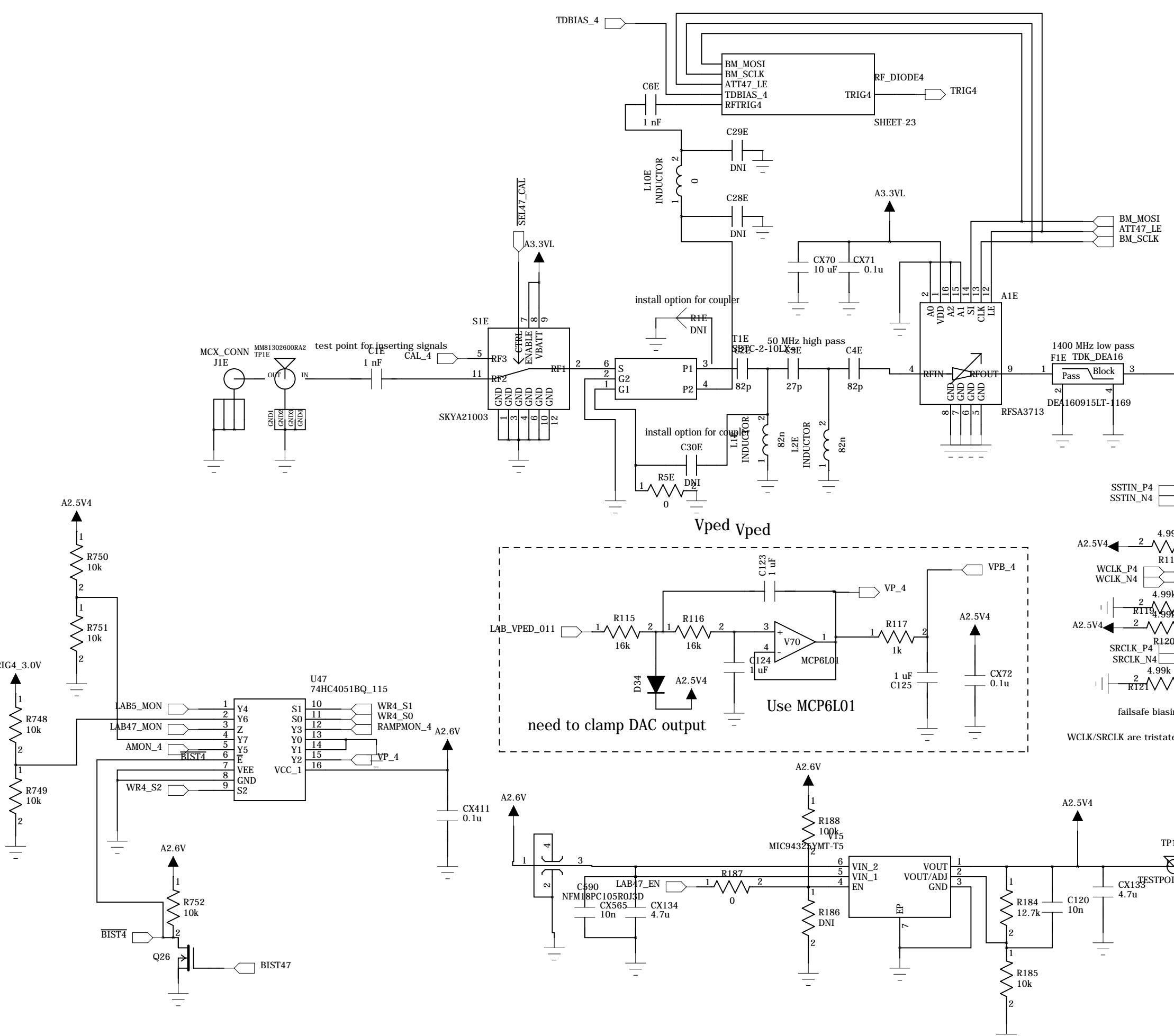
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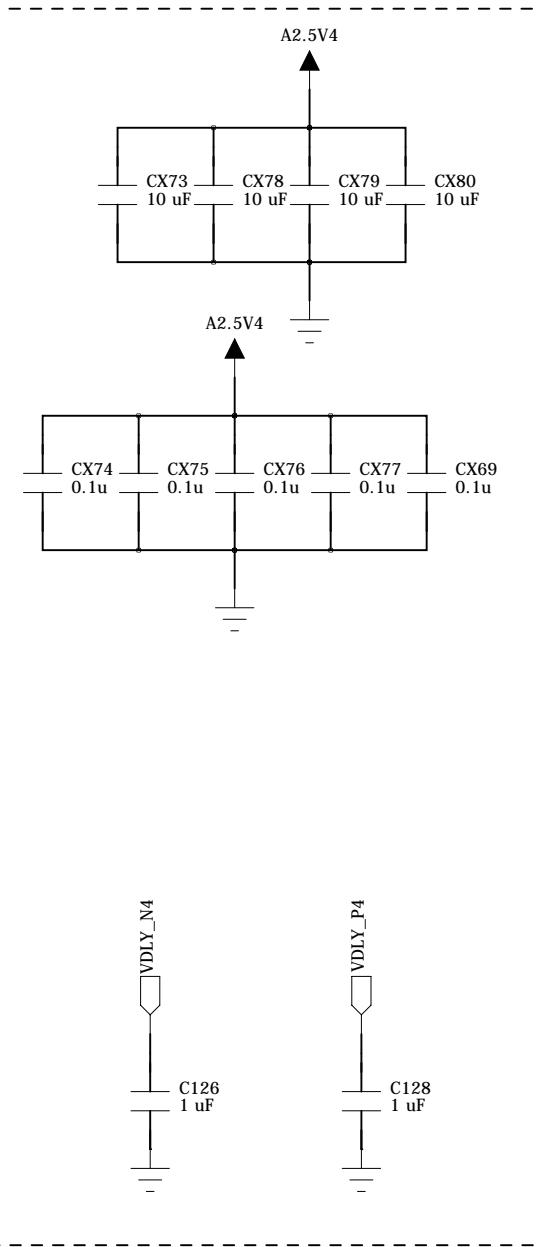
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COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL4		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>	SIZE:	DESIGN RADIANT
REV:	4	C	3
Sheet:	22	74	



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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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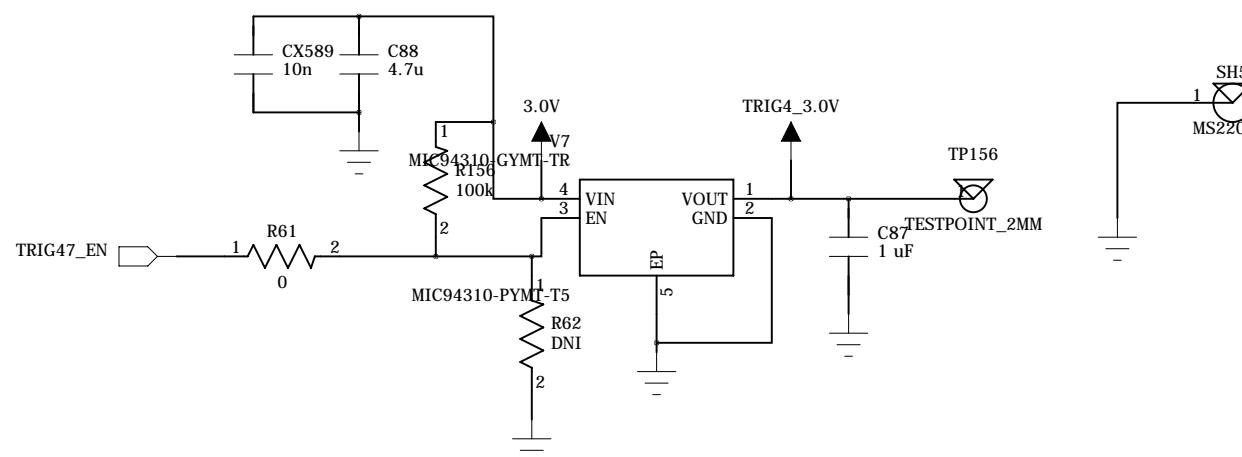
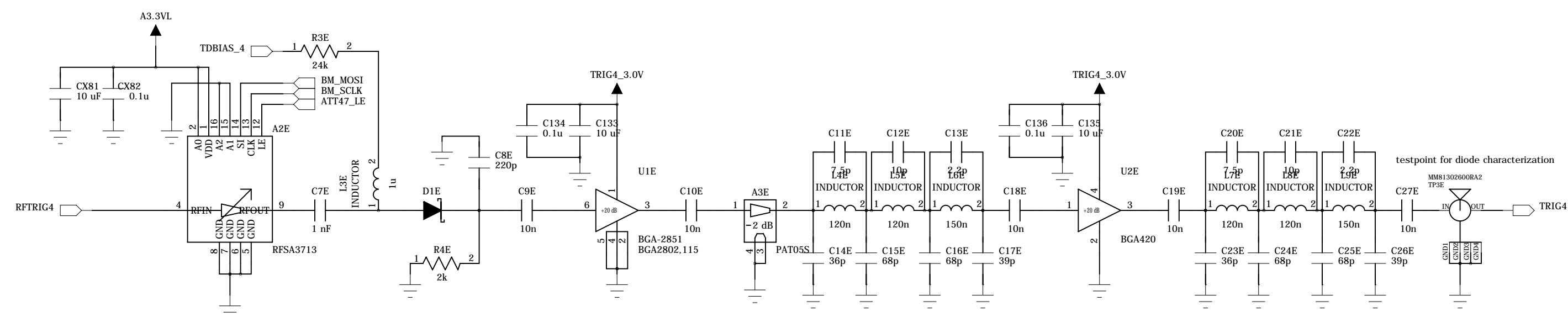
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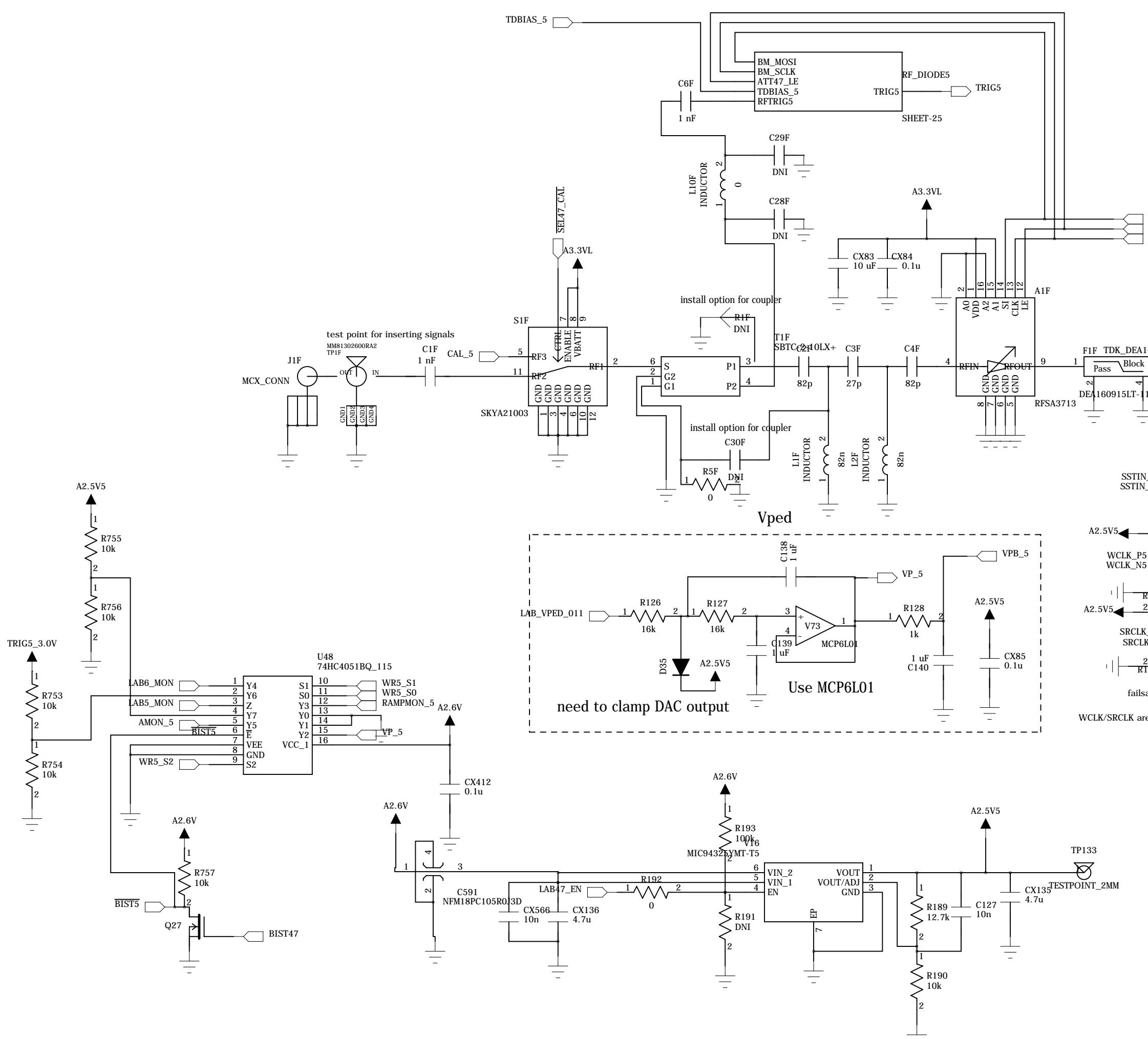


COMPANY:	Ohio State University		
SHEET:	RF_DIODE4		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
CODE:	4	SIZE:	RADIANT
REV:	3	DESIGN:	
SCALE:	<Scale>		
SCALE:	28 74		

REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors



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_CHANNEL5

CODE:	SIZE:	DESIGN	REV:
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SCALE: <Scale>

SHEET: 24 74

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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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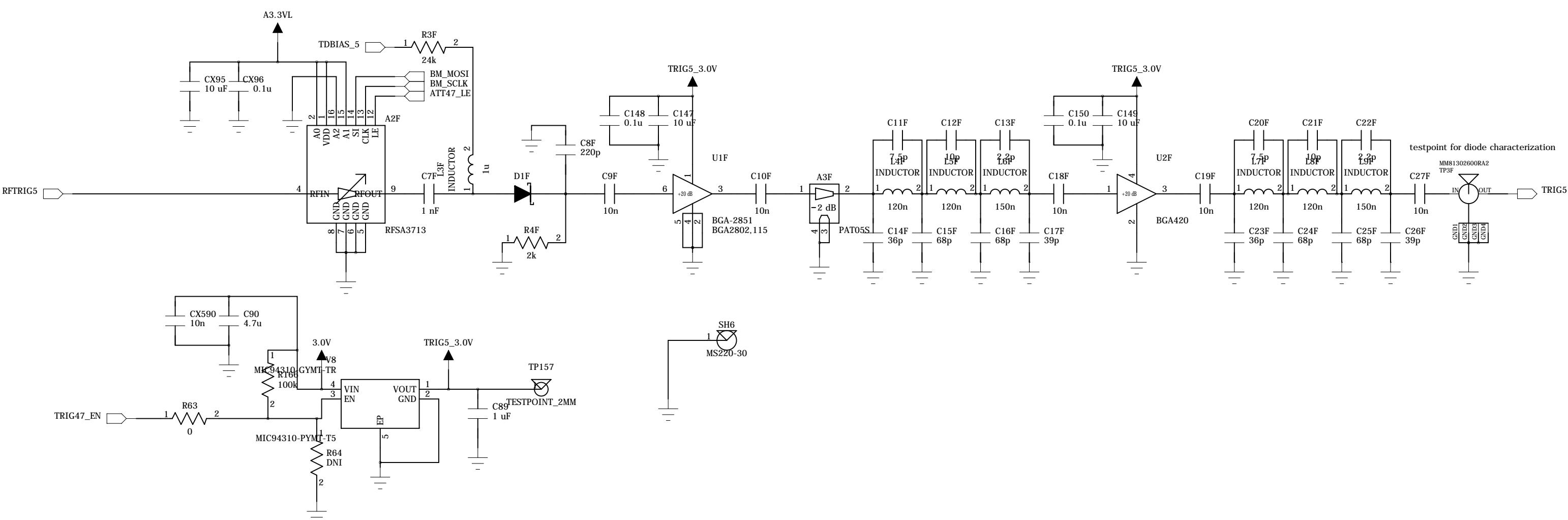
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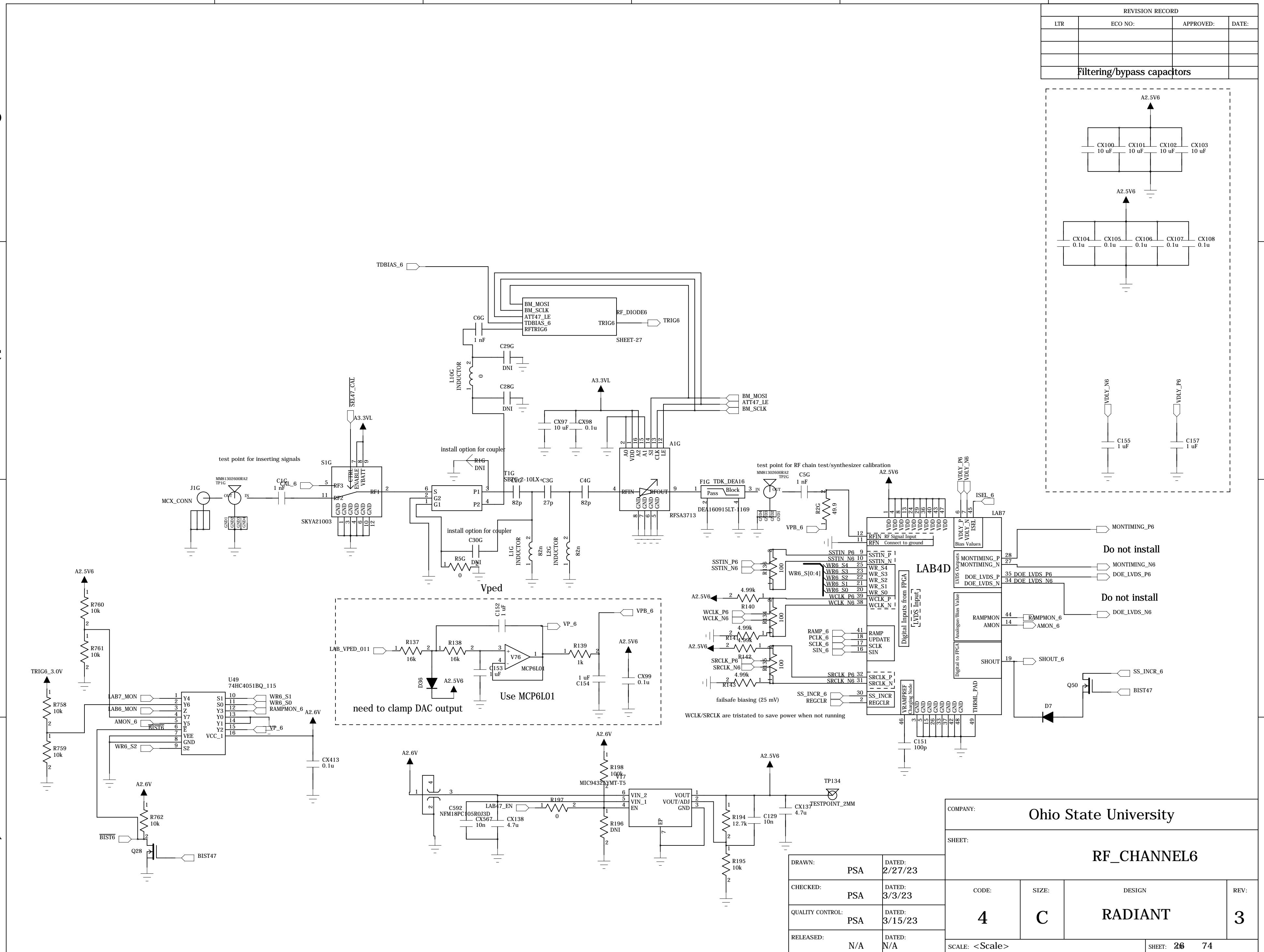
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COMPANY:	Ohio State University		
SHEET:	RF_DIODE5		
CODE:	SIZE:	DESIGN	REV:
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SCALE: <Scale>	SHEET: 25 74		



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REVISION RECORD

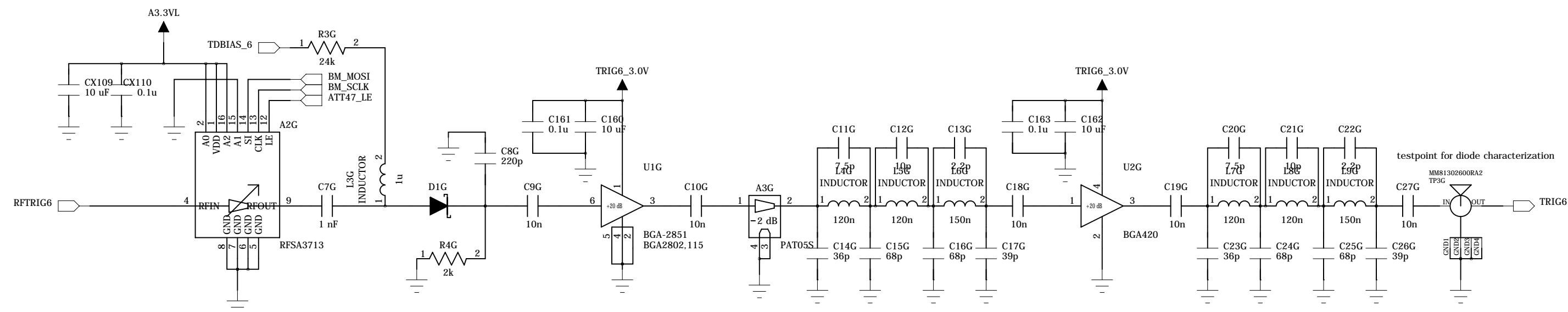
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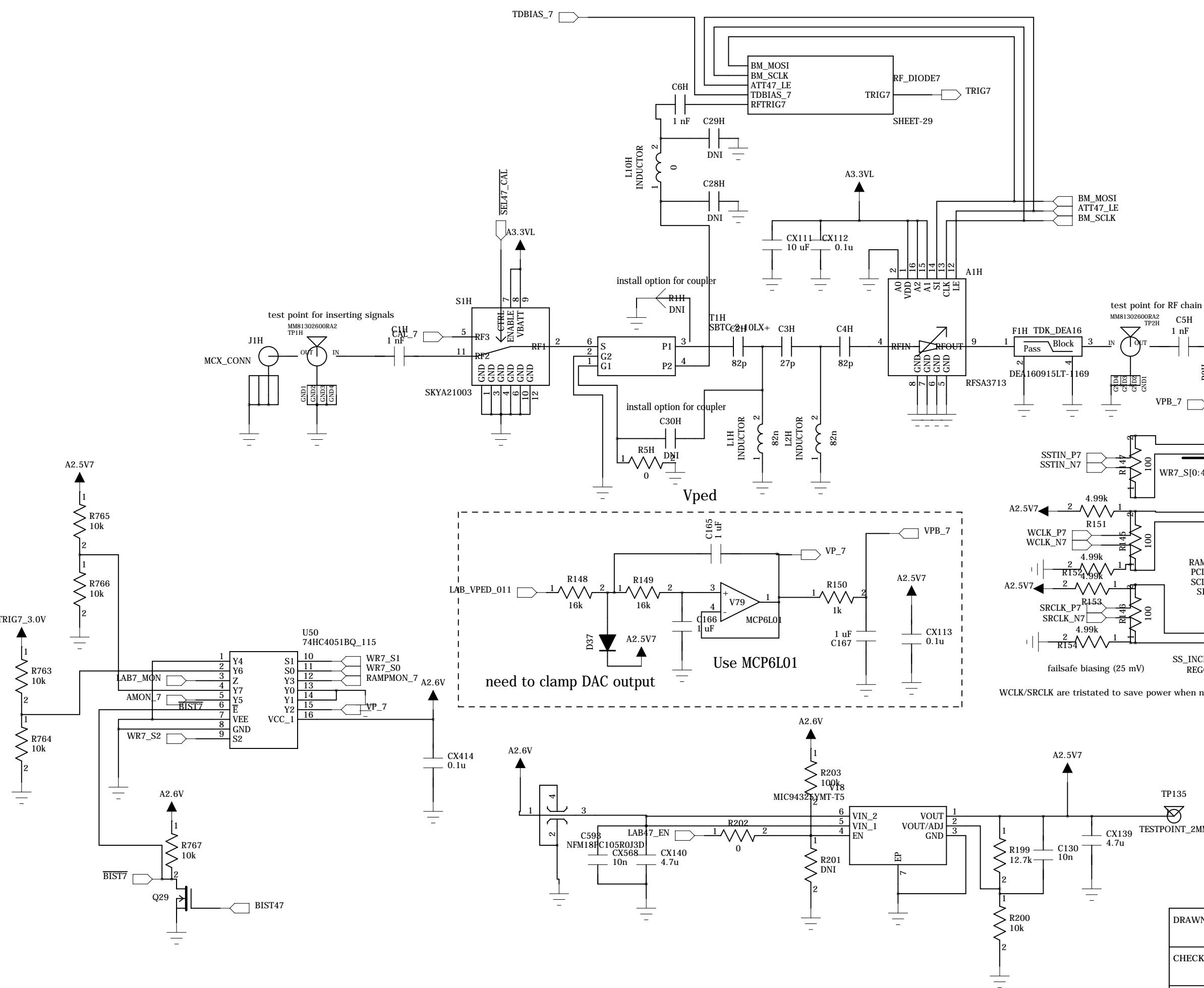
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors



