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REVISIONS

REV	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	26APR22	Z. ARCEO
B	CHANGES AS PER ECR-114721	05JUN23	R.EUSTACIO
C	CHANGES AS PER ECR-115639	31JUL23	R.EUSTACIO

EVAL-CN0579-ARDZ

MULTICHANNEL IEPE DAQ FOR CBM

PAGE 1 - FRONT PAGE

PAGE 2 - BLOCK DIAGRAM

PAGE 3 - POWER SUPPLY AND CURRENT SOURCES

PAGE 4 - IEPE AFE (CH0,CH1)

PAGE 5 - IEPE AFE (CH2,CH3)

PAGE 6 - DAC AND LEVEL SHIFTING

PAGE 7 - REFERENCE BUFFERS

PAGE 8 - ADC CONNECTIONS

PAGE 9 - ARDUINO SHIELD CONNECTIONS, RESETS AND SHUTDOWNS

P.O SPEC.	BK/BD SPEC.	SOCKET OEM	OEM PART#	HANDLER

TEMPLATE ENGINEER -	DATE	SCHEMATIC							
HARDWARE SERVICES M. VALE	26APR22								
HARDWARE SYSTEMS -		HW TYPE : Customer Evaluation Z Product(s): AD7768-4 : ADA4945 PACKAGE : LeadCount-lead BodySize PackageType-family : Pitch-pitch StyleVendor Style <User Define> <User Define> <User Define>							
TEST ENGINEER -									
COMPONENT ENGINEER A. GIRON	26APR22								
TEST PROCESS -									
HARDWARE RELEASE K. JABATAN	26APR22								
DESIGNER E. DELOS REYES	26APR22	MASTER PROJECT TEMPLATE TBD	TESTER TEMPLATE 064489_c	DRAWING NO. 02_068556	REV. C				
PTD ENGINEER Z. ARCEO	26APR22	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES DECIMALS X.XX +0.010 X.XXX +0.005							
CHECKER -		FRACTIONS +1/32		ANGLES +2	SIZE D	SCALE 1:1	CODE ID NO. CodeID	SHEET 1	OF 9

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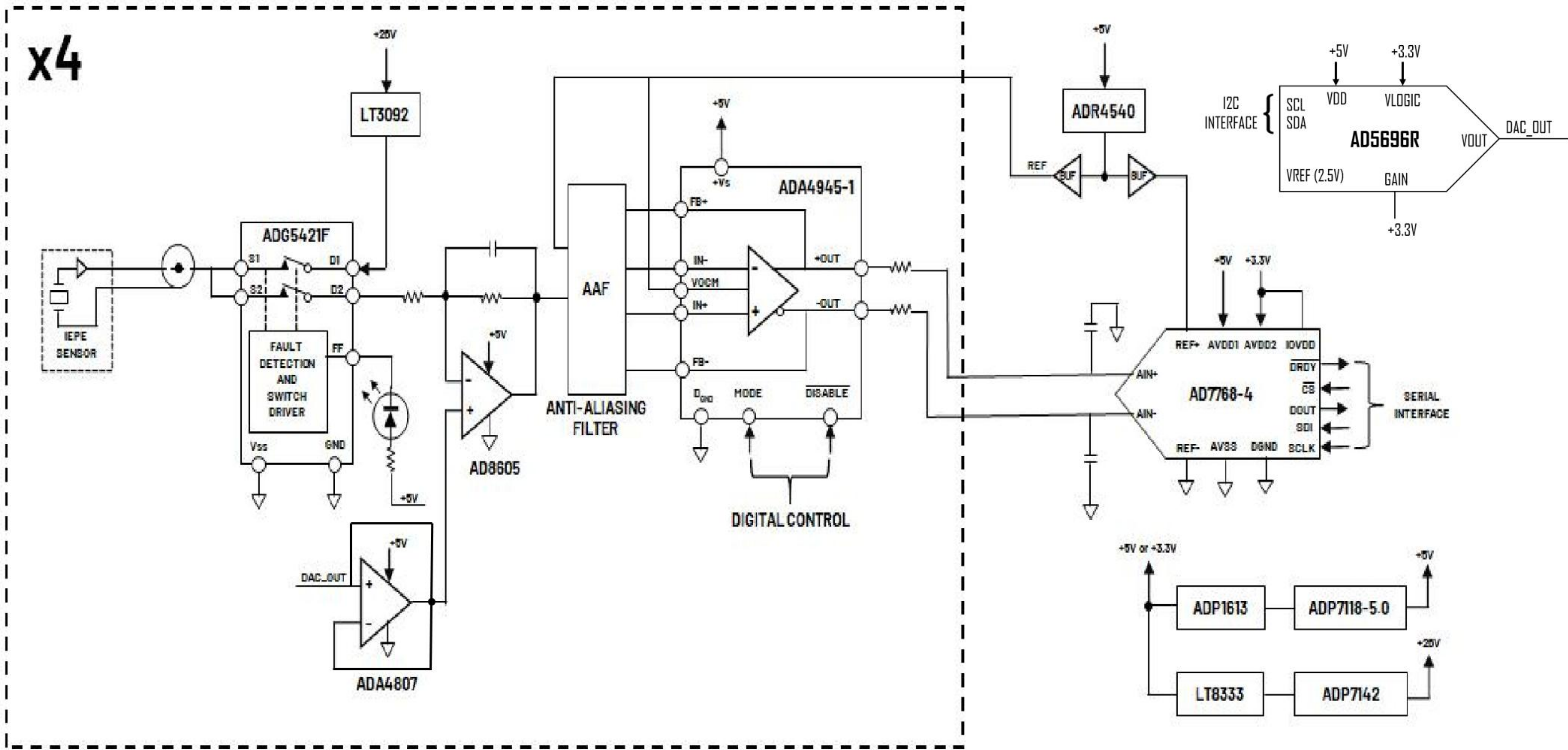
3

