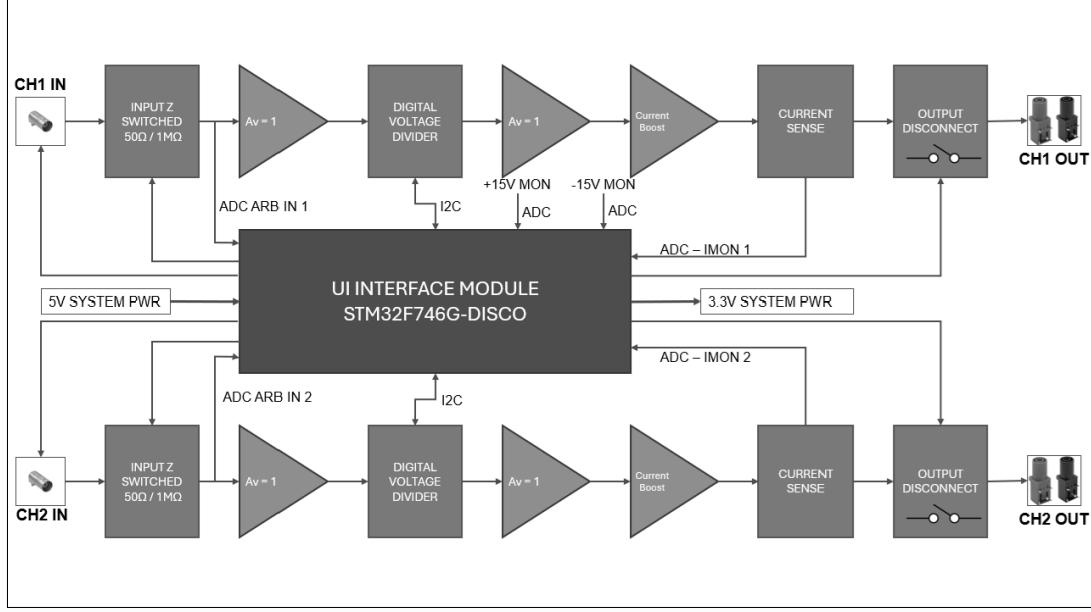
**REVISION HISTORY:**

REV	ECO	CHANGE DESCRIPTION
1	NA	Initial design
2	NA	Multiple changes to pin-out, circuit protection, Current Boost, and misc.
3	NA	Correction in ABS divider, change in Current Boost, Cooling and misc.



Title: Arbitrary Power Booster	IMR Engineering
Size: B	Number: IMR-005-SCH
Date: 05/12/25	Revision: 4
File: ArbPwrBoost_P1.SchDoc	Engineer: Hab S Collector

IMR Engineering

MAIN SWITCH

MAX INPUT +15V

73099-2
1000V 24A

J1 +POS 1
73099-0
1000V 24A

J2 -NEG 1
73099-0
1000V 24A

GND

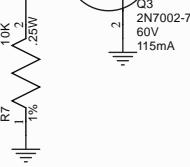
MAX INPUT -15V

73099-0
1000V 24A

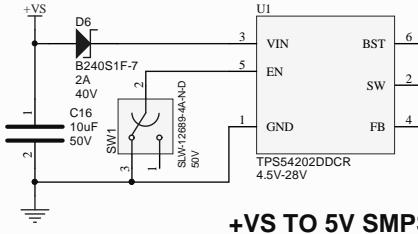
J3 -NEG 1
73099-2
1000V 24A

J4 +POS 1
GND

MAIN PWR EN



BYPASS CAPS



+VS TO 5V SMPS

NOTES:

SW1 SHOWS 5V PWR IN THE OFF POSITION

SMP5 5V AT 1000mA ESTIMATED LOAD

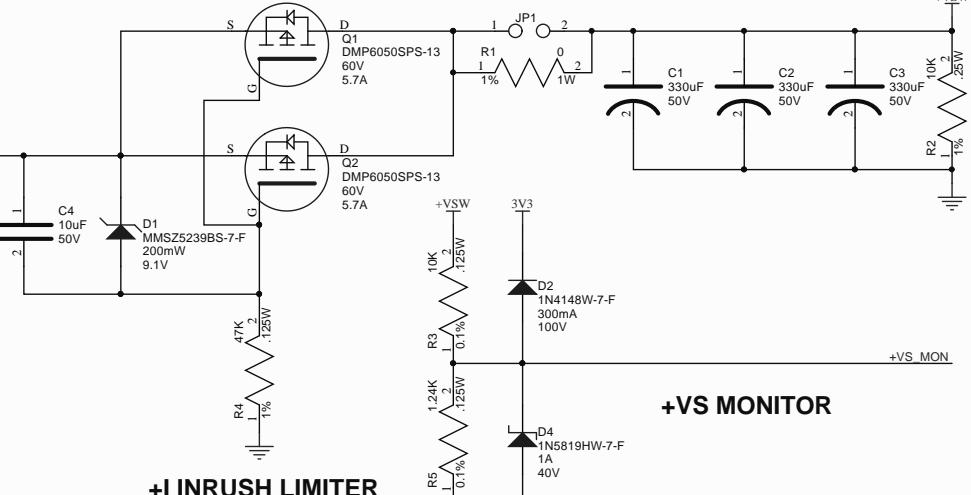
JPX, TPX FOR PROTOTYPE TESTING ONLY

MAX INPUT ON POWER BANANA CONNECTOR PAIRS IS $\pm 15V$

INPUT POWER MUST BE FROM ISOLATED POWER SUPPLY

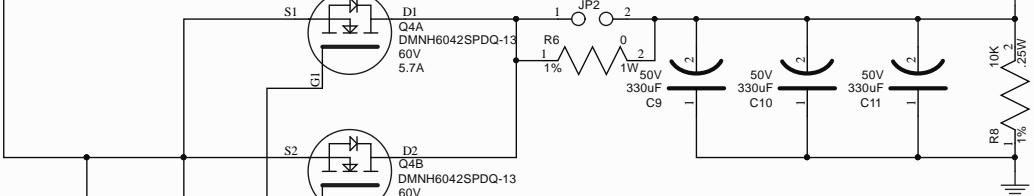
INPUT RATIO OF $\pm V_{MON}$ IS 0.110V, MAX INPUT OF 30V

