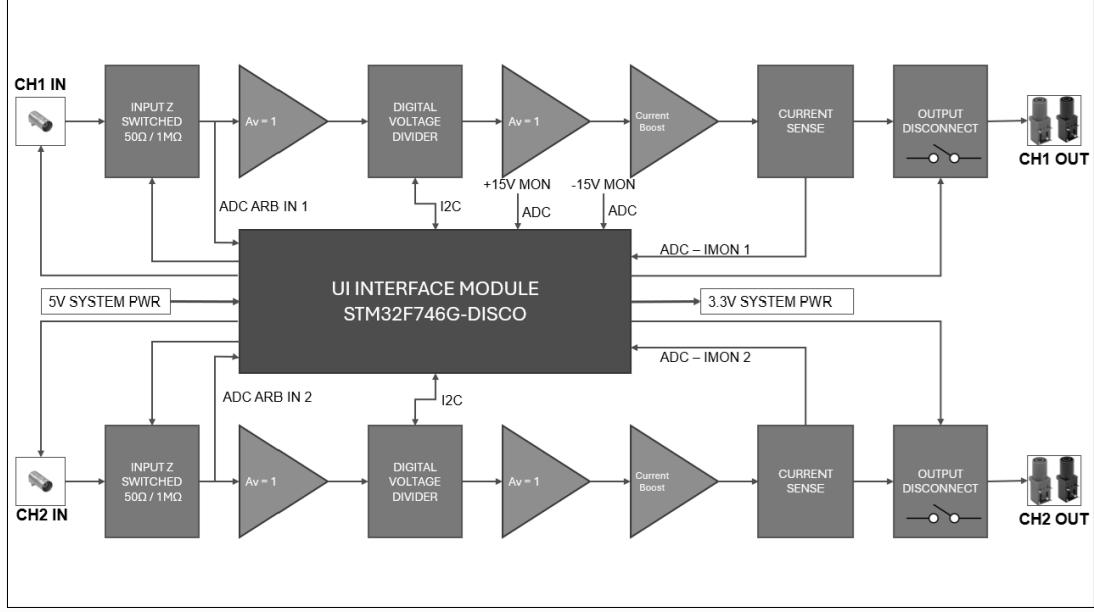
**REVISION HISTORY:**

REV	ECO	CHANGE DESCRIPTION
1	NA	Initial design



Title: Arbitrary Power Booster	IMR Engineering 3621 Gin Way Sneville GA, 30039
Size: B	Number: IMR-005-SCH
Date: 04/15/25	Revision: 2
File: ArbPwrBoost_P1.SchDoc	Time: 08:00
	Sheet 1 of 8
	Engineer: Hab S Collector

## MAIN SWITCH

**MAX INPUT +15V**

J1 +POS 73099-2 1000V 24A

J2 -NEG 73099-0 1000V 24A

J3 -NEG 73099-0 1000V 24A

J4 +POS 73099-2 1000V 24A

GND

MAIN PWR EN

1

2

3

4

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14

15

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22

23

24

25

26

**MAX INPUT -15V**

J3 -NEG 73099-0 1000V 24A

J4 +POS 73099-2 1000V 24A

GND

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

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19

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26

**BYPASS CAPS**

Q3 2N7002-7-F

60V 115mA

R7 10K .1% 125W

C5 .1uF 50V

C6 .1uF 50V

C7 .1uF 50V

C8 .1uF 50V

-VSW

1

2

3

4

5

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26

**+VS TO 5V SMPS**

D6 1N5819HW-7-F

1A 40V

C16 10uF 50V

SW1 SLV1-288-4A-ND

50V 50A

U1 TPS54202DDCR

4.5V-28V

VIN

BST

EN

SW

FB

GND

1

2

3

4

5

6

7

8

9

10

11

12

13

14

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22

23

24

25

26

**NOTES:**

SW1 SHOWS 5V PWR IN THE OFF POSITION

SMPS 5V AT 800mA

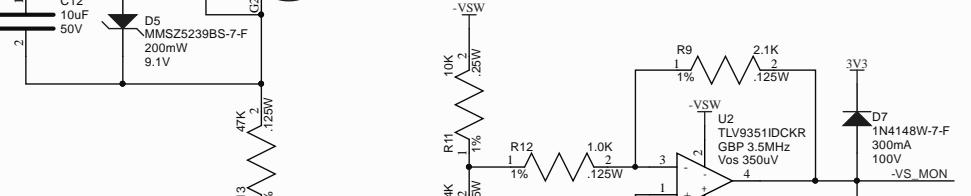
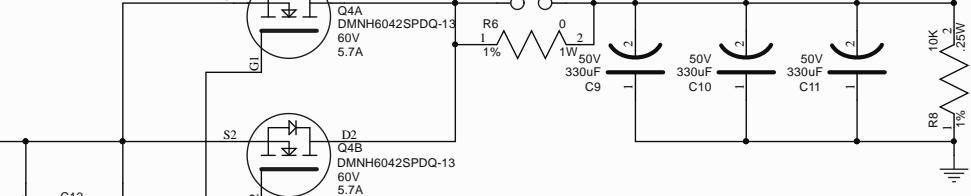
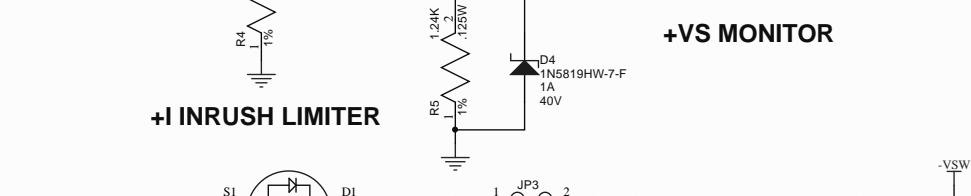
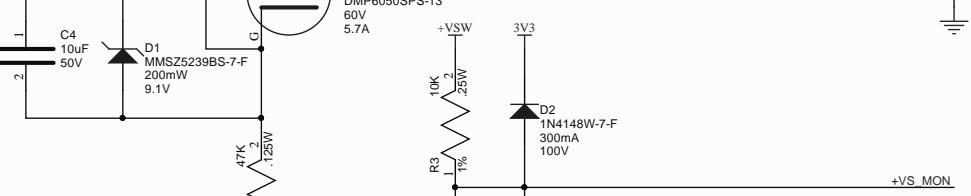
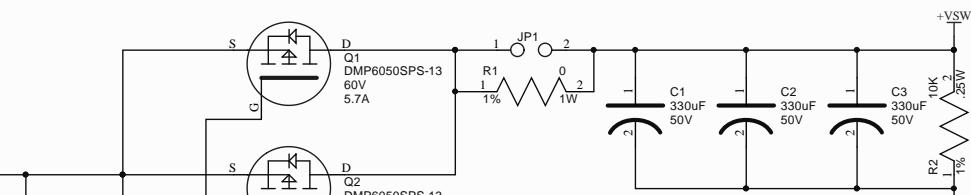
JPX, TPx FOR PROTOTYPE TESTING ONLY

MAX INPUT ON JA, JB CONNECTOR PAIRS IS ±15V

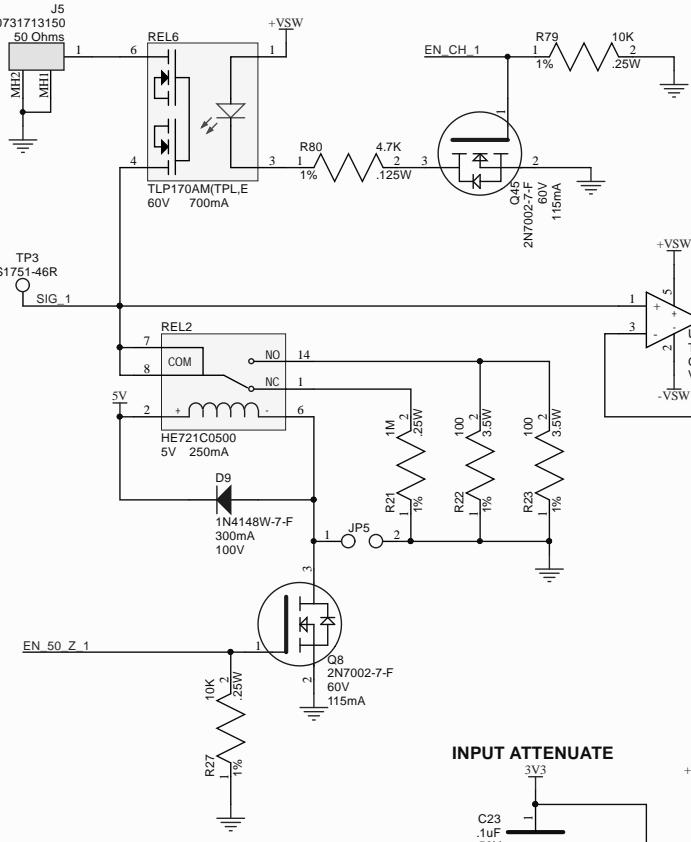
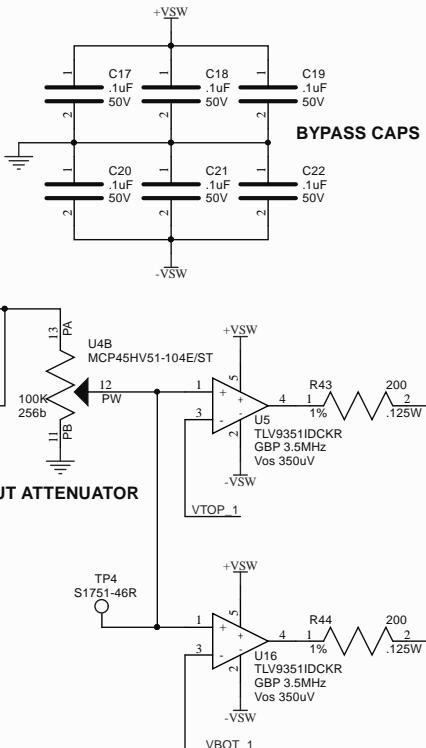
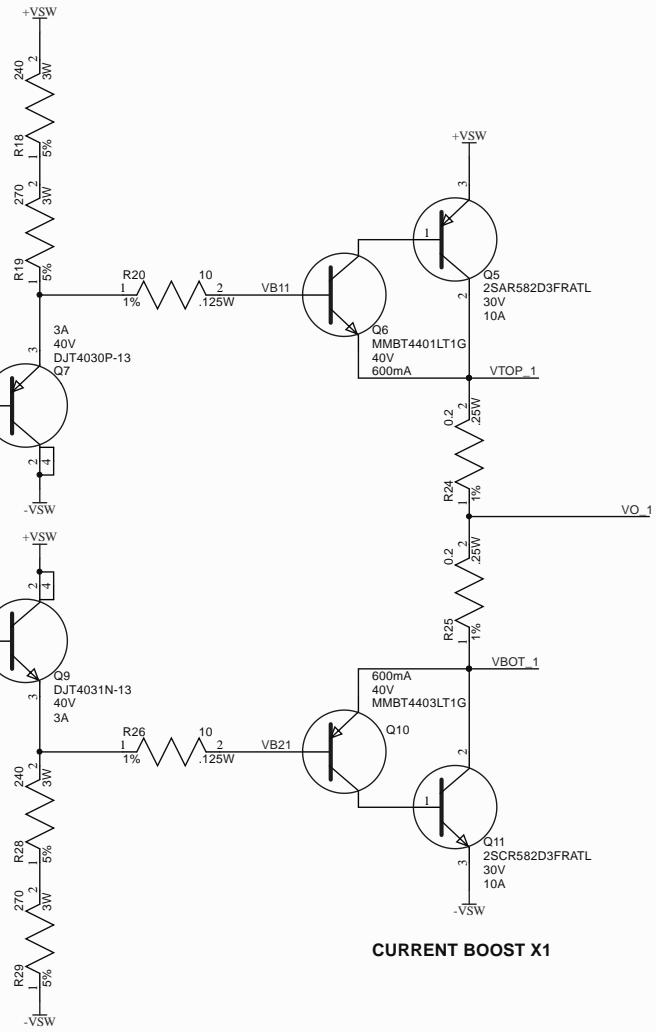
INPUTS ON JA AND JB MUST BE FROM ISOLATED POWER SUPPLY