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BLOCK DIAGRAM

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

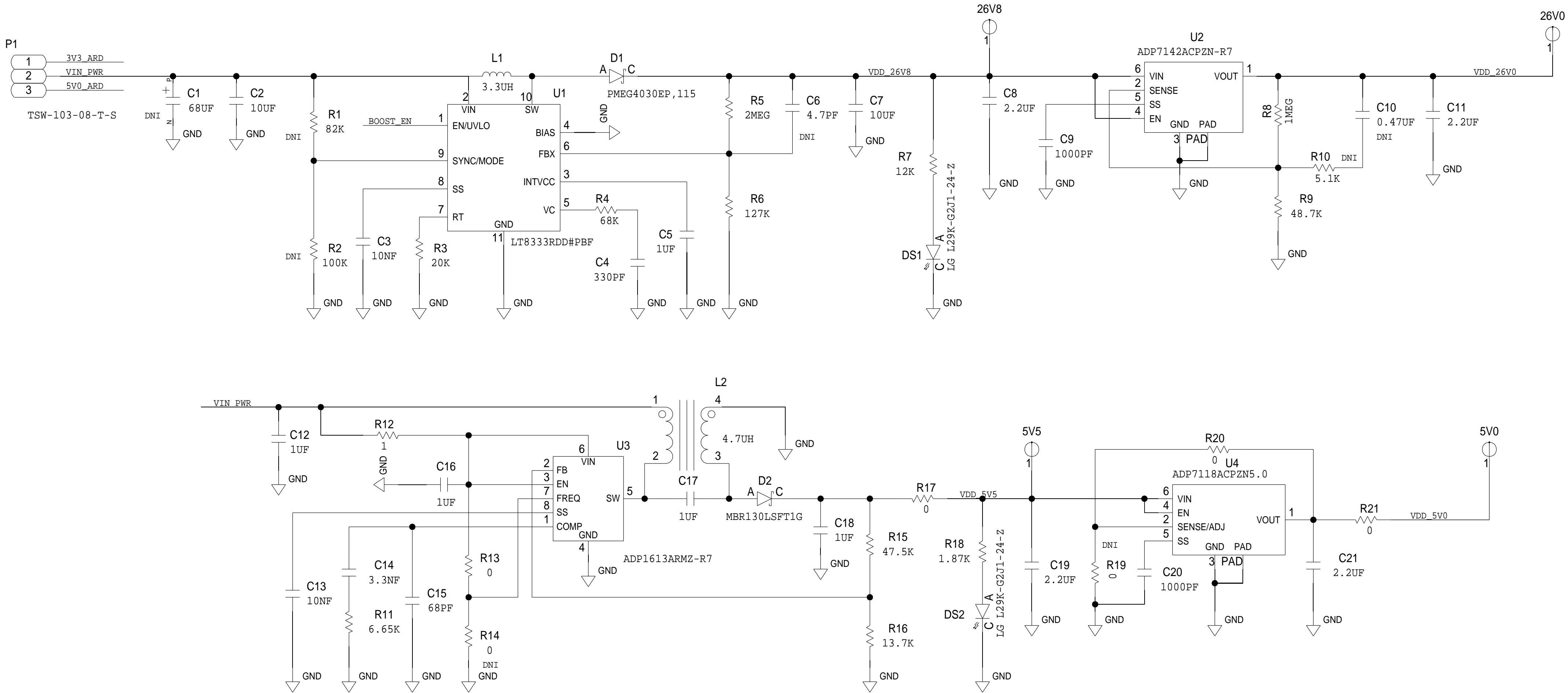


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SCHEMATIC			
HW TYPE : Customer Evaluation Z			
Product(s): AD7768-4			
: ADA4945			
DESIGN VIEW <DESIGN_VIEW>	DRAWING NO. 02_068556	REV C	
PTD ENGINEER Z. ARCEO	SIZE D	SCALE 1:1	SHEET 2 OF 9