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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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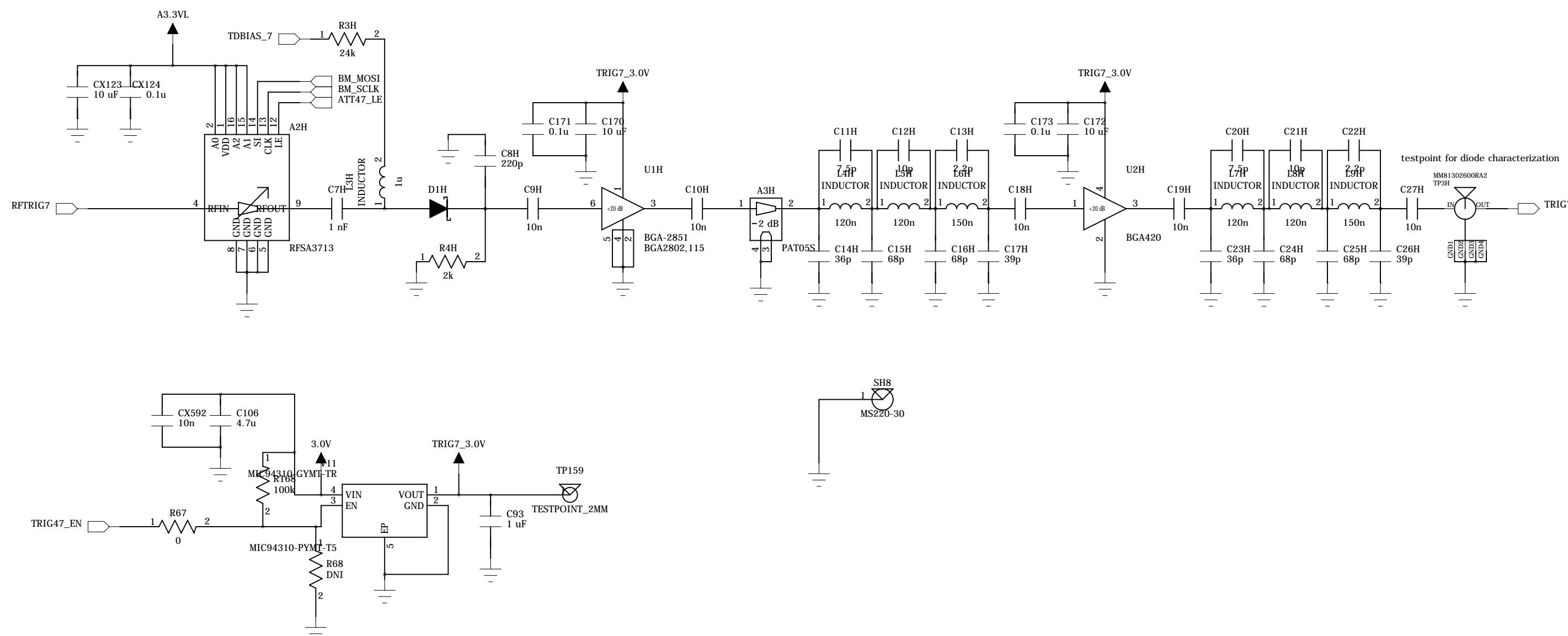
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COMPANY:	Ohio State University		
SHEET:	RF_DIODE7		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
CODE:	4	SIZE:	RADIANT
REV:	3	DESIGN:	
SCALE:	<Scale>	SCALE:	20 74

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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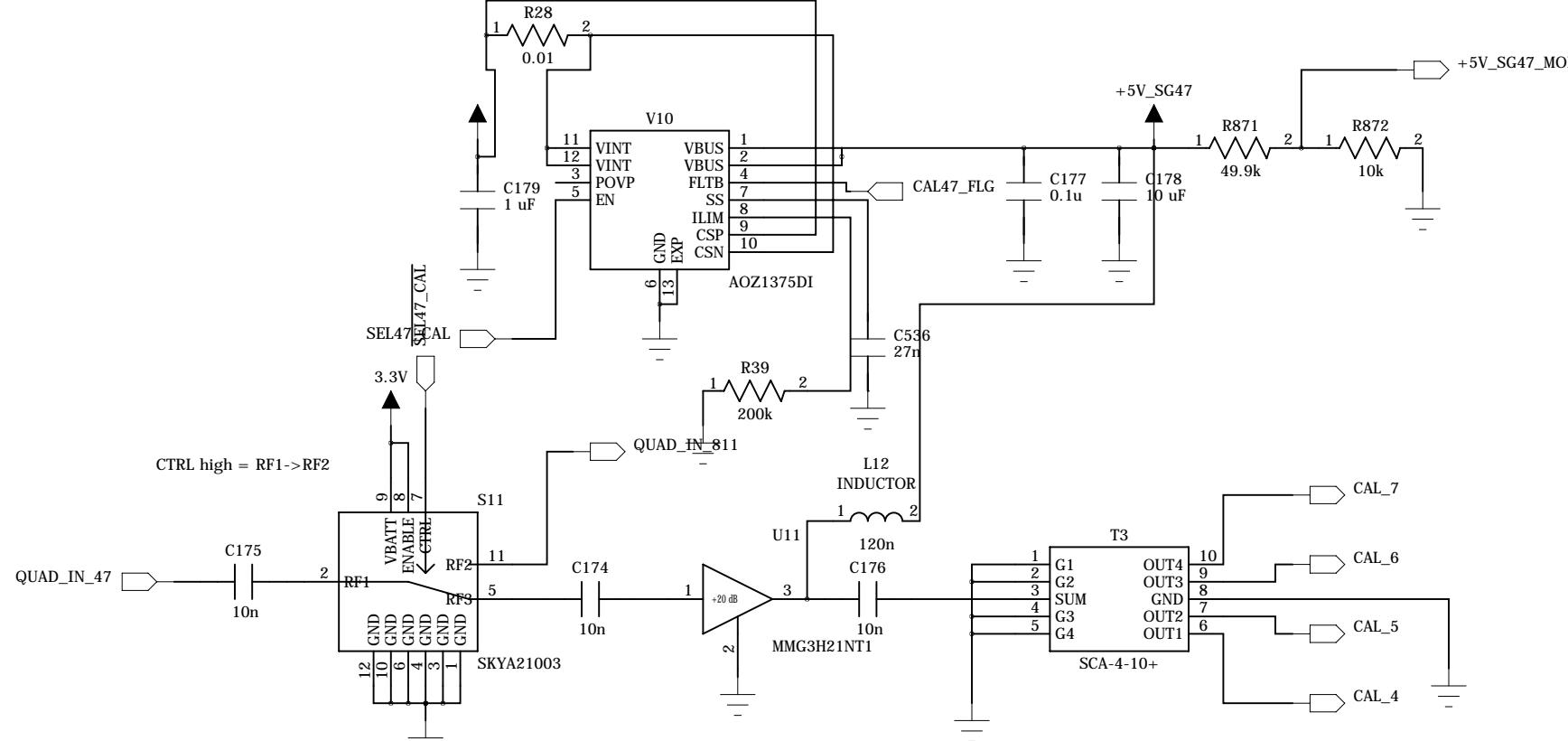
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COMPANY:	Ohio State University		
SHEET:	QUAD_SIG_GENERATOR_1		
DRAWN:	PSA	DATED: 2/27/23	
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
CODE:	SIZE:	DESIGN	REV:
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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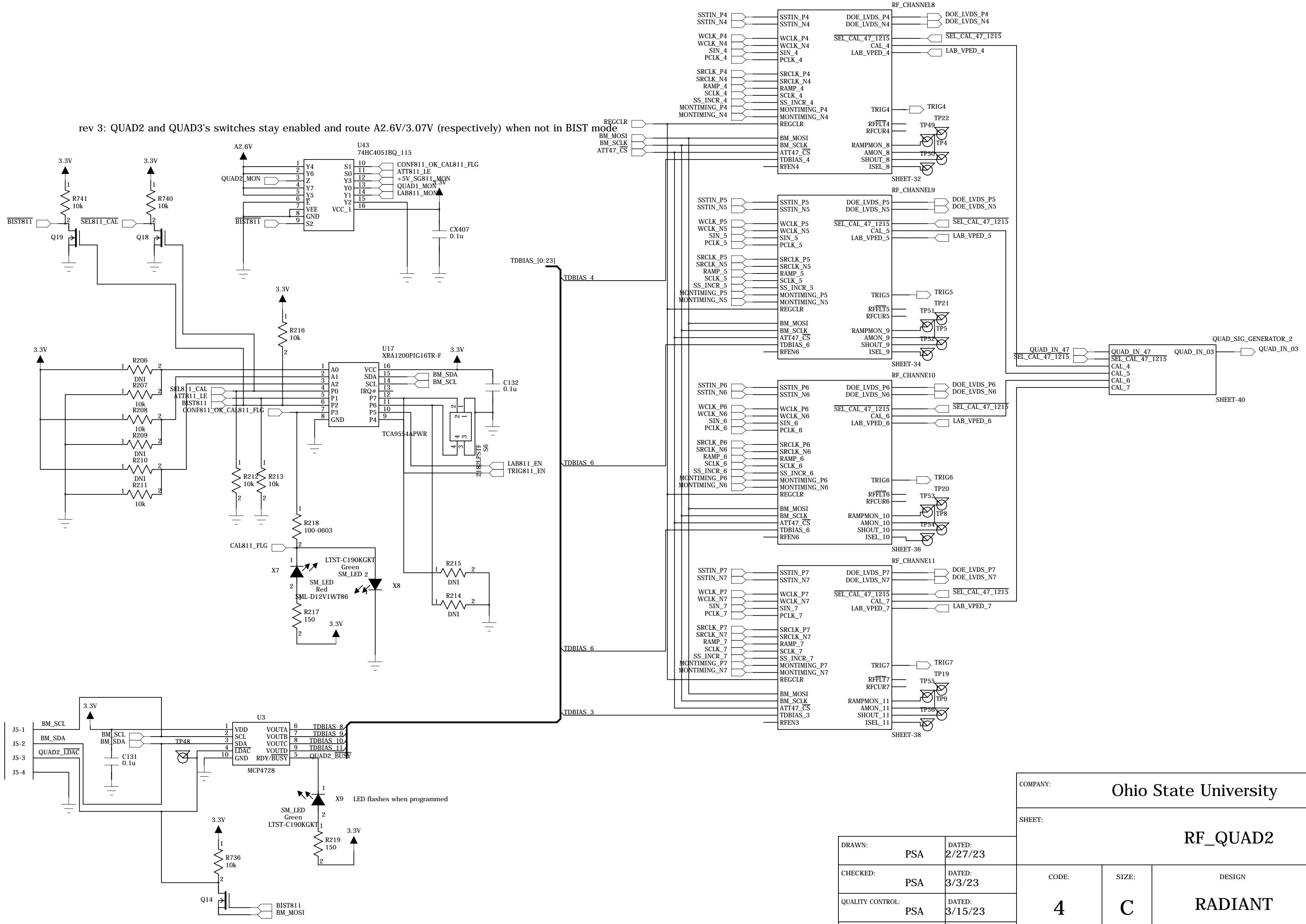
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COMPANY: Ohio State University

SHEET: RF_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: <Scale> SHEET: 31 74

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

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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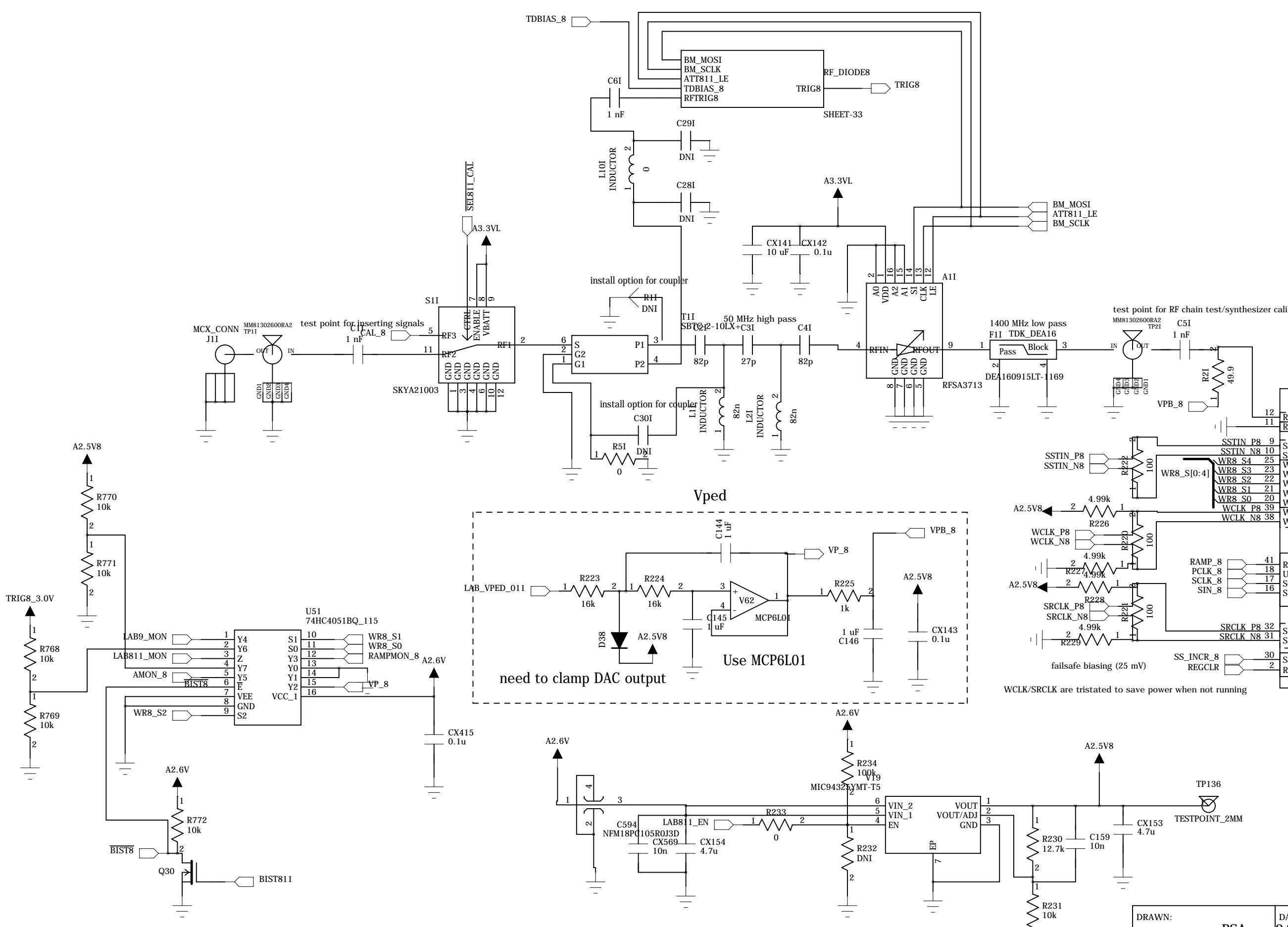
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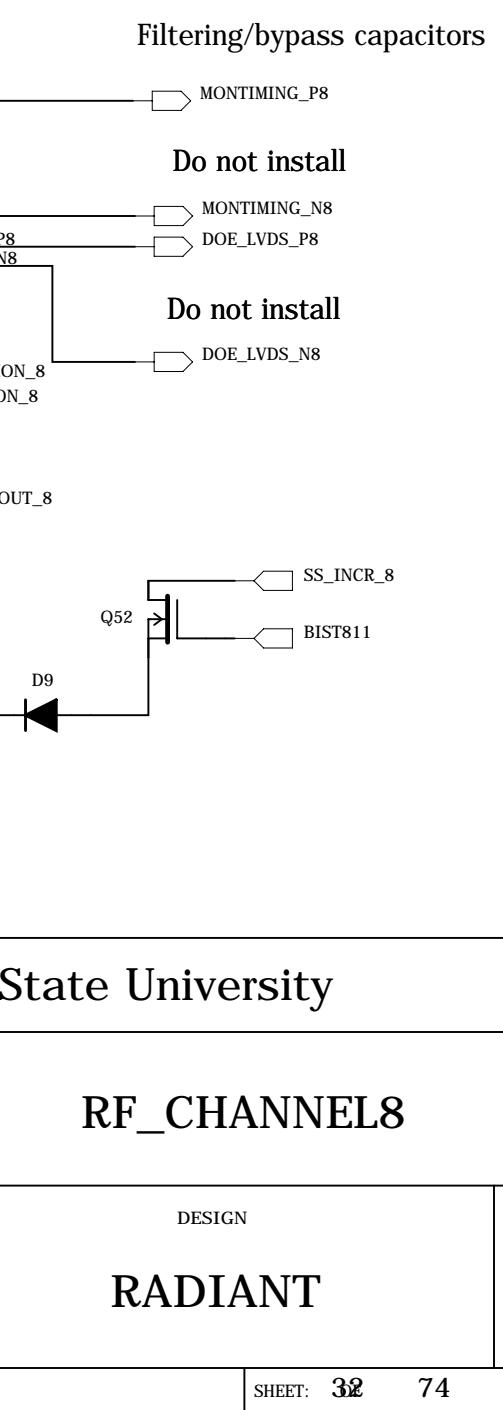
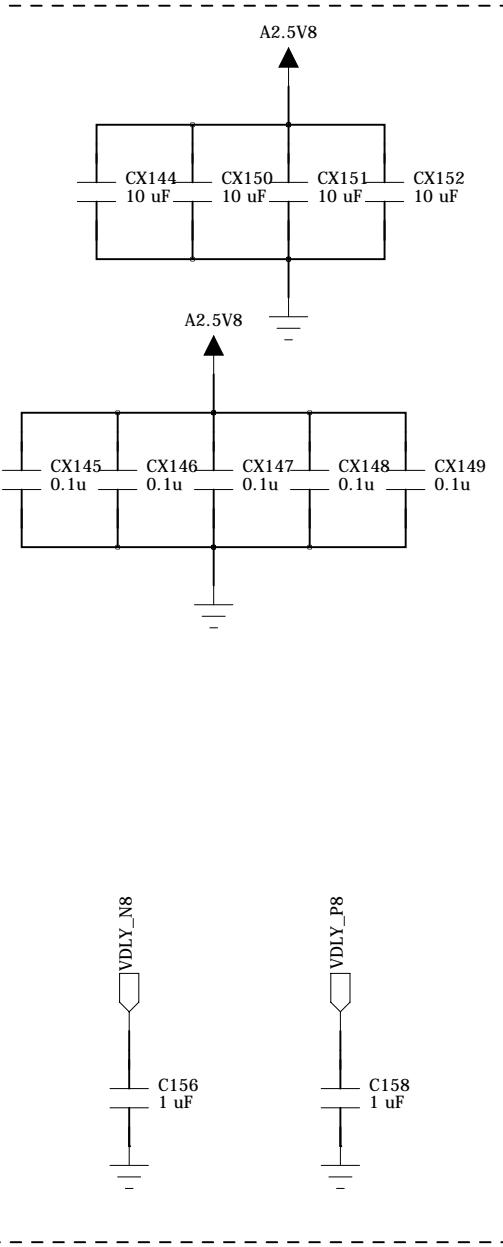


COMPANY: Ohio State University

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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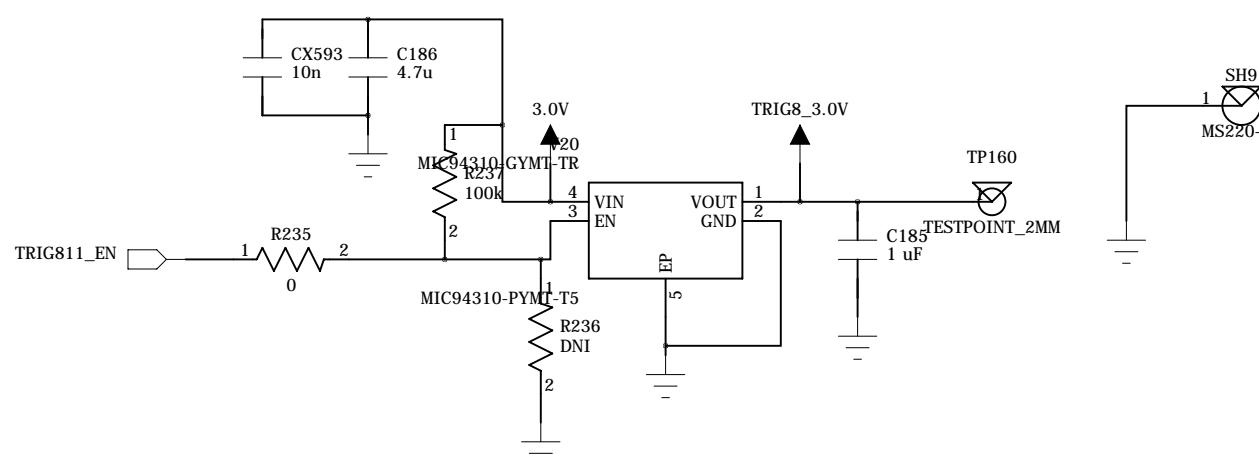
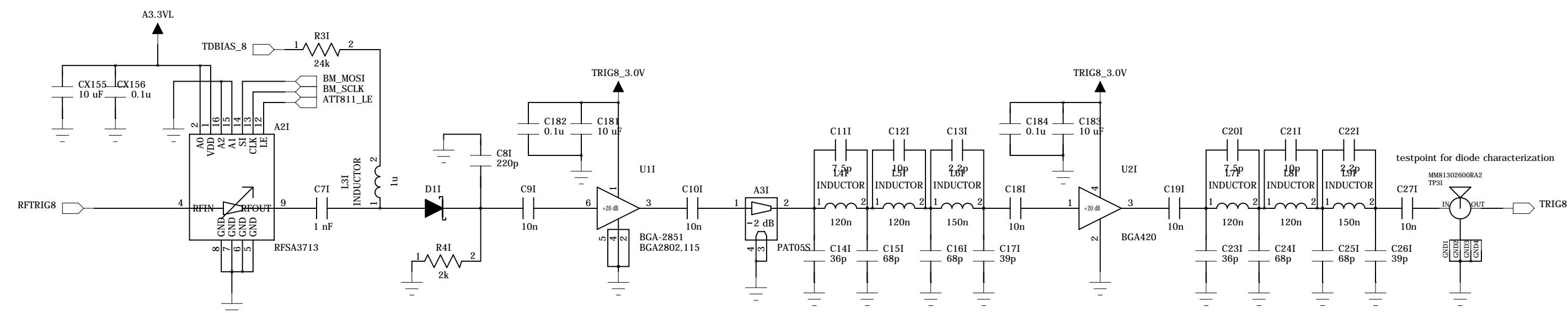
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COMPANY:	Ohio State University		
SHEET:	RF_DIODE8		
CODE:	SIZE:	DESIGN	REV:
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SCALE: <Scale>	SHEET: 38 74		

REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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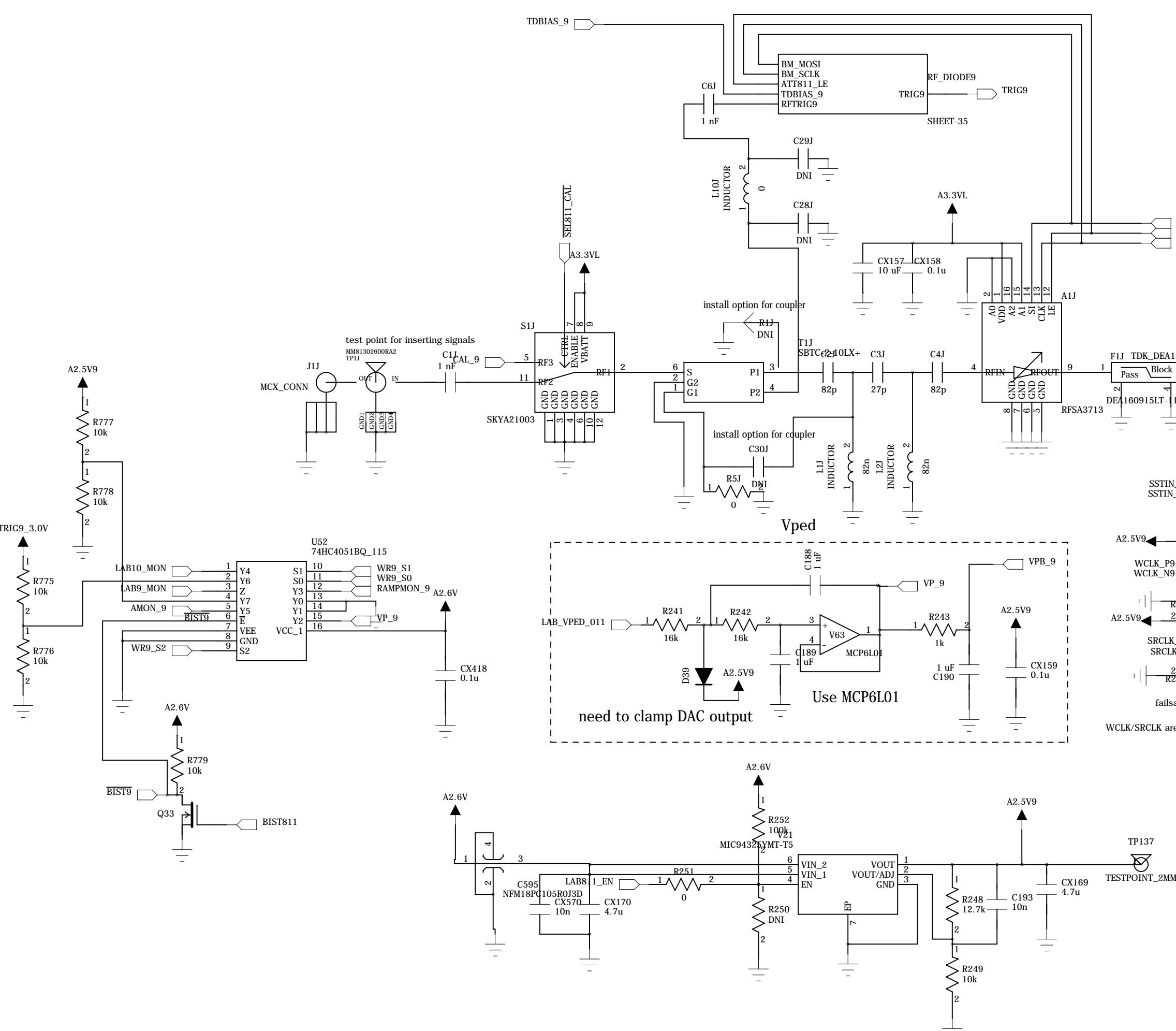
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COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL9		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
SCALE:	<Scale>	SHEET:	34 74

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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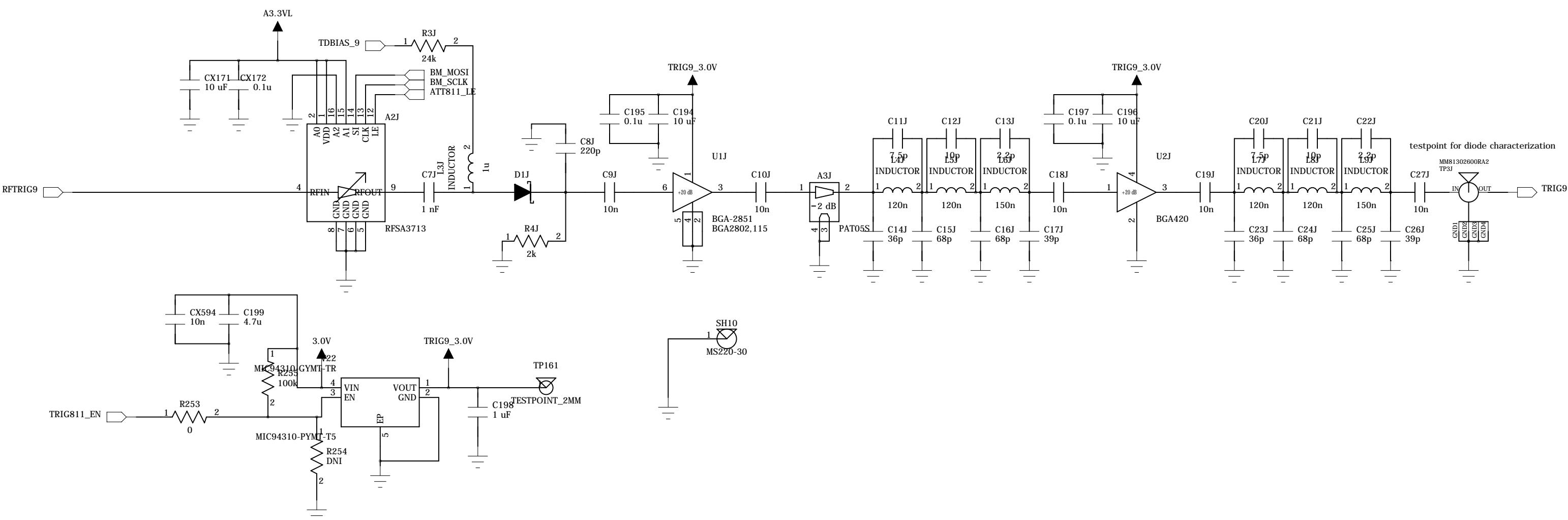
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COMPANY:

Ohio State University

SHEET:

RF_DIODE9

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QUALITY CONTROL:	PSA	DATED: 3/15/23				
RELEASED:	N/A	DATED: N/A				

SCALE: <Scale> SHEET: 35 74

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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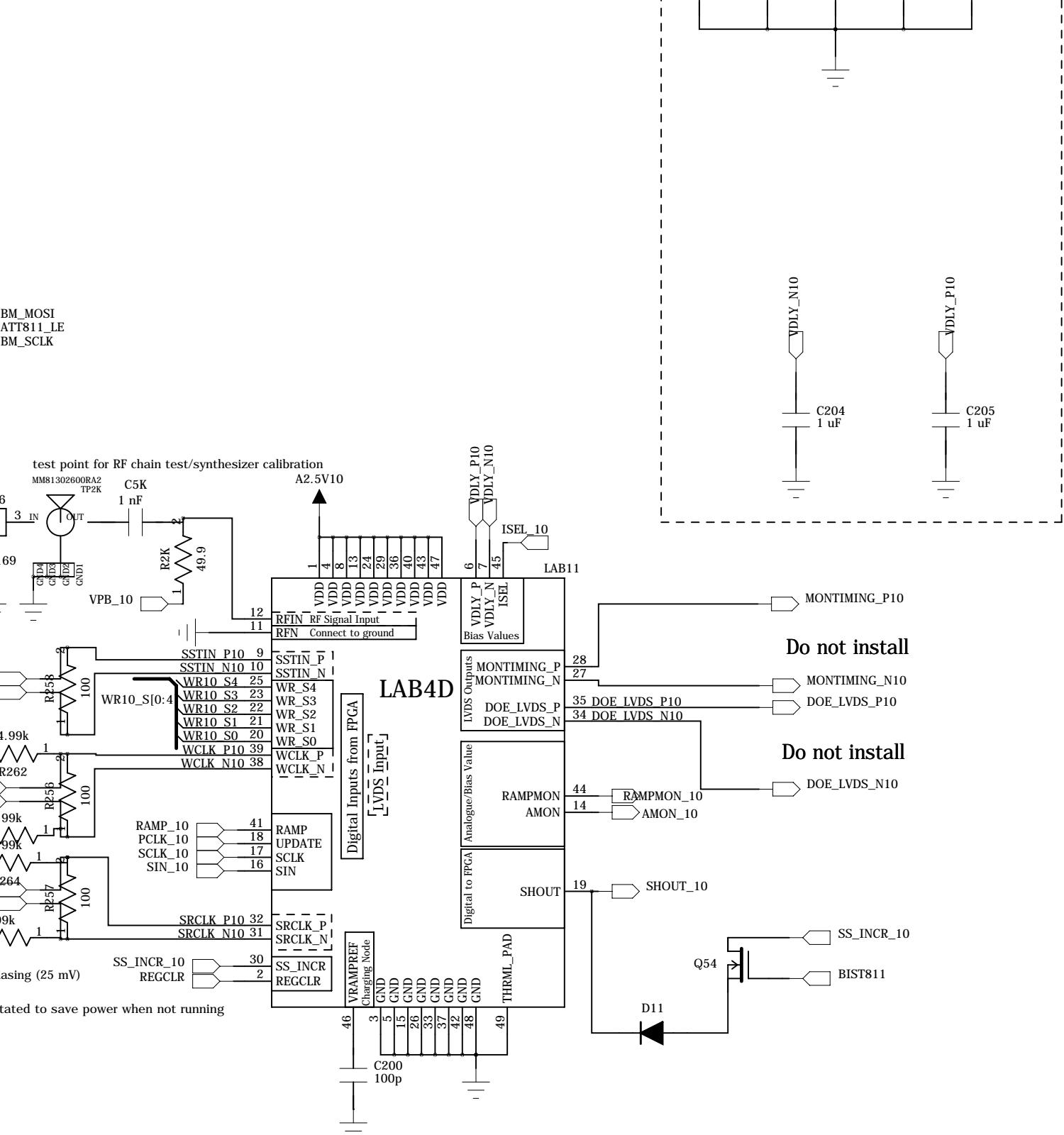
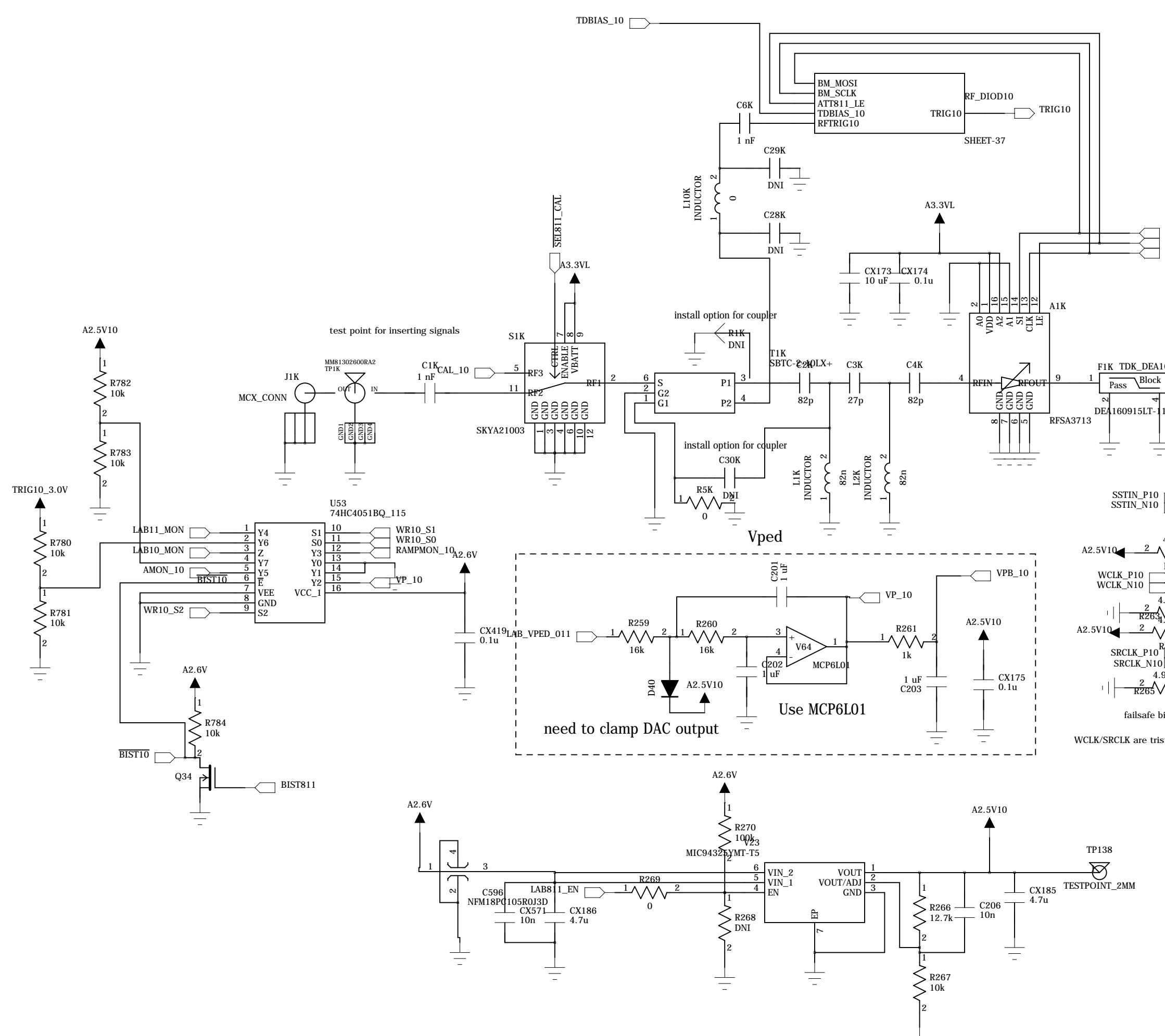
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COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL10		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
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REV:	3	SCALE:	36 74

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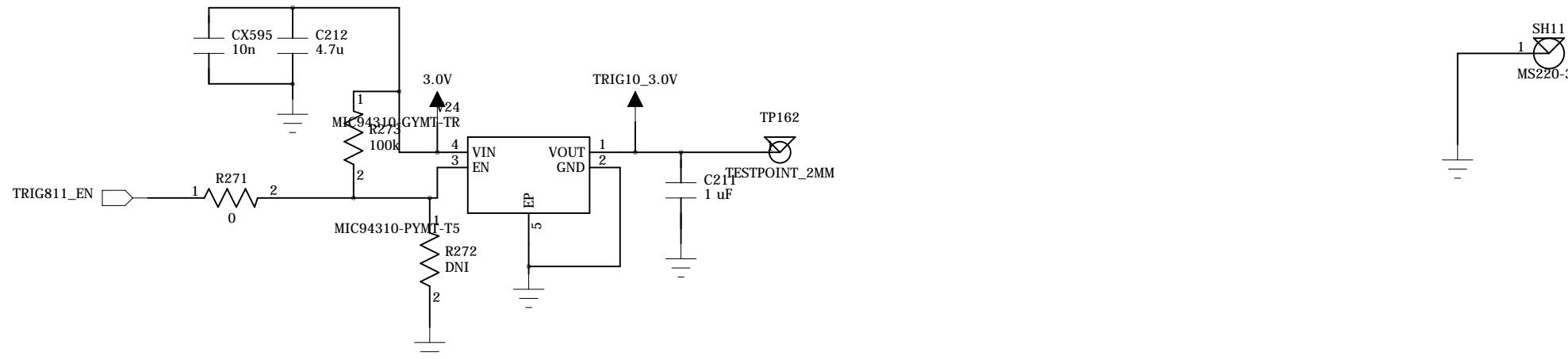
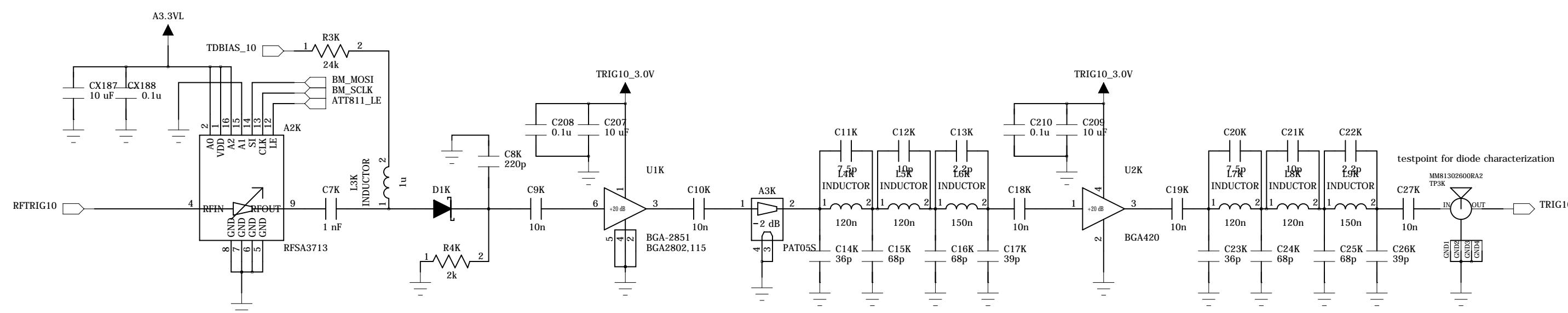
REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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COMPANY:	Ohio State University		
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
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REV:	3	DESIGN:	
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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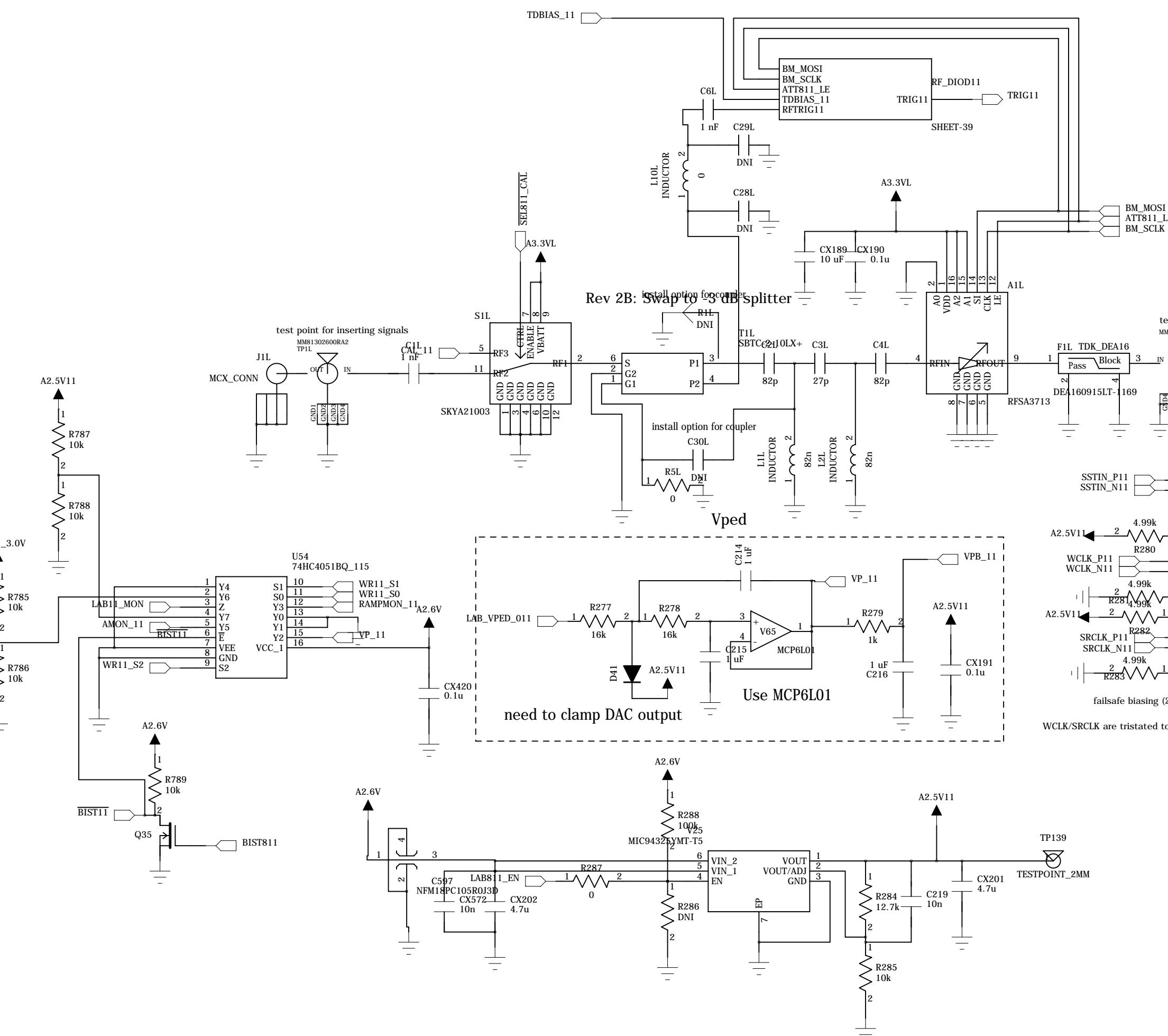
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

Ohio State University

RF_CHANNEL11

RADIANT

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SCALE: <Scale> SHEET: 38 74

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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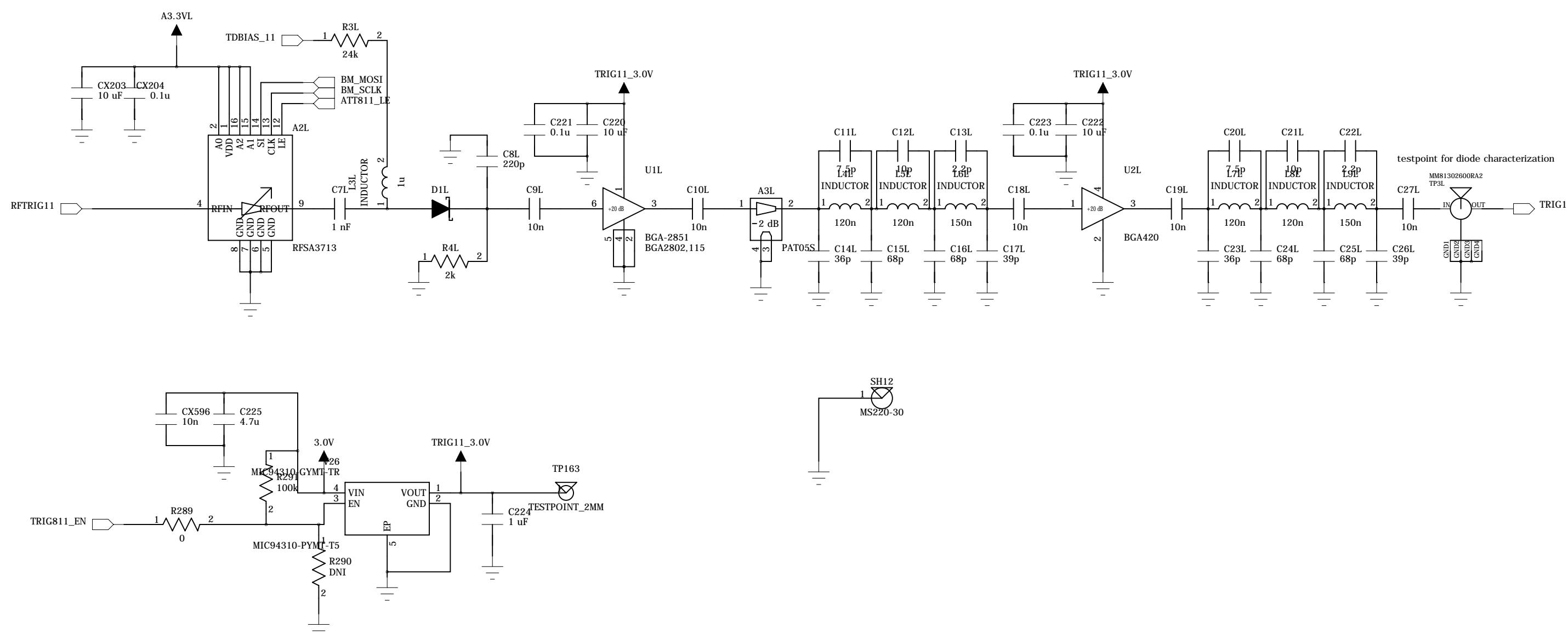
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COMPANY:

Ohio State University

SHEET:

RF_DIOD11

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QUALITY CONTROL:	PSA	DATED:	3/15/23				
RELEASED:	N/A	DATED:	N/A				

SCALE: <Scale> SHEET: 39 74

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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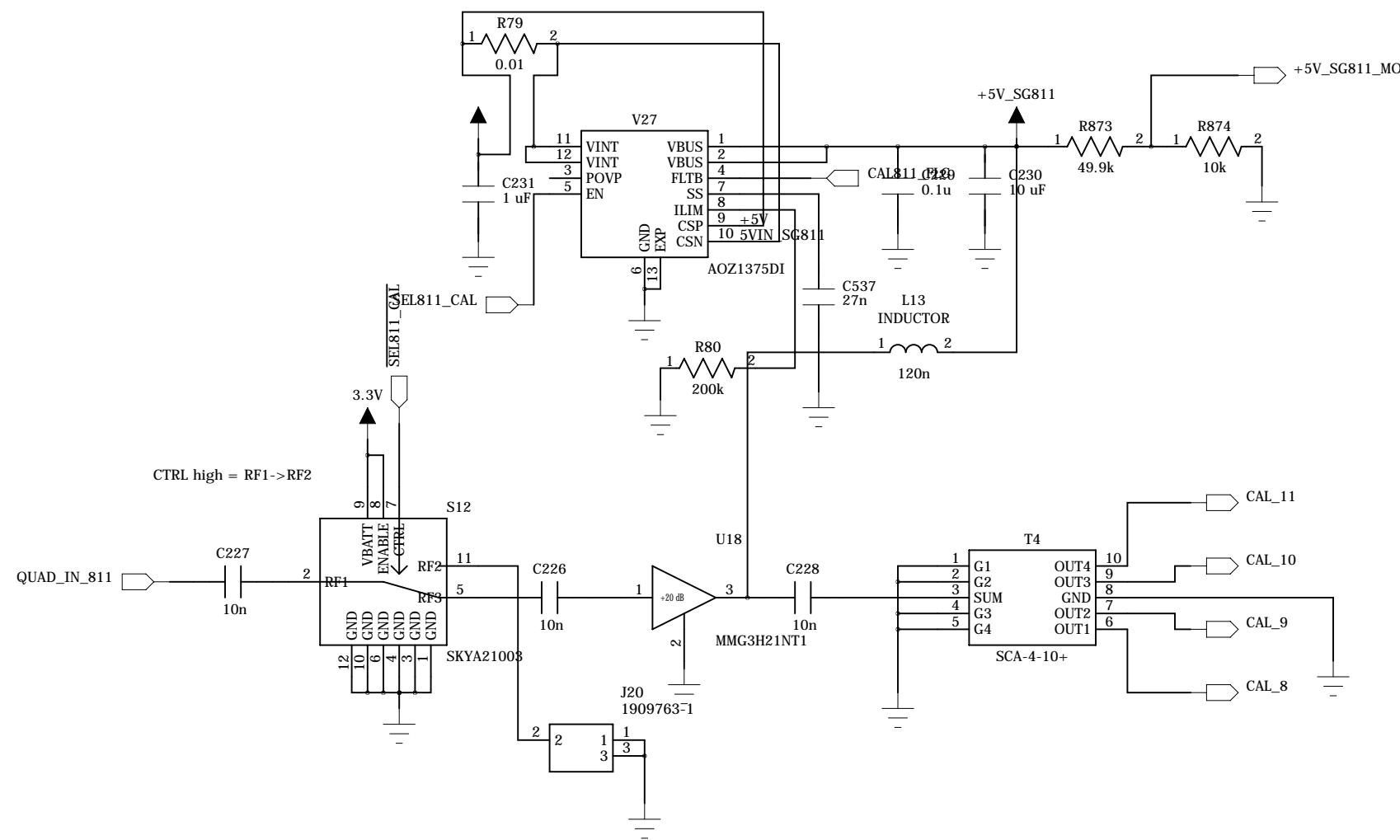
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COMPANY:

Ohio State University

SHEET:

QUAD_SIG_GENERATOR_2

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QUALITY CONTROL:	PSA	DATED: 3/15/23				
RELEASED:	N/A	DATED: N/A				

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	
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: 41 74

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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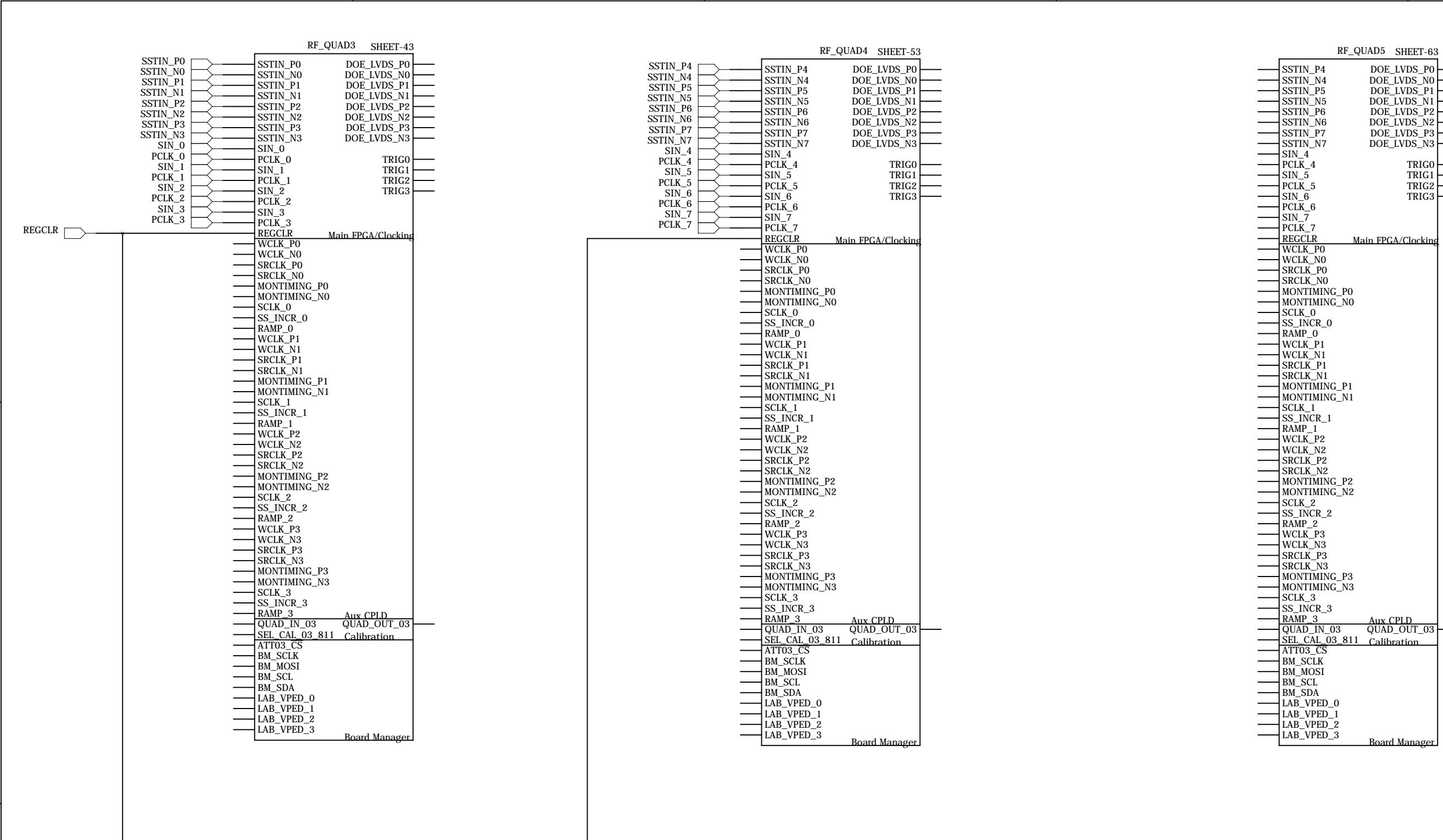
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COMPANY: Ohio State University			
SHEET: RF_LEFT0			
DRAWN:	PSA	DATED: 2/27/23	REV: 3
CHECKED:	PSA	DATED: 3/3/23	
QUALITY CONTROL:	PSA	DATED: 3/15/23	
RELEASED:	N/A	DATED: N/A	
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CODE: 4	SIZE: C	DESIGN: RADIANT
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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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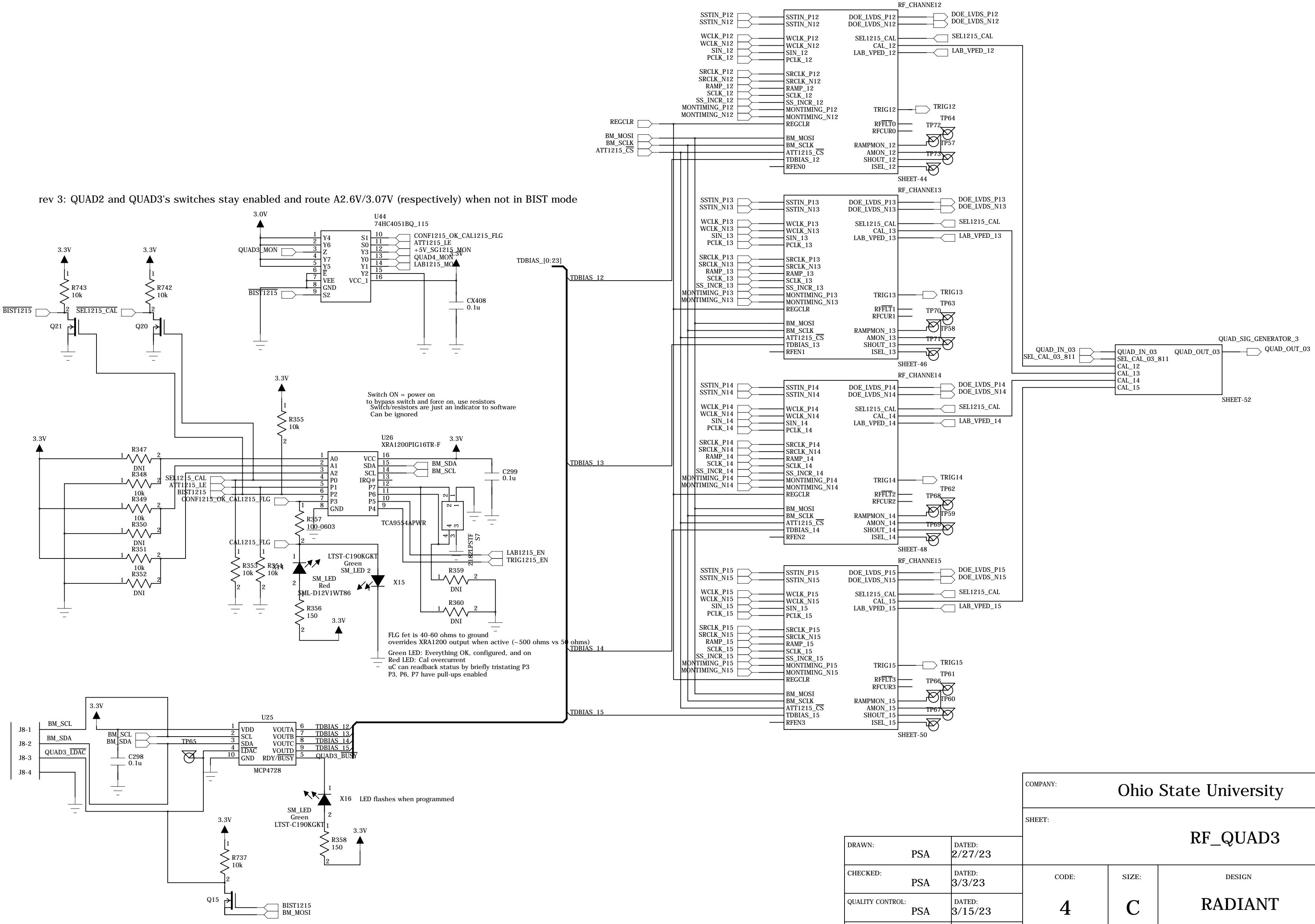
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REVISION RECORD