INPUT RATIO OF ±V\_MON IS 0.110V/V, MAX INPUT OF 30V

## MAIN SWITCH

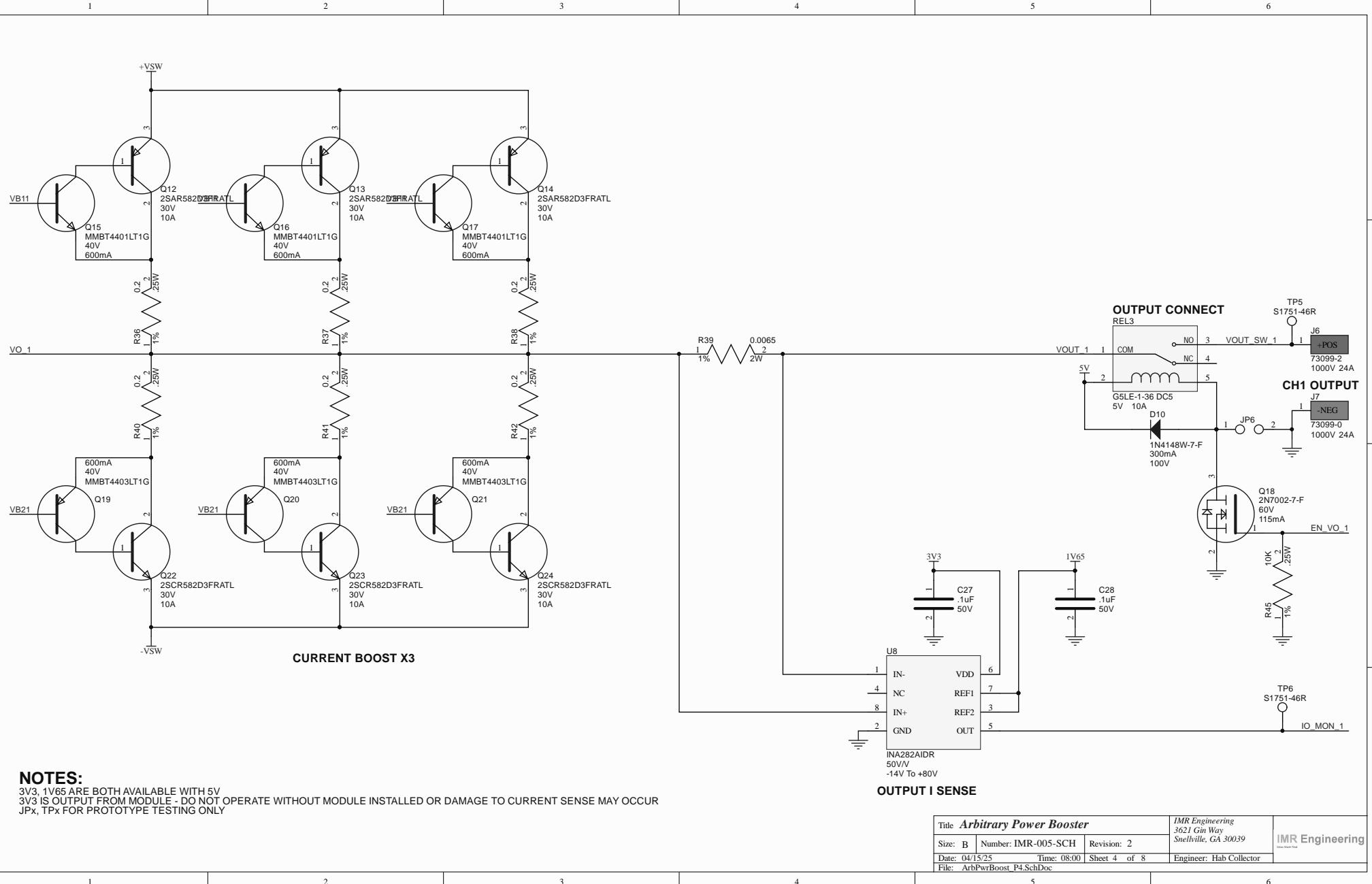


Title: Arbitrary Power Booster	IMR Engineering 3621 Gin Way Sneadsville GA, 30039
Size: B	Number: IMR-005-SCH
Date: 04/15/25	Revision: 2
Time: 08:00	Sheet 2 of 8
File: ArbPwrBoost_P2.SchDoc	Engineer: Hab S Collector

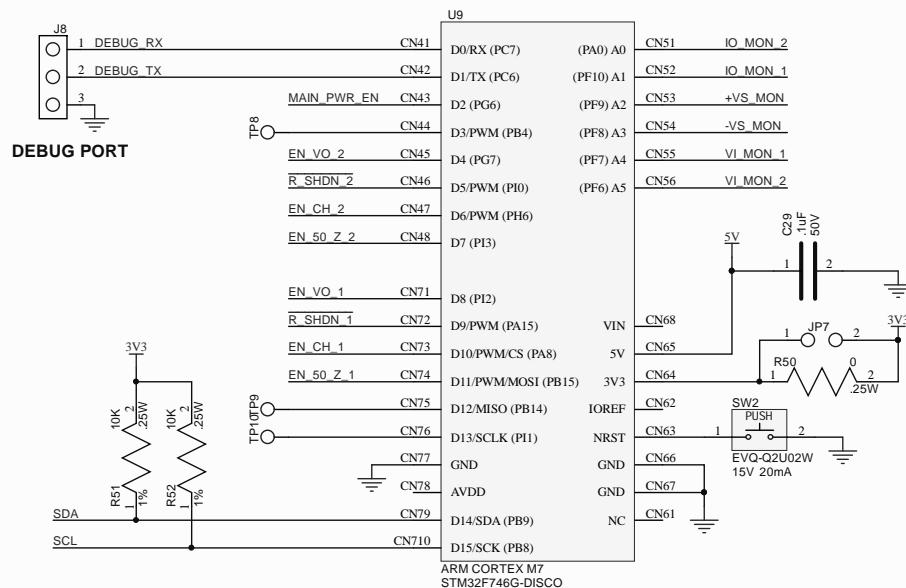
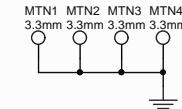
**CH1 INPUT****INPUT PROTECTION****INPUT ATTENUATOR****NOTES:**

PULL DOWN U4.A0 FOR CH1 ADDRESS  
 PULL UP U11.A0 FOR CH2 ADDRESS  
 ± BYPASS CAPS FOR U3, U4, U5  
 JPx, TPx FOR PROTOTYPE TESTING ONLY

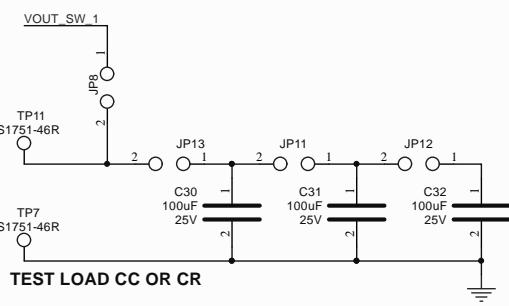
Title: Arbitrary Power Booster	IMR Engineering 3621 Gin Way Sneville, GA 30039	IMR Engineering
Size: B   Number: IMR-005-SCH   Revision: 2		
Date: 04/15/25   Time: 08:00   Sheet 3 of 8		
File: ArbPwrBoost_P3.SchDoc		



A

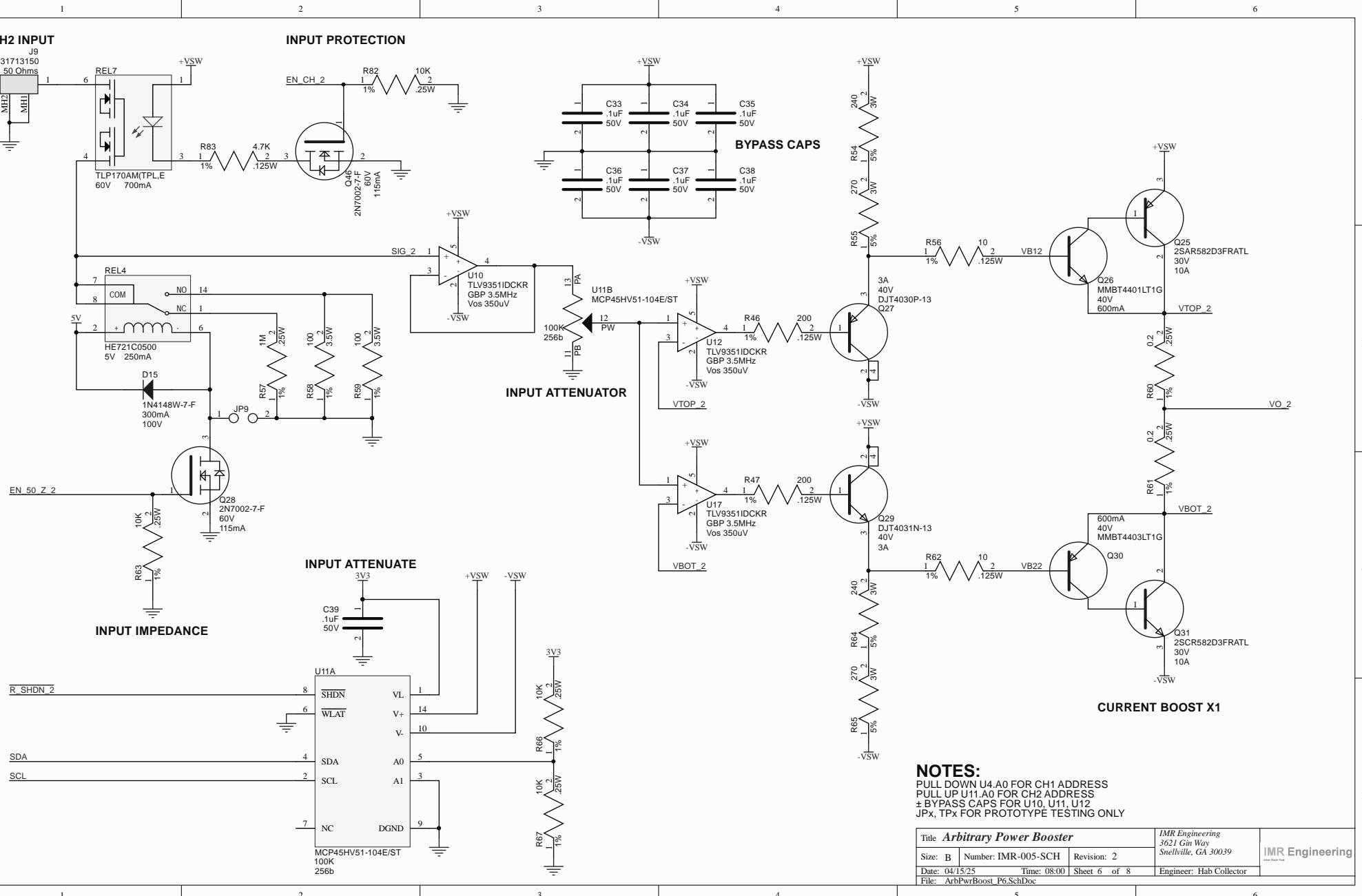
**MOUNTING HOLES****CONTROLLER MODULE WITH GUI INTERFACE****A0 TO A5 ADC INPUTS**