POWER MANAGEMENT

5V AND 26V SUPPLY



CURRENT SOURCE SUPPLY

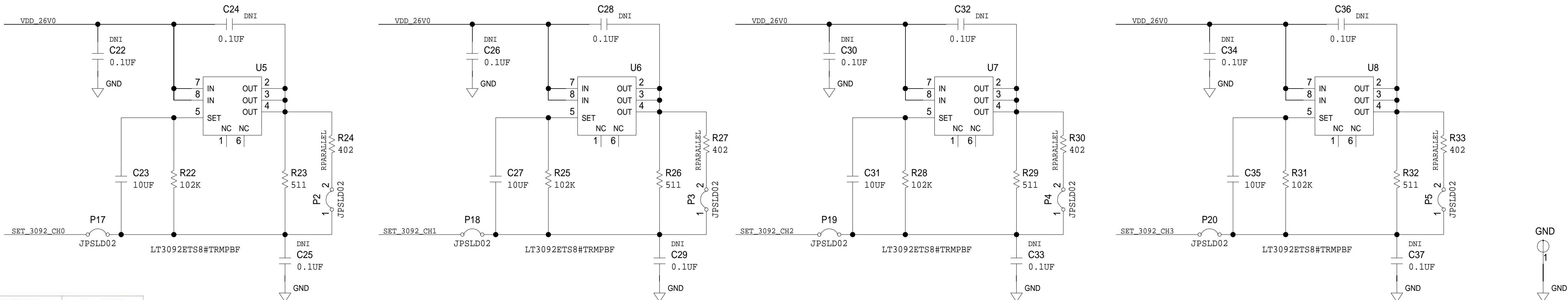
$R_{SET} = R22, R25, R28, R31 = 102K \text{ OHMS}$
 $R_{OUT} = R23, R26, R29, R32 = 511 \text{ OHMS}$
 $R_{PARALLEL} = R24, R27, R30, R33 = 402 \text{ OHMS}$

$I_{OUT} = 10 \text{ } \mu\text{A} * (R_{SET}/R_{OUT})$
 $I_{OUT} = 10 \text{ } \mu\text{A} * (102K/(511/402))$
 $I_{OUT} = 4.5 \text{ MA (DEFAULT)}$

P2, P3, P4, P5 DEFAULT CONNECTION: SHORT

IF YOU WANT TO CHANGE THE OUTPUT CURRENT FOR YOUR
SPECIFIC IEPE SENSOR, YOU CAN REFER TO THE TABLE BELOW:

$R_{SET}(\Omega)$	$R_{OUT}(\Omega)$	$R_{PARALLEL}(\Omega)$	P2-P5 State	$I_{OUT} \text{ (mA)}$
102K	511	402	SHORT	4.5
102K	511	402	OPEN	2

