

1

2

3

4

5

6

7

8

NOTES:  
1. DIMENSIONS ARE IN MILLIMETERS.  
  
2. MANUFACTURING SPECIFICATIONS:  
ADDITIONAL OPTIONS AVAILABLE UPON REQUEST.  
  
2.1 BASE MATERIAL: FR4-TG130  
  
2.2 LAYERS: TWO (2)  
  
2.3 COPPER WEIGHT:  
DEFAULT:  
- ONE OUNCE (1 oz)  
  
AVAILABLE UPON REQUEST:  
- TWO OUNCE (2 oz)  
  
2.4 PIECES PER PANEL: FOUR (4)  
  
2.5 PCB THICKNESS:  
DEFAULT:  
- 1.60 MM  
  
AVAILABLE UPON REQUEST:  
- 0.6 MM  
- 0.8 MM  
- 1.0 MM  
- 1.2 MM  
- 2.0 MM  
  
2.6 PCB COLOR:  
DEFAULT:  
- GREEN  
  
AVAILABLE UPON REQUEST:  
- RED  
- YELLOW  
- BLUE  
- WHITE  
- BLACK  
- MATTE BLACK  
  
2.7 SURFACE FINISH:  
DEFAULT:  
- HOT AIR SOLDER LEVELED (HASL)  
  
AVAILABLE UPON REQUEST:  
- LEAD FREE HOT AIR SOLDER LEVELED (HASL LEAD FREE)  
- ELECTROLESS NICKEL IMMERSION GOLD (ENIG)  
- ORGANIC SOLDERABILITY PRESERVATIVES (OSP)

44.00

3.00

2.40

50.00

47.00

2.50

2.50

50.00

NONINVERTING AMPLIFIER

04A, OPERATIONAL AMPLIFIER

P1

REVDESCRIPTIONECODATE

A1INITIAL RELEASE1004

DUAL OPAMP

SOIC8, DIP8

SCHEMATIC SYMBOL

NON-INVERTING INPUT

INVERTING INPUT

A

OUTPUT

VALUE

NON-INVERTING INPUT

INVERTING INPUT

B

OUTPUT

VALUE

PINOUT

1

2

3

4

TOP VIEW

8

7

6

5

PIN	DESCRIPTION
1	OUTPUT, A
2	INVERTING INPUT, A
3	NON-INVERTING INPUT, A
4	-V SUPPLY
5	NON-INVERTING INPUT, B
6	INVERTING INPUT, B
7	OUTPUT, B
8	+V SUPPLY

mjnPCB

TITLE

NON-INVERTING AMPLIFIER

PRINTED CIRCUIT BOARD  
OPERATIONAL AMPLIFIER  
DUAL OPAMP CIRCUIT  
SINGLE SUPPLY, DC BIAS TRIMMER

SIZE

B

DWG NO

04A-010

REV

A1

SCALE

NONE

SHEET

1/2

DATETIME STAMP  
8/31/2023 7:21 AM

DR

N. MANTEUFEL

DATE

04SEP2022

ENG

DATE

QA

DATE

THIS DRAWING AND THE INFORMATION IT CONTAINS  
IS PROVIDED FOR EDUCATIONAL USE ONLY.

1

2

3

4

5

6

7

8

A

B

C

D

E

A

B

C

D

E

NOTES:  
3. PERFORMANCE FUNCTIONS:  
3.1 GAIN CONTROL:  
- ADJUSTING RESISTOR R10 CONTROLS OUTPUT GAIN.