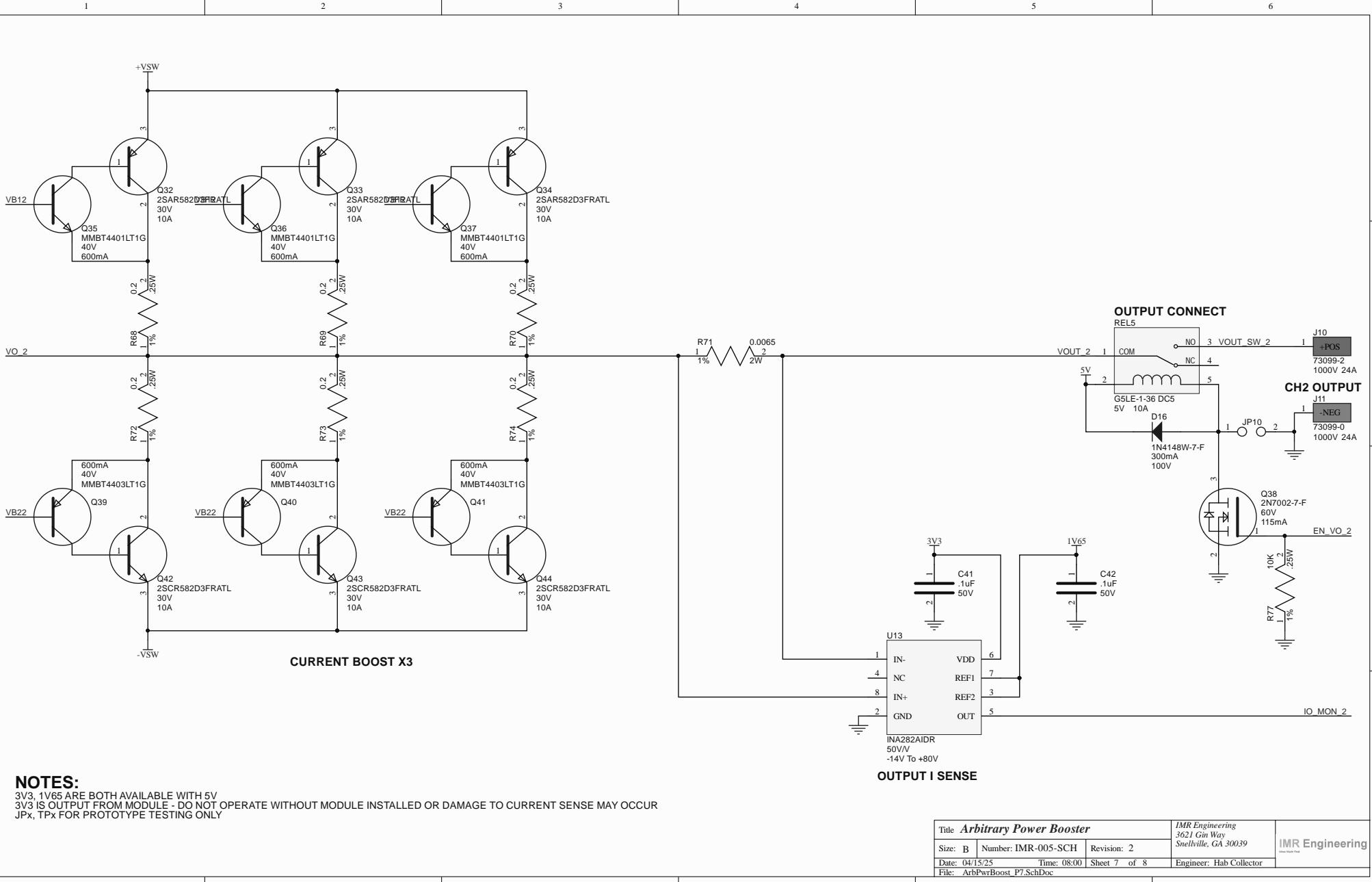
INPUT IMPEDANCE IO\_MON1 ESTIMATED < 10 OHMS - OP AMP OUTPUT  
 INPUT IMPEDANCE IO\_MON2 ESTIMATED < 10 OHMS - OP AMP OUTPUT  
 INPUT IMPEDANCE +VS\_MON 1.1K OHM  
 INPUT IMPEDANCE -VS\_MON\_2.3K OHM  
 INPUT IMPEDANCE VI\_MON\_1 1.2K OHM  
 INPUT IMPEDANCE VI\_MON\_2 2.3K OHM

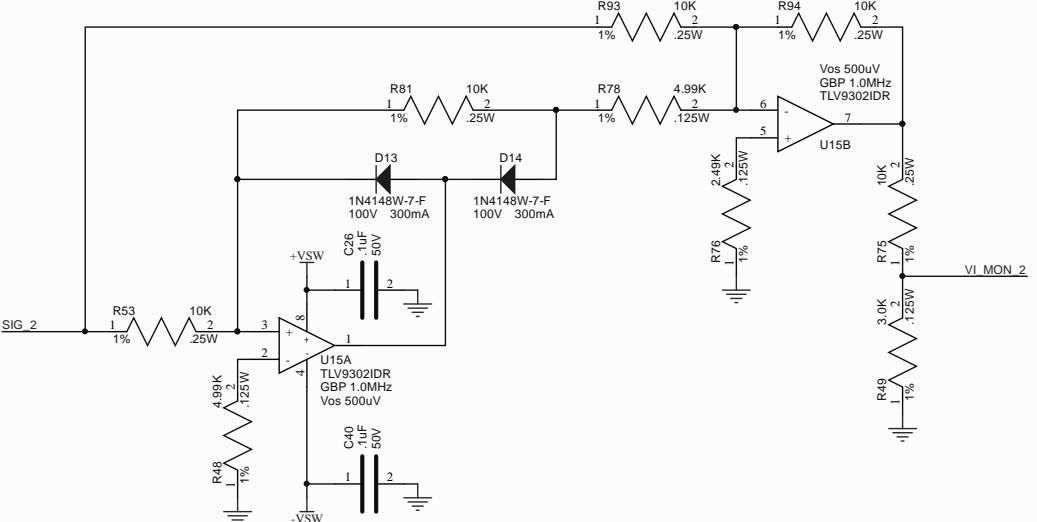
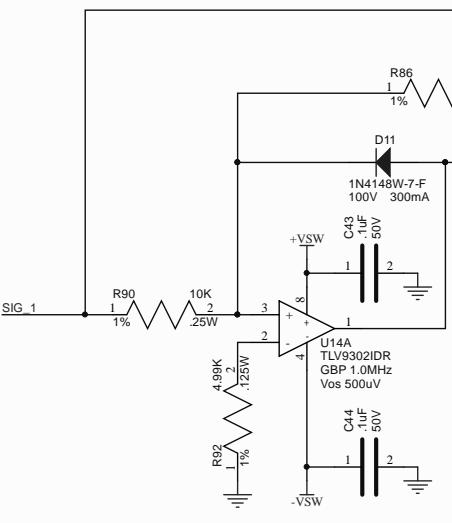
**NOTES:**

I2C PULL UP ON MODULE - ADDED HERE JUST IN CASE - DNP  
 5V IS POWER INPUT TO MODULE  
 3V3 IS REGULATED POWER OUTPUT FROM MODULE  
 JPx, TPx FOR PROTOTYPE TESTING ONLY  
 CHANNEL 1 AND CHANNEL 2 OPERATE INDEPENDENTLY OF EACH OTHER  
 CHANNEL 1 IS MANDATORY, CHANNEL 2 IS A BUILD OPTION  
 BLD\_OP1, 2 ARE HARDWARE FIRMWARE BUILD / CONFIG OPTIONS TBD

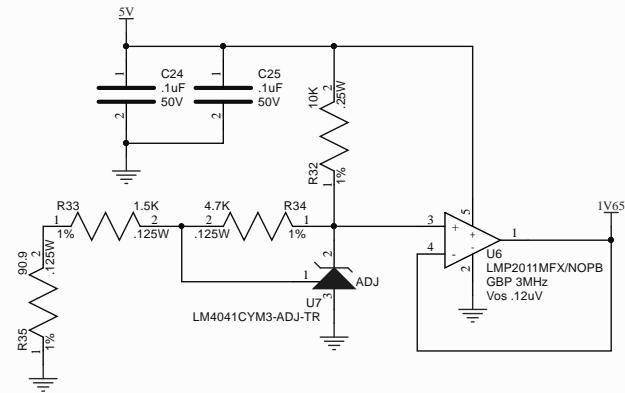
Title: Arbitrary Power Booster	IMR Engineering 3621 Gin Way Sneadville, GA 30039	Size: B   Number: IMR-005-SCH   Revision: 2	IMR Engineering
Date: 04/15/25	Time: 08:00	Sheet 5 of 8	Engineer: Hab Collector
File: ArbPwrBoost_P5.SchDoc			Owner: Hab Collector