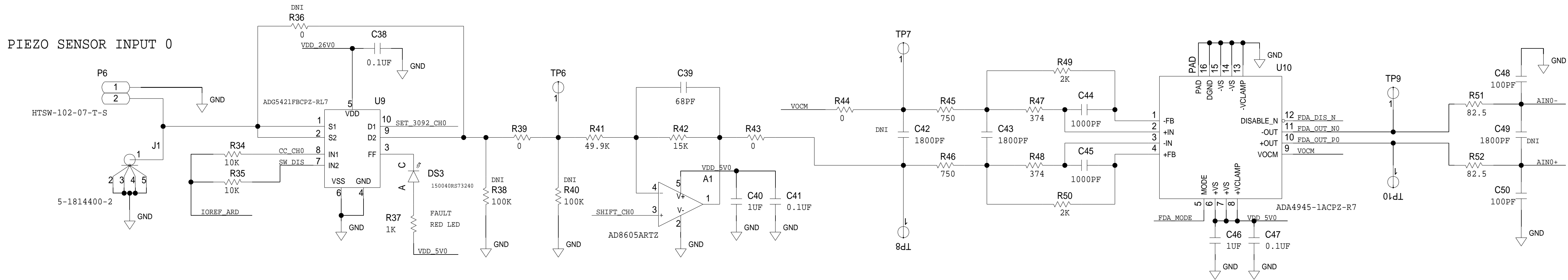


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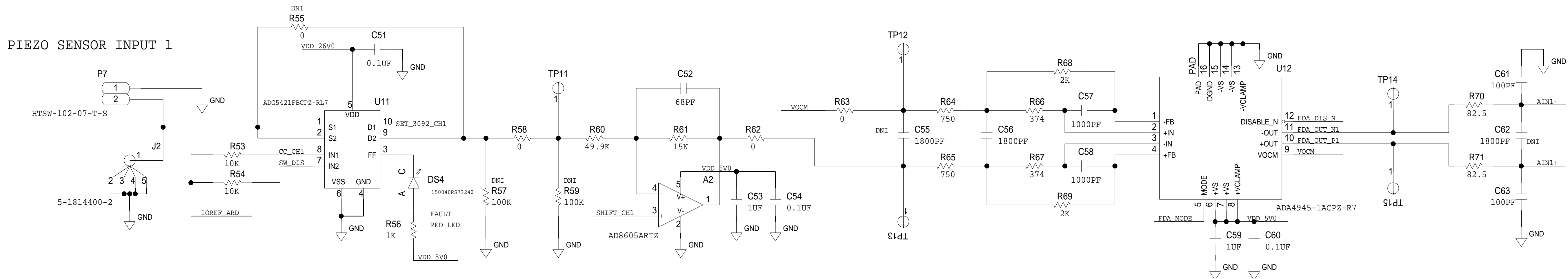
SCHEMATIC			
HW TYPE : Customer Evaluation Z Product(s): AD7768-4 : ADA4945			
DESIGN VIEW <DESIGN_VIEW>	DRAWING NO. 02_068556	REV C	
PTD ENGINEER Z. ARCEO	SIZE D	SCALE 1:1	SHEET 3 OF 9

IEPE AFE

CHANNEL 0



CHANNEL 1



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SCHEMATIC

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HW TYPE      : Customer Evaluation Z
Product(s)   : AD7768-4
              : ADA4945
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PTD ENGINEER Z. ARCEO

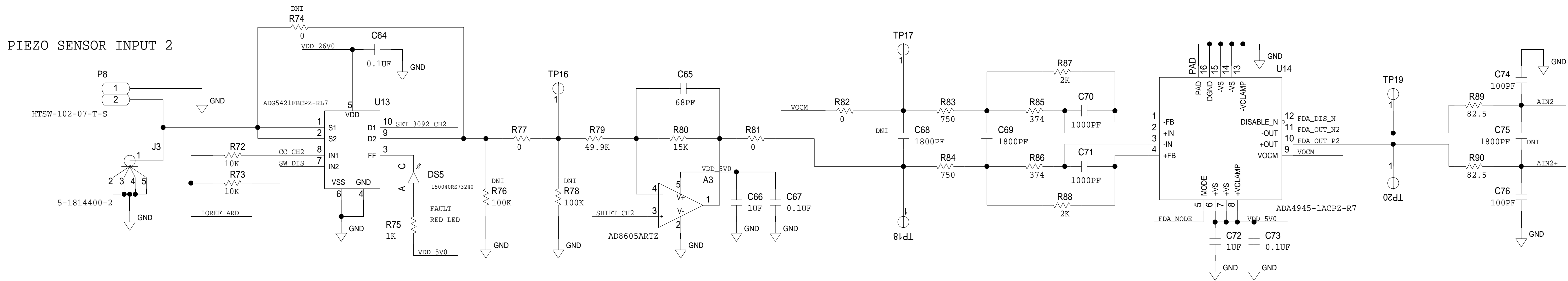
DRAWING NO.
02_068556

SIZE D	SCALE 1:1	SHEET 4 OF 9
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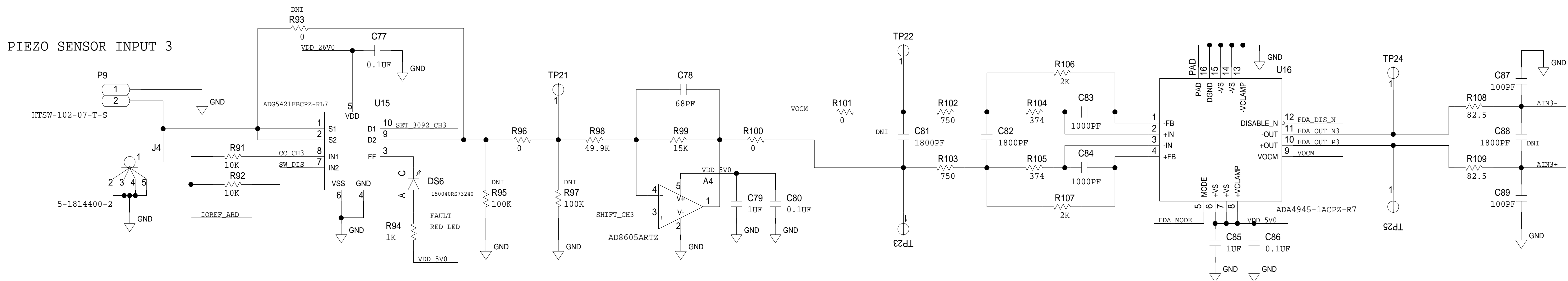
REV