3.2 DC BIAS CONTROL:  
- ADJUSTING RESISTOR R2 CONTROLS DC BIAS VOLTAGE.

4. CALIBRATION ADJUSTMENT PROCEDURE:

4.1 PURPOSE  
- SET OUTPUT DC BIAS TO HALF OF SUPPLY VOLTAGE.

4.2 SCOPE  
- PERFORM DURING CALIBRATION PROCEDURE.

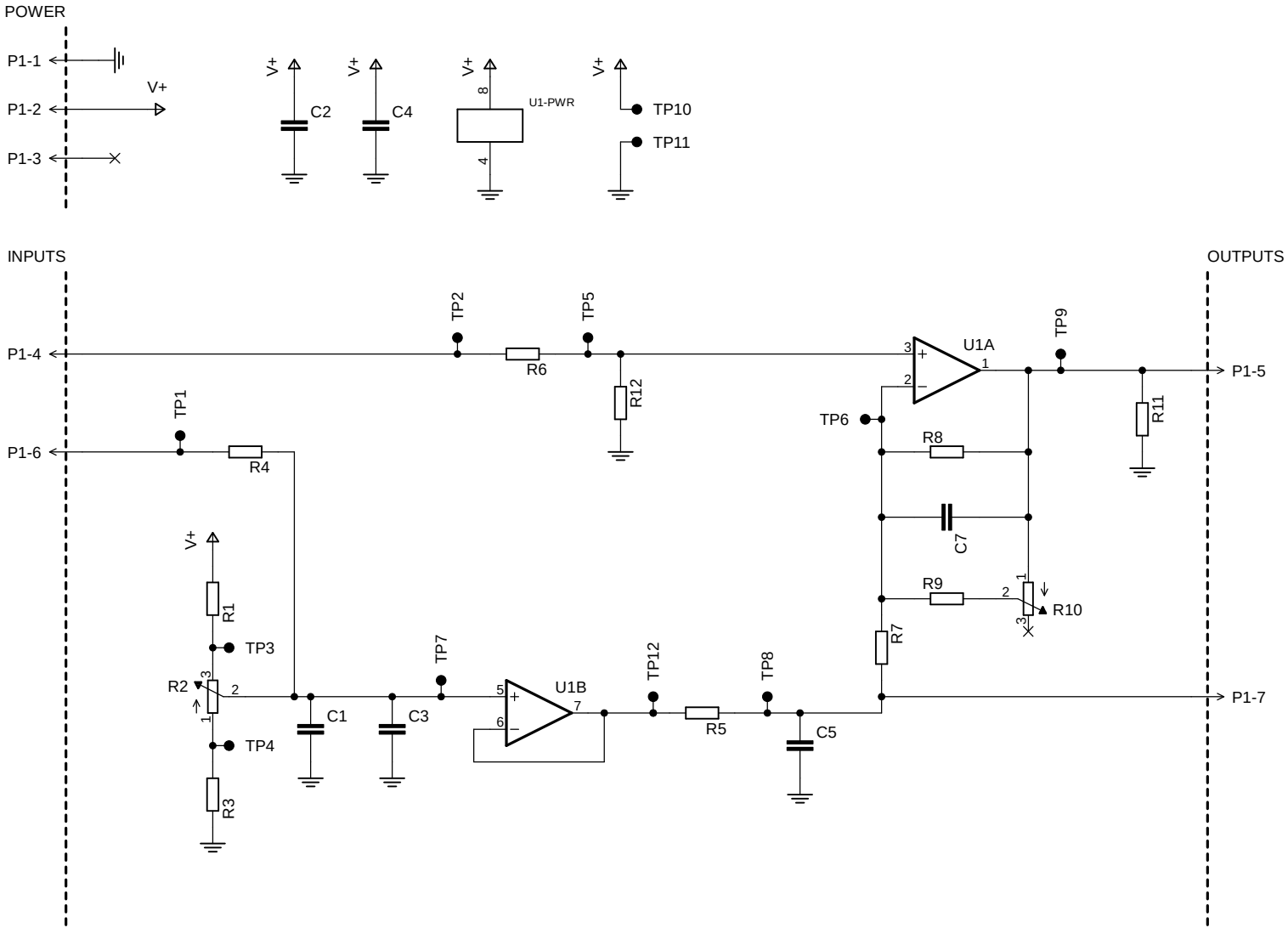
4.3 PROCEDURAL NOTES  
- PERFORM AFTER SAFE TO TURN ON (STTO) TEST PASSES.

4.4 PROCEDURE  
4.4.1 APPLY POWER:  
- SUPPLY VOLTAGE DETERMINES TARGET ADJUSTMENT.

4.4.2 APPLY STIMULI:  
- ALLOW PIN P1-6 TO FLOAT.

4.4.3 MEASURE RESPONSE:  
- MEASURE OUTPUT VOLTAGE DC BIAS.

4.4.4 ADJUST RESISTOR R2:  
- PASS WHEN MEASUREMENT EQUALS HALF OF SUPPLY VOLTAGE.



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TITLE  
NON-INVERTING AMPLIFIER

SIZE  
B

DWG NO  
04A-010

REV  
A1

SCALE  
NONE

SHEET  
2/2