### ABSOLUTE VALUE DIVIDER



### 1.65V PRECISION REFERENCE

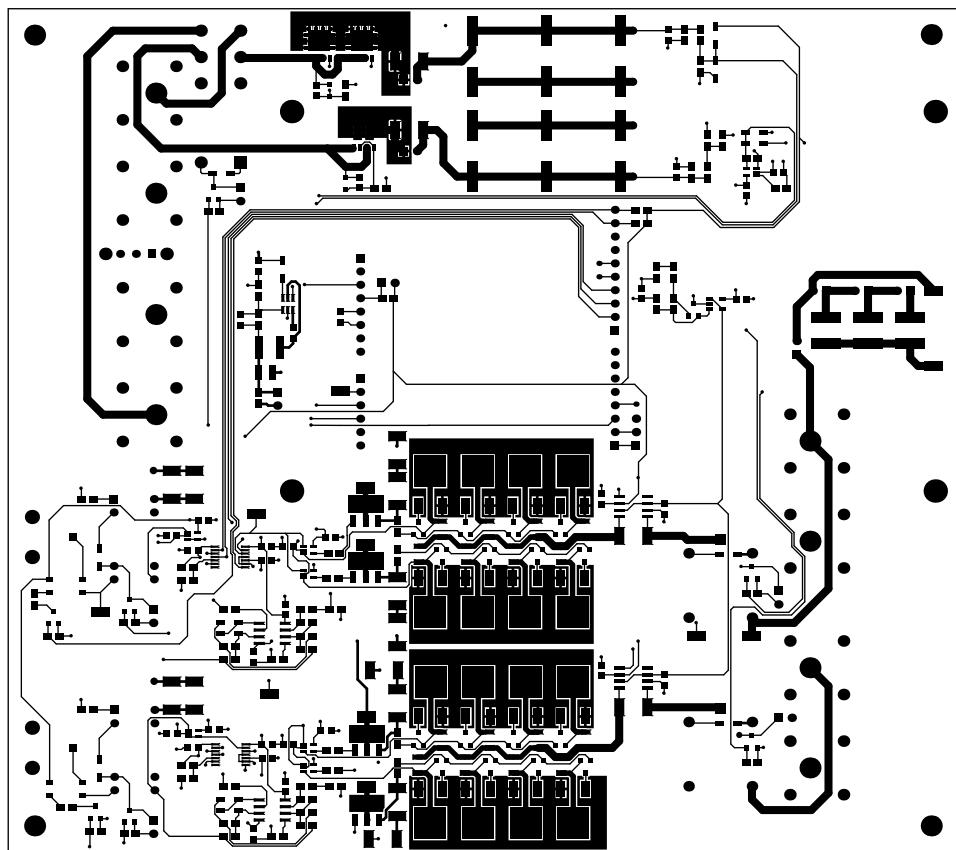
#### NOTES:

1V65 ARE BOTH AVAILABLE WITH 5V  
3V3 REQUIRES MODULE TO BE INSERTED  
ABSOLUTE VALUE DIVIDER RATIO 0.2308V/V

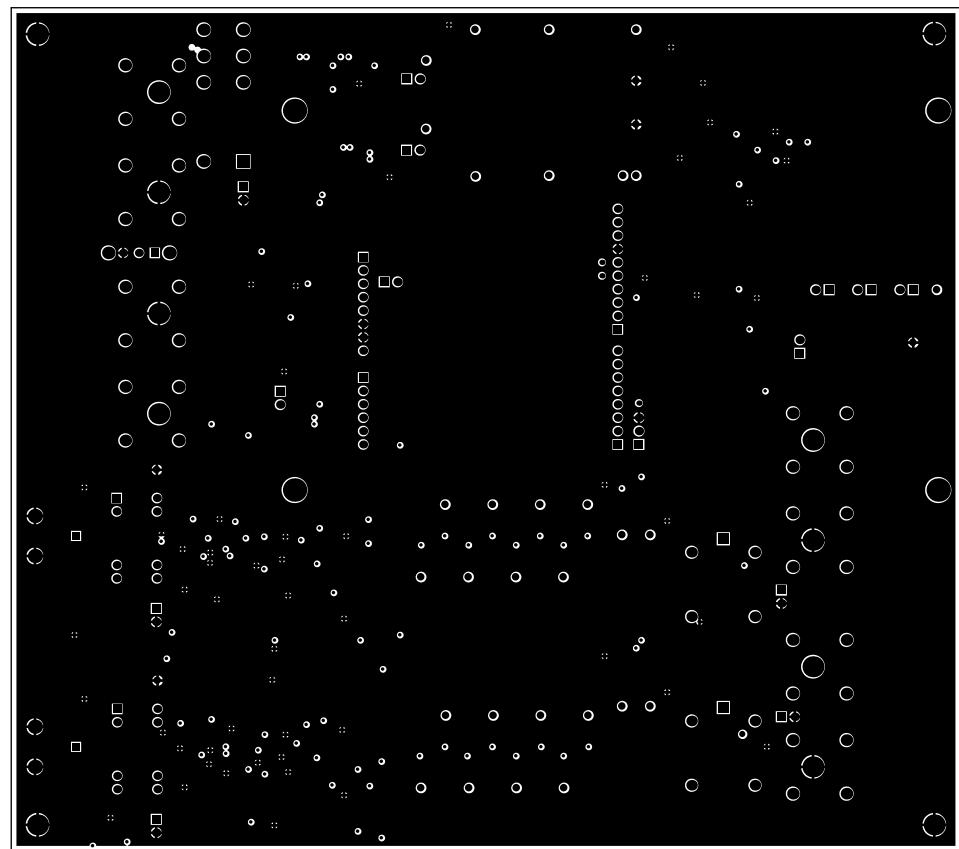
Title: Arbitrary Power Booster	IMR Engineering
Size: B	Number: IMR-005-SCH
Date: 04/15/25	Revision: 2
File: ArbPwrBoost_P8.SchDoc	Engineer: Hab Collector