IEPE AFE

CHANNEL 2



CHANNEL 3



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SCHEMATIC

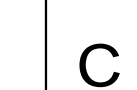
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HW TYPE      : Customer Evaluation Z
Product(s)   : AD7768-4
              : ADA4945
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DESIGN VIEW	<DESIGN_VIEW>
PTD ENGINEER	Z. ARCEO

DRAWING NO.	02_068556
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SIZE D	SCALE 1:1	SHEET 5 OF 9
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	D
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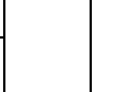
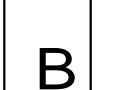
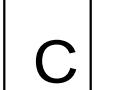


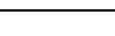
B



2

D	
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 ANALOG DEVICES	<h1 style="text-align: center;">SCHEMATIC</h1>			
	HW TYPE : Customer Evaluation Z Product(s) : AD7768-4 : ADA4945			
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PTD ENGINEER Z_ARCEO	SIZE D	SCALE 1:1	SHEET 6 OF 9	

AD7768-4

4-CHANNEL PRECISION DATA ACQUISITION MODULE

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

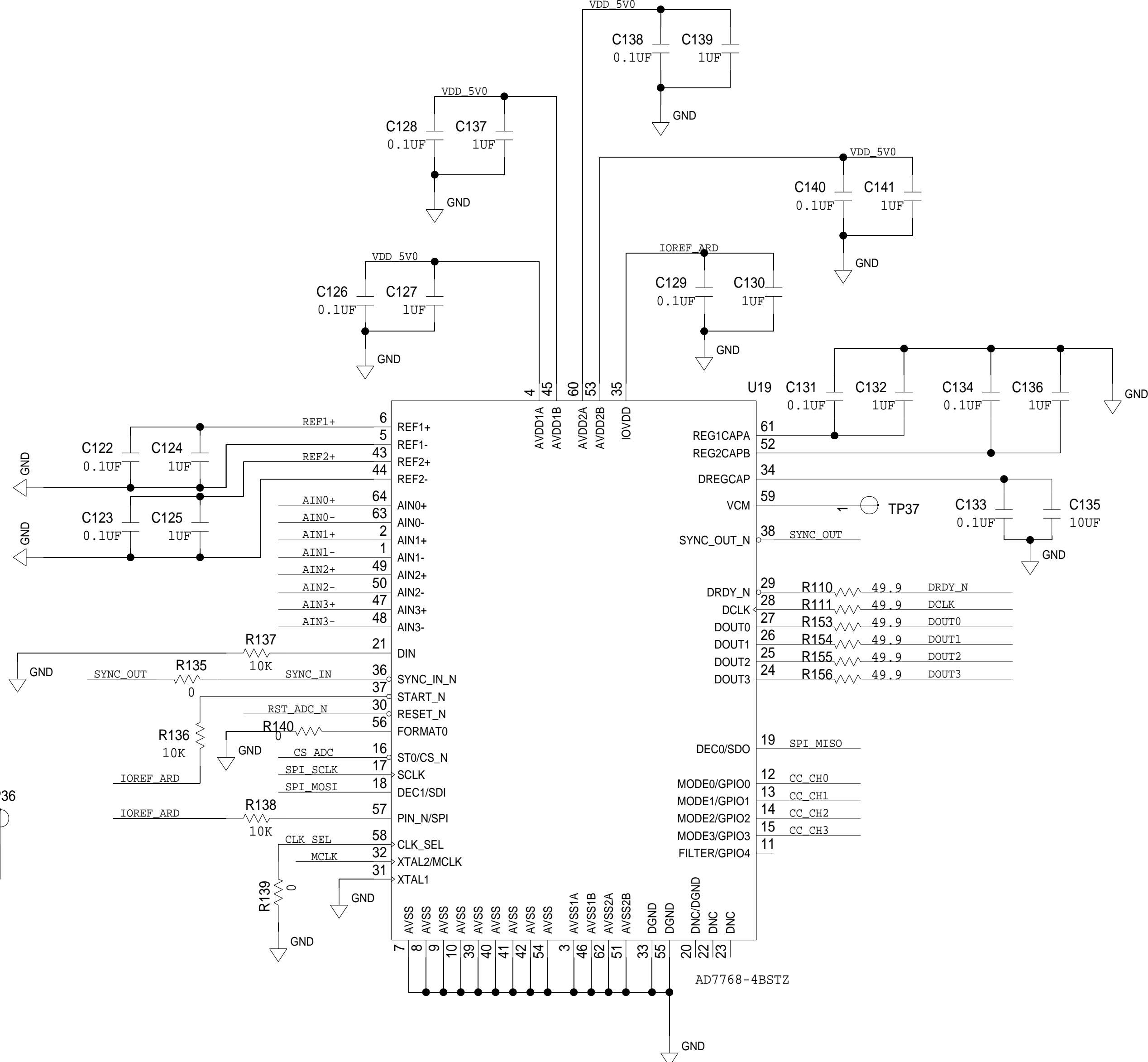
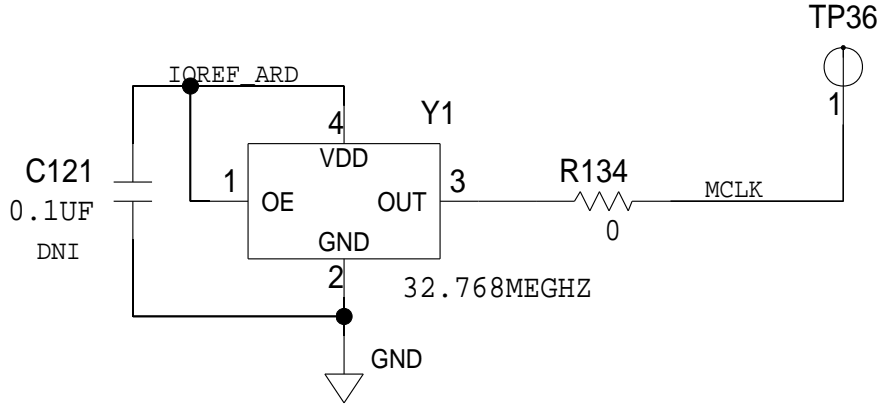
DAISY CHAIN FEATURE WILL NOT
BE SUPPORTED ON THIS DESIGN