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

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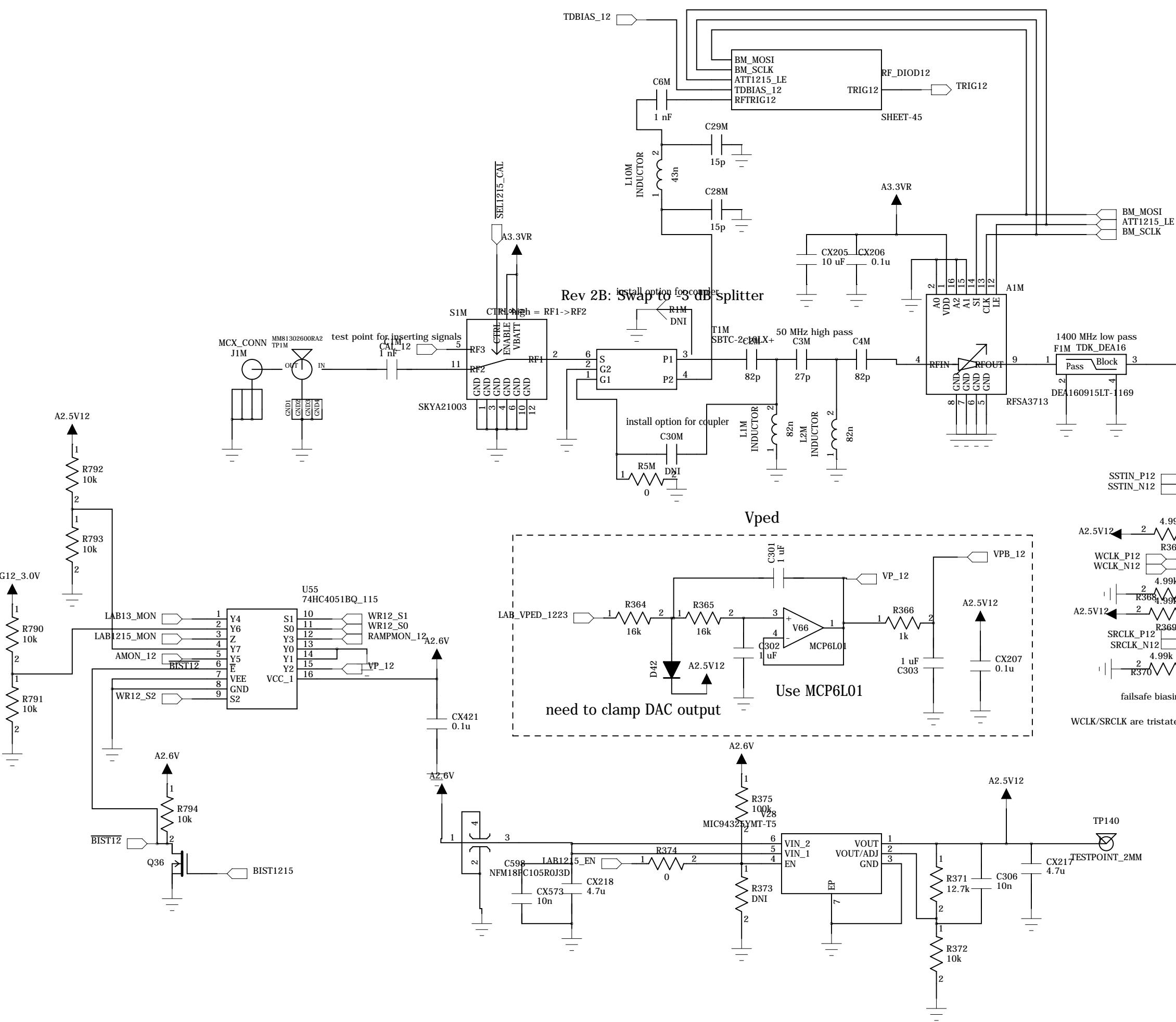
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

COMPANY: Ohio State University
SHEET: RF_CHANNEL12
CODE: 4 SIZE: C DESIGN: RADIANT REV: 3
SCALE: <Scale> SHEET: 4A 74

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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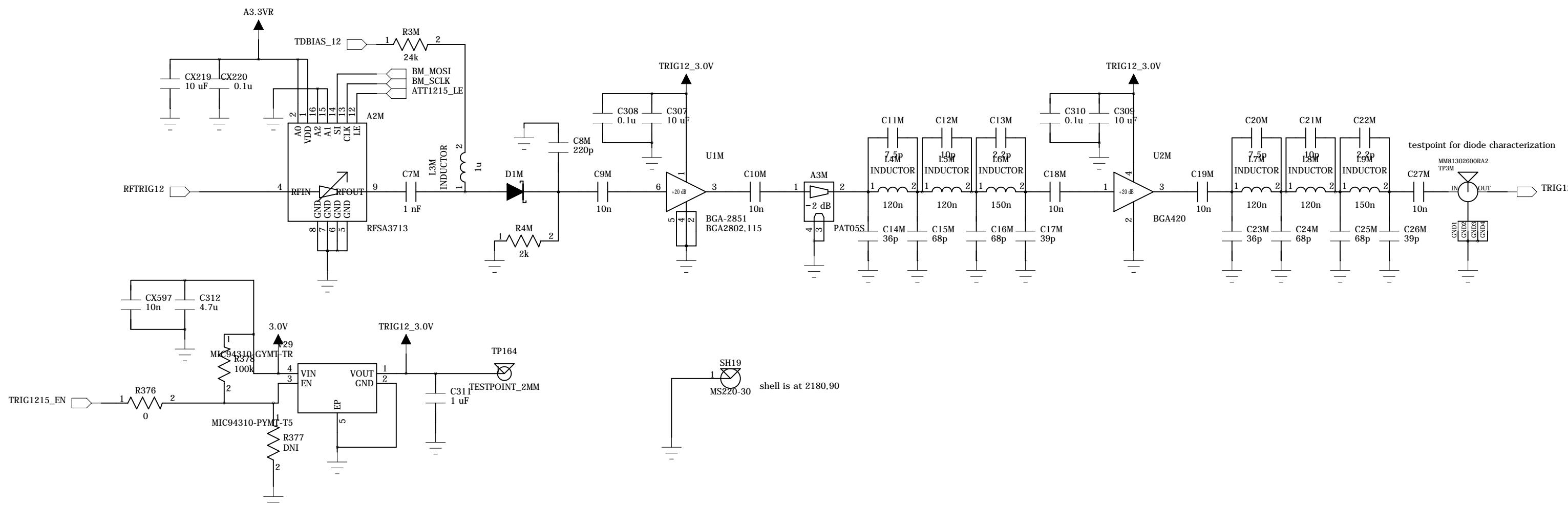
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COMPANY:

Ohio State University

SHEET:

RF_DIOD12

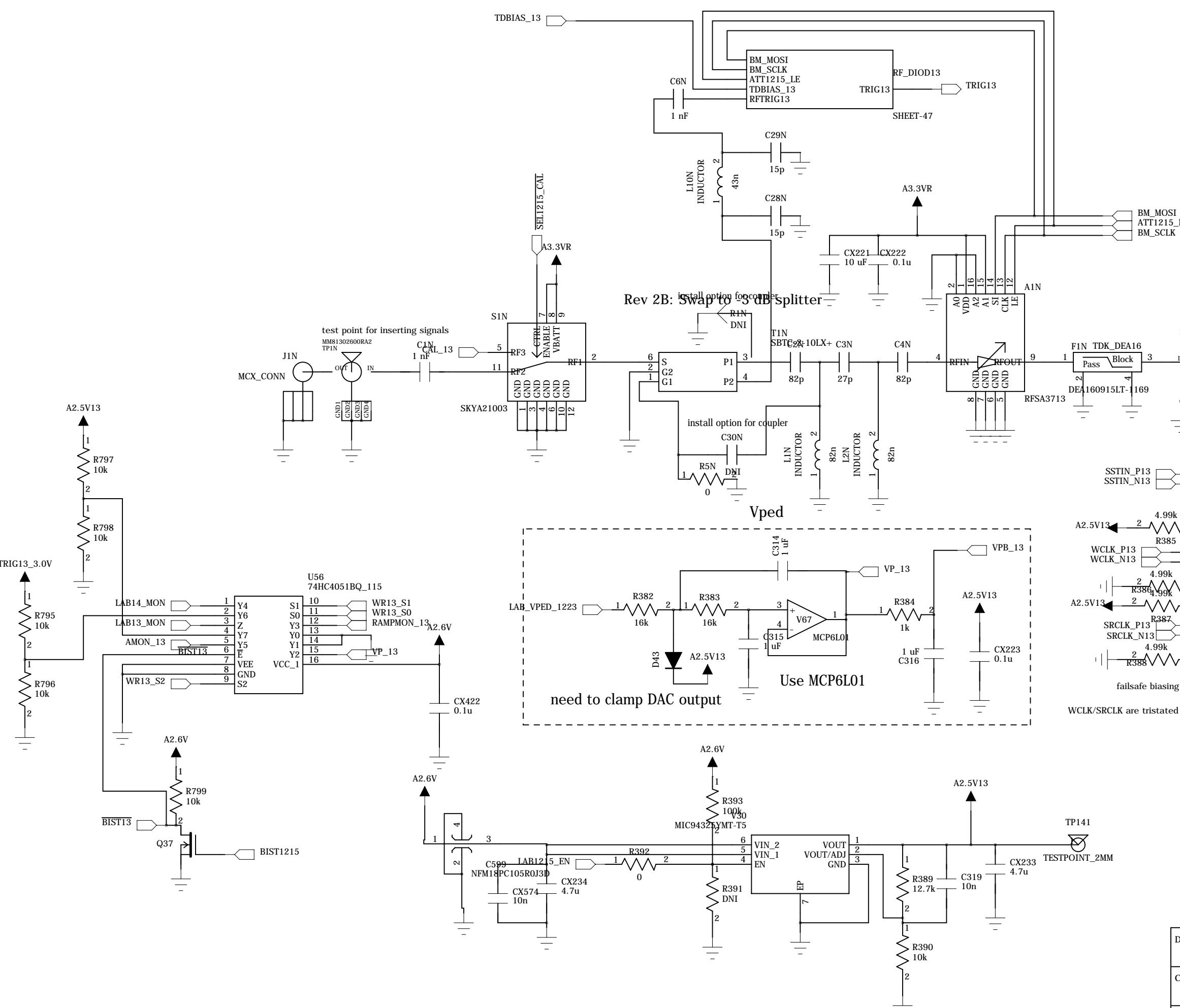
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QUALITY CONTROL:	PSA	DATED: 3/15/23				
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors



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Ohio State University

RF_CHANNEL13

SCALE: <Scale>

SHEET: 46 74

COMPANY:

SHEET:

DRAWN:

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QUALITY CONTROL:

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SIZE:

DESIGN:

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SCALE: <Scale>

SHEET: 46 74

COMPANY:

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SCALE: <Scale>

SHEET: 46 74

COMPANY:

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SCALE: <Scale>

SHEET: 46 74

COMPANY:

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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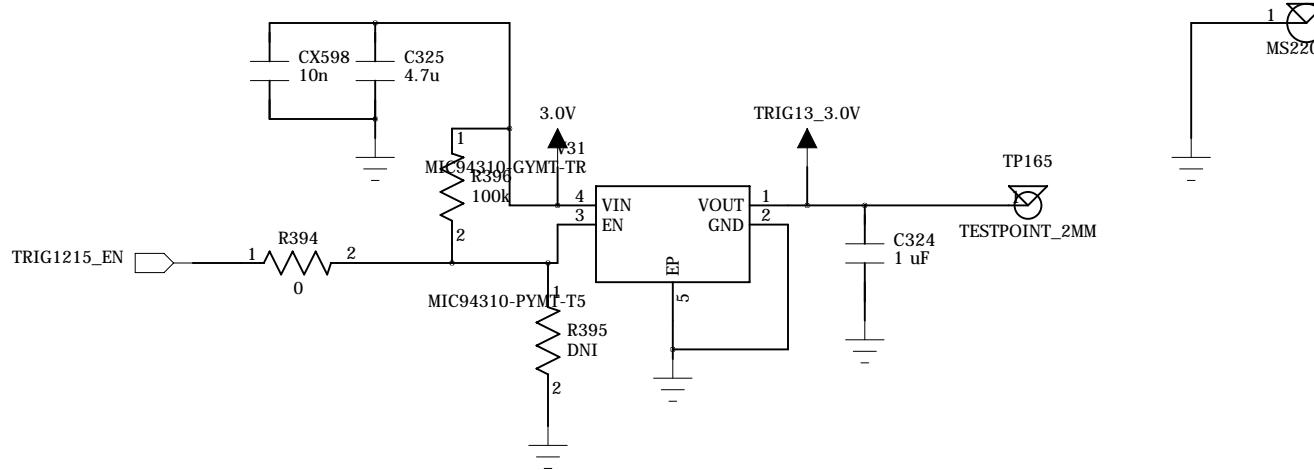
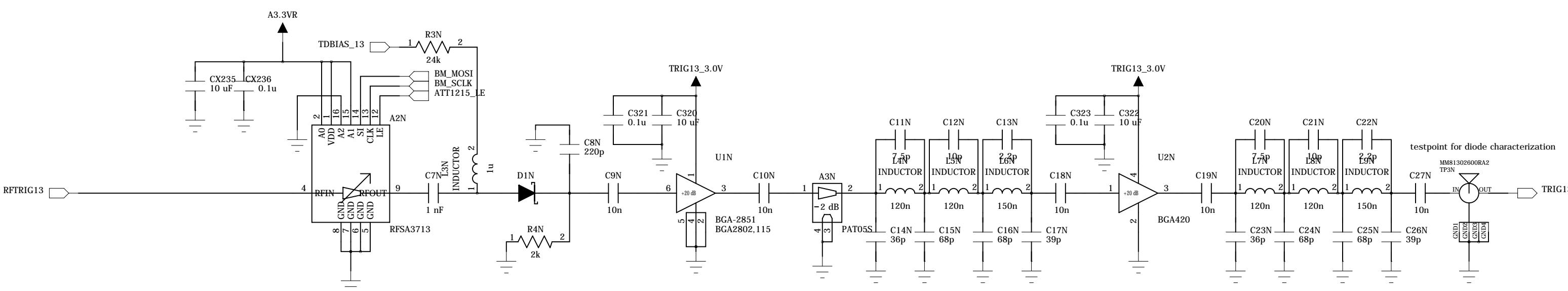
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD13		
DRAWN:	PSA	DATED:	2/27/23
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QUALITY CONTROL:	PSA	DATED:	3/15/23
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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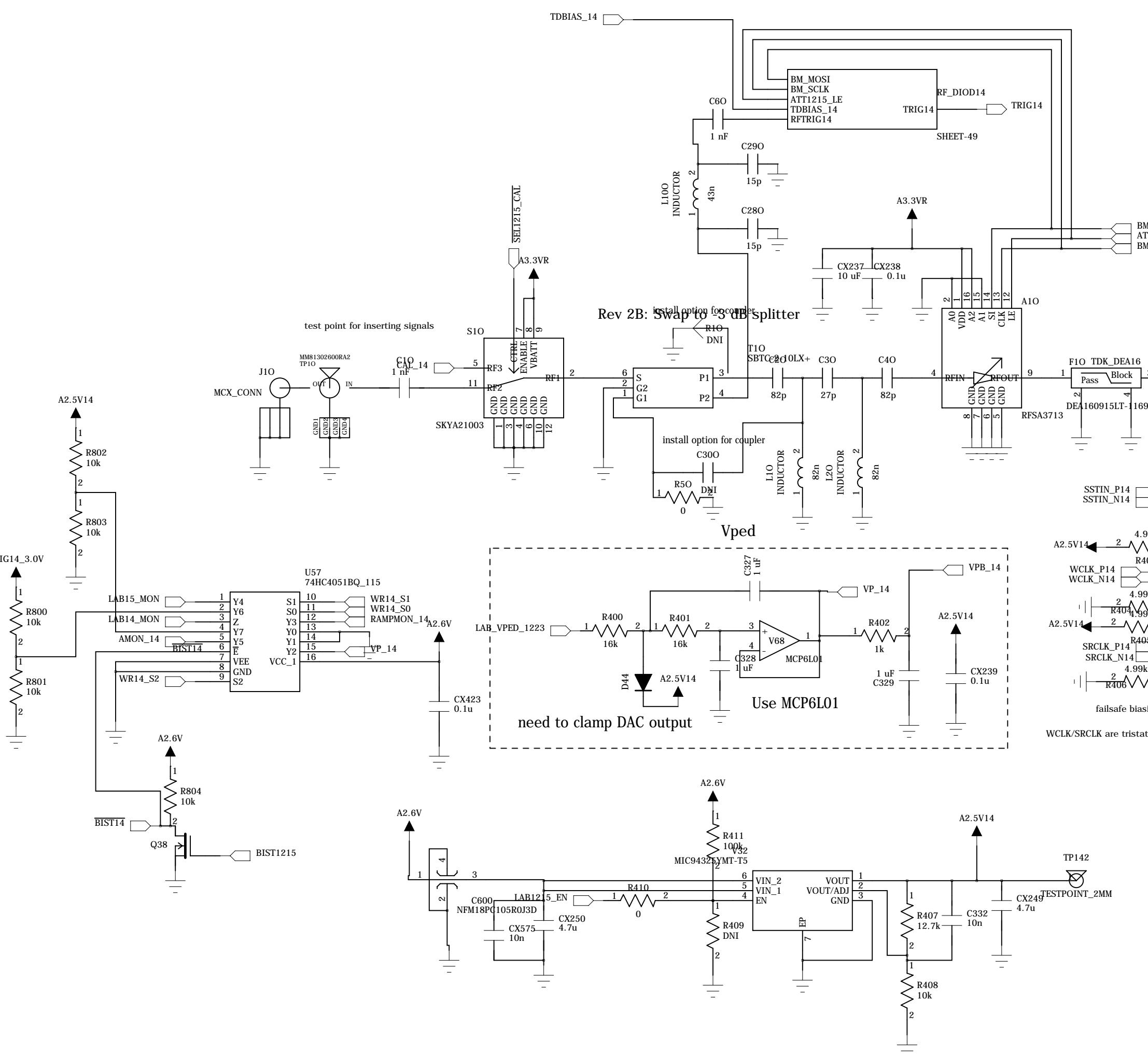
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

COMPANY: Ohio State University

SHEET: RF_CHANNEL14

CODE: 4

SIZE: C

DESIGN: RADIANT

REV: 3

SCALE: <Scale>

Sheet: 48 74

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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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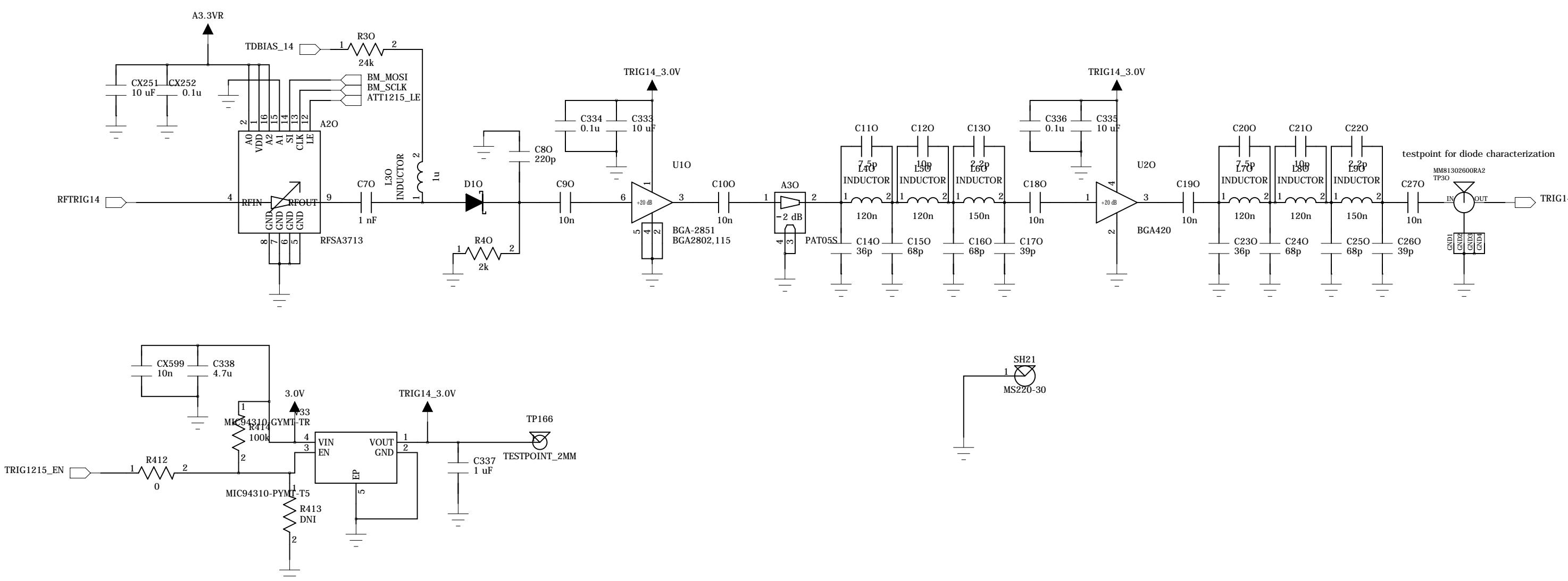
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD14		
CODE:	SIZE:	DESIGN	REV:
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SCALE: <Scale>	SHEET: 49 74		

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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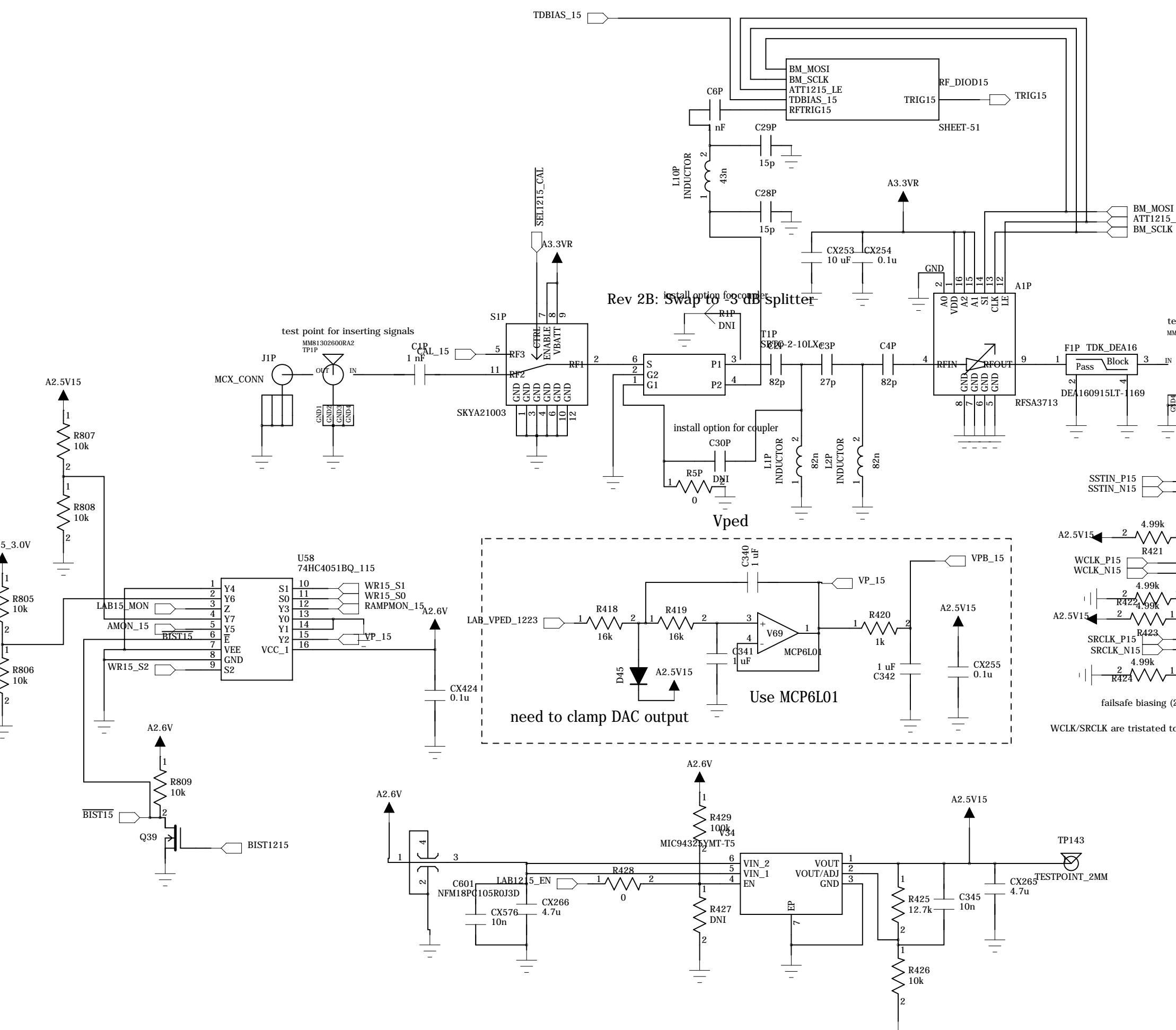
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A