3621 Gin Way  
Sneville, GA 30039

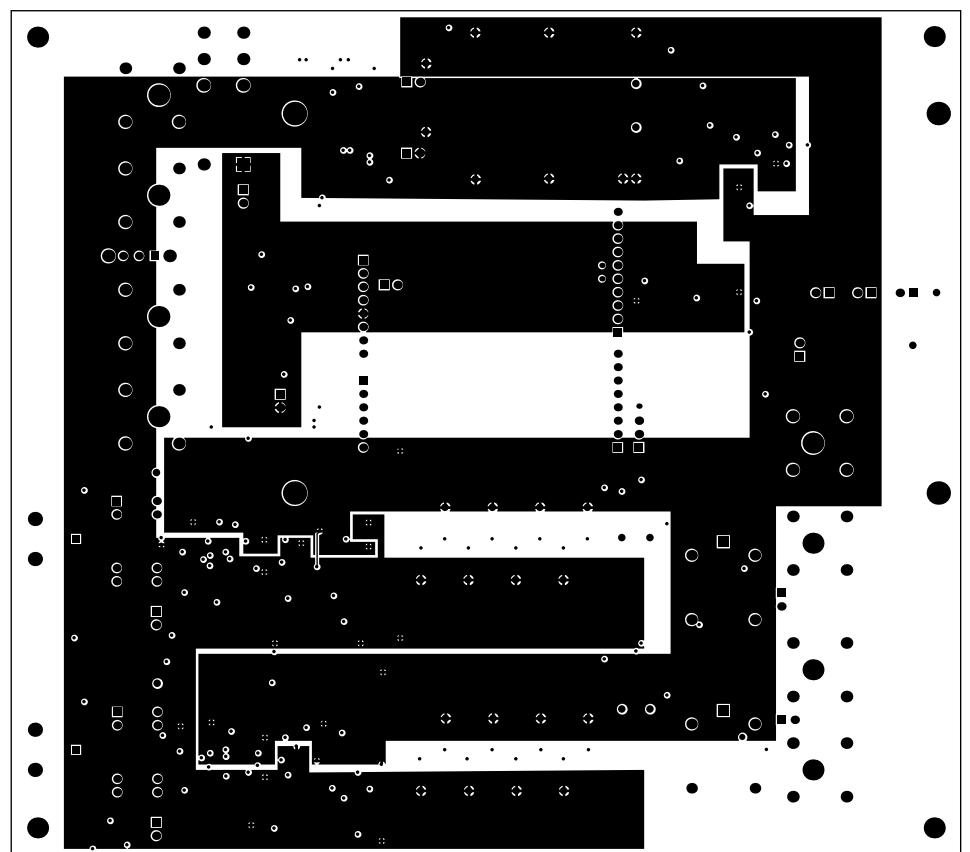
IMR Engineering



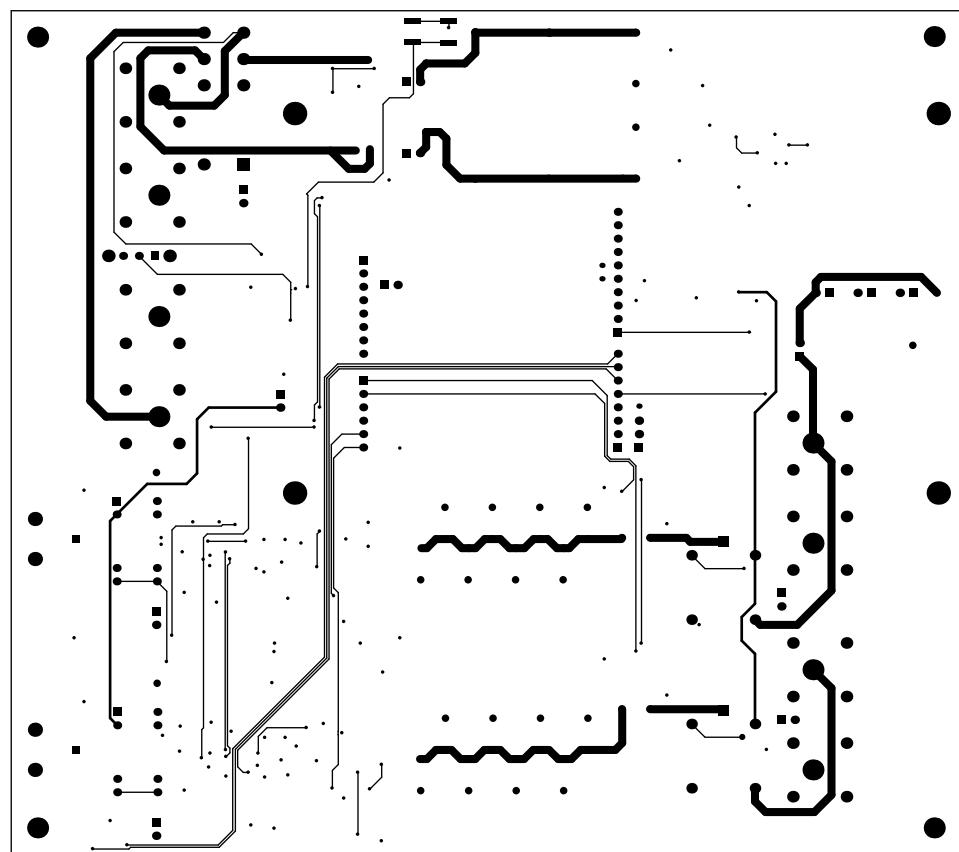
TOP



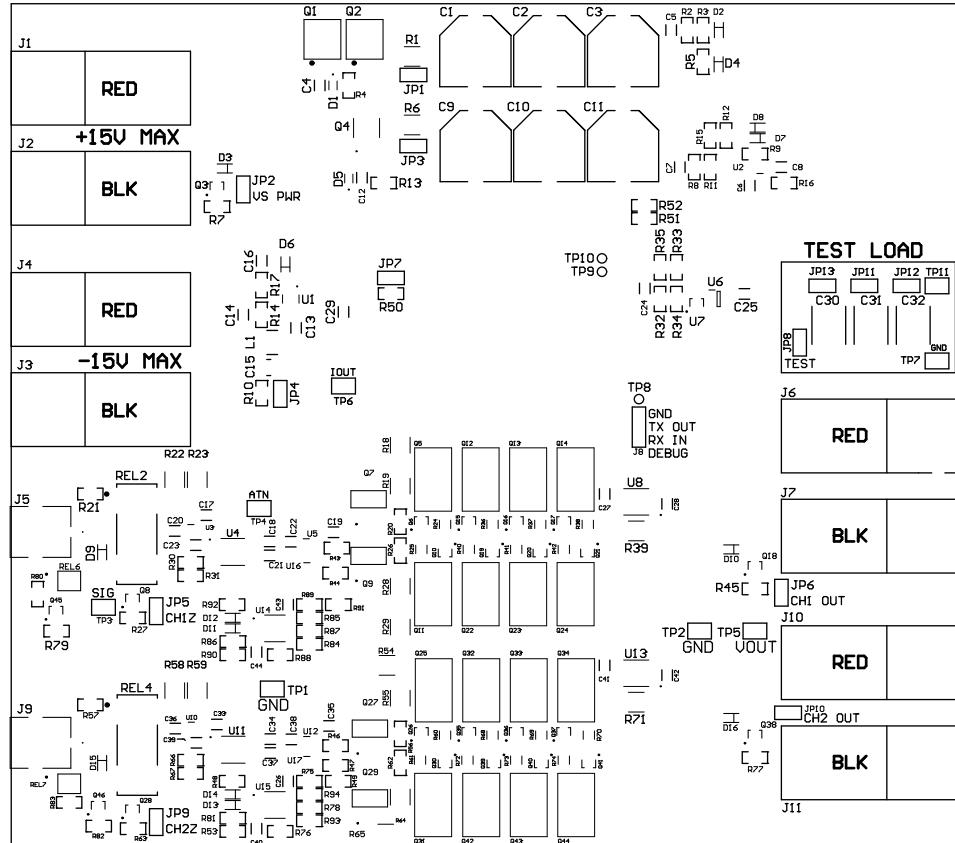
SIGNAL LAYER 1



SIGNAL LAYER 2

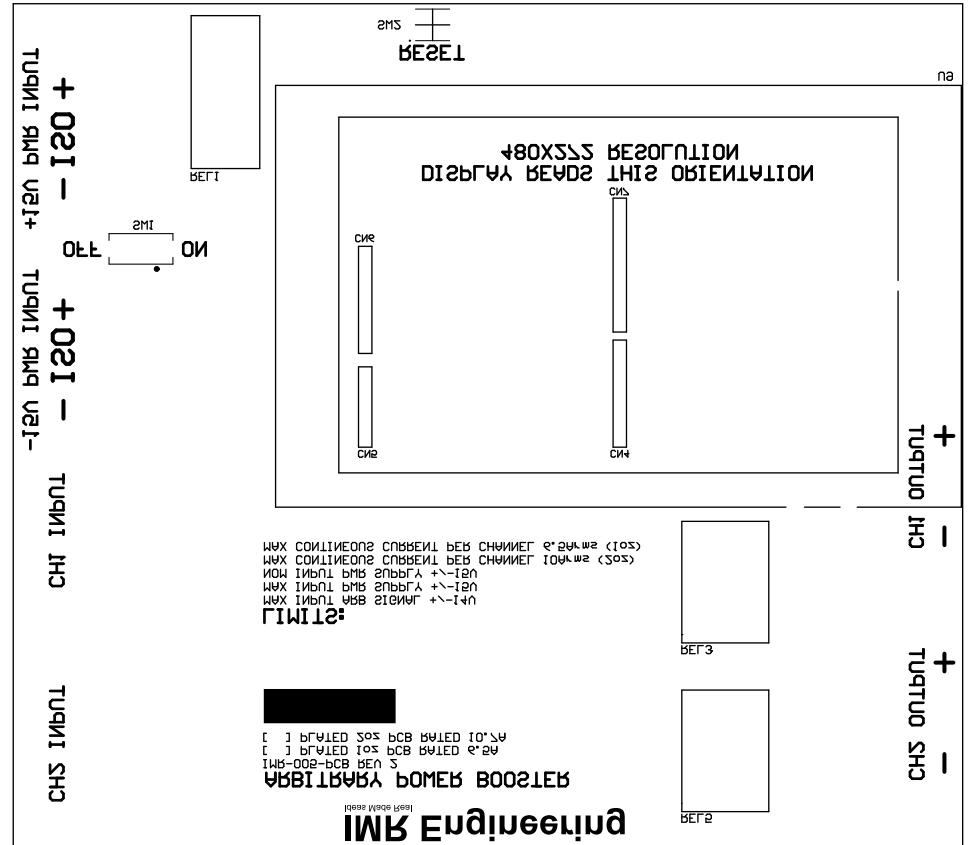


BOTTOM

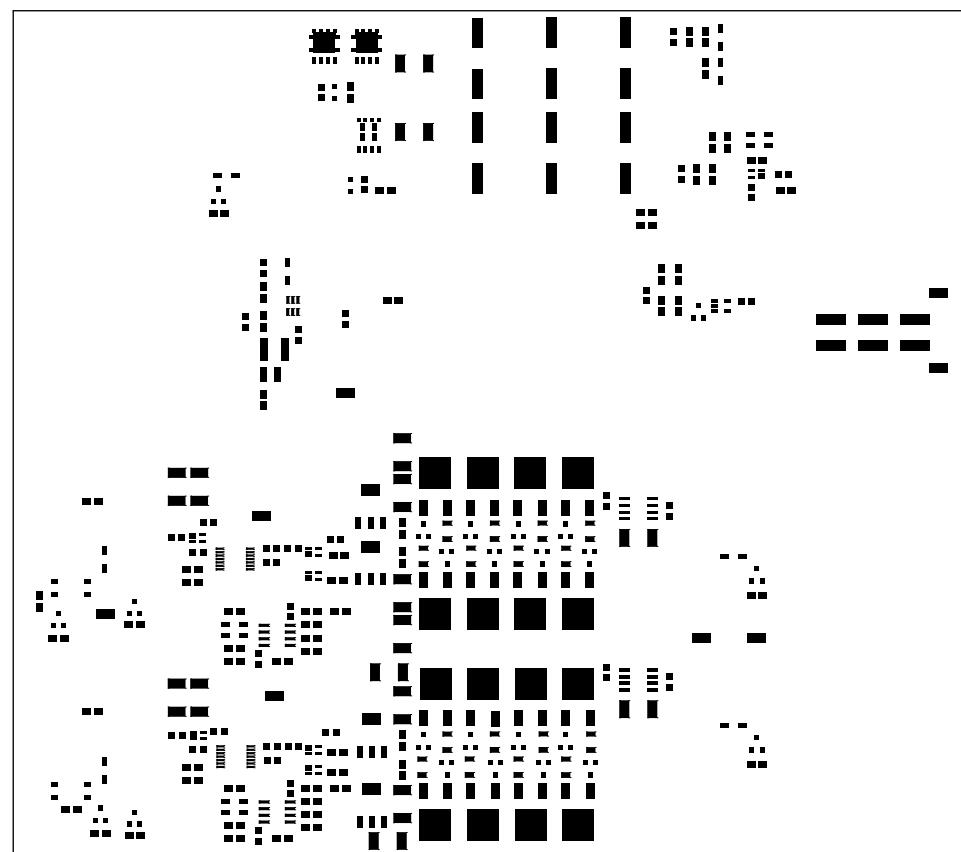


TOP SILK

CHS INPUT - 150 + CHS INPUT - 150 + CHS INPUT - 150 +



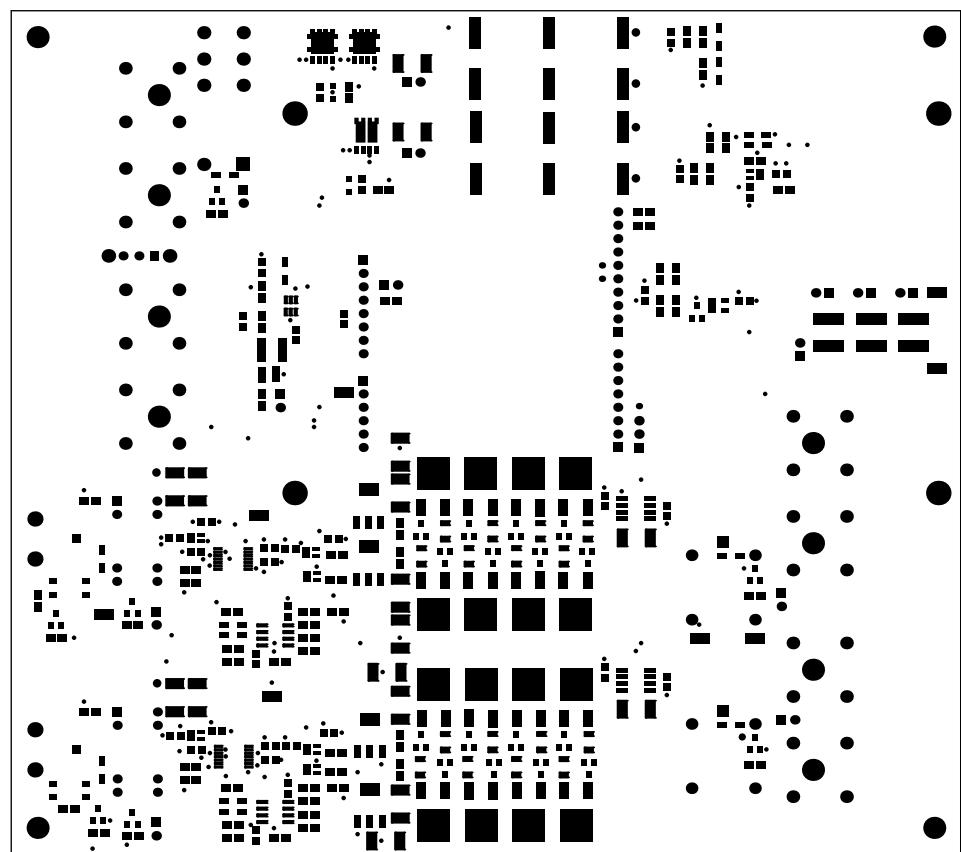
## BOTTOM SILK



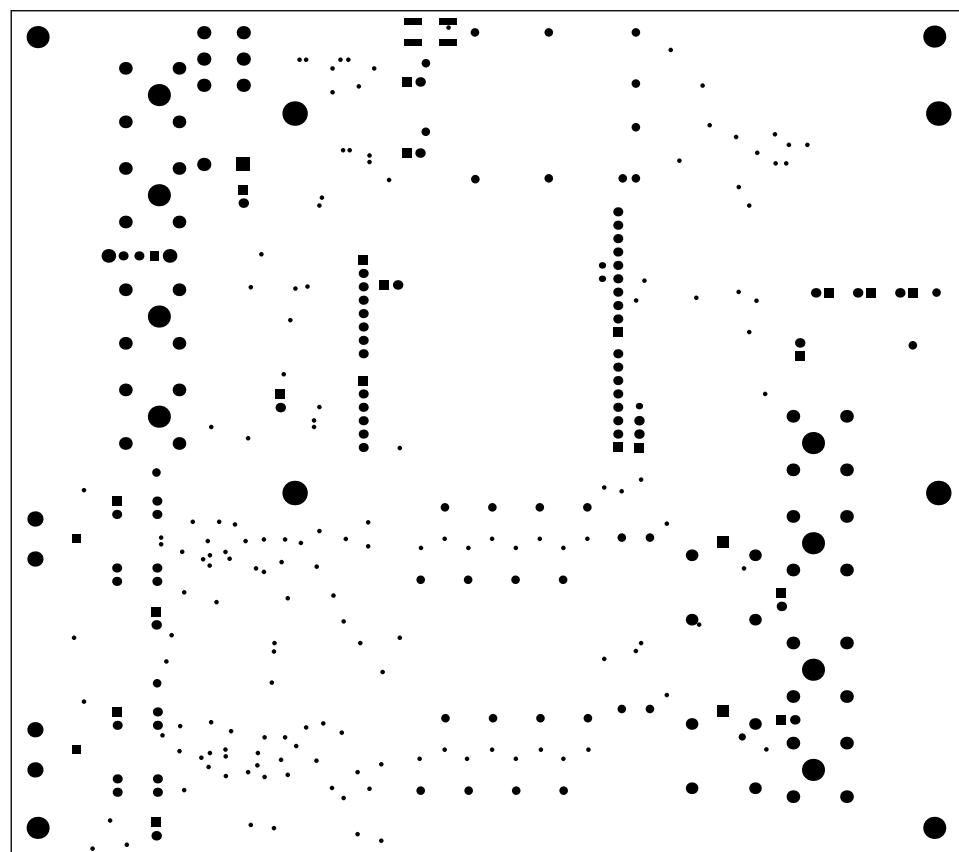
TOP PM

:-:

BOTTOM PM



TOP SM

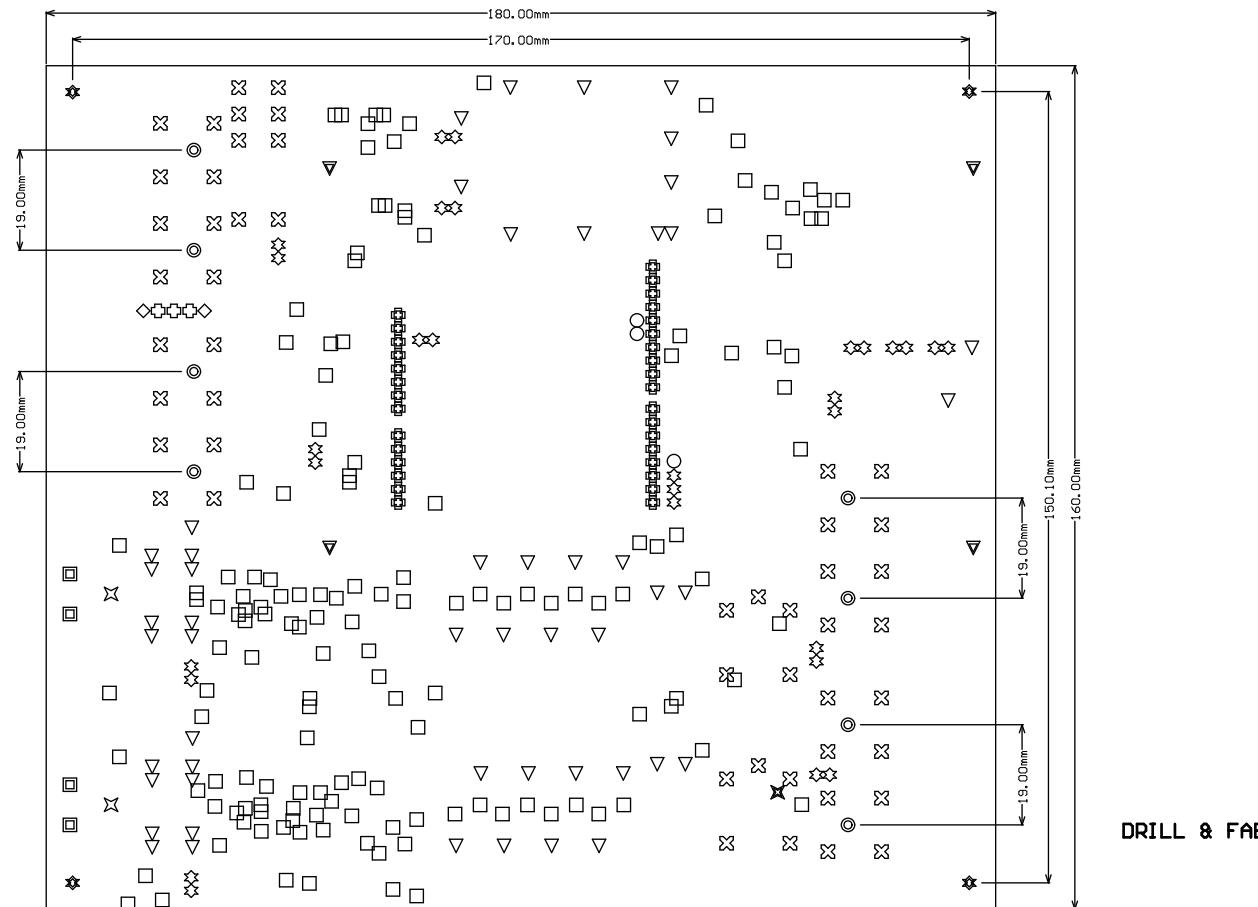


BOTTOM SM

Symbol	Hit Count	Finished Hole Size	Plated	Hole Type
x	1	0.711mm (28.00mil)	PTH	Round
x	2	0.920mm (36.22mil)	PTH	Round
◊	2	1.590mm (62.60mil)	PTH	Round
○	3	0.508mm (20.00mil)	PTH	Round
○	3	1.010mm (39.76mil)	PTH	Round
□	4	1.800mm (70.87mil)	PTH	Round
▼	4	3.175mm (125.00mil)	PTH	Round
*	4	3.300mm (129.92mil)	PTH	Round
○	8	2.200mm (86.61mil)	PTH	Round
◊	29	0.900mm (35.43mil)	PTH	Round
●	32	0.889mm (35.00mil)	PTH	Round