START_N
LOGIC 0: ENABLES SYNCHRONIZATIOIN WITH OTHER AD7768-4
LOGIC 1: NOT USED

FORMAT0
LOGIC 0: DOUT0 TO DOUT3 ARE USED
LOGIC 1: ONLY DOUT0 IS USED

PIN_N/SPI
LOGIC 0: PIN CONTROL
LOGIC 1: SPI CONTROL

CLK_SEL
LOGIC 0: CMOS
LOGIC 1: CRYSTAL/LVDS



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SCHEMATIC			
HW TYPE : Customer Evaluation Z Product(s): AD7768-4 : ADA4945			
DESIGN VIEW <DESIGN_VIEW>	DRAWING NO. 02_068556	REV C	
PTD ENGINEER Z. ARCEO	SIZE D	SCALE 1:1	SHEET 8 OF 9

ARDUINO SHIELD CONNECTIONS

ANALOG AND DIGITAL PINS

NOTE: IOREF (P2.2)

CORA 7x: 3.3V @ 2A
DE10-NANO: 3.3V @ 1.5A

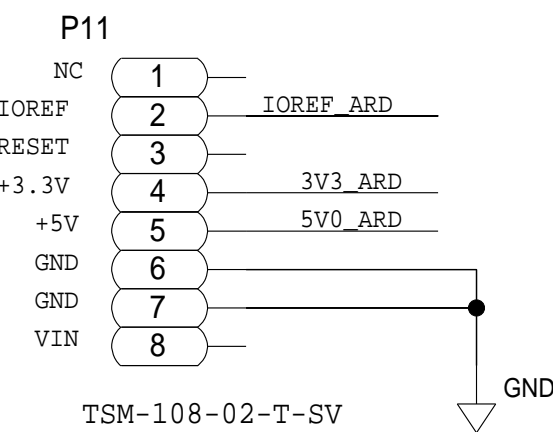
NOTE: +3.3V (P2.4)

CORA 27: 3.3V @ 2A
DE10-NANO: 3.3V @ 1.5A

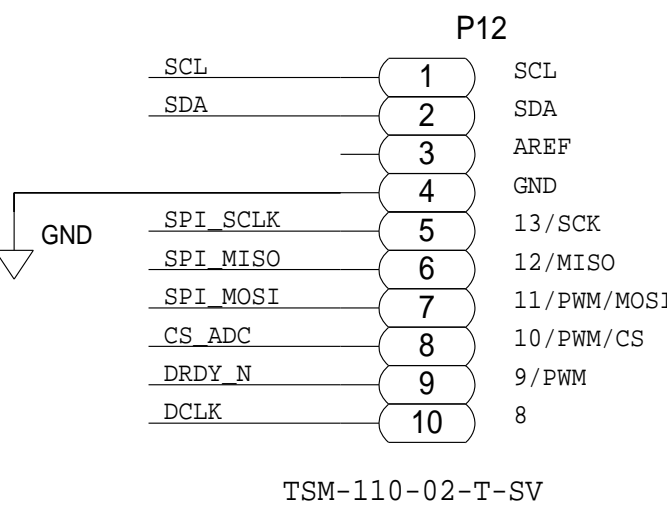
NOTE: +5V (P2.5)