MAIN SWITCH

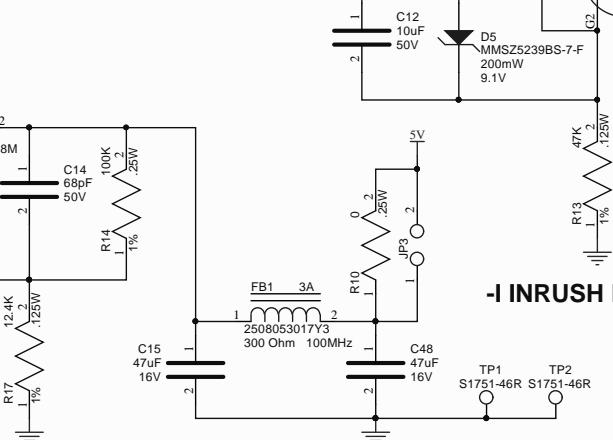


+VS MONITOR

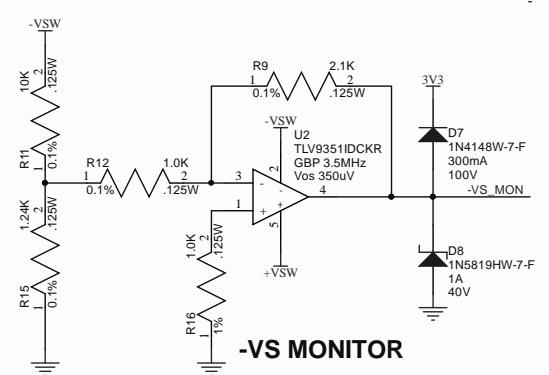
+I INRUSH LIMITER



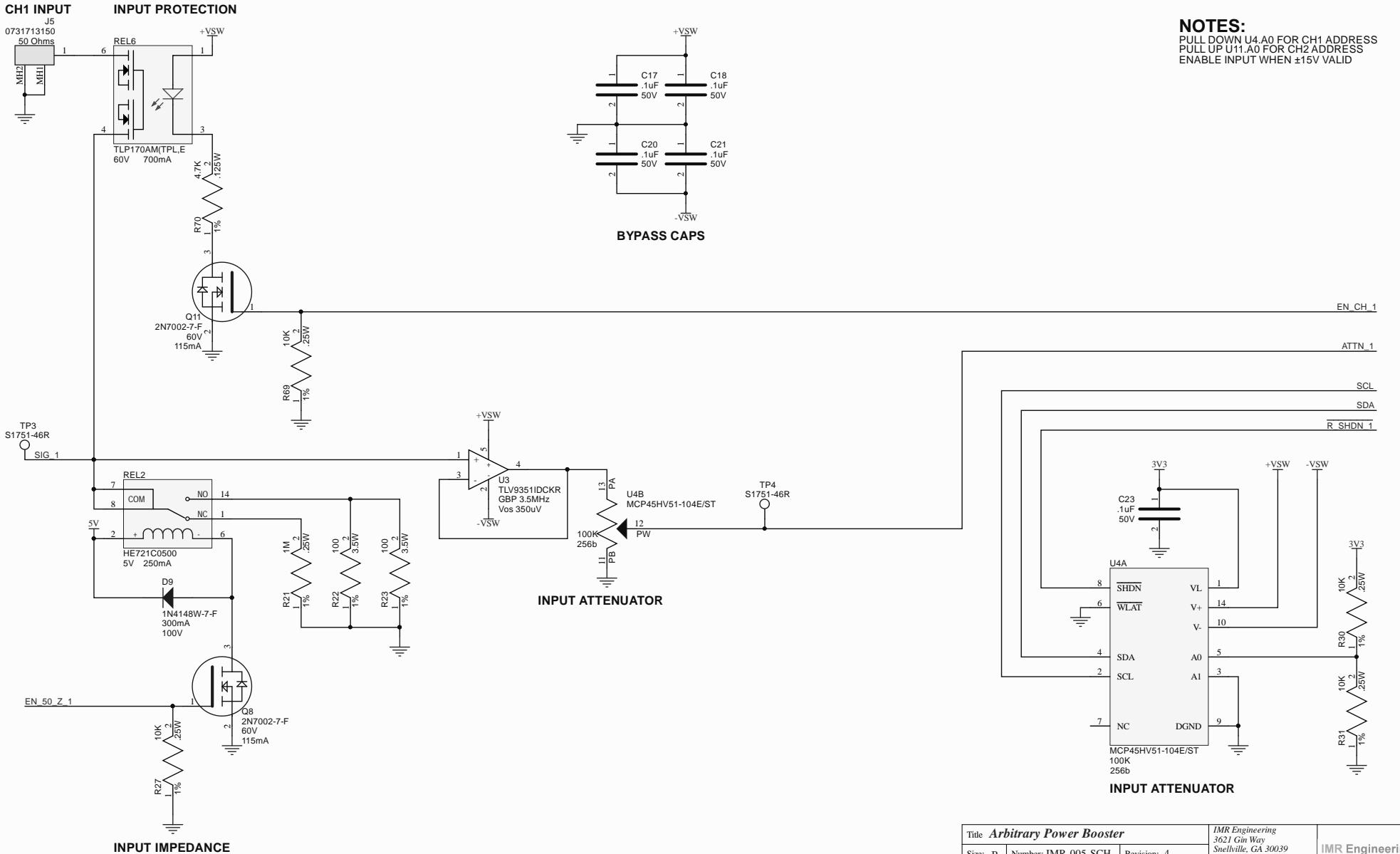
-I INRUSH LIMITER



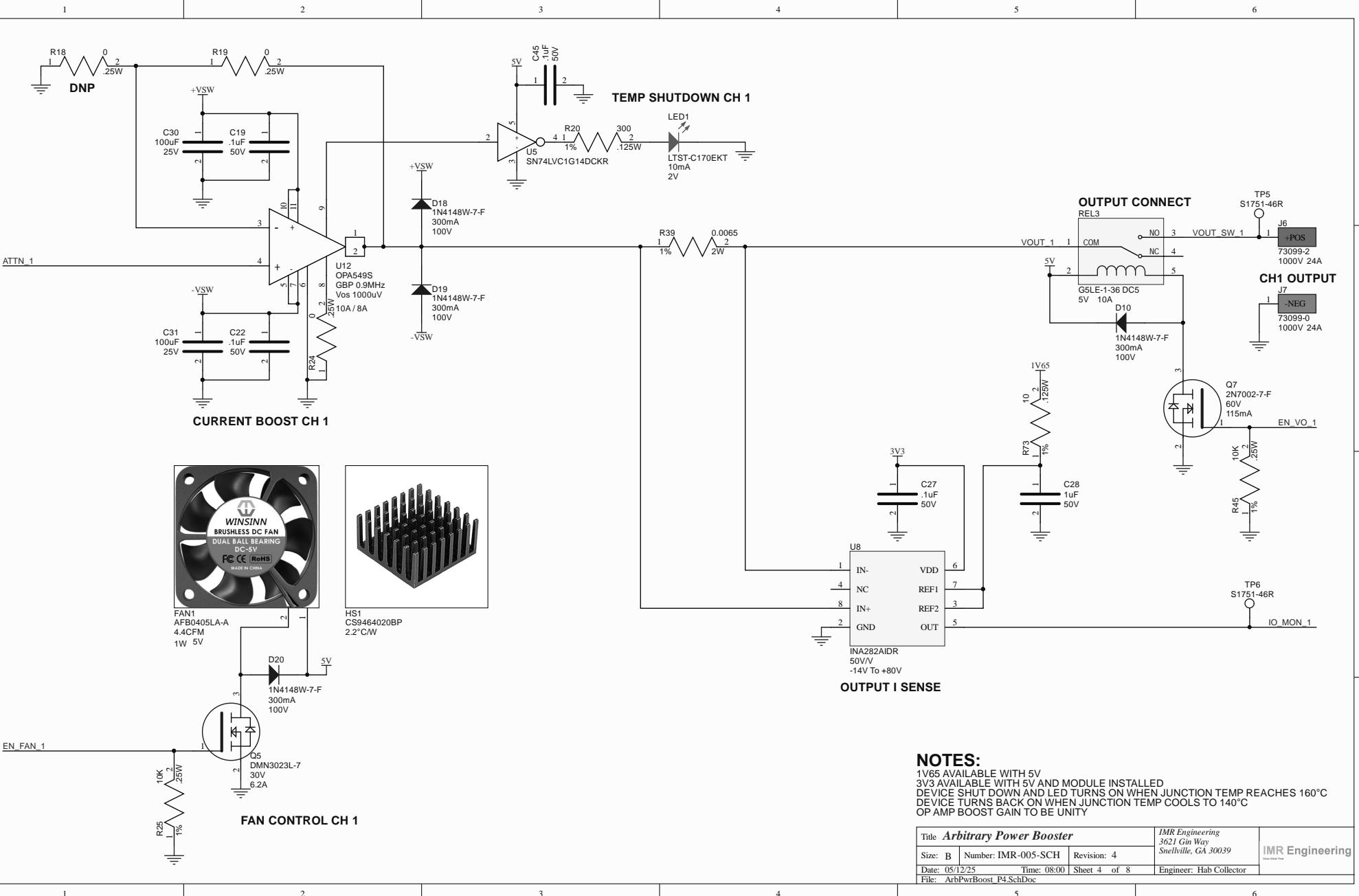
-VS MONITOR



Title: Arbitrary Power Booster	IMR Engineering 3621 Gin Way Sneads GA, 30039
Size: B Number: IMR-005-SCH	Revision: 4
Date: 05/12/25 Time: 08:00	Sheet 2 of 8
File: ArbPwrBoost_P2.SchDoc	Engineer: Hab S Collector



Title Arbitrary Power Booster			IMR Engineering 3621 Gin Way Snellville, GA 30039
Size: B	Number: IMR-005-SCH	Revision: 4	IMR Engineering
Date: 05/12/25	Time: 08:00	Sheet 3 of 8	Engineer: Hab Collector
File: ArbPwrBoost_P3.SchDoc			Owner/Role



A

A

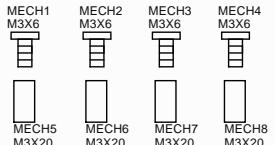
B

B

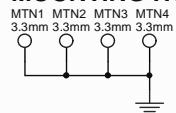
C

C

MOUNTING HARDWARE



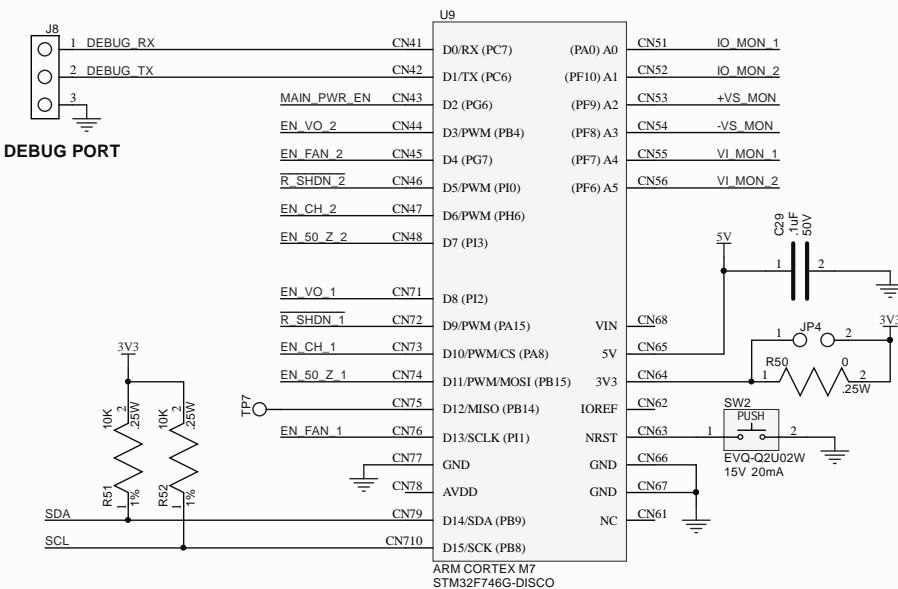
MOUNTING HOLES



MODULE HARDWARE



1



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 ESTIMATED < 10 OHMS - OP AMP OUTPUT
 INPUT IMPEDANCE VI_MON_1 1.2K OHM
 INPUT IMPEDANCE VI_MON_2 2.3K OHM

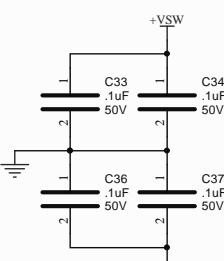
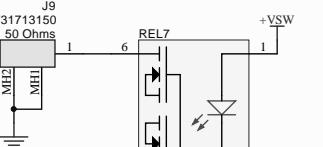
NOTES:

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

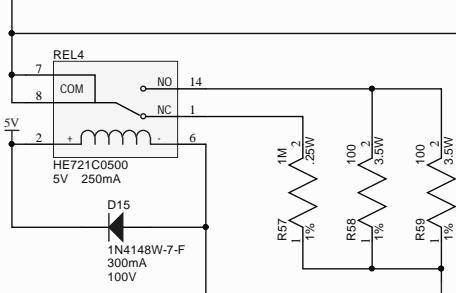
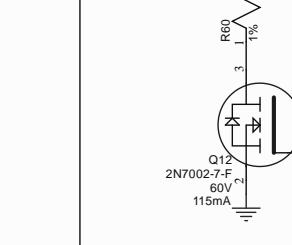
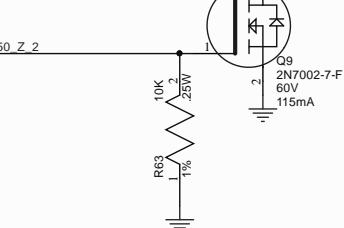
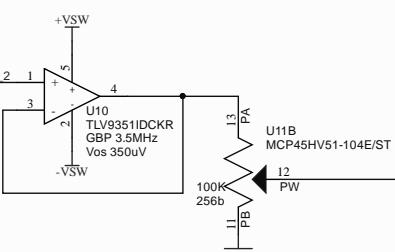
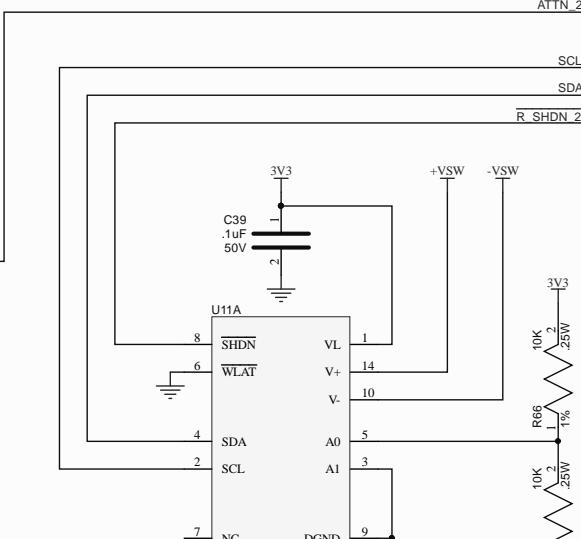
Title: Arbitrary Power Booster	IMR Engineering 3621 Gin Way Snellville, GA 30039	IMR Engineering
Size: B	Number: IMR-005-SCH	Revision: 4
Date: 05/12/25	Time: 08:00	Sheet 5 of 8
File: ArbPwrBoost_P5.SchDoc		Engineer: Hab Collector