■	50	1.300mm (51.18mil)	PTH	Round
▼	51	0.762mm (30.00mil)	PTH	Round
□	152	0.381mm (15.00mil)	PTH	Round
345 Total				

LAYER STACK:  
 Top Layer  
 Signal Layer 1  
 Signal Layer 2  
 Bottom Layer

+/- 20U TRACE:  
 MAX BOARD CURRENT 1oz PLATING: 6.50A RMS  
 MAX BOARD CURRENT 2oz PLATING: 10.70A RMS



## PCB FABRICATION NOTES:

### MATERIAL:

FR4 GF per MIL-P-13949 MIN UL 94V0

### Cu WEIGHT:

OUTER LAYER: 1oz  
 INNER LAYER: NA

### SOLDER MASK:

TYPE: LPI (LIQUID PHOTO-IMAGE)  
 COVER: SMOBC (SOLDER MASK OVER BARE Cu)  
 COLOR: RED (PROTOTYPE) OR GREEN (PRODUCTION) GLOSS

### OVERALL PCB THICKNESS:

PCB: 1.6mm (63MIL)  
 TOLERANCE: 0.178mm (7MIL)

### PCB ELECTRICAL TEST

TESTED TO GERBER DATA  
 PURCHASE ORDER TO OVERRIDE

### HOLE DIAMETER TOLERANCE:

PLATED HOLE TOLERANCE: 0.076mm (3MIL)  
 NON PLATED HOLE TOLERANCE: 0.076mm (3MIL)

### SILK SCREEN

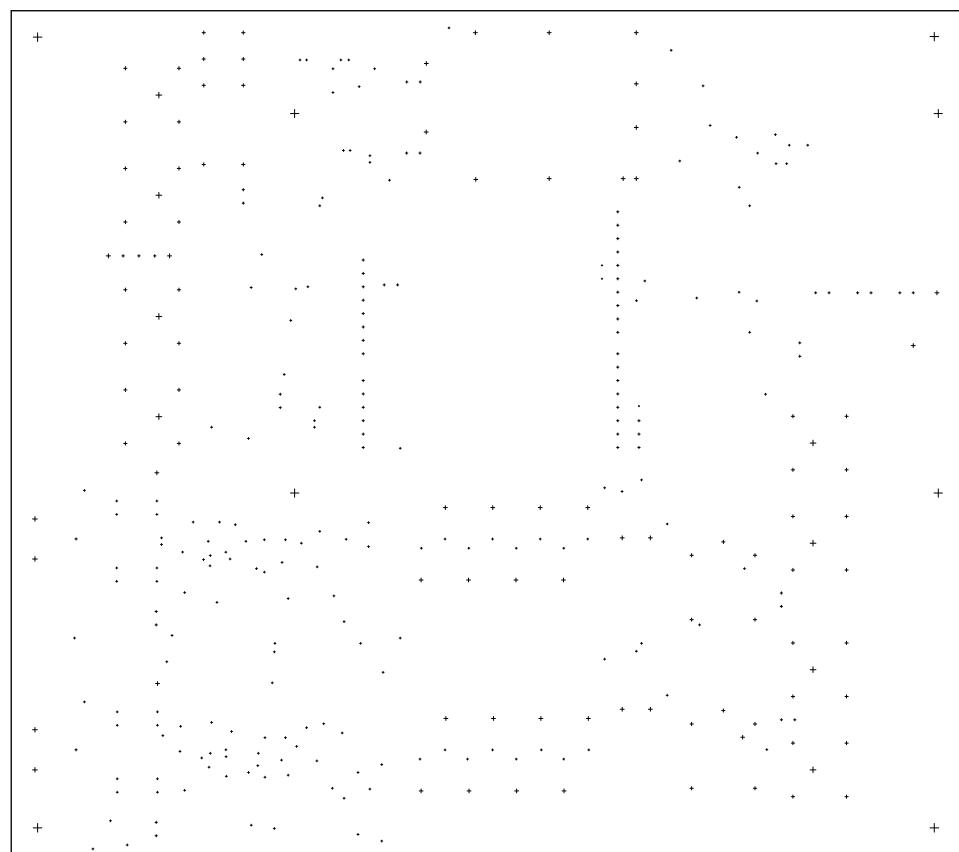
SIDES: TOP  
 COLOR: WHITE  
 TYPE: LPI (PREFERRED)