CORA 27: 5V @ -A
DE10-NANO: 5V @ 1A

POWER PIN



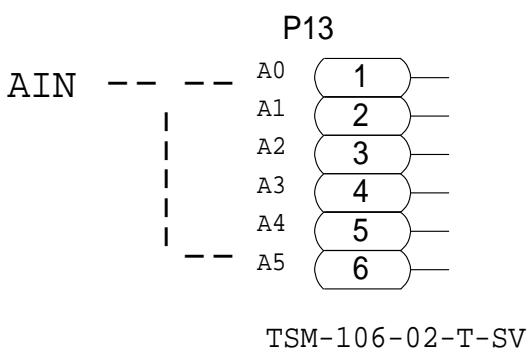
DIGITAL PIN 1



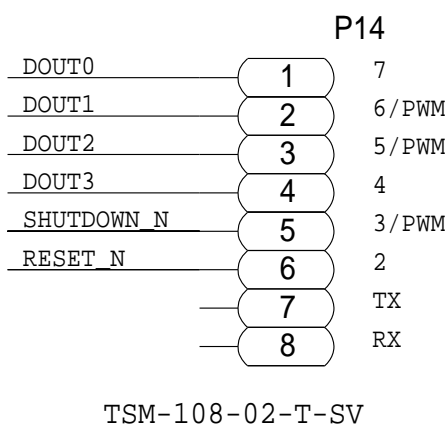
RECOMMENDED: DO NOT CONNECT I2C PULL UP RESISTORS TO I2C LINES FOR YOUR SHIELD.

MANDATORY: ALL SPI CS SIGNALS SHOULD BE WIRED TO A PWM PIN IF YOU WANT A DETERMINISTIC FRAME RATE.