5

6

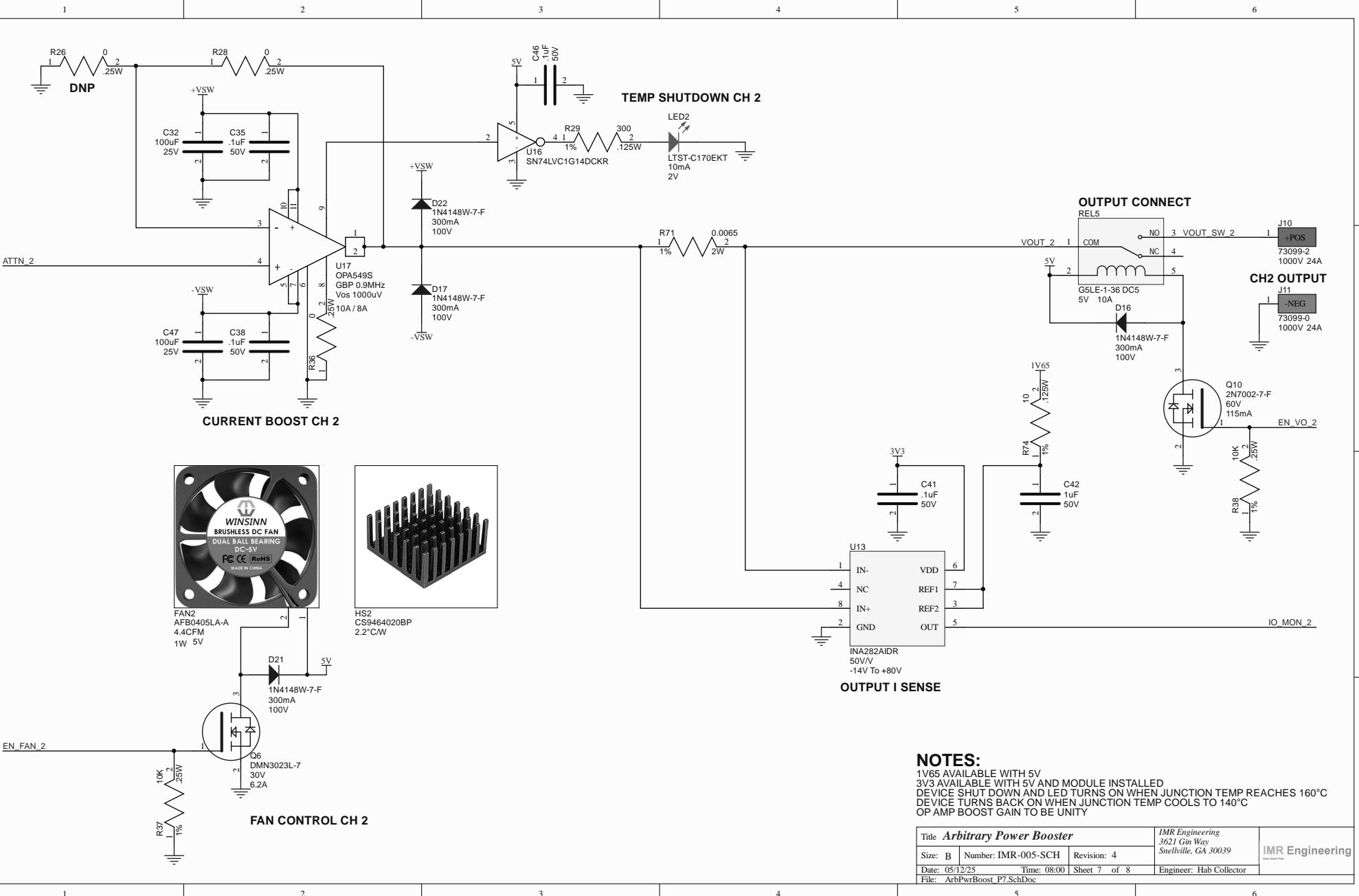
CH2 INPUT**INPUT PROTECTION****NOTES:**

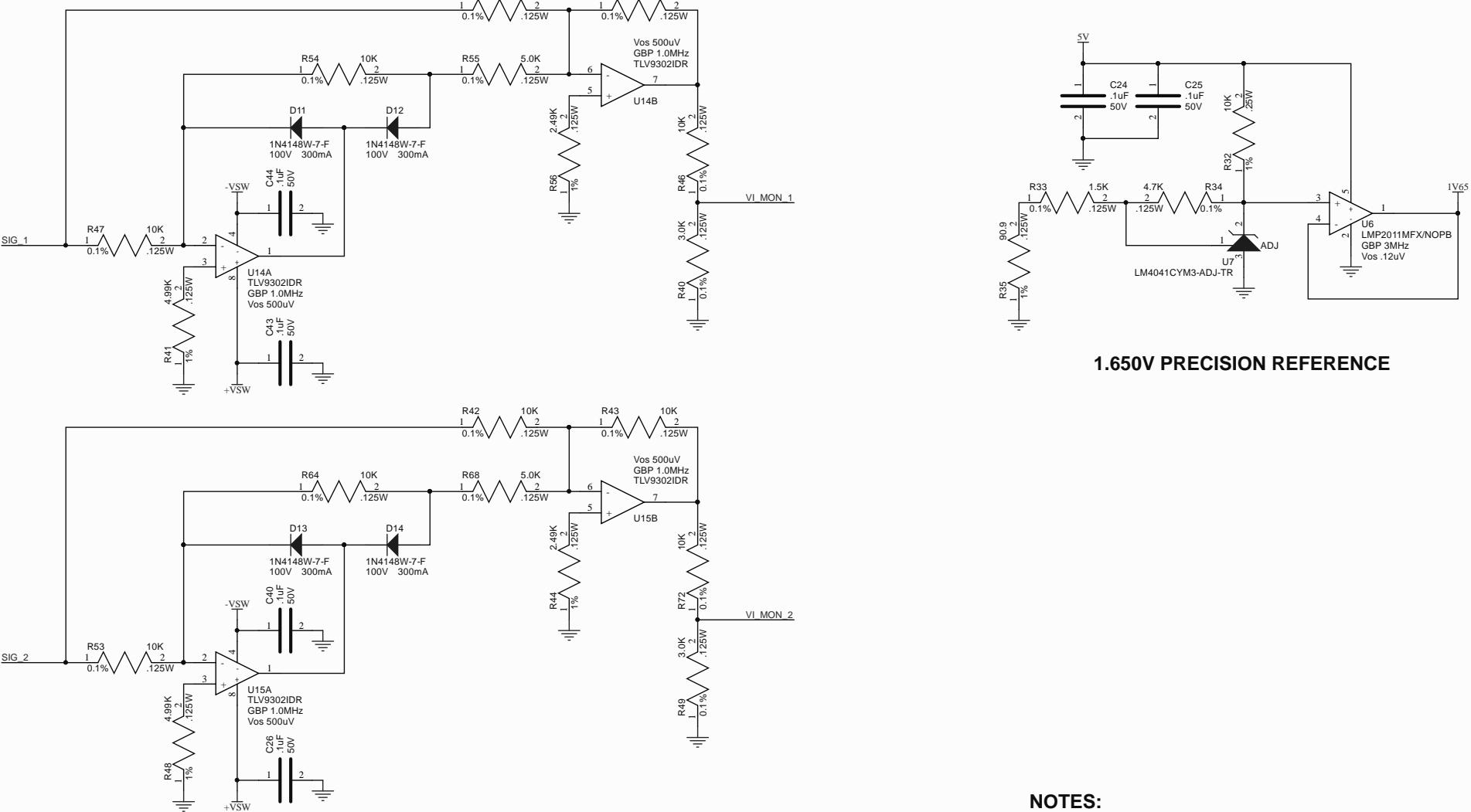
PULL DOWN U4.A0 FOR CH1 ADDRESS
PULL UP U11.A0 FOR CH2 ADDRESS
ENABLE INPUT WHEN $\pm 15V$ VALID

**INPUT ATTENUATOR****INPUT IMPEDANCE****INPUT ATTENUATOR**

Title Arbitrary Power Booster			<i>IMR Engineering</i>
Size: B	Number: IMR-005-SCH	Revision: 4	<i>3621 Gin Way</i>
Date: 05/12/25	Time: 08:00	Sheet 6 of 8	<i>Snellville, GA 30039</i>
File: ArbPwrBoost_P6.SchDoc			<i>Engineer: Hab Collector</i>