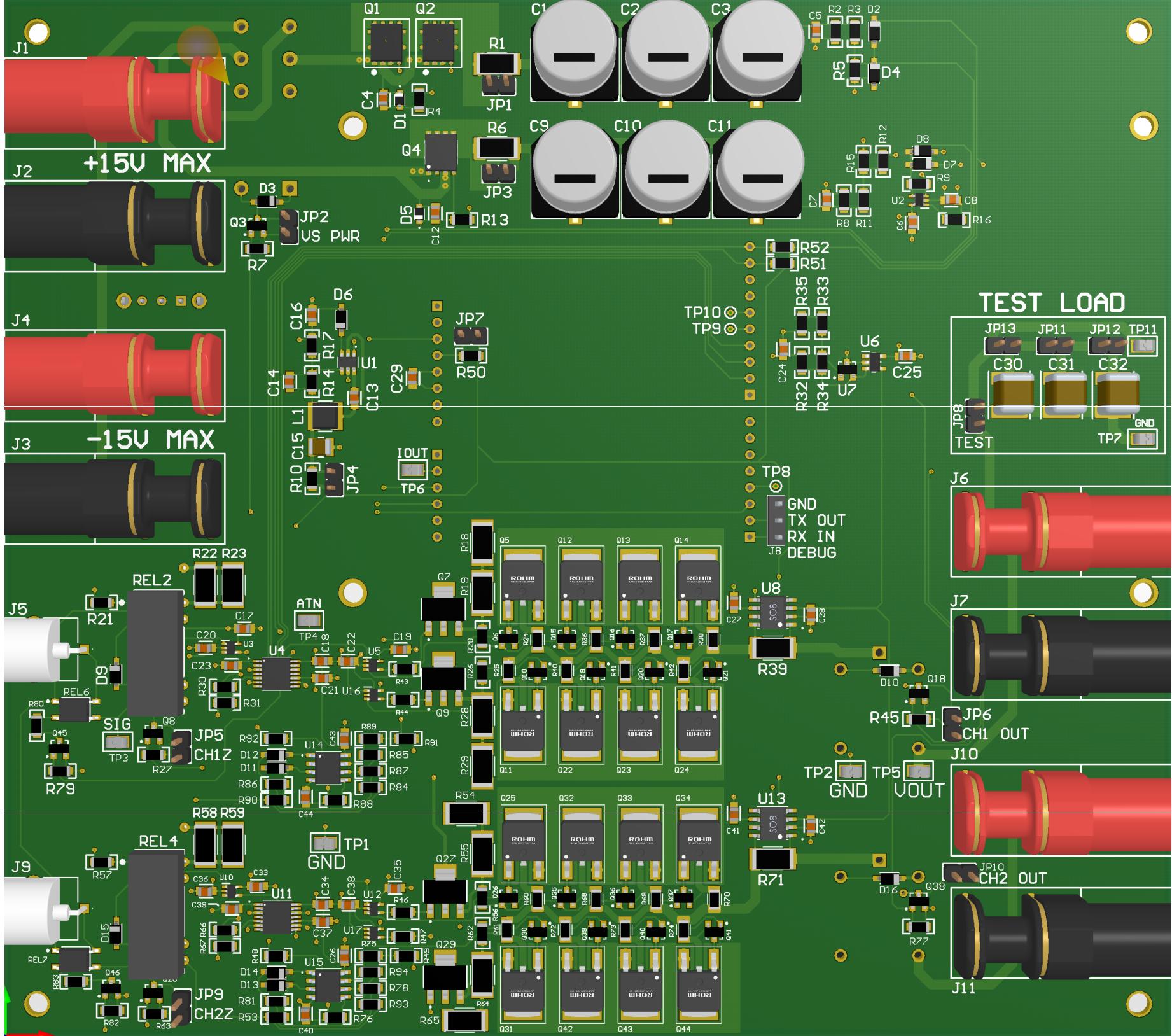
### SURFACE FINISH:

PROTOTYPE: HASL OR ENIG  
 PRODUCTION: ENIG (ONLY IF SPEC ON PURCHASE ORDER)

### ACCEPTABILITY:

STANDARD: IPC-A-600 (LATEST REV)  
 MFG TO ADD: DATE CODE, UL FLAME CODE







## PROTOTYPE BOM

## Arbitrary Power Booster

Source Data From: Arb\_Power\_Booster.PrjPcb  
 Project: Arb\_Power\_Booster.PrjPcb  
 Variant: None