Ohio State University

RF_CHANNEL15

RADIANT

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SCALE: <Scale> SHEET: 50 74

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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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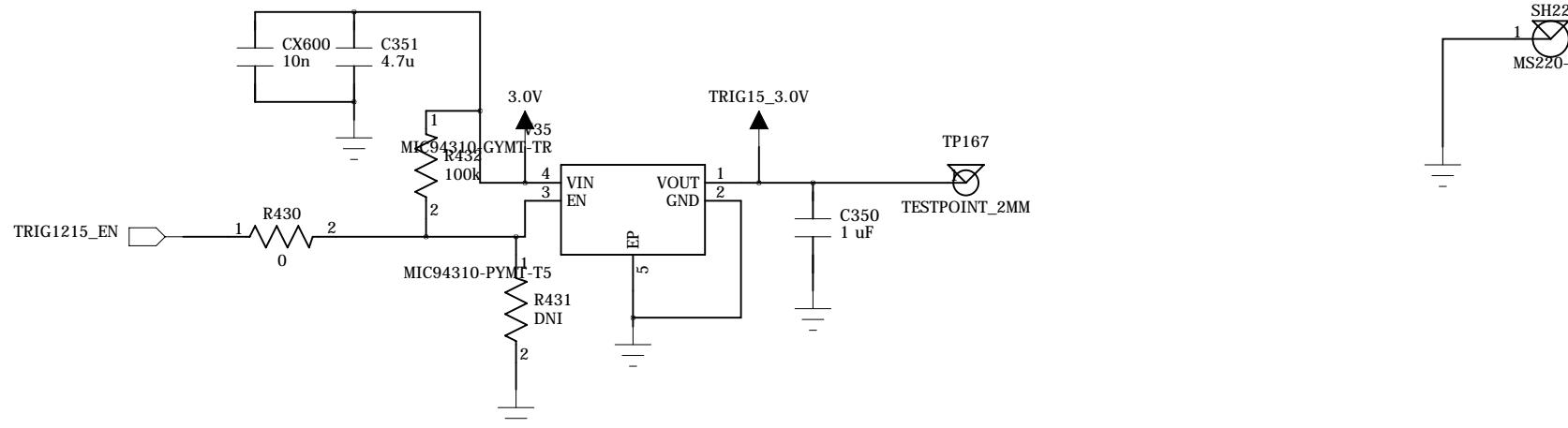
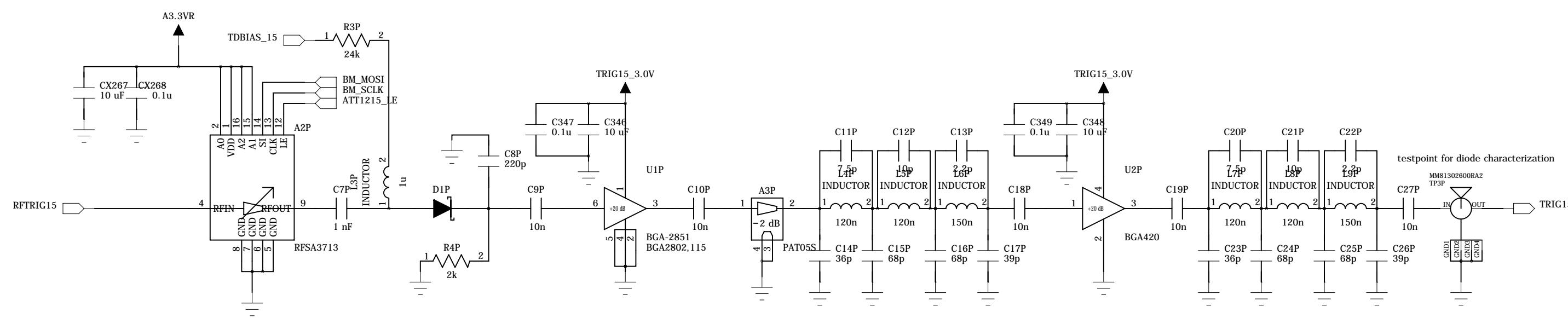
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD15		
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QUALITY CONTROL:	PSA	DATED:	3/15/23
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REV:	3	DESIGN:	
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REVISION RECORD

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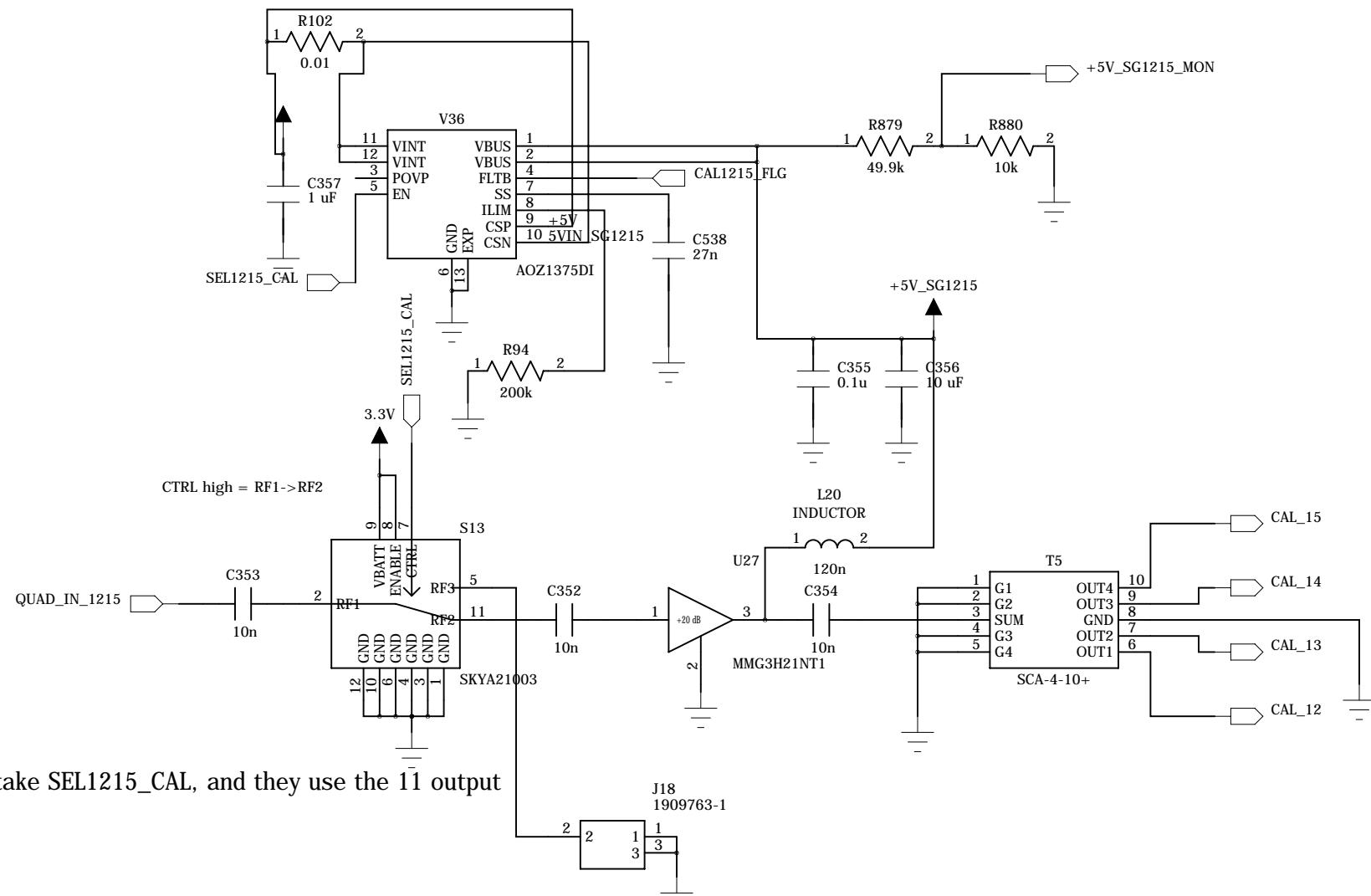
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COMPANY:	Ohio State University		
SHEET:	QUAD_SIG_GENERATOR_3		
DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
CODE:	SIZE:	DESIGN	REV:
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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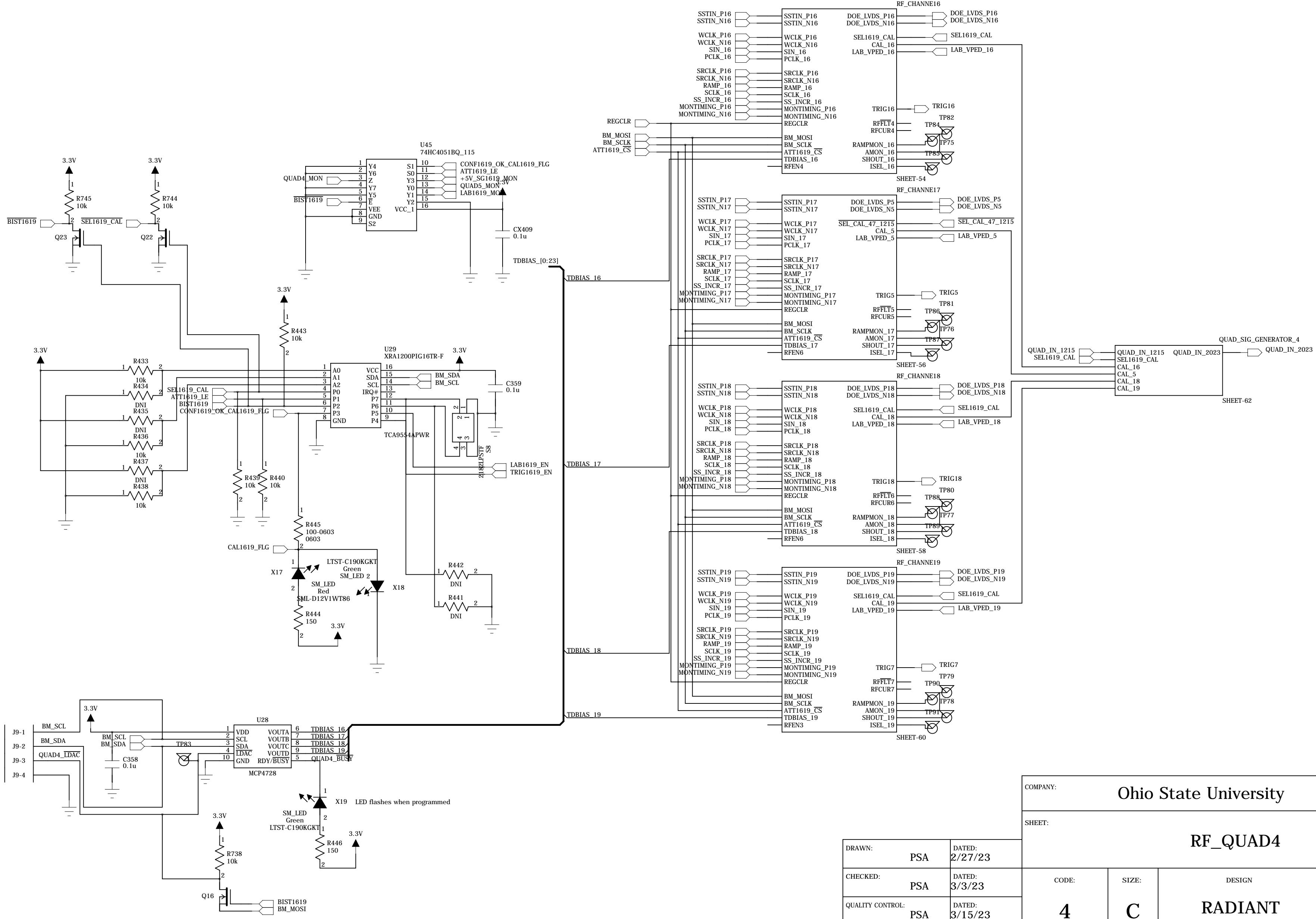
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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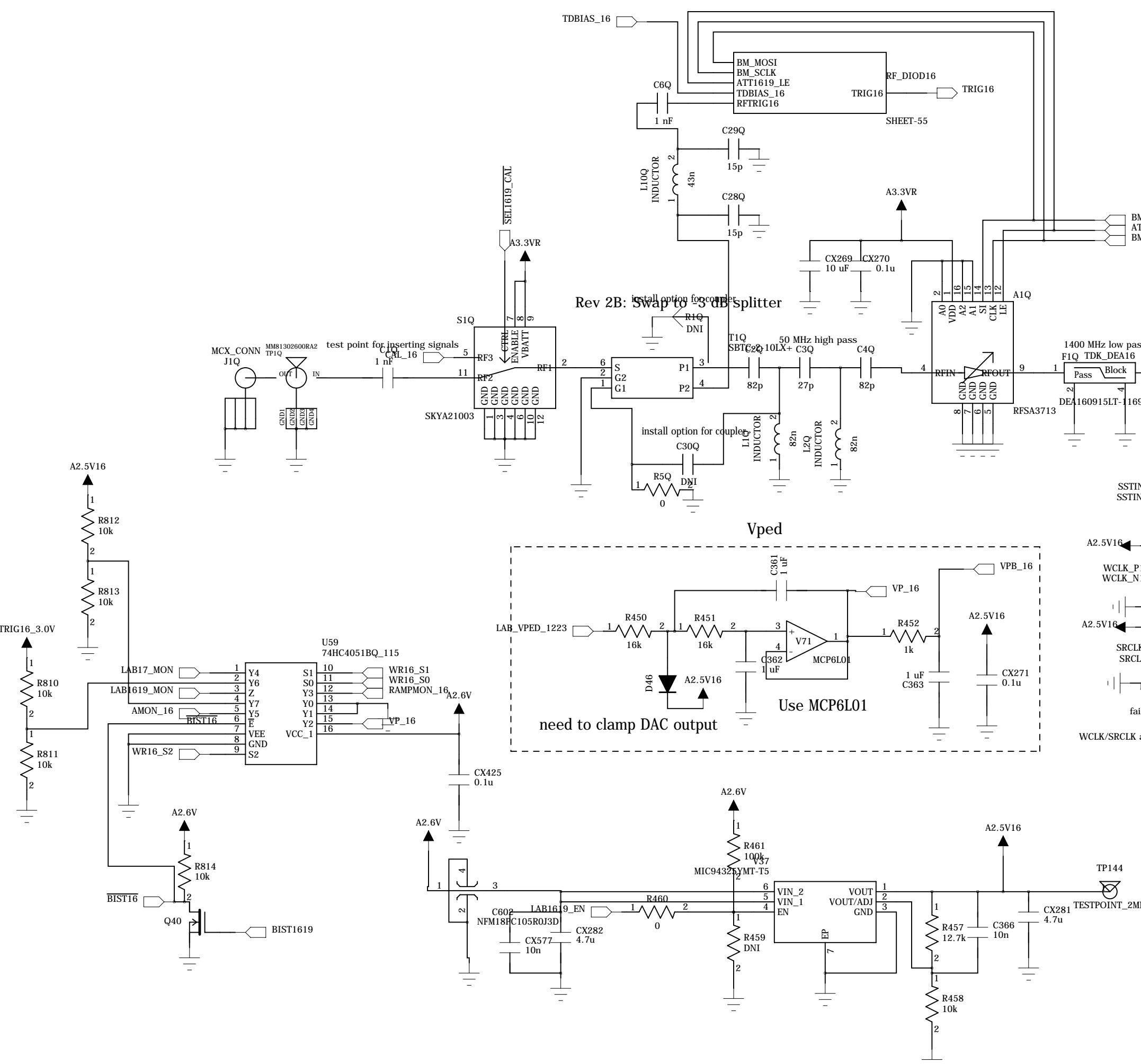
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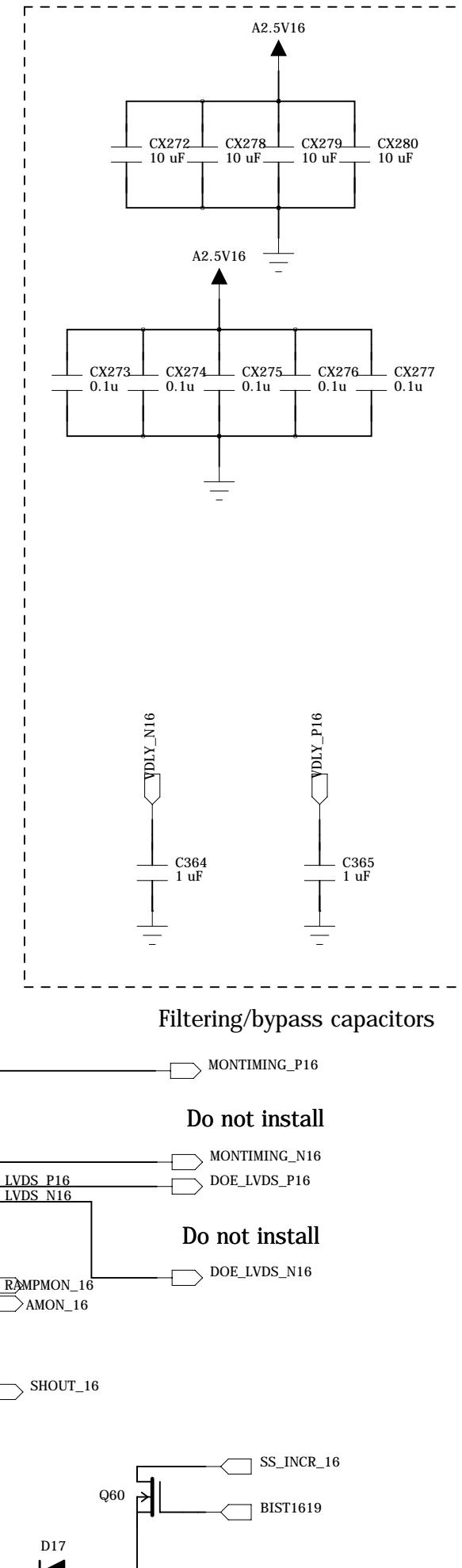
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COMPANY:	Ohio State University		
SHEET:	RF_CHANNEL16		
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QUALITY CONTROL:	PSA	DATED:	3/15/23
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SCALE:	<Scale>		
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REV:	4	RADIANT	3
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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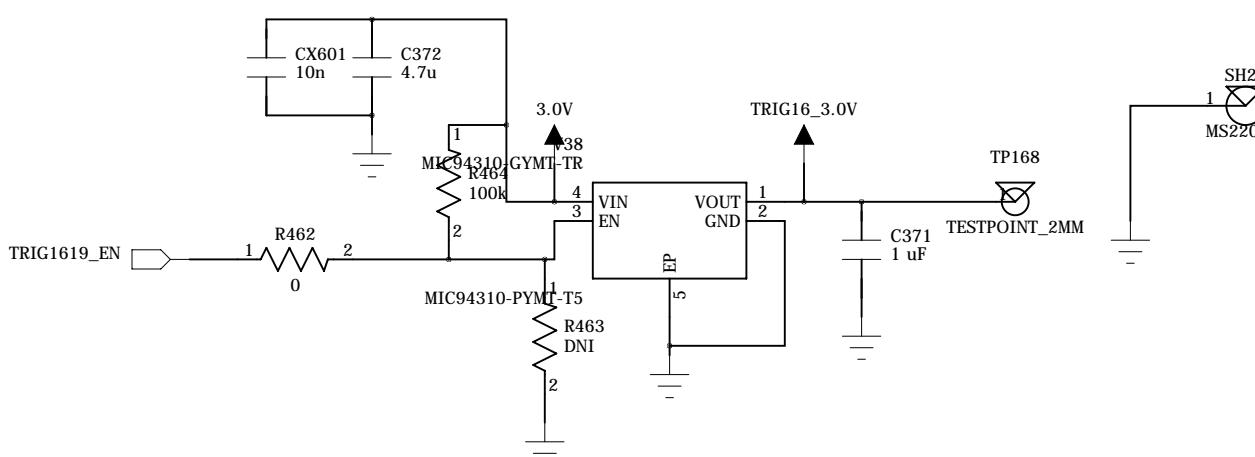
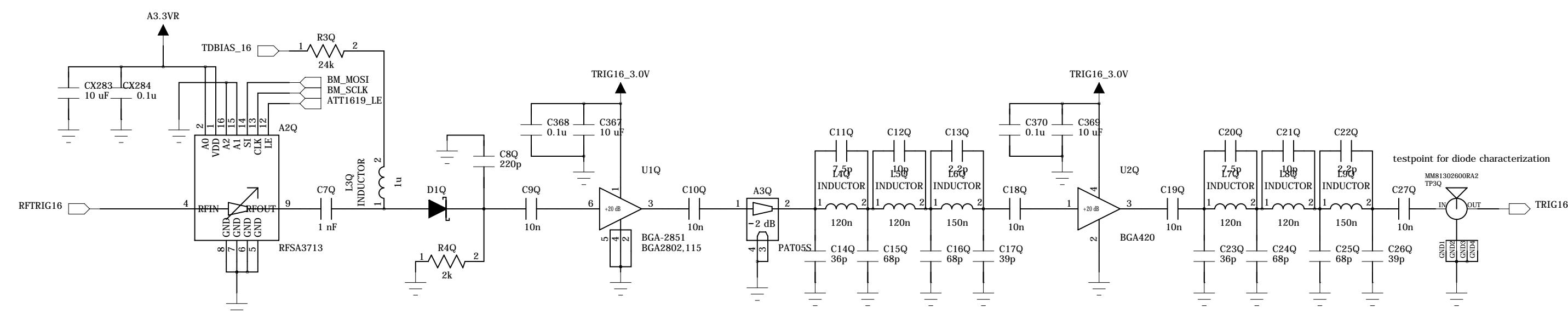
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD16		
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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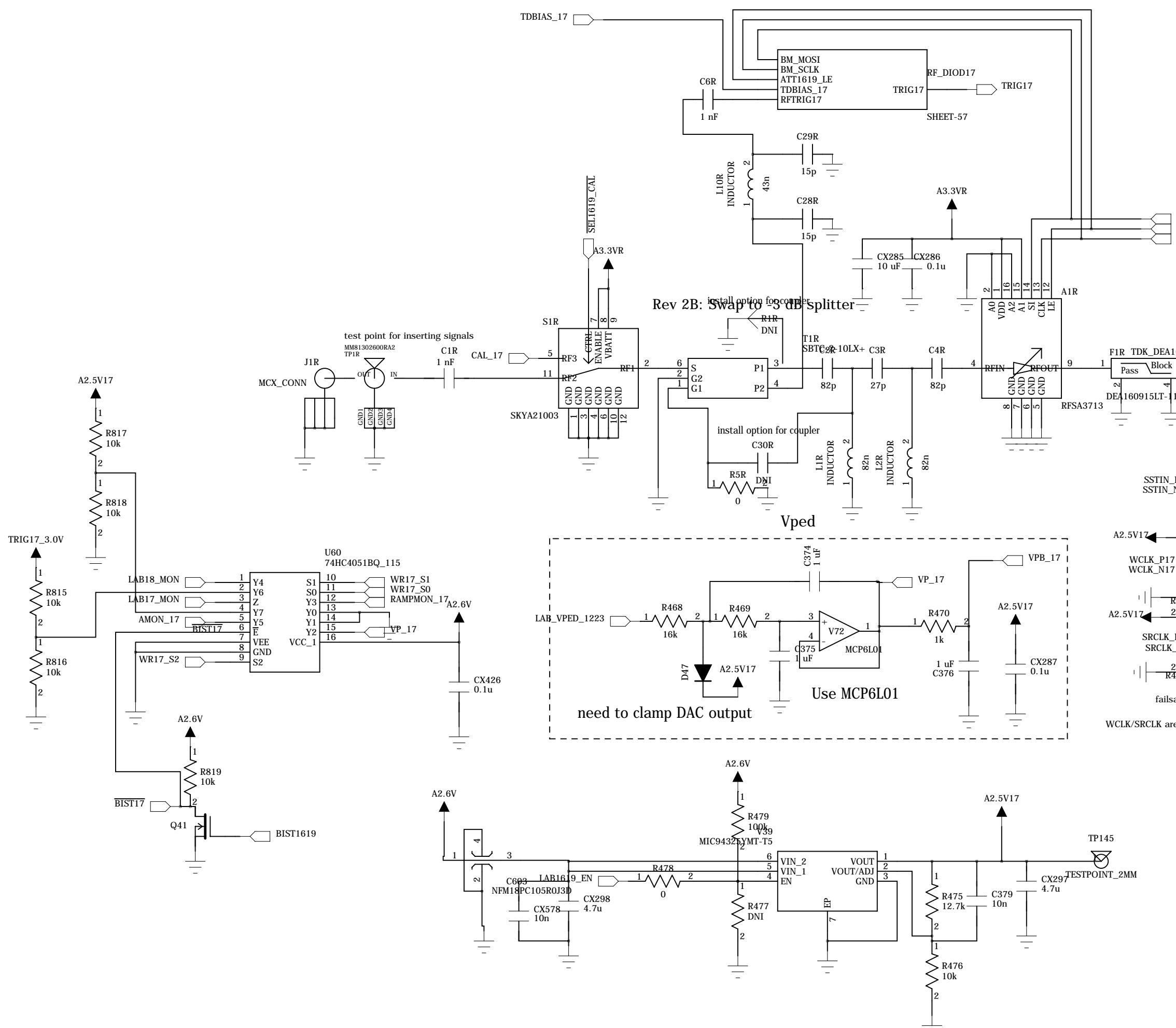
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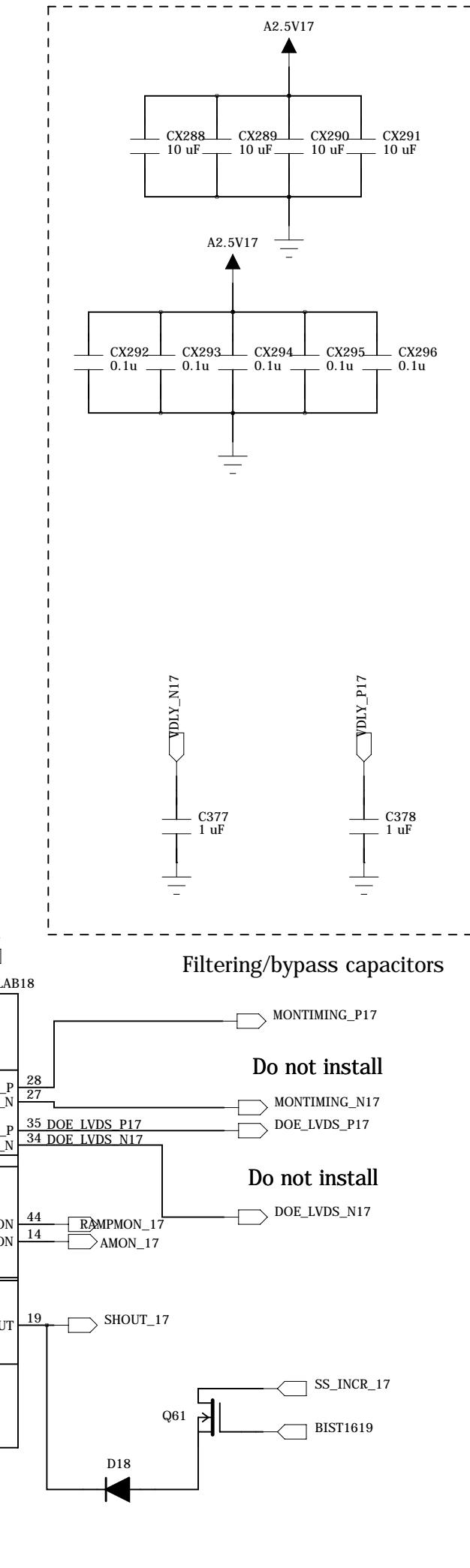