IMR Engineering





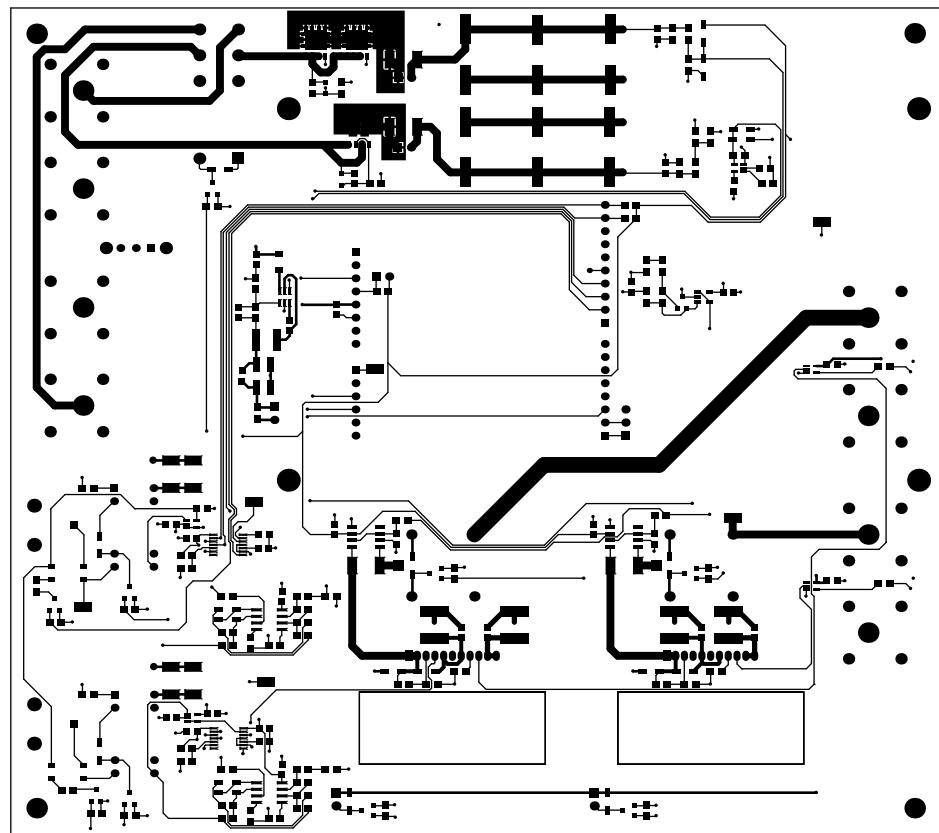
1.650V PRECISION REFERENCE

NOTES:

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

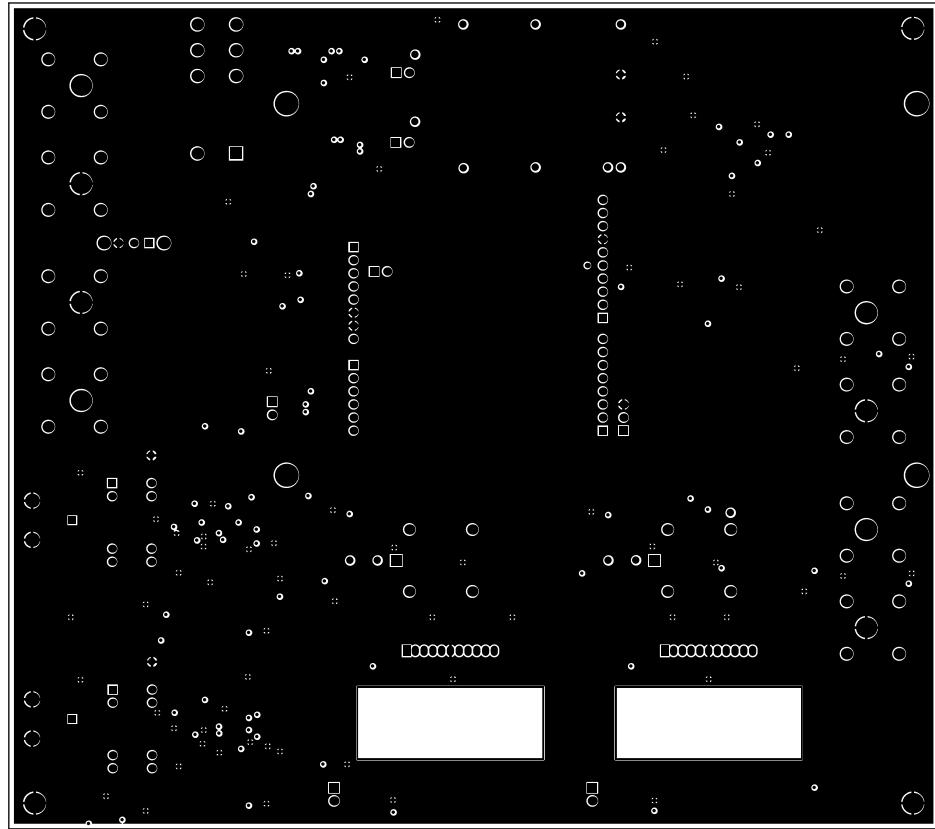
Title Arbitrary Power Booster			IMR Engineering
Size: B	Number: IMR-005-SCH	Revision: 4	3621 Ginn Way Sneadville, GA 30039
Date: 05/12/25	Time: 08:00	Sheet 8 of 8	Engineer: Hab Collector
File: ArbPwrBoost_P8.SchDoc			IMR Engineering