Company Part Number: IMR-005-SCH  
 PCB Revision: 2  
 Engineer: Hab S Collector

Report Date: 4/15/2025  
 Print Date: 15-Apr-25

6:21:50 AM  
 6:22:27 AM

**IMR Engineering**  
 Ideas Made Real

#	Quantity	LibRef	Description	Designator	MFG	MFG PN	Supplier 1	Supplier Part Number 1	Unit Price	TOTAL
1	6	CAP_330UF_50V_ALE	CAP ALE 330uF 20% 50V SMD	C1, C2, C3, C9, C10, C11	EEV-FK1B031Q	Panasonic Electronic	DigiKey	PDE3475CT-ND	1.41	\$8.46
2	3	CAP_SMD_10UF_50V_0805	CAP CER 10uF 50V X5R 0805	C4, C12, C16	Murata Electronics	GRM21BR61H106KE43L	DigiKey	490-18663-1-ND	.28	\$0.84
3	30	CAP_SMD_0.1UF_50V_0805	CAP CER 0.1uF 50V X7R 0805	C5, C6, C7, C8, C13, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44	KYOCERA AVX	KGM21NR71H104KT	DigiKey	478-KGM21NR71H104KTCT-ND	.1	\$3.00
4	1	CAP_SMD_68PF_50V_0805	CAP CER 68PF 50V X7R 0805	C14	KEMET	C0805C680K5RACAUTO	DigiKey	399-C0805C680K5RACAUTOCT-ND	.24	\$0.24
5	1	CAP_SMD_47UF_16V_1210	CAP CER 47uF 16V 50% 1210	C15	Murata Electronics	GRM32ER04746M2E0L	DigiKey	490-18871-ND	.28	\$0.28
6	3	CAP_SMD_100UF_25V_SMD	CAP CER 100uF 25V X7S SMD	C30, C31, C32	Murata Electronics	KOM55WC71E107MH13L	DigiKey	490-KOM55WC71E107MH13LCT-ND	5.68	\$17.04
7	2	DIODE_ZENER_MVSZ5239BS-7-F	DIODE ZENER 9.1V 200MW SOD323	D1, D5	Diodes Inc	MWSZ5239BS-7-F	DigiKey	MWSZ5239BS-FDCT-ND	.18	\$0.36
8	11	DIODE_1N4148W-7-F	RELAY REED SPDT 250mA 5V	D2, D3, D7, D9, D10, D11, D12, D13, D14, D15, D16	Diodes Inc	1N4148W-7-F	DigiKey	1N4148W-FDICT-ND	.16	\$1.76
9	3	DIODE_SCHOTTKY_1N5819HW-7-F	DIODE SCHOTTKY 40V 1A SOD123	D4, D6, D8	Diodes Inc	1N5819HW-7-F	DigiKey	1N5819HW-FDICT-ND	.25	\$0.75
10	4	CONN_PANOMA_73099-2	CONN 4mm Banana Socket Right Angle PCB RED	J1, J4, J6, J10	Pomona	73099-2	DigiKey	501-73099-2-ND	10.39	\$41.56
11	4	CONN_PANOMA_73099-0	CONN 4mm Banana Socket Right Angle PCB BLK	J2, J3, J7, J11	Pomona	73099-0	DigiKey	501-73099-0-ND	10.39	\$41.56
12	2	CONN_MOLEX_071713150	CONN BNC RCPT R/A 50 OHM PCB	J5, J9	Molex	071713150	DigiKey	WM20430-ND	1.40	\$2.80
13	1	CONN_HEADER_3P_100ML_VERT	CONN HEADER VERT 3POS 2.54MM	J8	Sullins Connector Solutions	PRE003FAN-RC	Digi-Key	S1212EC-03-ND	.07	\$0.07
14	13	CONN_JUMPER_2P_100MALE_VERT	CONN HEADER VERT 2POS 2.54MM	JPI1, JPI2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP10, JP11, JP12, JP13	Sullins Connector Solutions	PRE0025FAN-RC	Digi-Key	S1212EC-02-ND	.07	\$0.91
15	1	INDUCTOR_SRN4018TA-6R8M	FIXED IND 6.8uH 1.7A 98 MOHM SMD	L1	Bourns Inc.	SRN4018TA-6R8M	DigiKey	SRN4018TA-6R8MCT-ND	.48	\$0.48
16	2	MOSFET_PCH_MPM6050SPS-13	MOSFET P-CH 60V 5.7A PWRD6050-8	Q1, Q2	Diodes Inc	DMP6050SPS-13	DigiKey	DMP6050SPS-13DICT-ND	1.07	\$2.14
17	7	MOSFET_NCH_2N7002-7-F	MOSFET N-CH 60V 115MA SOT23-3	Q3, Q8, Q18, Q28, Q38, Q45, Q46	Diodes Inc	2N7002-7-F	DigiKey	2N7002-FDICT-ND	.20	\$1.40
18	1	MOSFET_NCH_DMNH6042SPDQ-13	MOSFET N-CH 60V 5.7A POWERDI	Q4	Diodes Inc	DMNH6042SPDQ-13	DigiKey	DMNH6042SPDQ-13DICT-ND	1.36	\$1.36
19	8	BJT_PNP_2SAR582D3FRATL	TRANS PNP 30V 5.7A TO-252	Q5, Q12, Q13, Q14, Q25, Q32, Q33, Q34	Rohm Semiconductor	2SAR582D3FRATL	DigiKey	846-2SAR582D3FRATLCT-ND	1.59	\$12.72
20	8	BJT_NPN_MMBT4401LT1G	TRANS NPN 40V 0.6A SOT23-3	Q6, Q15, Q16, Q17, Q26, Q35, Q36, Q37	On Semiconductor	MMBT4401LT1G	DigiKey	MMBT4401LT1GOSCT-ND	.13	\$1.04
21	2	BJT_PNP_DJT4030P-13	TRANS PNP 40V 3A SOT223	Q7, Q27	Diodes Inc	DJT4030P-13	DigiKey	31-DJT4030P-13CT-ND	.76	\$1.52
22	2	BJT_PNP_DJT4031N-13	TRANS NPN 40V 0.6A SOT223	Q9, Q29	Diodes Inc	DJT4031N-13	DigiKey	DJT4031NDCT-ND	.76	\$1.52
23	8	BJT_PNP_MMBT4403LT1G	TRANS PNP 40V 0.6A SOT23-3	Q10, Q19, Q20, Q21, Q30, Q39, Q40, Q41	On Semiconductor	MMBT4403LT1G	DigiKey	MMBT4403LT1GOSCT-ND	.13	\$1.04
24	8	BJT_NPN_2SCR582D3FRATL	TRANS NPN 30V 10A TO-252	Q11, Q22, Q23, Q24, Q31, Q42, Q43, Q44	Rohm Semiconductor	2SCR582D3FRATL	DigiKey	846-2SCR582D3FRATLCT-ND	1.76	\$14.08
25	2	RES_SMD_0_2512_1W_1%	RES SMD 0 OHM 1% 1W 2512	R1, R6	Yageo	RC2512JK-070RL	DigiKey	YAG1232CT-ND	.2	\$0.40
26	28	RES_SMD_10K_0805_1/4W_1%	RES SMD 10K OHM 1% 1/4W 0805	R2, R3, R7, R8, R11, R27, R30, R31, R32, R45, R51, R52, R53, R63, R66, R67, R75, R77, R79, R81, R82, R84, R85, R86, R89, R90, R93, R94	Yageo	RC0805FR-7W10KL	DigiKey	13-RC0805FR-7W10KLCT-ND	.10	\$2.80
27	2	RES_SMD_47K_0805_1/8W_1%	RES SMD 47K OHM 1% 1/8W 0805	R4, R13	Yageo	RC0805FR-1347KL	DigiKey	13-RC0805FR-1347KLCT-ND	.1	\$0.20
28	2	RES_SMD_1.24K_0805_1/8W_1%	RES SMD 1.24K OHM 1% 1/8W 0805	R5, R15	Yageo	RC0805FR-0712K4L	DigiKey	311-1.24KCRCT-ND	.1	\$0.20
29	1	RES_SMD_2.1K_0805_1/8W_1%	RES SMD 2.1K OHM 1% 1/8W 0805	R9	Yageo	RC0805FR-072K1L	DigiKey	311-2.10KCRCT-ND	.1	\$0.10
30	2	RES_SMD_0_0805_1/8W_1%	RES SMD 0 OHM 1% 1/8W 0805	R10, R50	Yageo	RC0805JR-070RL	DigiKey	311-0.04RCT-ND	.1	\$0.20
31	2	RES_SMD_1.0K_0805_1/8W_1%	RES SMD 1.0K OHM 1% 1/8W 0805	R12, R16	Yageo	RC0805FR-071KL	DigiKey	311-1.00KCRCT-ND	.1	\$0.20
32	1	RES_SMD_100K_0805_1/4W_1%	RES SMD 100K OHM 1% 1/4W 0805	R14	Yageo	RC0805FR-07100KL	DigiKey	311-100KCRCT-ND	.13	\$0.13
33	1	RES_SMD_13.7K_0805_1/8W_1%	RES SMD 13.7K OHM 1% 1/8W 0805	R17	Yageo	RC0805FR-0713KL	DigiKey	311-13.7KCRCT-ND	.10	\$0.10
34	4	RES_SMD_240_2512_3W_5%	RES 240 OHM 5% 3W 2512	R18, R28, R54, R64	Yageo	RC2512JK-07240RL	DigiKey	13-RC2512JK-07240RLCT-ND	.28	\$1.12
35	4	RES_SMD_270_2512_3W_5%	RES 270 OHM 5% 1W 2512	R19, R29, R55, R65	Yageo	RC2512JK-07270RL	DigiKey	13-RC2512JK-07270RLCT-ND	.21	\$0.84
36	4	RES_SMD_10_0805_1/8W_1%	RES SMD 10 OHM 1% 1/8W 0805	R20, R26, R56, R62	Yageo	RC0805FR-1310RL	DigiKey	13-RC0805FR-1310RLCT-ND	.1	\$0.40
37	2	RES_SMD_1M_0805_1/4W_1%	RES SMD 1M OHM 1% 1/4W 0805	R21, R57	Yageo	RC0805FR-7W1ML	DigiKey	13-RC0805FR-7W1MLCT-ND	.10	\$0.20
38	4	RES_SMD_100_0805_3.5W_1%	RES SMD 100 OHM 1% 3.5W 2512	R22, R23, R58, R59	Omnite	ALN2512F100RE-1	DigiKey	273-ALN2512F100RE-1CT-ND	1.50	\$6.00
39	16	RES_SMD_0_2_1206_1/4W_1%	RES SMD 0 OHM 1% 1/4W 1206	R24, R25, R36, R37, R38, R40, R41, R42, R60, R61, R68, R69, R70, R72, R73, R74	Yageo	RL1206FR-070R2L	DigiKey	311-0.2LWCT-ND	.27	\$4.32
40	1	RES_SMD_1.5K_0805_1/8W_1%	RES SMD 1.5K OHM 1% 1/8W 0805	R33	Yageo	RC0805FR-071K5L	DigiKey	311-1.50KCRCT-ND	.1	\$0.10
41	3	RES_SMD_4.7K_0805_1/8W_1%	RES SMD 4.7K OHM 1% 1/8W 0805	R34, R80, R83	Yageo	RC0805FR-1347KL	DigiKey	13-RC0805FR-1347KLCT-ND	.1	\$0.30
42	1	RES_SMD_90.9_0805_1/8W_1%	RES SMD 90.9 OHM 1% 1/8W 0805	R35	Yageo	RC0805FR-0790RL	DigiKey	311-9.09RCT-ND	.1	\$0.10
43	2	RES_SMD_0.0065_2512_2W_1%	RES SMD 0.0065 OHM 1% 2W 2512	R39, R71	Vishay Dale	WSL2512L500FEA18	DigiKey	541-WSL2512L500FEA18CT-ND	1.76	\$3.52
44	4	RES_SMD_200_0805_1/8W_1%	RES SMD 200 OHM 1% 1/8W 0805	R43, R44, R46, R47	Yageo	RC0805FR-0720RL	DigiKey	311-200CRCT-ND	.1	\$0.40
45	4	RES_SMD_4.99K_0805_1/8W_1%	RES SMD 4.99K OHM 1% 1/8W 0805	R48, R76, R87, R92	Yageo	RC0805FR-1349K9L	DigiKey	13-RC0805FR-1349K9LCT-ND	.1	\$0.40
46	2	RES_SMD_3.0K_0805_1/8W_1%	RES SMD 3.0K OHM 1% 1/8W 0805	R49, R91	Yageo	RC0805FR-133KL	DigiKey	13-RC0805FR-133KLCT-ND	.1	\$0.20
47	2	RES_SMD_2.49K_0805_1/8W_1%	RES SMD 2.49K OHM 1% 1/8W 0805	R76, R88	Yageo	RC0805FR-132K49L	DigiKey	13-RC0805FR-132K49LCT-ND	.1	\$0.20
48	1	RELAY_AZ733-2A-E5DE	RELAY REED SPDT 250MA 5V	REL1	American Zettler	AZ733-2A-E5DE	DigiKey	3385-AZ733-2A-E5DEnd	2.18	\$2.18
49	2	RELAY_HE7210500	RELAY REED SPDT 250MA 5V	REL2, REL4	Littleuse	HE7210500	DigiKey	HE112-ND	3.77	\$7.54
50	2	RELAY_G5LE-1-36DC5	RELAY GEN PURPOSE SPDT 10A 5V	REL3, REL5	Omron	G5LE-1-36DC5	DigiKey	G5LE-1-36DC5-ND	1.24	\$2.48
51	2	RELAY_TLP170AM/TPLE	SSR RELAY SPST-NO 700mA 0-60V	REL6, REL7	Toshiba	TLP170AM/TPLE	DigiKey	264-TLP170AM/TPLECT-ND	1.33	\$2.66
52	1	SWITCH_SWL-12689-4A-N-D	SWITCH SLIDE SPST 300MA 50V	SW1	Same Sky	SLW-12689-4A-N-D	DigiKey	2223-SLW-12689-4A-N-D-ND	.48	\$0.48
53	1	SWITCH_EVQ-Q2U202W	SWITCH TACTILE SPST-NO 0.02A 15V	SW2	American Zettler	EVQ-Q2U202W	DigiKey	P129545CT-ND	.25	\$0.25
54	8	CONN_TEST_POINT_S1751-46B	PCB TEST POINT CONNECT	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP11	Harwin Inc	S1751-46B	Digi-Key	952-1478-1-ND	.28	\$2.24
55	1	IC_TPS54202DDCR	IC REG BUCK ADJ 2A SOT23	U1	Texas Instruments	TPS54202DDCR	Digi-Key	296-TPS54202DDCRCT-ND	.97	\$0.97
56	7	OPAMP_TLV9351IDCR	IC OPAMP GP3.5M-2.350V 0.70V 0.75-0.75	U2, U3, U5, U6, U10, U12, U16, U17	Texas Instruments	TLV9351IDCR	Digi-Key	296-TLV9351IDCRCT-ND	.49	\$3.43
57	2	IC_MCP45HV51-104E/ST	IC DGT POT 100KOHM 256P 14TSSOP	U4, U11	Microchip	MCP45HV51-104E/ST	DigiKey	MCP45HV51-104E/ST-ND	2.00	\$4.00
58	1	OPAMP_LMP2011MFXNOPB	IC OPAMP GP3M-2.12uV CIRCUIT SOT23-5	U6	Texas Instruments	LMP2011MFXNOPB	DigiKey	LMP2011MFXNOPBCT-ND	2.33	\$2.33
59	1	IC_LM4041CY3M-AD-JTR	IC VRFF SHUNT AQ1.05% SOT23-3	U7	Microchip	LM4041CY3M-AD-JTR	DigiKey	576-1049-ND	.39	\$0.39
60	2	ICINA282AIDR	IC CURRENT SENSE 0.4% 50V/ 50V SOIC-8	U8, U13	Texas Instruments	INA282AIDR	DigiKey	296-27820-1-ND	4.13	\$8.26
61	1	MODULE_STM32F476G-DISCO	DISCOVERY STM32 F7 EVAL BRD	U9	ST Microelectronics	STM32F476G-DISCO	DigiKey	497-15680-5-ND	57.50	\$57.50
62	2	OPAMP_TLV9302IDR	IC OPAMP GP2 CIRCUIT 8SOIC	U14, U15	Texas Instruments	TLV9302IDR	DigiKey	296-33513-1-ND	.66	\$1.32

Approved

Notes

Bill of Cost (Unit Buy): \$275.39