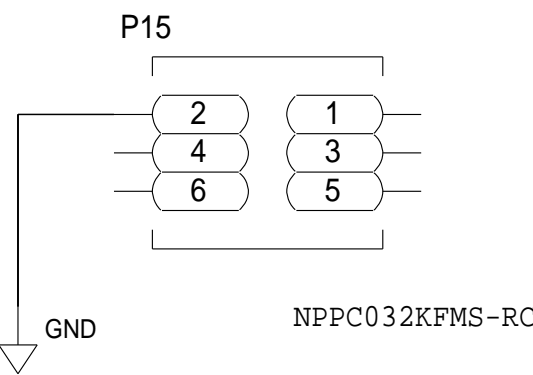
ANALOG INPUT PIN



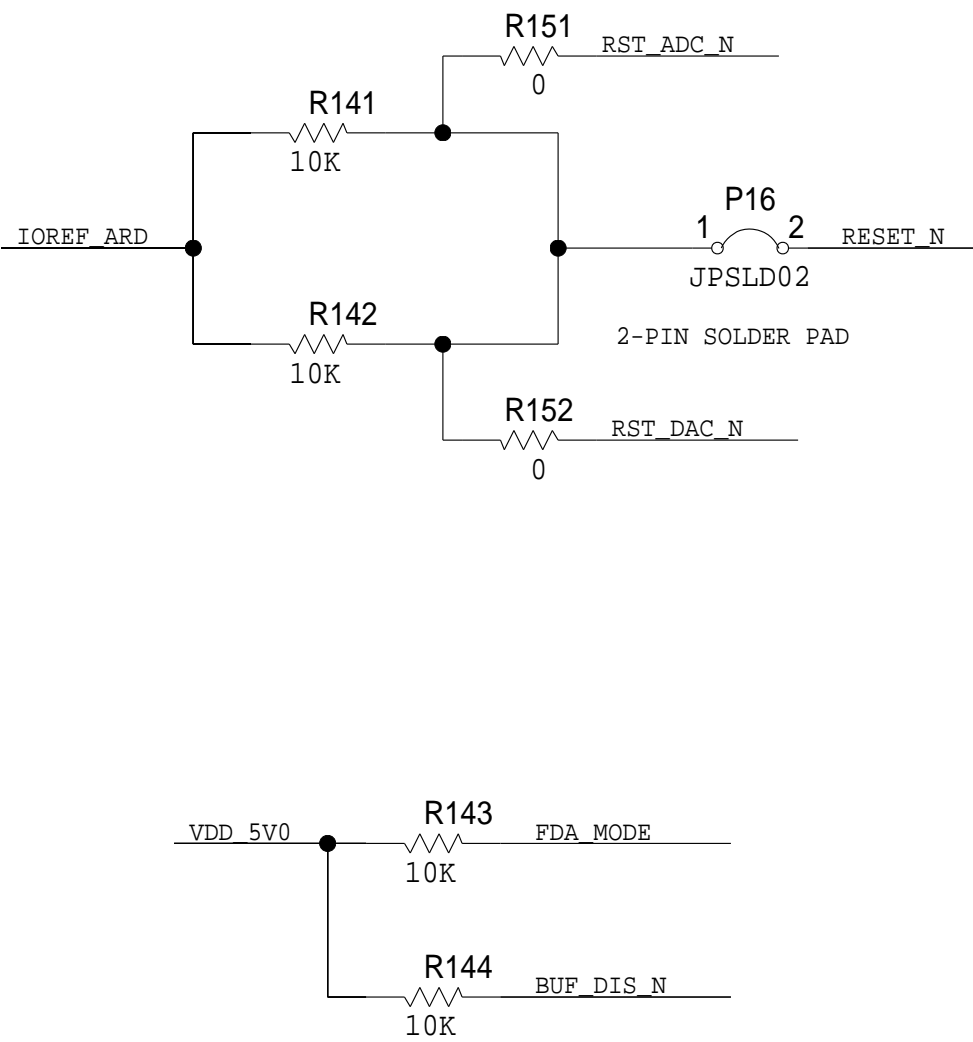
DIGITAL PIN 0



ICSP CONNECTOR



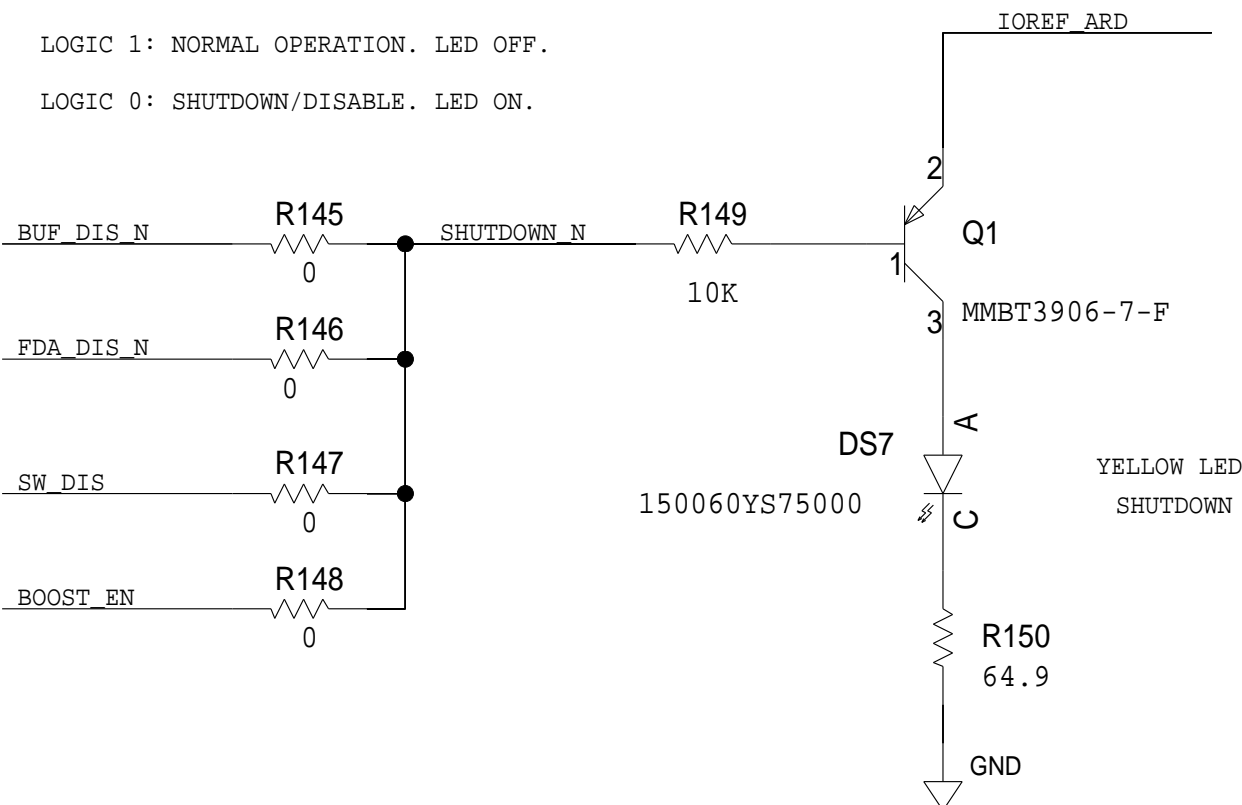
RESETS, SHUTDOWNS



SHUTDOWN_N LOGIC:

LOGIC 1: NORMAL OPERATION. LED OFF.

LOGIC 0: SHUTDOWN/DISABLE. LED ON.



SCHEMATIC

HW TYPE : Customer Evaluation Z
Product(s): AD7768-4
: ADA4945

DESIGN VIEW
<DESIGN_VIEW>
PTD ENGINEER
Z. ARCEO

DRAWING NO.
02_068556

SIZE
D

SCALE
1:1

REV
C
SHEET 9 OF 9