ABSOLUTE VALUE DIVIDER



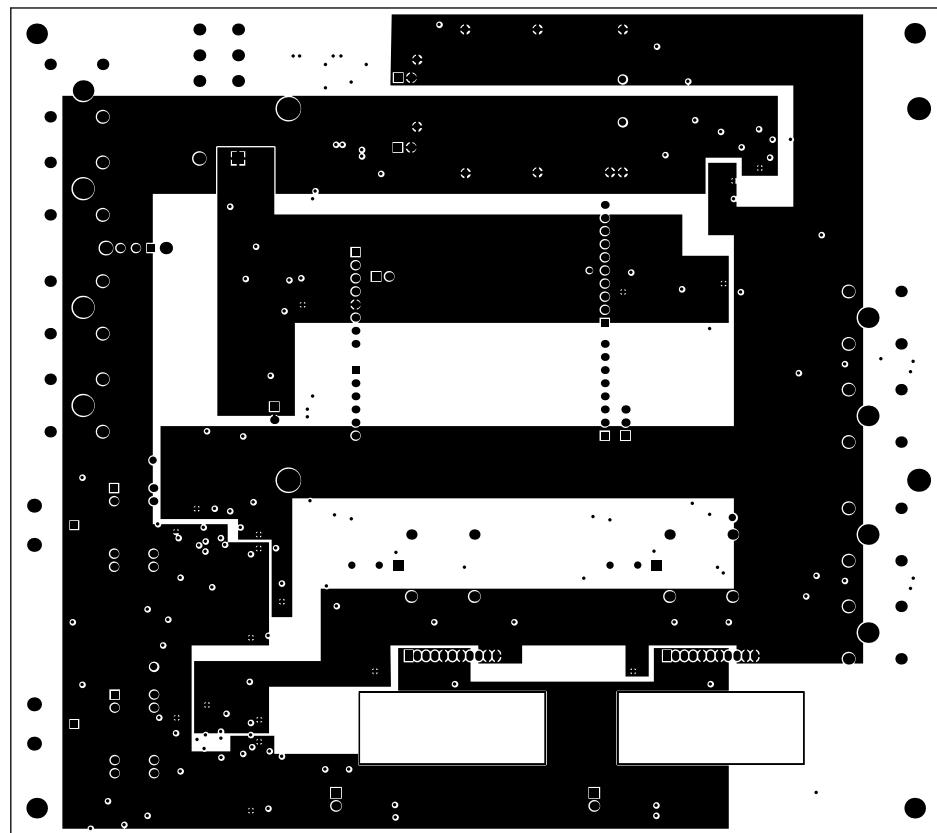
TOP

BOARD OUTLINE

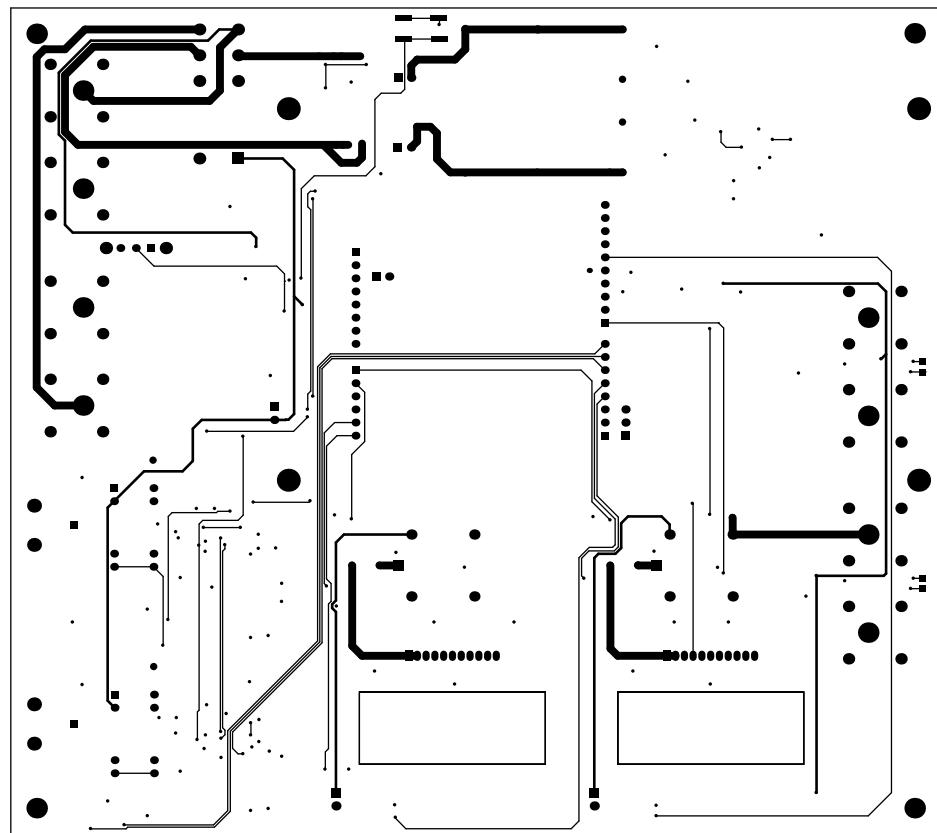


SIGNAL LAYER 1

BOARD OUTLINE

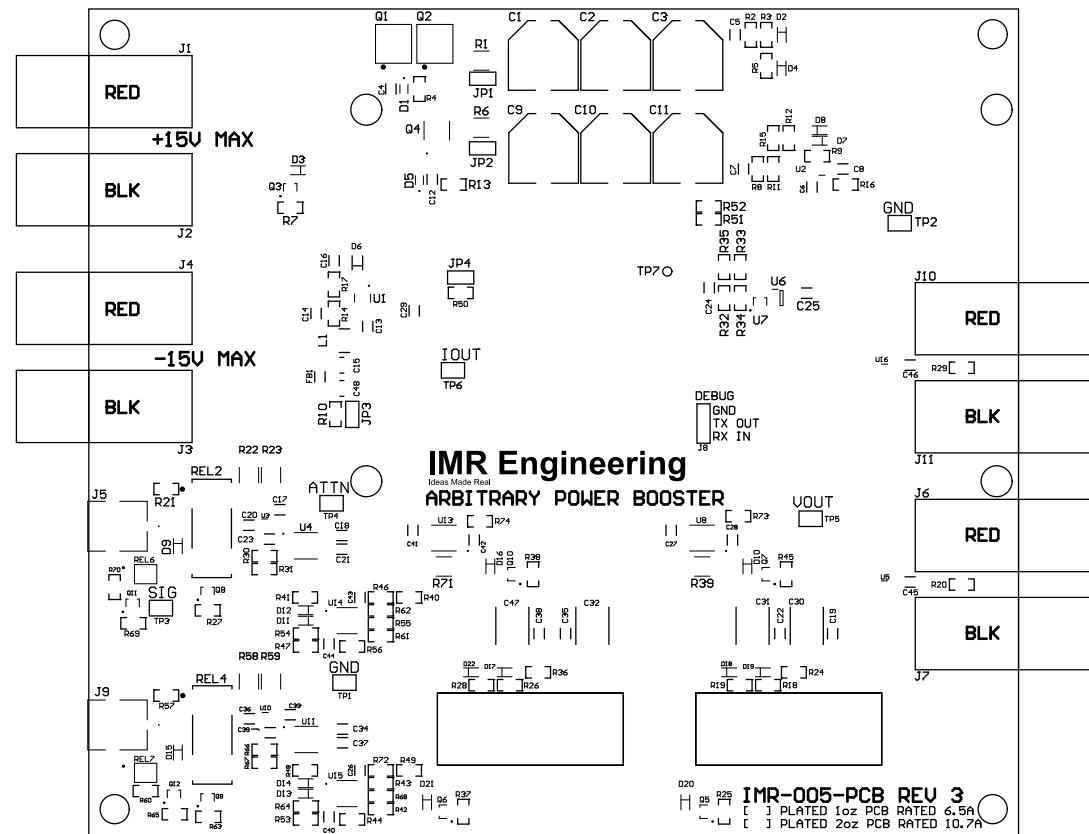


SIGNAL LAYER 2
BOARD OUTLINE



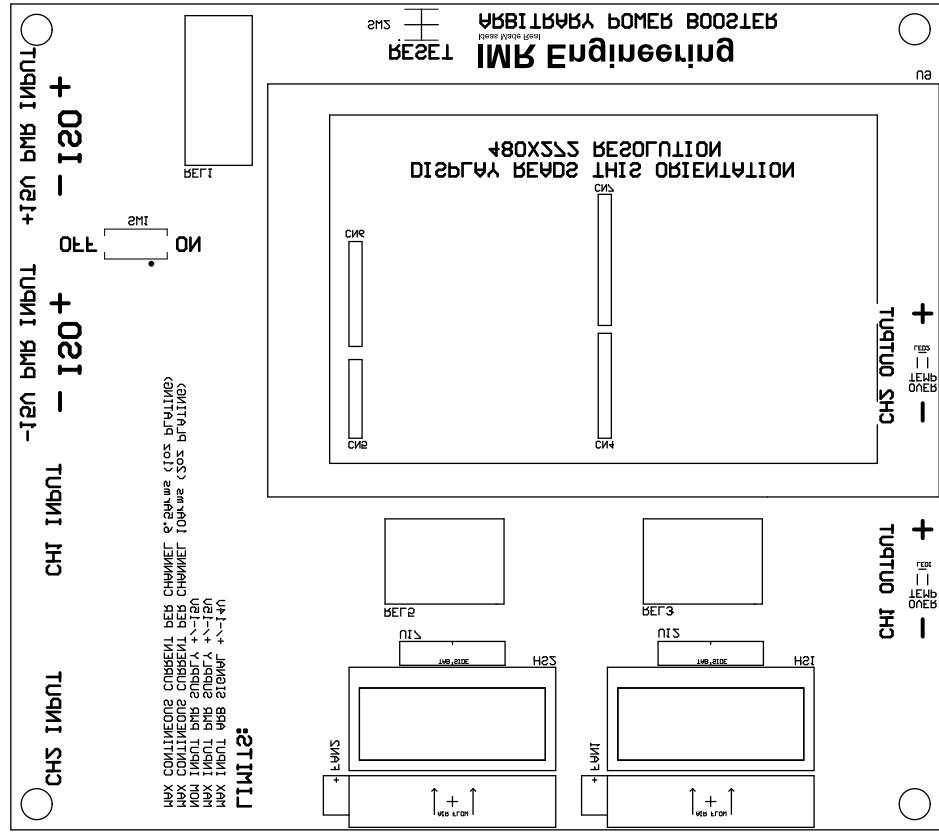
BOTTOM

BOARD OUTLINE



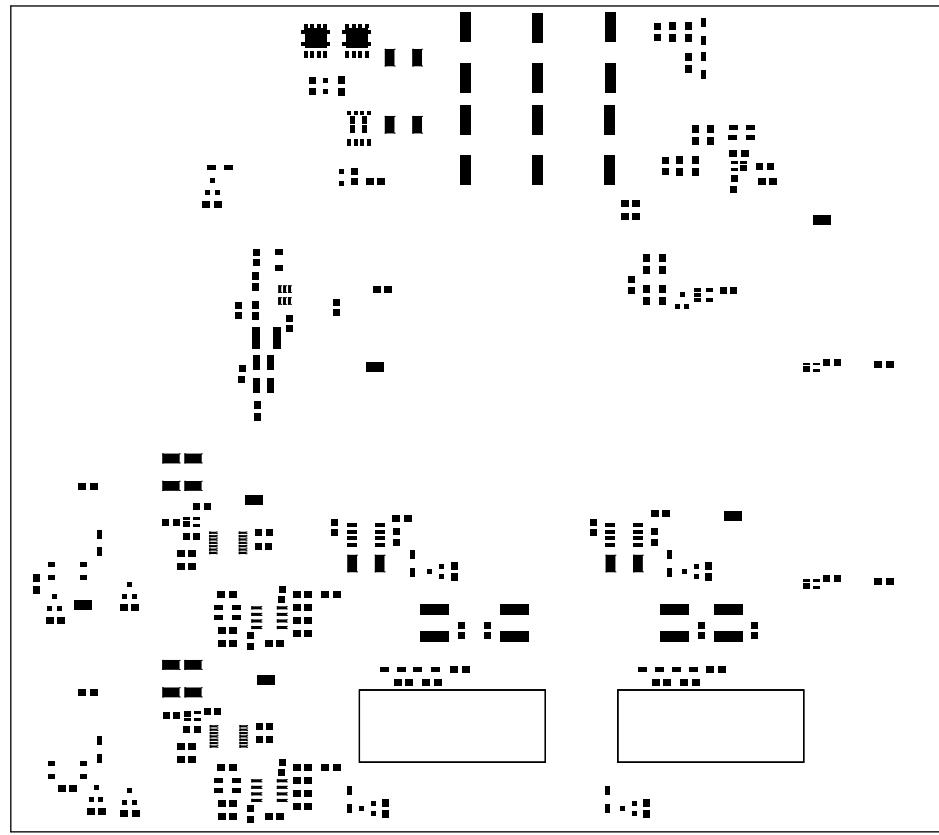
BOARD OUTLINE

TOP SILK



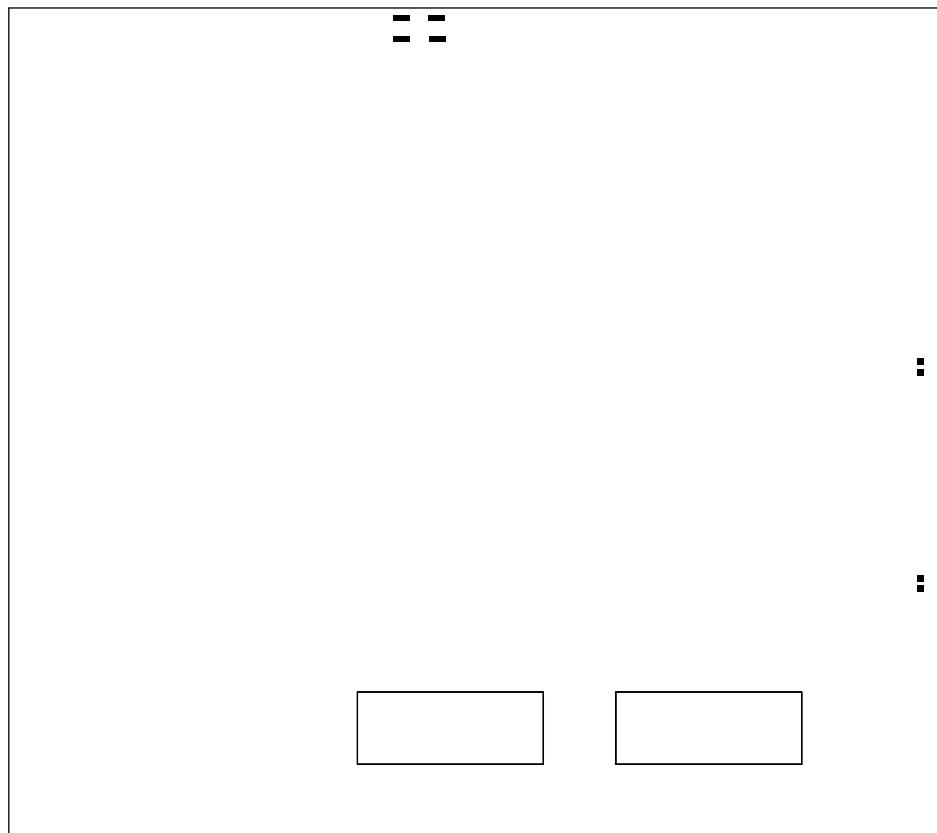
BOTTOM SILK

BOARD OUTLINE



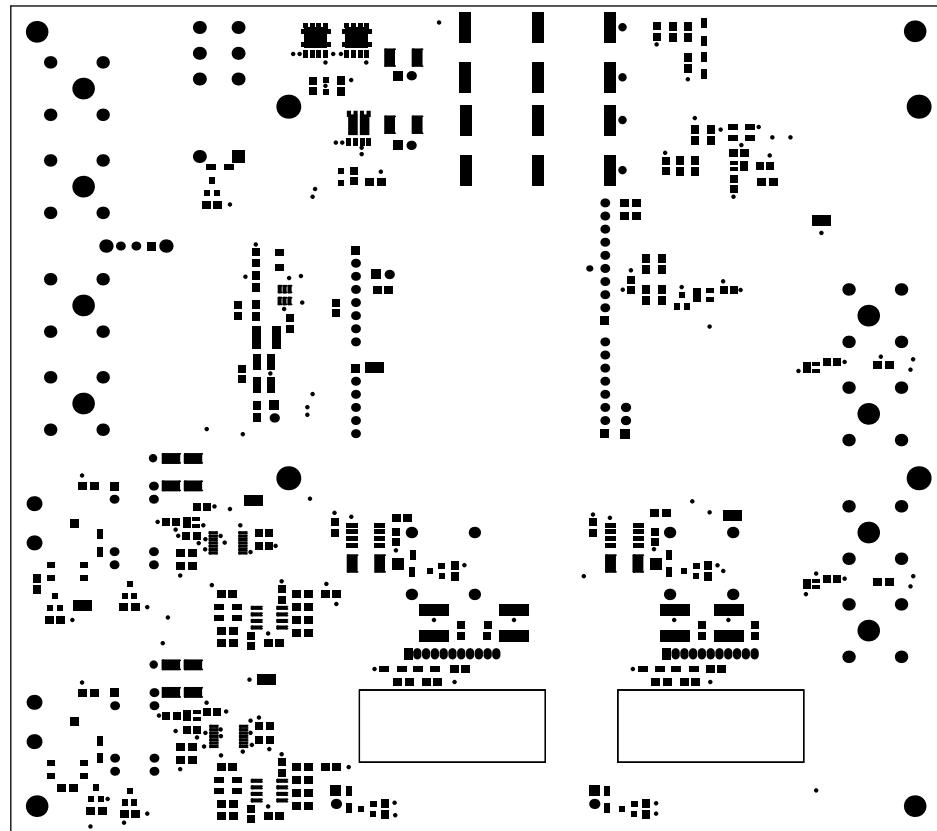
TOP PM

BOARD OUTLINE



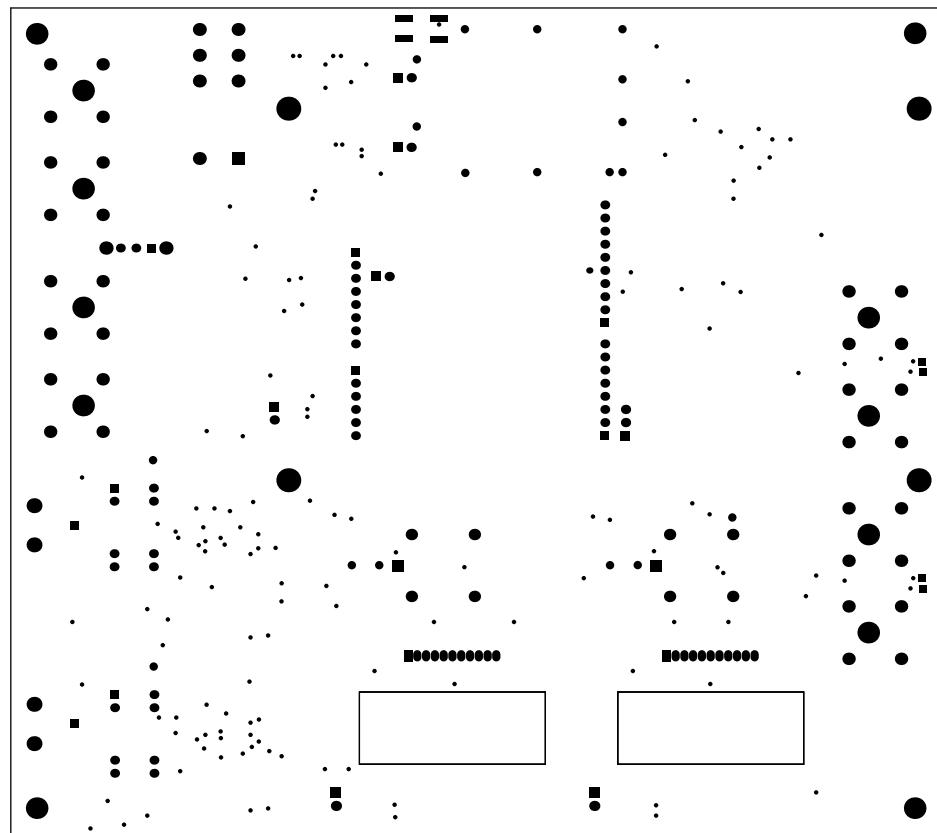
BOTTOM PM

BOARD OUTLINE



TOP SM

BOARD OUTLINE