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Ohio State University

RF_CHANNEL17

CODE:	SIZE:	DESIGN	REV:
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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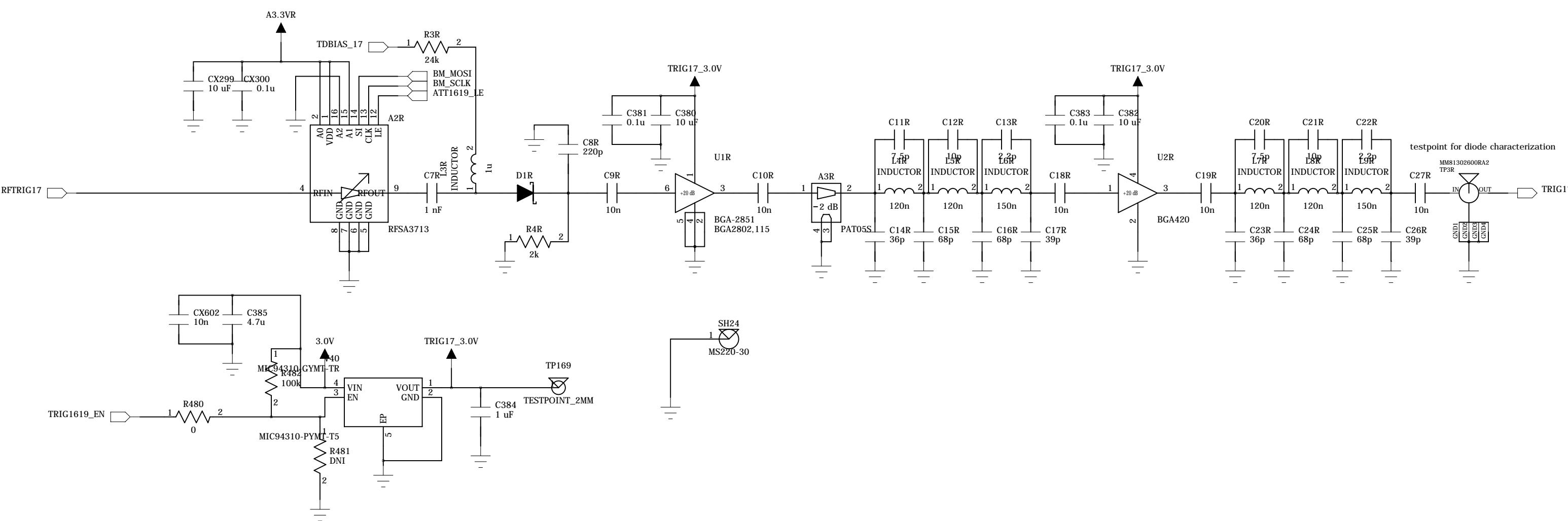
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COMPANY:

Ohio State University

SHEET:

RF_DIOD17

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QUALITY CONTROL:	PSA	DATED:	3/15/23				
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

Filtering/bypass capacitors

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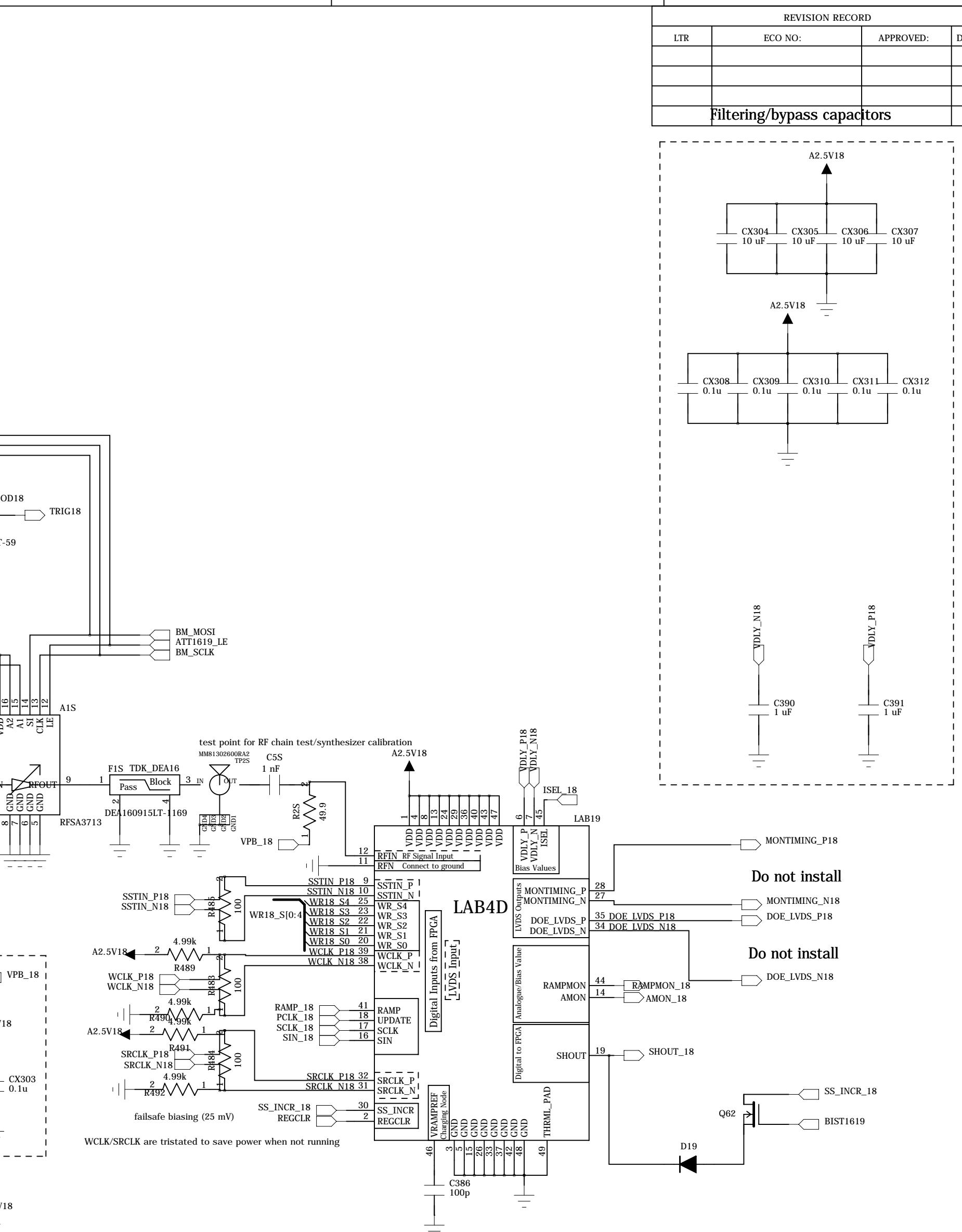
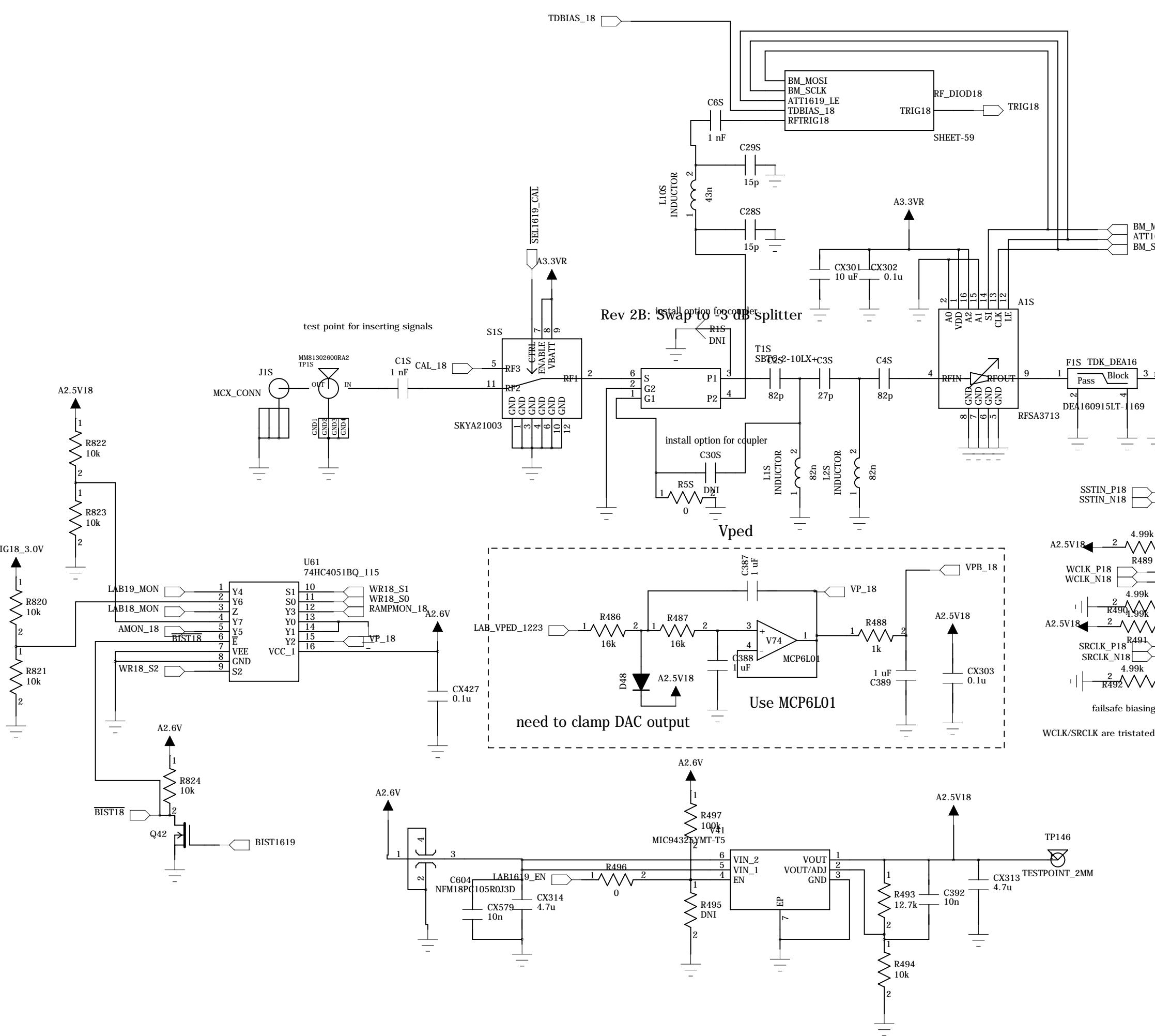
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DRAWN:	PSA	DATED:	2/27/23
CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
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REVISION RECORD

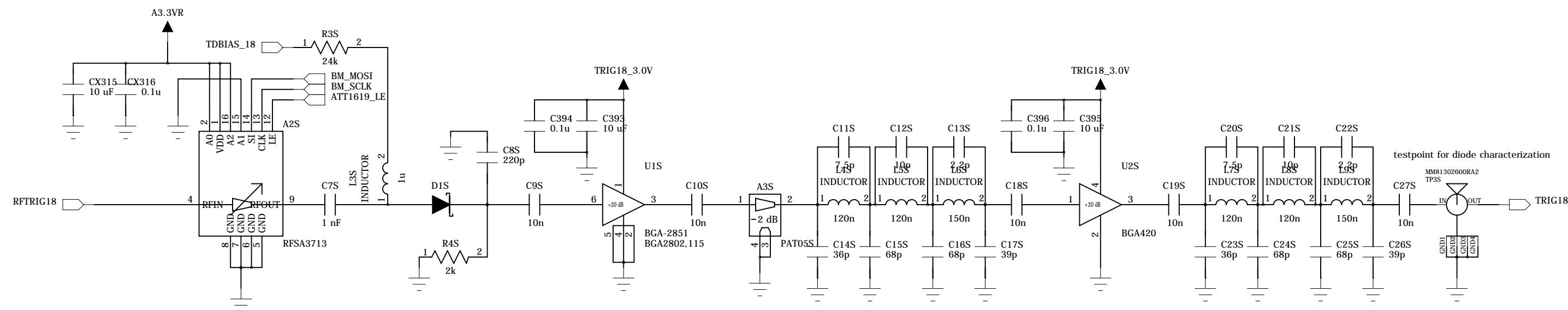
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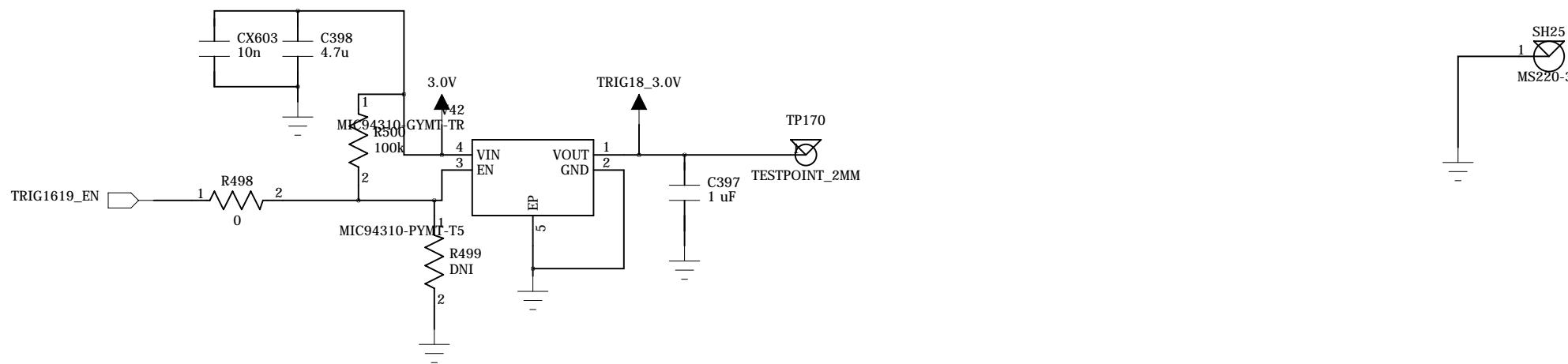
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD18		
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QUALITY CONTROL:	PSA	DATED:	3/15/23
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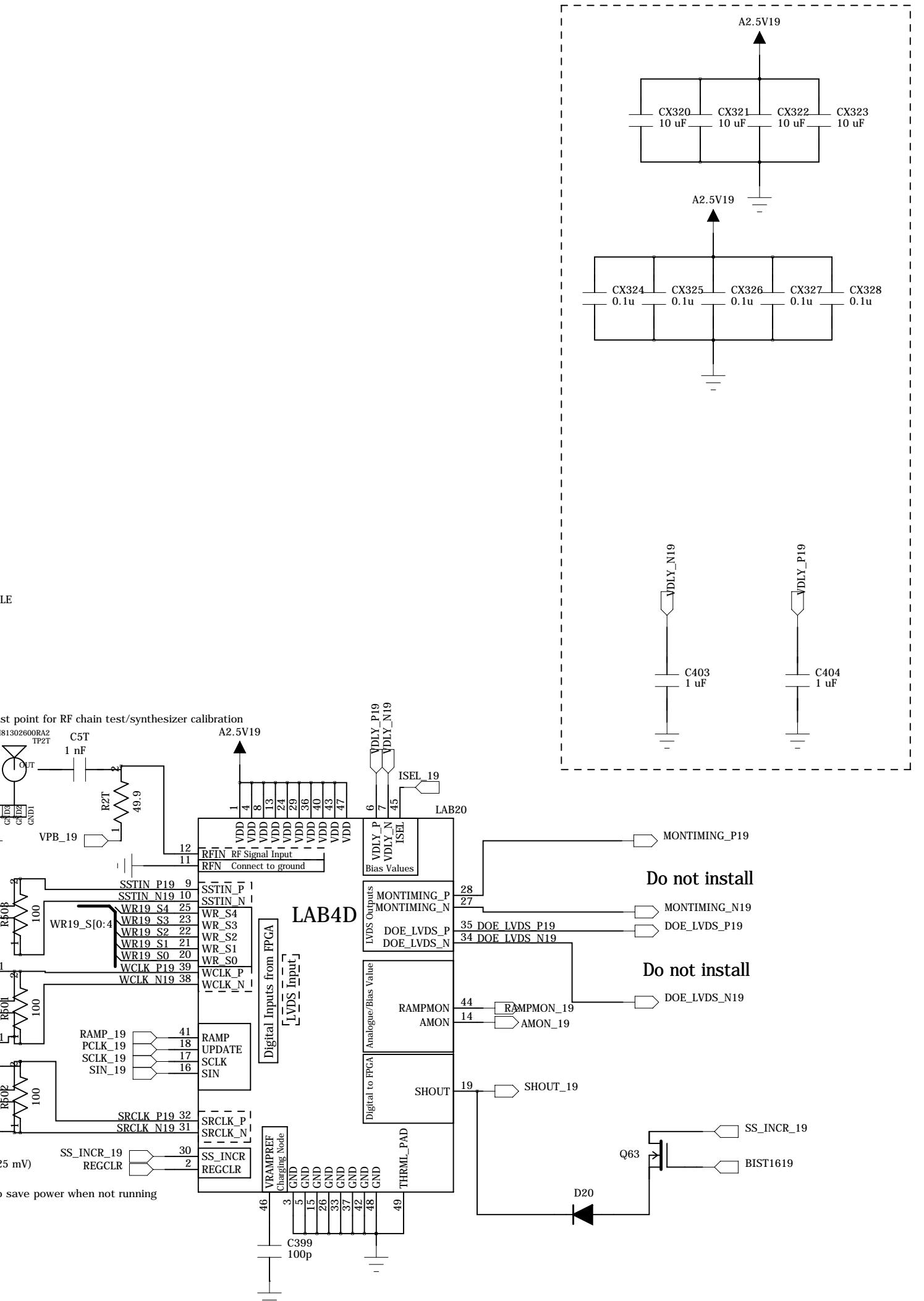
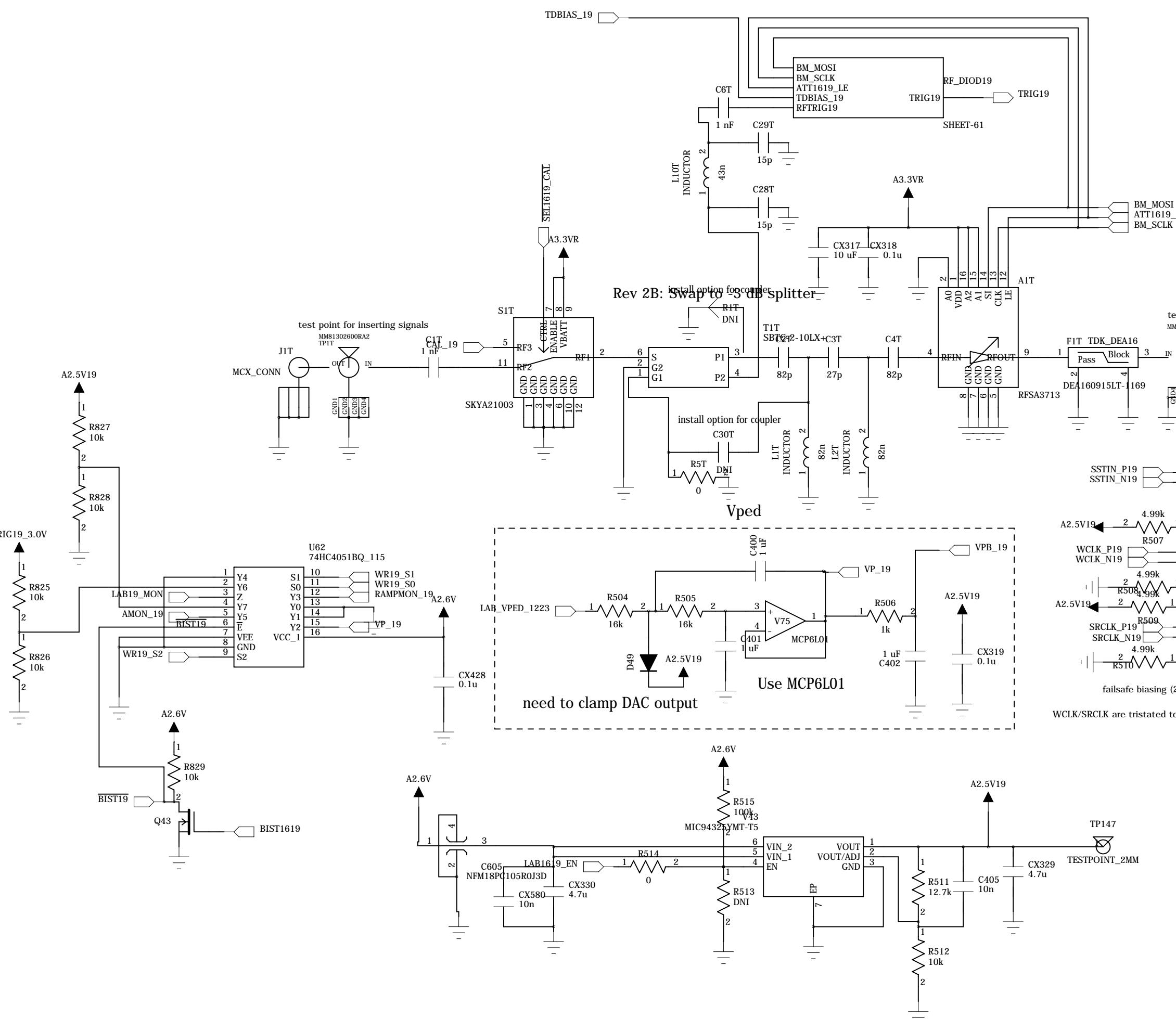
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REVISION RECORD		
ECO NO:	APPROVED:	DATE:
Engineering/bypass capacitors		



Ohio State University

RF_CHANNE19

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CHECKED: PSA		DATED: 3/3/23	CODE: 4	SIZE: C	DESIGN RADIANT	REV:
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REVISION RECORD