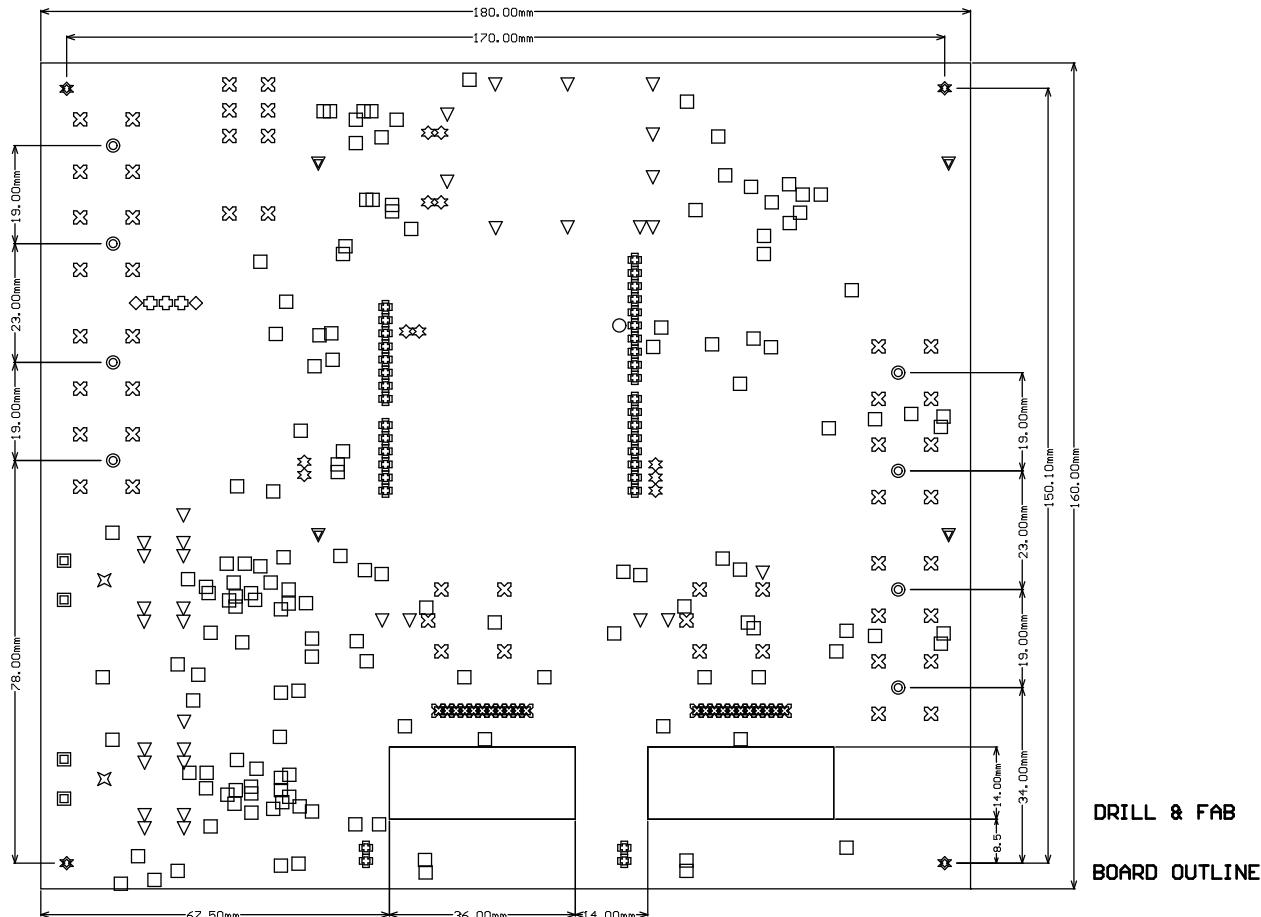
BOTTOM SM

BOARD OUTLINE

Symbol	Hit Count	Finished Hole Size	Plated	Hole Type
○	1	0.508mm (20.00mil)	PTH	Round
×	2	0.920mm (36.22mil)	PTH	Round
◊	2	1.590mm (62.00mil)	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 (86.41mil)	PTH	Round
◊	11	0.900mm (35.43mil)	PTH	Round
×	22	1.200mm (47.24mil)	PTH	Round
▼	34	0.762mm (30.00mil)	PTH	Round
●	36	0.889mm (35.00mil)	PTH	Round
■	50	1.300mm (51.18mil)	PTH	Round
□	146	0.381mm (15.00mil)	PTH	Round
		327 Total		

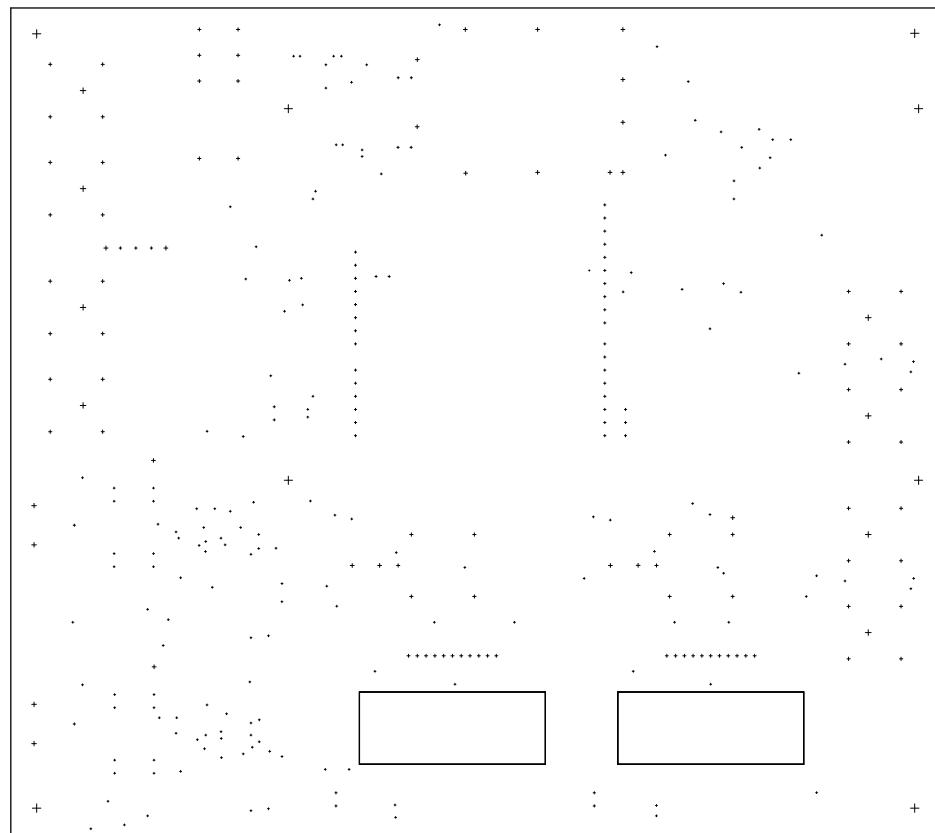
LAYER STACK:
 Top Layer
 Signal Layer 1
 Signal Layer 2
 Bottom Layer

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

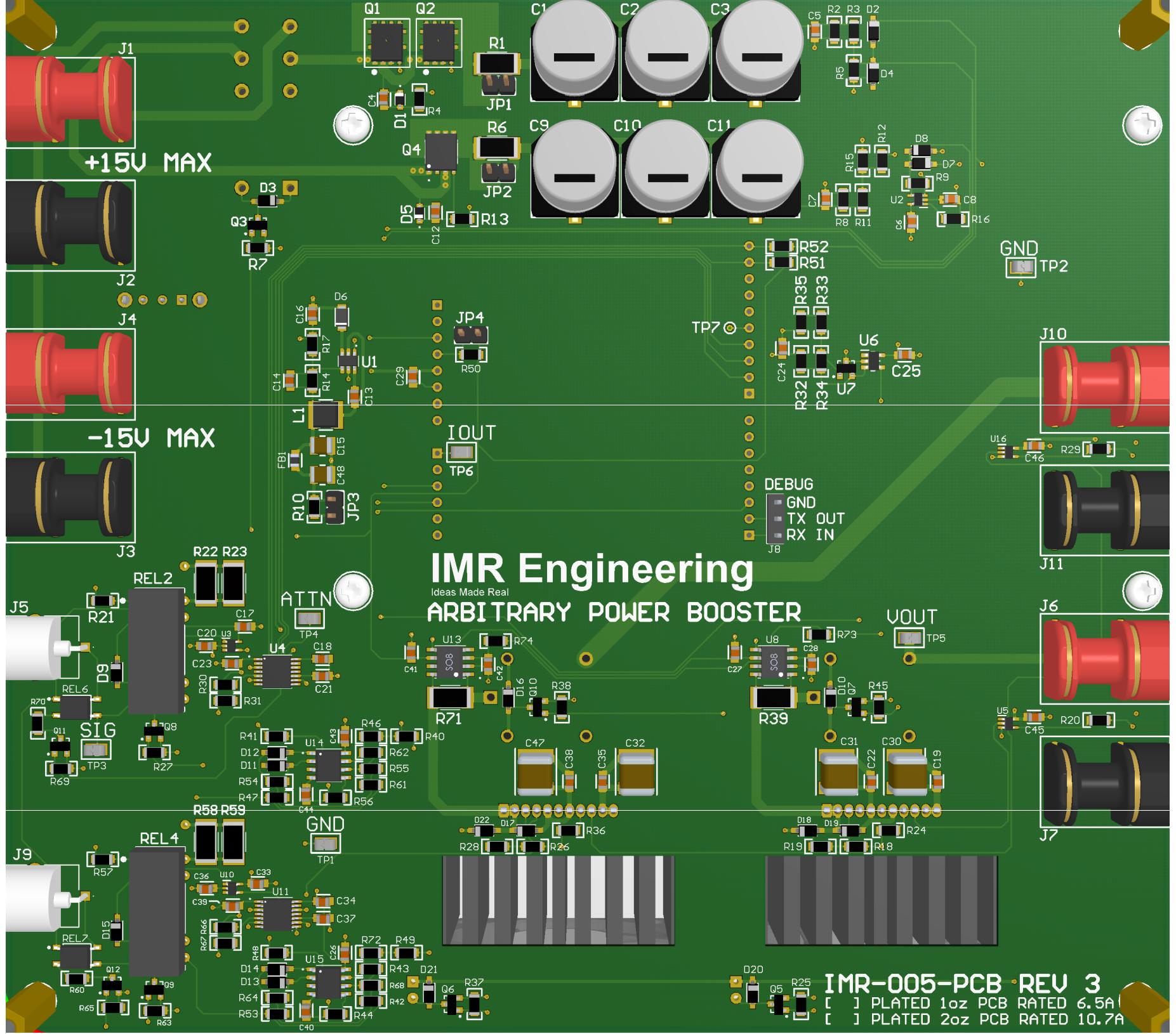


PCB FABRICATION NOTES:

- MATERIAL:
 FR4 (GF per MIL-P-13949) MIN UL 94V0
- Cu WEIGHT:
 OUTER LAYER: 1oz or 2oz PER (PO TO CLARIFY)
 INNER LAYER: 1oz
- 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



BOARD OUTLINE



PROTOTYPE BOM

Arbitrary Power Booster

Source Data From: Arb_Power_Booster.PjrPcb
 Project: Arb_Power_Booster.PjrPcb
 Variant: None