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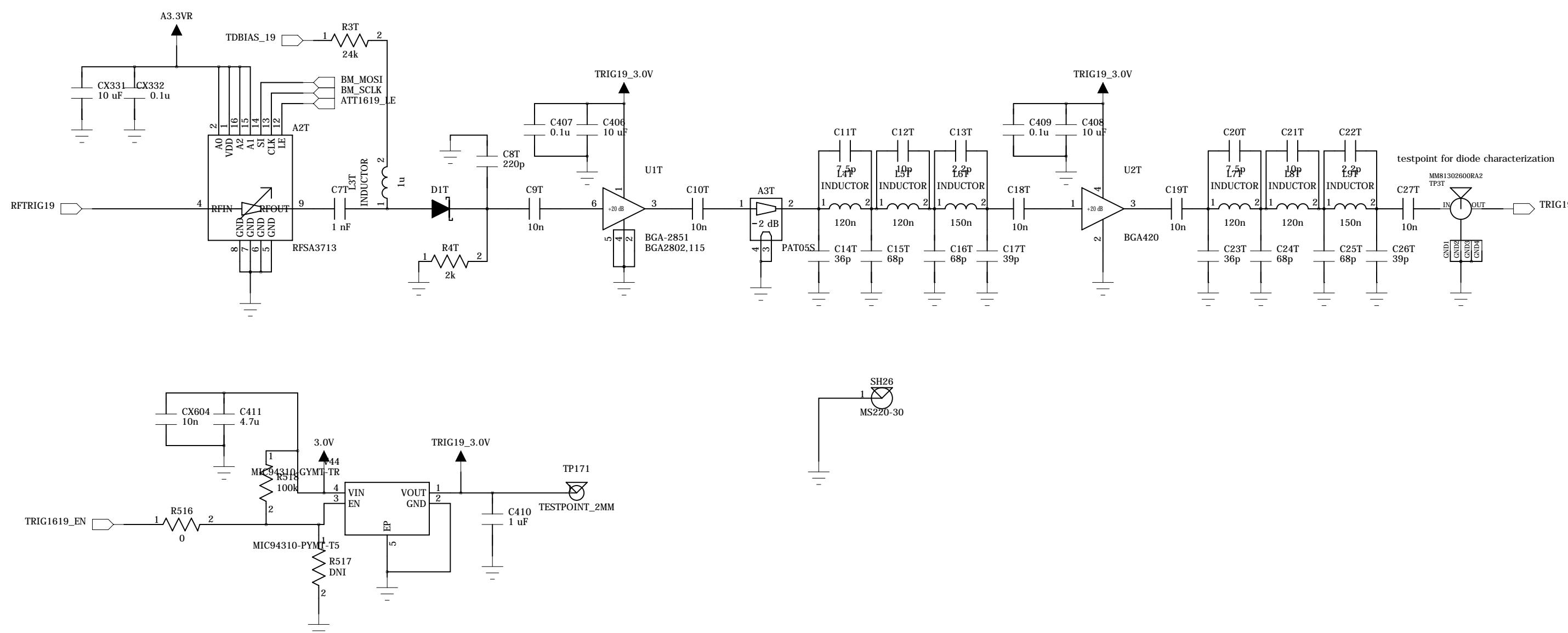
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD19		
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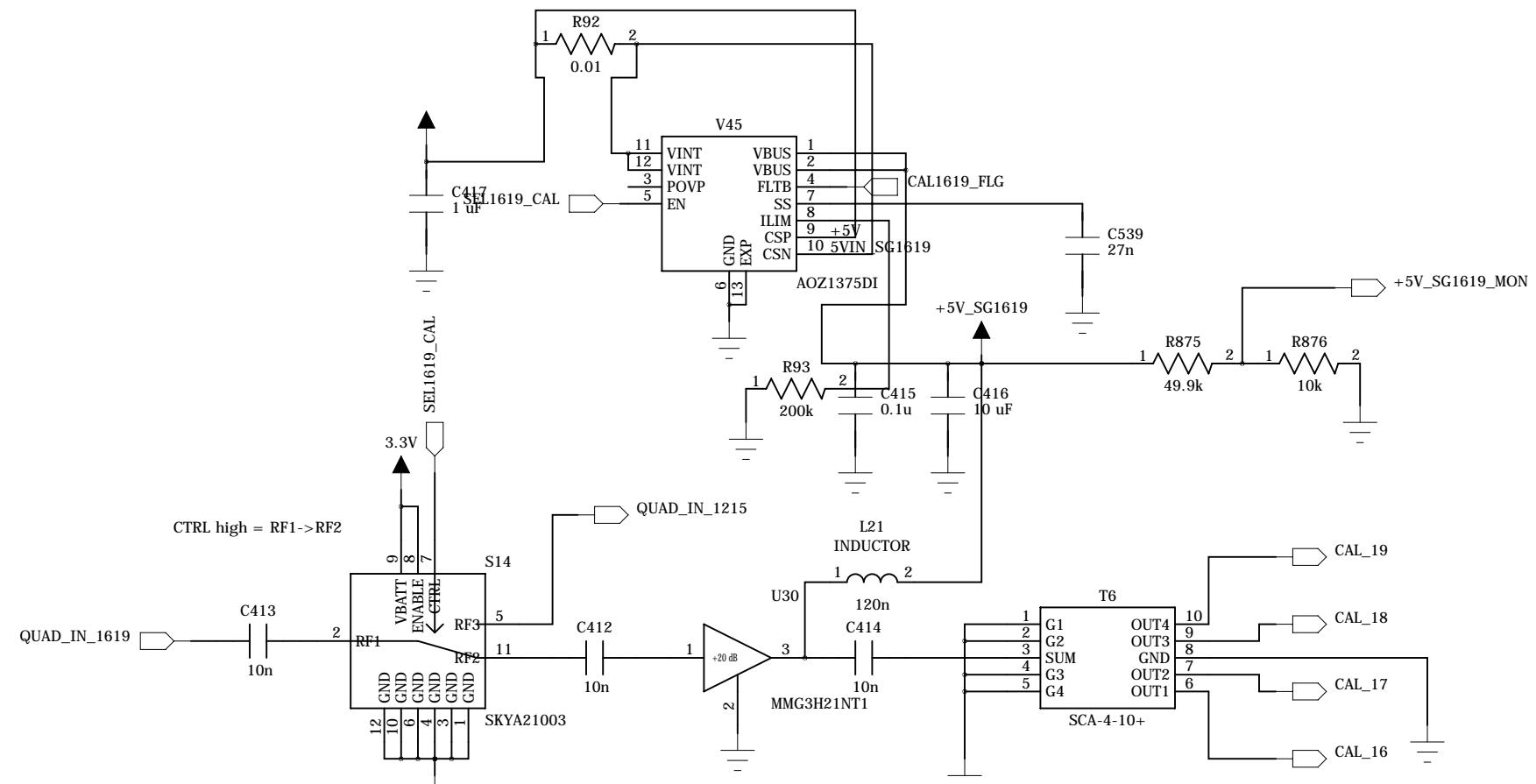
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COMPANY:	Ohio State University		
SHEET:	QUAD_SIG_GENERATOR_4		
CODE:	SIZE:	DESIGN	REV:
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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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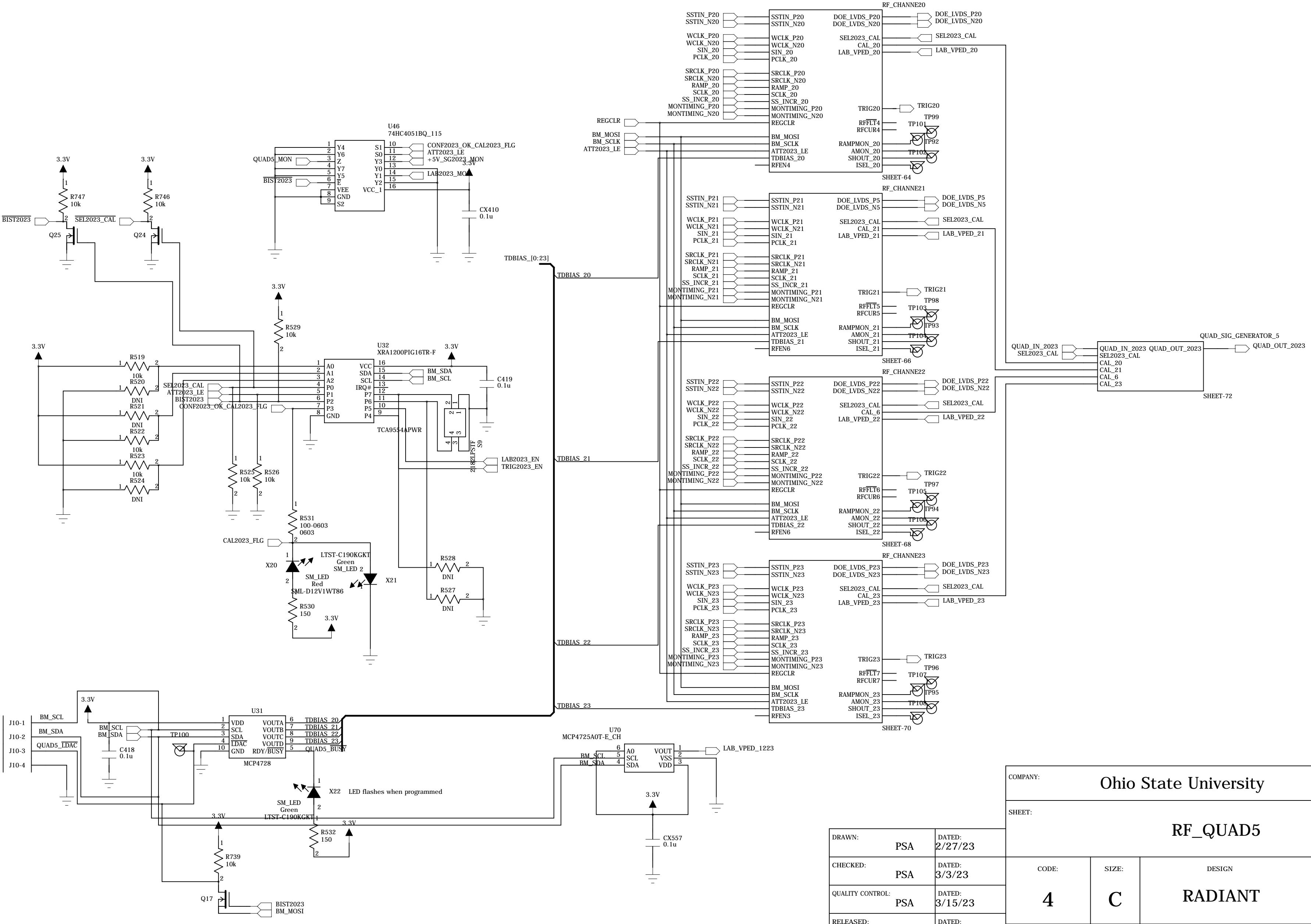
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REVISION RECORD

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

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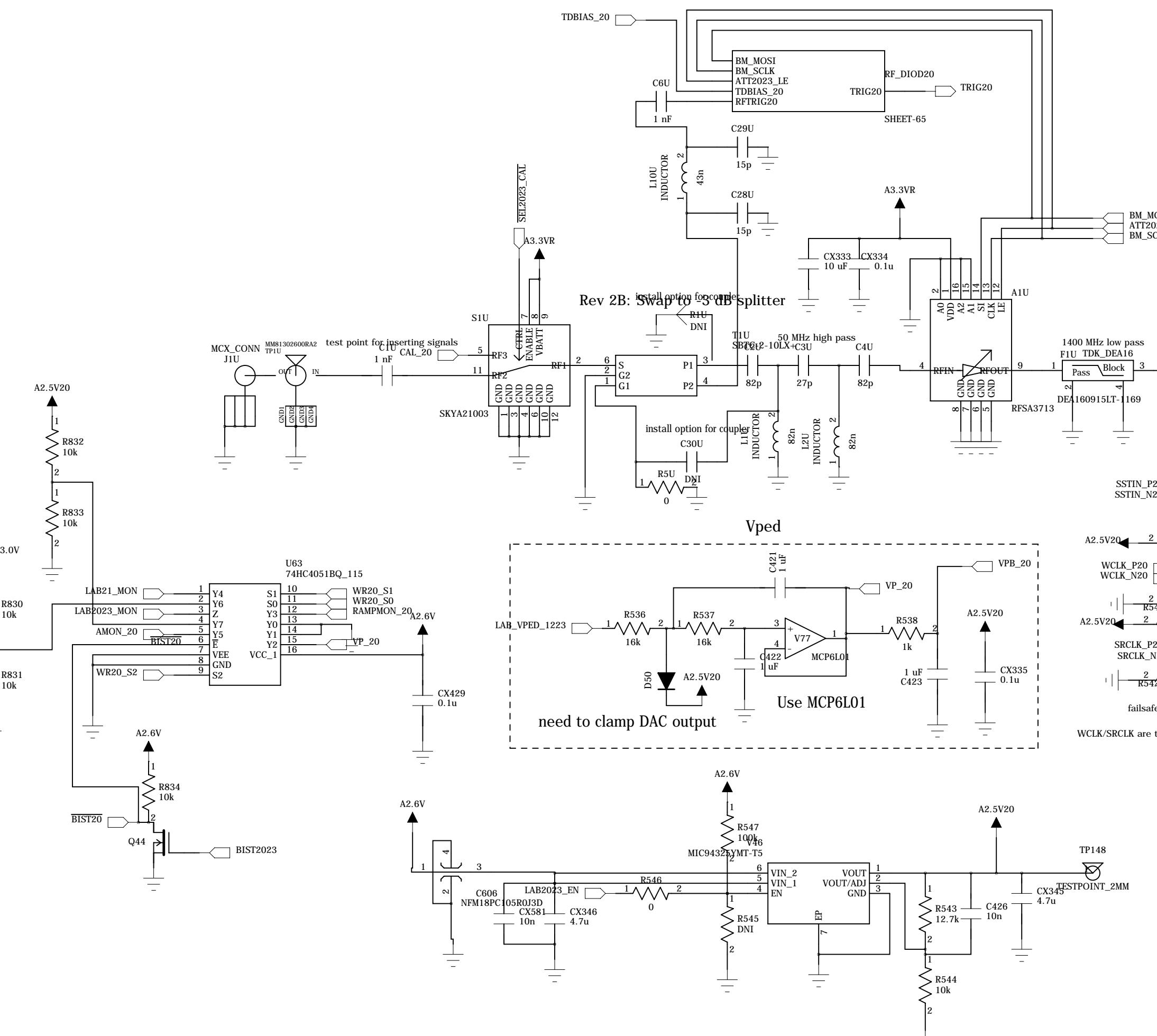
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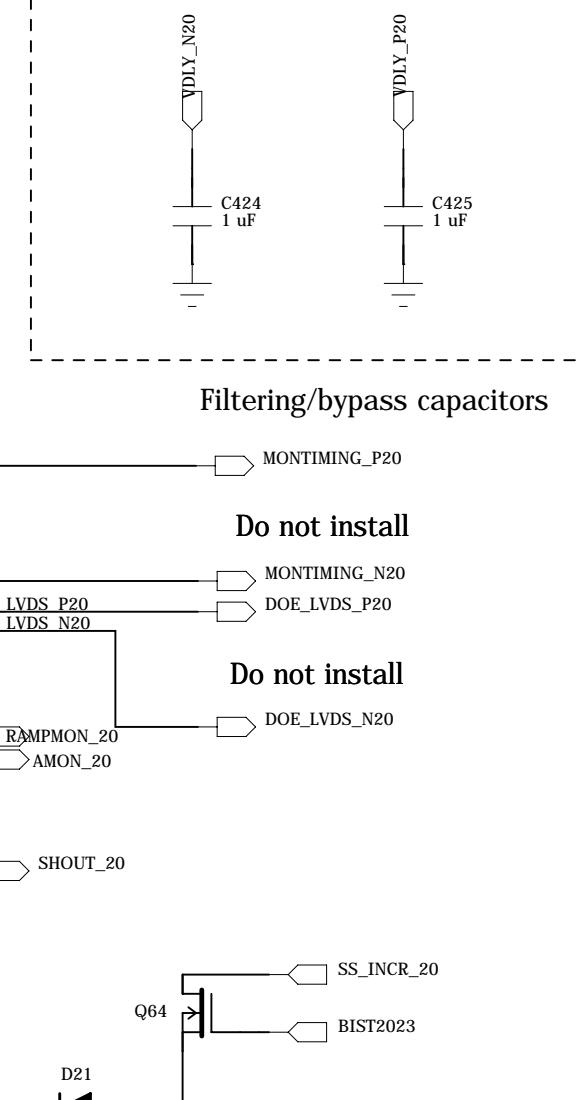
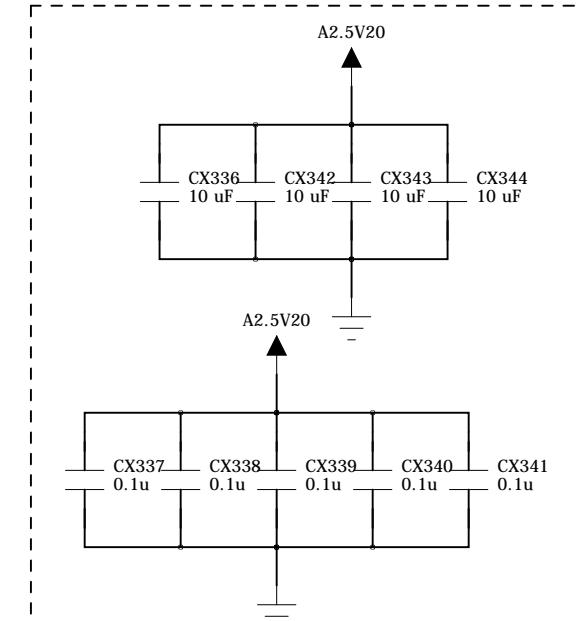
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DRAWN:	PSA	DATED:	2/27/23
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QUALITY CONTROL:	PSA	DATED:	3/15/23
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COMPANY: Ohio State University
SHEET: RF_CHANNEL20
SCALE: <Scale> SHEET: 64 74



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REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

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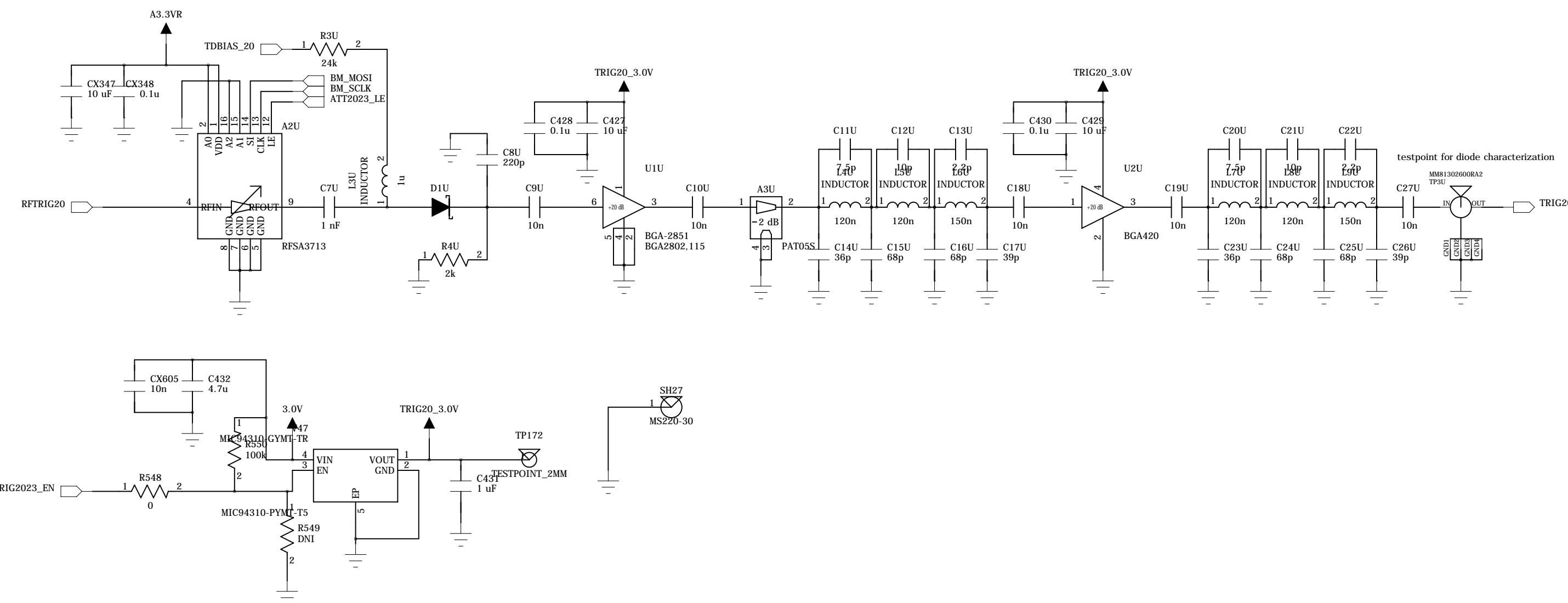
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COMPANY:

Ohio State University

SHEET:

RF_DIOD20

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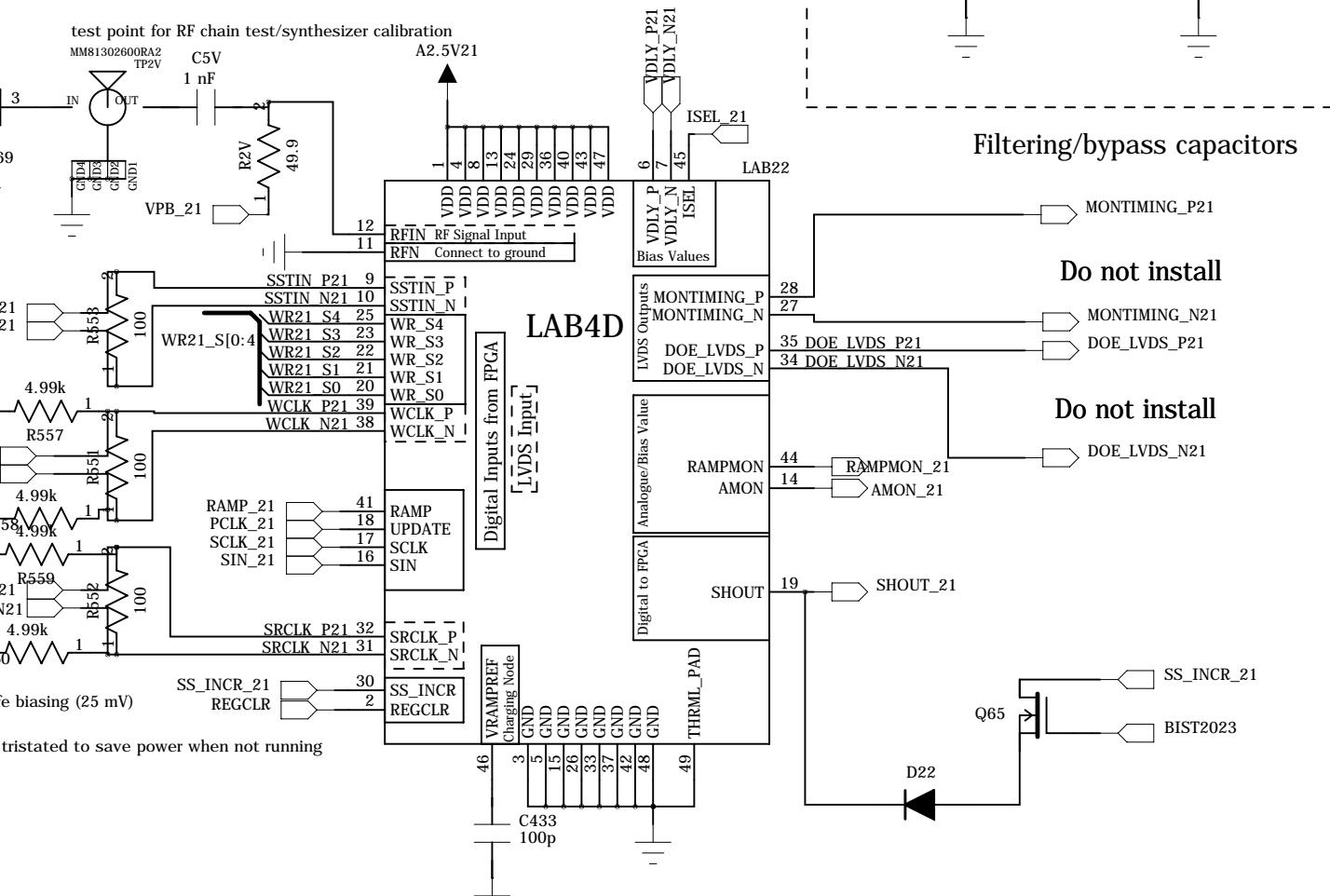
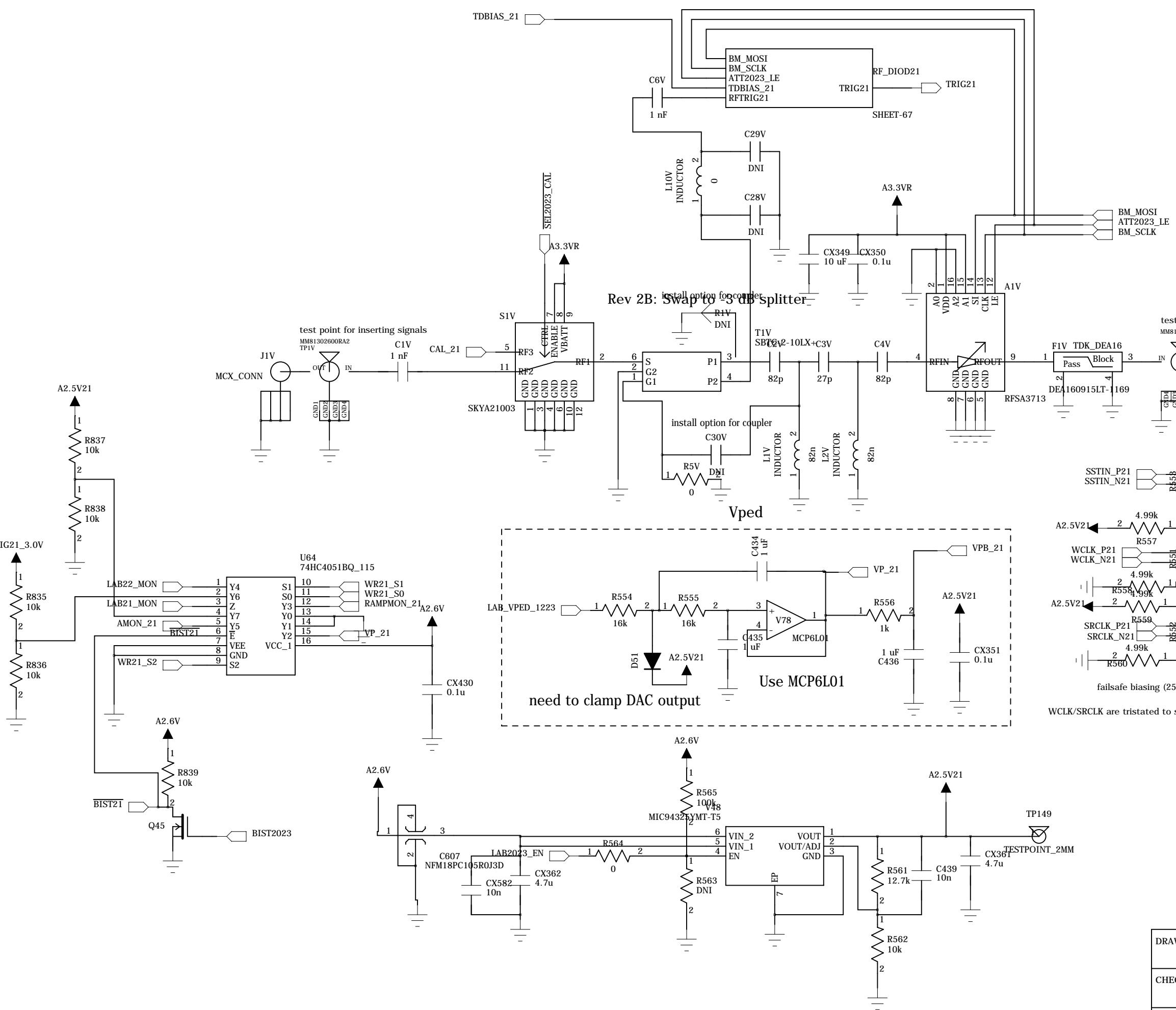
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REVISION RECORD		
ECO NO:	APPROVED:	DATE:
Engineering/bypass capacitors		



tristated to save power when not running

Ohio State University

RF_CHANNE21

DRAWN: PSA	DATED: 2/27/23	RF_CHANNE21			
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REVISION RECORD

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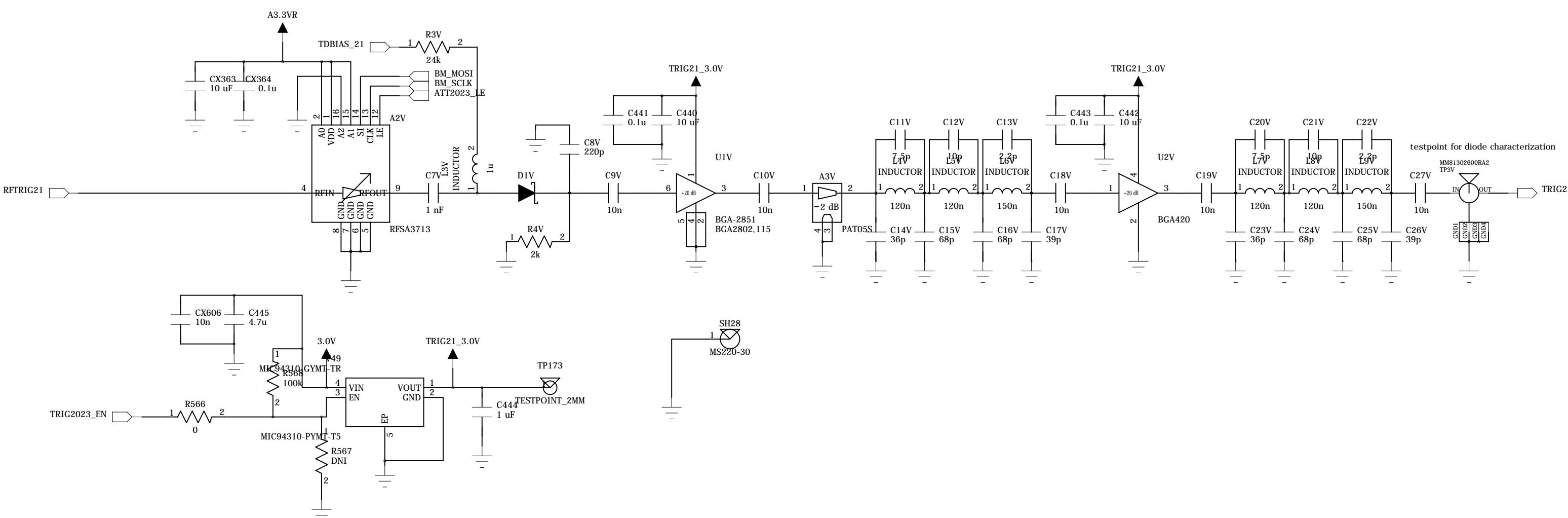
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COMPANY:

Ohio State University

SHEET:

RF_DIOD21

DRAWN:	PSA	DATED: 2/27/23	CODE: 4	SIZE: C	DESIGN: RADIANT	REV: 3
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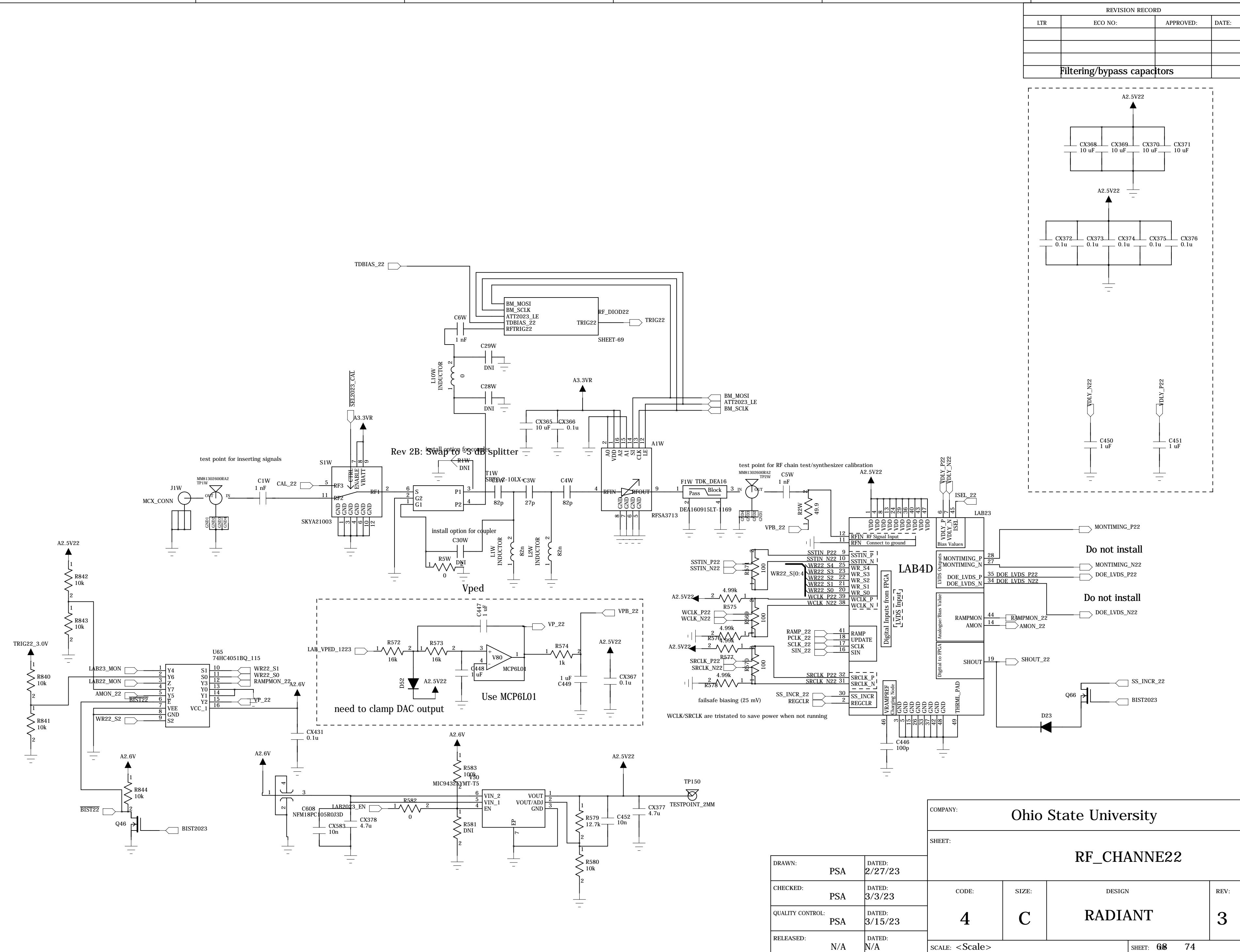
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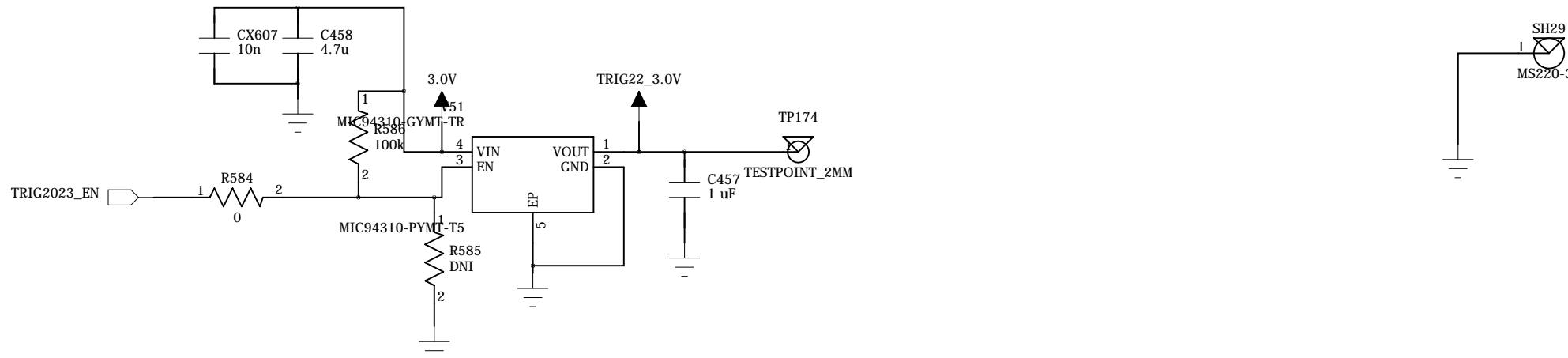
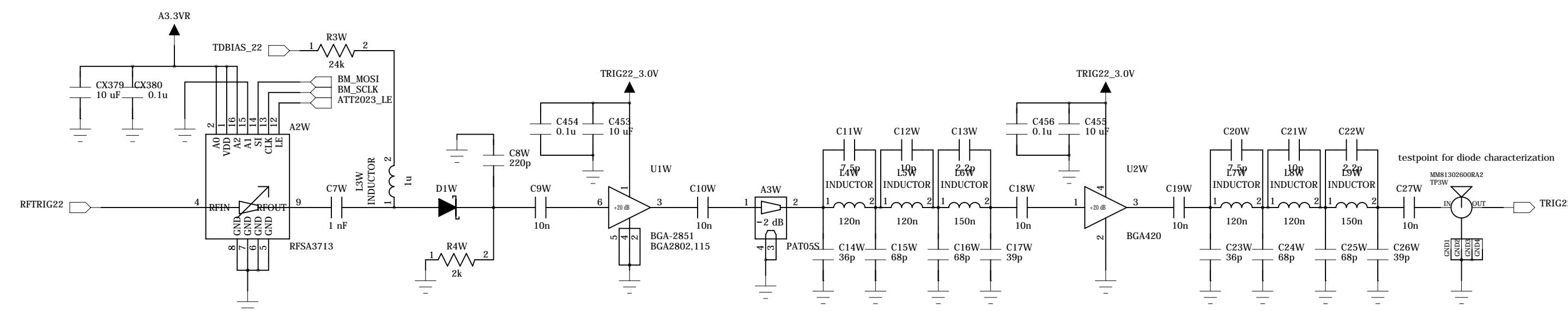
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD22		
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CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
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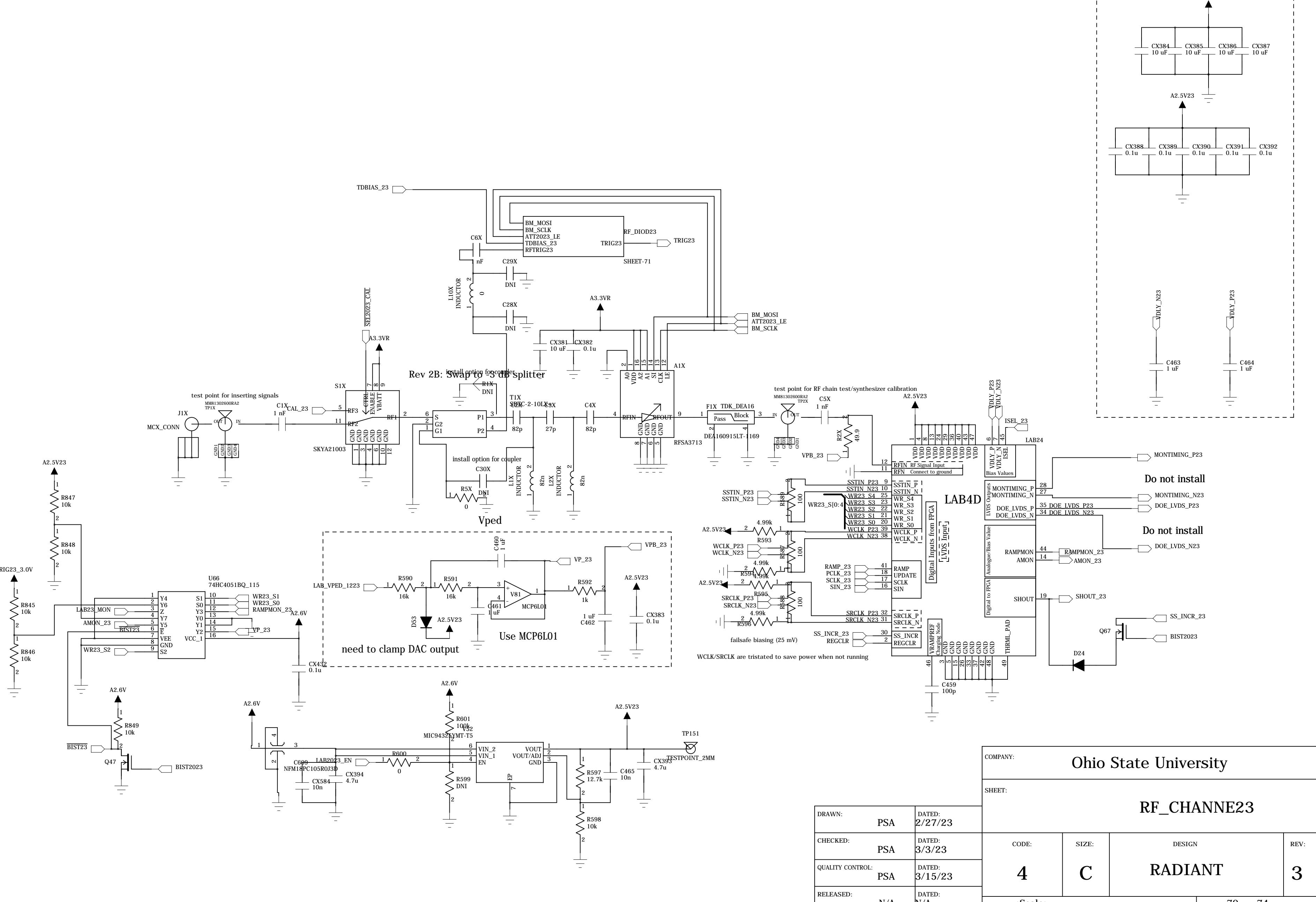
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REVISION RECORD			
TR	ECO NO:	APPROVED:	DATE:
	Filtering/bypass capacitors		



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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

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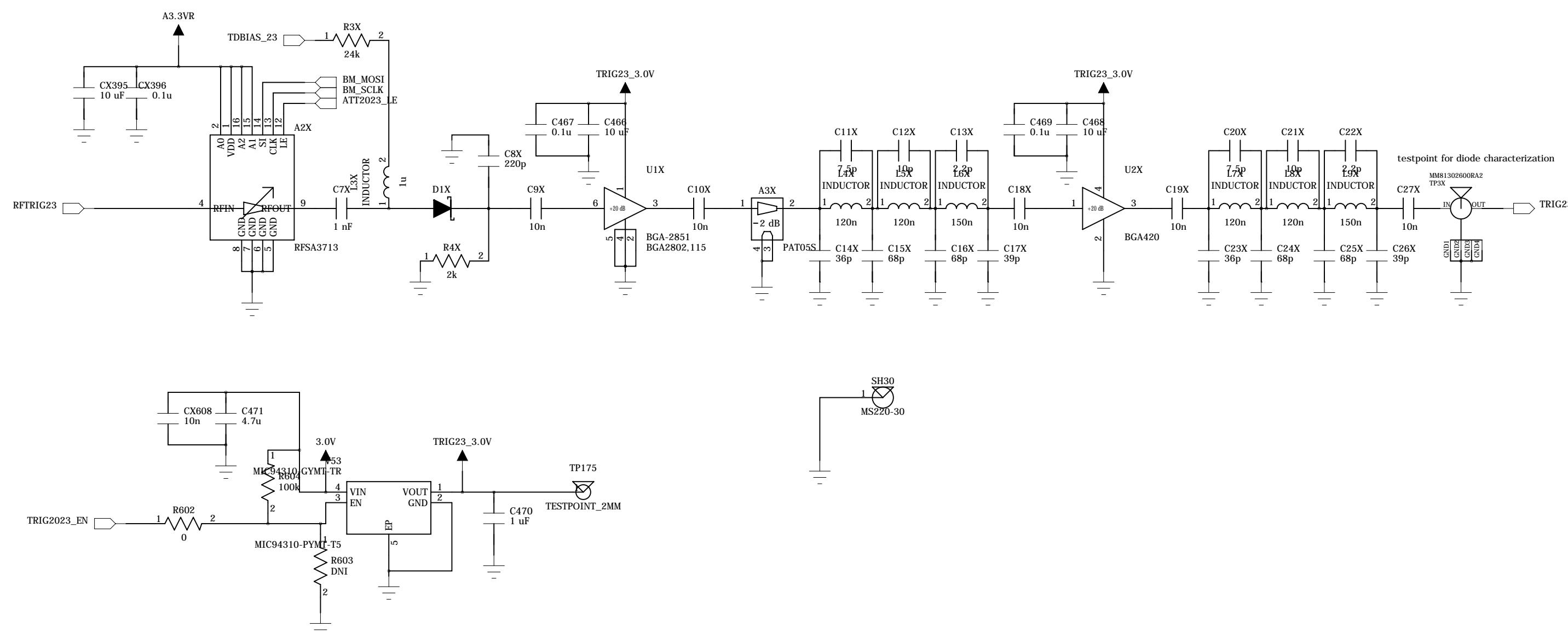
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COMPANY:	Ohio State University		
SHEET:	RF_DIOD23		
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REVISION RECORD

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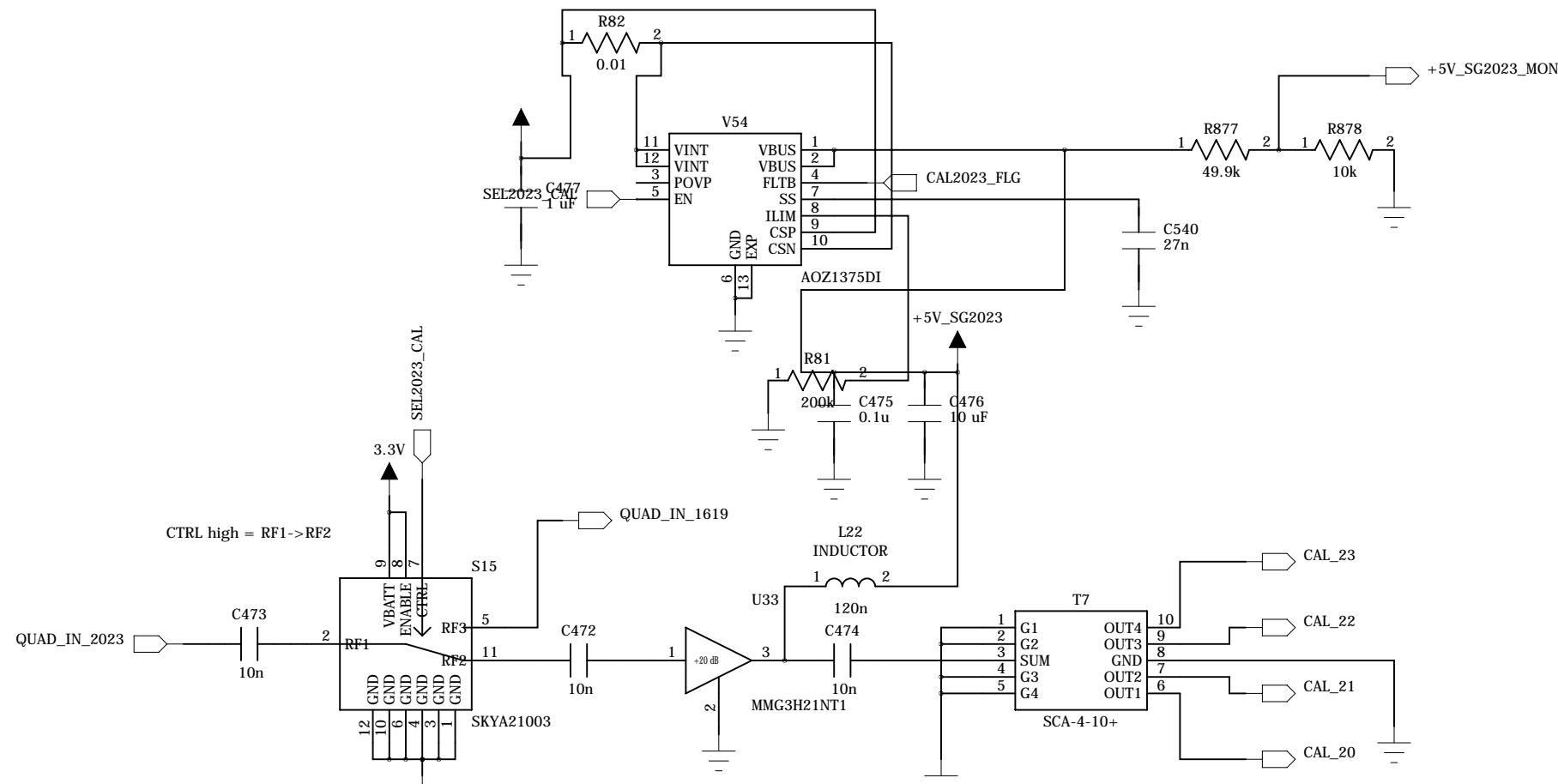
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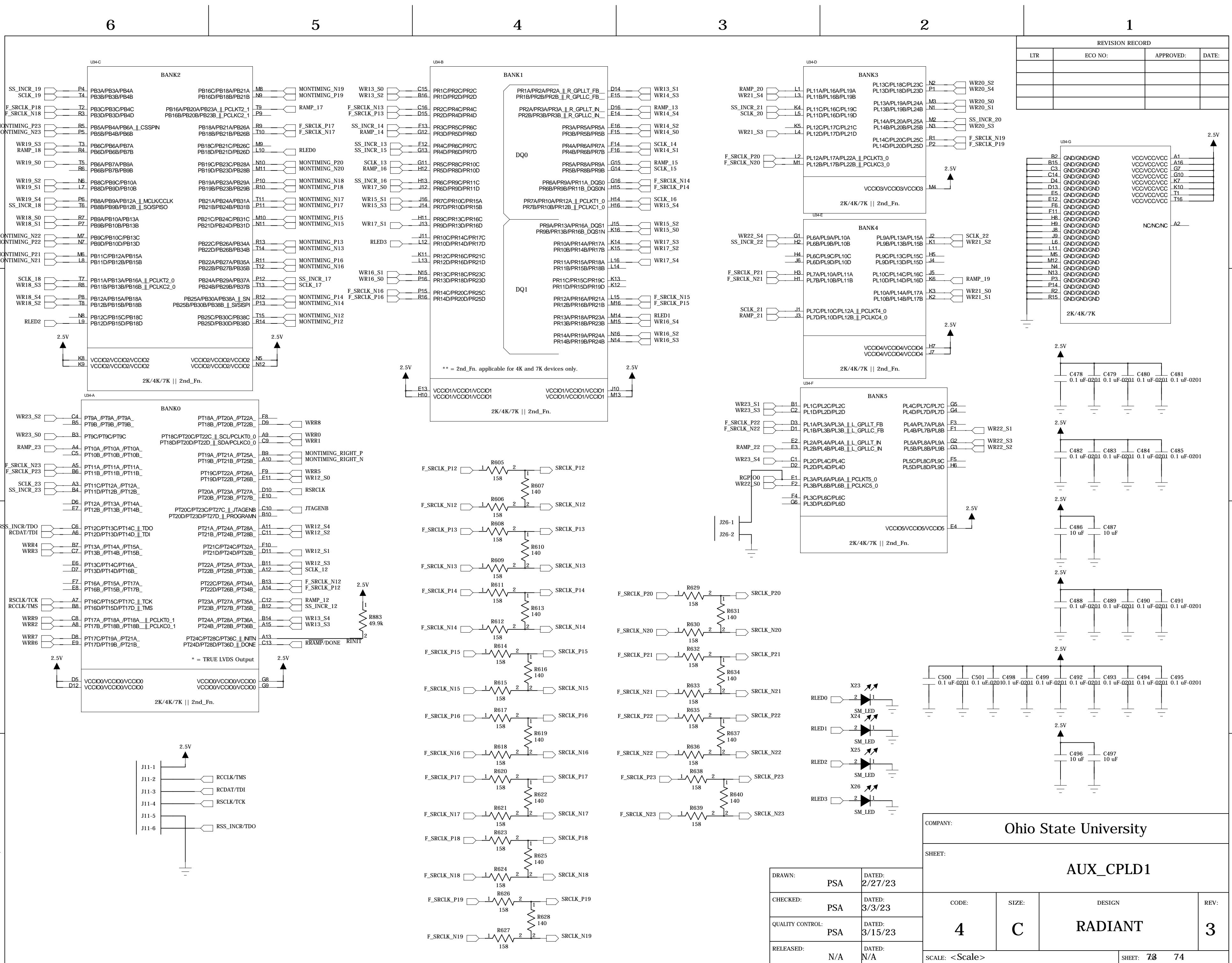
B

A

A



COMPANY:	Ohio State University		
SHEET:	QUAD_SIG_GENERATOR_5		
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CHECKED:	PSA	DATED:	3/3/23
QUALITY CONTROL:	PSA	DATED:	3/15/23
RELEASED:	N/A	DATED:	N/A
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6

5

4

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D

C

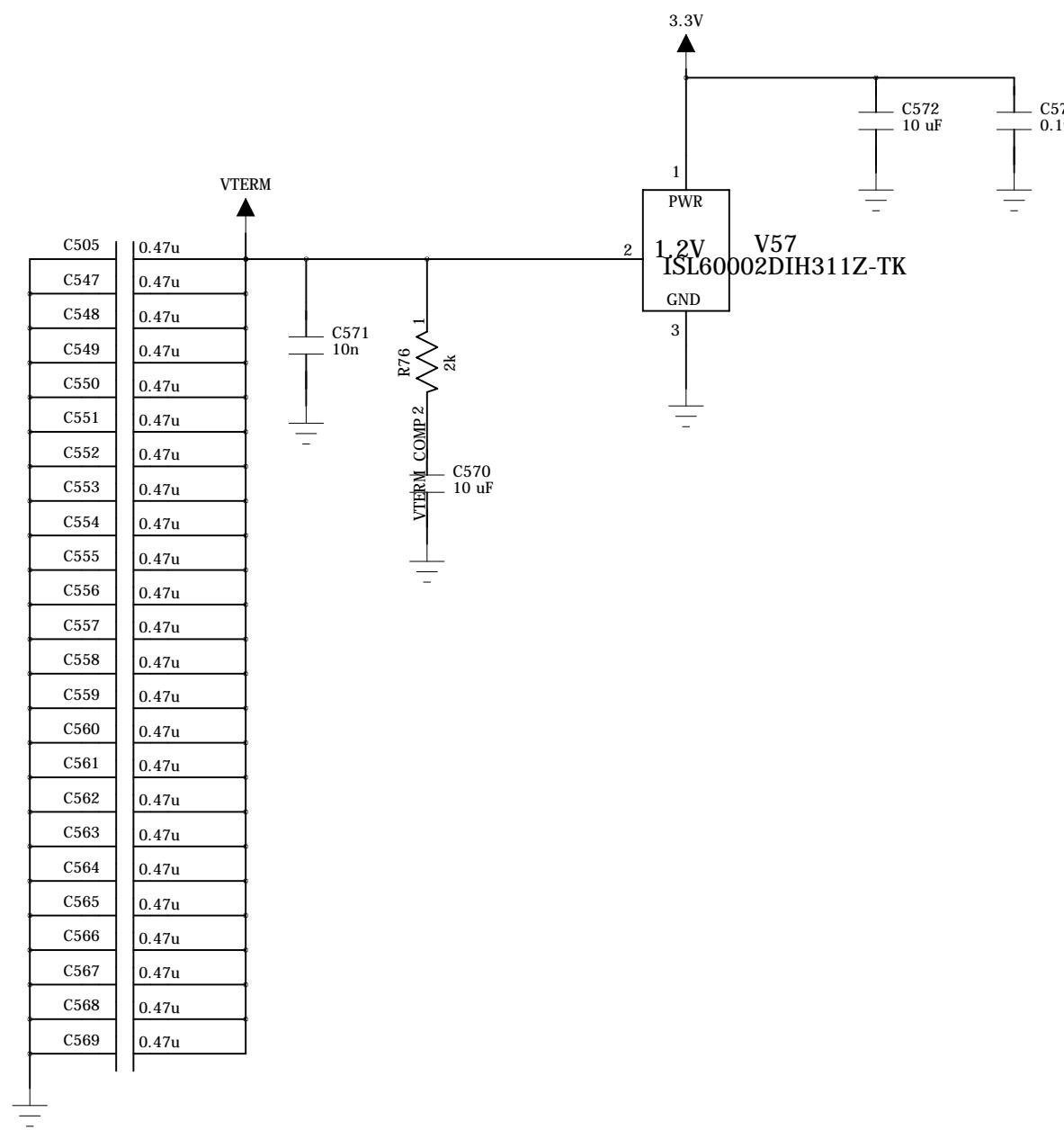
C

B

B

A

A



COMPANY:		Ohio State University	
SHEET:		VTERM	
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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REV: 3			
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