Company Part Number: IMR-005-SCH
 PCB Revision: 4
 Engineer: Hab S Collector

Report Date: 5/29/2025
 Print Date: 29-May-25

8:59:08 AM

9:00:00 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 AALE 330UF 20% 50V SMD	C1, C2, C3, C9, C10, C11	EEV-FK1H31Q	Panasonic Electronic	DigiKey	PCE475CT-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, C29, C33, C34, C35, C36, C37, C38, C39, C40, C41, C43, C44, C45, C46	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	OJ805C080K5RACAUTO	DigiKey	399-C0805C080K5RACAUTOCT-ND	.24	\$0.24
5	2	CAP_SMD_47UF_16V_1210	CAP CER 47UF 50V X6R 1210	C15, C48	Murata Electronics	GRM32ER04J76ME20L	DigiKey	490-18871-ND	.28	\$0.56
6	2	CAP_SMD_1UF_50V_0805	CAP CER 1UF 50V X7R 0805	C28, C42	KYOCERA AVX	08055C105K4T2A	DigiKey	478-KAM21KR71H105KUCT-ND	.27	\$0.54
7	4	CAP_SMD_100UF_25V_SMD	CAP CER 100UF 25V X7S SMD	C30, C31, C32, C47	Murata Electronics	KCM55WC71E107MH13L	DigiKey	490-KCM55WC71E107MH13L	5.68	\$22.72
8	2	DIODE_ZENER_MMSZ5239BS-7-F	DIODE ZENER 9.1V 200MW SOO323	D1, D5	Diods Inc	MMSZ5239BS-7-F	DigiKey	MMSZ5239BS-FDICT-ND	.18	\$0.36
9	17	DIODE_1N4148W-7-F	RELAY REED SPDT 250mA 5V	D2, D3, D7, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20,	Diods Inc	1N4148W-7-F	DigiKey	1N4148W-FDICT-ND	.16	\$2.72
10	2	DIODE_SCHOTTKY_B240S1F-7	DIODE SCHOTTKY 40V 1A SOD123	D4, D8	Diods Inc	1N5819HW-7-F	DigiKey	1N5819HW-FDICT-ND	.25	\$0.50
11	1	DIODE_SCHOTTKY_B240S1F-7	DIODE SCHOTTKY 40V 2A SOD123F	D6	Diods Inc	B240S1F-7	DigiKey	B240S1F-7DICT-ND	.25	\$0.25
12	2	FAN_AFB0405LA-A	FAN AXIAL 40X10MM(BALL) 5V DC WIRE	FAN1, FAN2	Delta Electronics	AFB0405LA-A	DigiKey	603-2014-ND	7.31	\$14.62
13	1	FERRITE_25080503017Y3	FERRITE BEAD 300 OHM 0.005 ILN	FB1	Fair-Rite	25080503017Y3	DigiKey	1934-1474-1-ND	.10	\$0.10
14	2	HEATSSINK_CSA464020BP	Heat Sink Aluminum Top Mount	HS1, HS2	Cooling Source	CS4964020BP	DigiKey	4165-CS4964020BP-ND	3.41	\$6.82
15	4	CONN_PANAMA_73099-2	CONN 4mm Banana Socket Right Angle PCB RED	J1, J4, J6, J10	Romona	73099-2	DigiKey	501-73099-2-ND	10.39	\$41.56
16	4	CONN_PANAMA_73099-0	CONN 4mm Banana Socket Right Angle PCB BLK	J2, J3, J7, J11	Romona	73099-0	DigiKey	501-73099-0-ND	10.39	\$41.56
17	2	CONN_MOLEX_731713150	CONN BNC RPT/R/A 50 OHM PCB	J5, J9	Molex	0731713150	Digi-Key	WM20430-ND	1.40	\$2.80
18	1	CONN_HEADER_3P_100ML_VERT	CONN HEADER VERT 3POS 2.54MM	J8	Sullins Connector Solutions	PREC003SFAN-RC	Digi-Key	S1212EC-03-ND	.07	\$0.07
19	4	CONN_JUMPER_2P_100ML_VERT	CONN HEADER VERT 2POS 2.54MM	JP1, JP2, JP3, JP4	Sullins Connector Solutions	PREC002SFAN-RC	Digi-Key	S1212EC-02-ND	.07	\$0.28
20	1	INDUCTOR_SRR4018A-6R8M	FIXED IND 6.8UH 1.7A 98 MOHM SMD	L1	Bourns Inc.	SRN4018A-6R8M	DigiKey	SRN4018A-6R8MCT-ND	.48	\$0.48
21	2	LED_RED_LTST-C170EK7	LED RED CLEAR SMD	LED1, LED2	Diods Inc	LTST-C170EK7	DigiKey	160-1178-1-ND	.18	\$0.36
22	8	Mechanical_Screw_M3X6_PAN_HEAD	SCREW M3X6 PAN HEAD SS	MECH1, MECH2, MECH3, MECH4, MECH5, MECH10, MECH11, MECH12	APM Hexseal	RM3X6MM 2701	DigiKey	335-1156-ND	.58	\$4.64
23	4	Mechanical_STANDOFF_M3X20	HEX STANDOFF M3 BRASS 20MM	MECH5, MECH6, MECH7, MECH8	Keystone Electronics	24407	DigiKey	36-24407-ND	1.36	\$5.44
24	2	MOSFET_P-CH_DMP6050SPS-13	MOSFET P-CH 60V 5.7A PWRD6060-8	G1, Q2	Diodes Inc	DMP6050SPS-13	DigiKey	DMP6050SPS-13DICT-ND	1.07	\$2.14
25	7	MOSFET_N-CH_2N7002-7-F	MOSFET N-CH 60V 115MA SOT23-3	Q3, Q7, Q8, Q9, Q10, Q11, Q12	Diodes Inc	2N7002-7-F	DigiKey	2N7002-FDICT-ND	.20	\$1.40
26	1	MOSFET_N-CH_DMNH6042SPDQ-13	MOSFET N-CH 60V 5.7A POWERDI	Q4	Diodes Inc	DMNH6042SPDQ-13	DigiKey	DMNH6042SPDQ-13DICT-ND	1.36	\$1.36
27	2	MOSFET_N-CH_DMN3023L-7	MOSFET N-CH 30V 6.2A SOT23-3	Q5, Q6	Diodes Inc	DMN3023L-7	DigiKey	DMN3023L-7DICT-ND	.48	\$0.96
28	2	RES_SMD_0.2512_1W_1%	RES SMD 0.2512 1W 1%	R1, R6	Yageo	RC2512JK-070RL	DigiKey	YAG1232CT-ND	.2	\$0.40
29	18	RES_SMD_10K_0.805_1.4W_1%	RES SMD 10K OHM 1% 1.4W 0805	R2, R7, R8, R25, R27, R30, R31, R32, R37, R38, R45, R51, R52, R63, R65, R66, R67, R69	Yageo	RC0805FR-7W10KL	DigiKey	13-RC0805FR-7W10KLCT-ND	.10	\$1.80
30	12	RES_SMD_10K_0.805_1.8W_0.1%	RES SMD 10K OHM 0.1% 1.8W 0805	R3, R11, R14, R42, R43, R46, R47, R53, R54, R61, R62, R64, R72	Yageo	RP0805BRD070KL	DigiKey	13-RC0805FR-1347KLCT-ND	.16	\$1.92
31	2	RES_SMD_47K_0.805_1.8W_1%	RES SMD 47K OHM 1% 1.8W 0805	R4, R13	Yageo	RC0805FR-1347KL	DigiKey	13-RC0805FR-1347KLCT-ND	.1	\$0.20
32	2	RES_SMD_1.24K_0.805_1.8W_0.1%	RES SMD 1.24K OHM 0.1% 1.8W 0805	R5, R15	Yageo	RT0805BRD071K24L	DigiKey	YAG1809CT-ND	.16	\$0.32
33	1	RES_SMD_2.1K_0.805_1.8W_0.1%	RES SMD 2.1K OHM 0.1% 1.8W 0805	R9	Yageo	RT0805BRD072K1L	DigiKey	YAG1852CT-ND	.16	\$0.16
34	8	RES_SMD_0.805_1.8W_1%	RES SMD 0.805 1.8W 0805	R10, R18, R19, R24, R26, R28, R36, R50	Yageo	RC0805JR-070RL	DigiKey	311-0.0ARCT-ND	.1	\$0.80
35	1	RES_SMD_1.0K_0.805_1.8W_0.1%	RES SMD 1.0K OHM 0.1% 1.8W 0805	R12	Yageo	RT0805BRD071KL	DigiKey	YAG1820CT-ND	.16	\$0.16
36	1	RES_SMD_100K_0.805_1.4W_1%	RES SMD 100K OHM 1% 1.4W 0805	R14	Yageo	RC0805FR-07100KL	DigiKey	311-100KCRCT-ND	.13	\$0.13
37	1	RES_SMD_1.0K_0.805_1.8W_1%	RES SMD 1.0K OHM 1% 1.8W 0805	R16	Yageo	RC0805FR-071KL	DigiKey	311-1.00KCRCT-ND	.1	\$0.10
38	1	RES_SMD_12.4K_0.805_1.8W_1%	RES SMD 12.4K OHM 1% 1.8W 0805	R17	Yageo	RC0805FR-0712K4L	DigiKey	311-12.4KCRCT-ND	.10	\$0.10
39	2	RES_SMD_300_0.805_1.8W_1%	RES SMD 300 OHM 1% 1.8W 0805	R20, R29	Yageo	RC0805FR-07300RL	DigiKey	311-300CRCT-ND	.1	\$0.20
40	2	RES_SMD_1M_0.805_1.4W_1%	RES SMD 1M OHM 1% 1.4W 0805	R21, R57	Yageo	RC0805FR-7W11ML	DigiKey	13-RC0805FR-7W11MLCT-ND	.10	\$0.20
41	4	RES_SMD_100_0.805_3.5W_1%	RES SMD 100 OHM 1% 3.5W 2512	R22, R23, R56, R59	Omnite	ALN2512F100RE-1	DigiKey	273-ALN2512F100RE-1CT-ND	1.50	\$6.00
42	1	RES_SMD_1.5K_0.805_1.8W_0.1%	RES SMD 1.5K OHM 0.1% 1.8W 0805	R33	Yageo	RT0805BRD071K5L	DigiKey	YAG1814CT-ND	.16	\$0.16
43	1	RES_SMD_4.7K_0.805_1.8W_0.1%	RES SMD 4.7K OHM 0.1% 1.8W 0805	R34	Yageo	RT0805BRD074KL7	DigiKey	YAG1919CT-ND	.16	\$0.16
44	1	RES_SMD_9.0_0.805_1.8W_1%	RES SMD 9.0 OHM 1% 1.8W 0805	R35	Yageo	RC0805FR-07909RL	DigiKey	311-9.0CRCT-ND	.1	\$0.10
45	2	RES_SMD_0.065_2512_2W_1%	RES SMD 0.065 0.065 1W 2.512	R39, R71	Vishay Dale	WLS2512L6500FE1A18	DigiKey	541-WLS2512L6500FE1A18CT-ND	1.76	\$3.52
46	2	RES_SMD_3.0K_0.805_1.8W_0.1%	RES SMD 3.0K OHM 0.1% 1.8W 0805	R40, R49	Yageo	RT0805BRD0703KL	DigiKey	YAG1891CT-ND	.0.16	\$0.32
47	2	RES_SMD_4.99K_0.805_1.8W_1%	RES SMD 4.99K OHM 1% 1.8W 0805	R41, R48	Yageo	RC0805FR-134K99L	DigiKey	13-RC0805FR-134K99LCT-ND	.1	\$0.20
48	2	RES_SMD_2.49K_0.805_1.8W_1%	RES SMD 2.49K OHM 1% 1.8W 0805	R44, R56	Yageo	RC0805FR-132K49L	DigiKey	13-RC0805FR-132K49LCT-ND	.1	\$0.20
49	2	RES_SMD_5.0K_0.805_1.8W_0.1%	RES SMD 5.0K OHM 0.1% 1.8W 0805	R55, R68	Yageo	AT0805BRD075KL	DigiKey	13-AT0805BRD075KLCT-ND	.56	\$1.12
50	2	RES_SMD_4.7K_0.805_1.8W_1%	RES SMD 4.7K OHM 1% 1.8W 0805	R60, R70	Yageo	RC0805FR-134K7L	DigiKey	13-RC0805FR-134K7LCT-ND	.1	\$0.20
51	2	RES_SMD_10_0.805_1.8W_1%	RES SMD 10 OHM 1% 1.8W 0805	R73, R74	Yageo	RC0805FR-1310RL	DigiKey	13-RC0805FR-1310RLCT-ND	.1	\$0.20
52	1	RELAY_AZ733-2A-5DE	RELAY REED SPDT 250mA 5V	REL1	American Zettler	AZ733-2A-5DE	DigiKey	3385-AZ733-2A-5DE-nd	2.18	\$2.18
53	2	RELAY_H271C0500	RELAY REED SPDT 250mA 5V	REL2, REL4	Littlefond	H271C0500	DigiKey	HE112-ND	3.77	\$7.54
54	2	RELAY_G5L6-1-36_DCS	RELAY GEN PURPOSE SPDT 10A 5V	REL3, REL5	Omron	G5L6-1-36 DCS	DigiKey	G5L6-1-36DCS-ND	1.24	\$2.48
55	2	RELAY_TLP170A-MTRLE	SSR RELAY SPT-300MA 12Vdc	REL6, REL7	Toshiba	TLP170A-MTRLE	DigiKey	264-TLP170A-MTRLE-nd	1.33	\$2.66
56	1	SWITCH_SLW-12689-4A-N-D	SWITCH SLIDE SPDT 300mA 5V	SW1	Same Sky	SLW-12689-4A-N-D	DigiKey	2223-SLW-12689-4A-N-D-ND	.48	\$0.48
57	1	SWITCH_EVQ-C2U02W	SWITCH TACTILE SPST-NO 0.02A 15V	SW2	American Zettler	EVQ-C2U02W	DigiKey	P12954ST-ND	.25	\$0.25
58	6	CONN_TEST_POINT_S751-46R	PCB TEST POINT CONNECT	TP1, TP2, TP3, TP4, TP5, TP6	Harwin Inc	S1751-46R	Digi-Key	952-1474-1-ND	.28	\$1.68
59	1	IC_TPS54202DDCR	IC REG BUCK ADJ 2A SOT23	U1	Texas Instruments	TPS54202DDCR	Digi-Key	296-TPS54202DDCRCT-ND	.97	\$0.97
60	3	OPAMP_TLV931DDCR	IC OPAMP GP3.5M 3.5M 350V C70-5	U2, U3, U10	Texas Instruments	TLV931DDCR	Digi-Key	296-TLV931DDCRCT-ND	.49	\$1.47
61	2	IC_MCP45H/51-104EST	IC DGT POT 100KOHM 256P 14TSSOP	U4, U11	Microchip	MCP45H/51-104EST-ND	Digi-Key	MCP45H/51-104EST-ND	2.00	\$4.00
62	2	IC_SN4LV1C6140DDCR	IC INVERT SCHMITT 1CH 11.5C70-5	U5, U16	Texas Instruments	SN74LV1C6140DDCR	Digi-Key	296-11608-1-ND	.10	\$0.20
63	1	OPAMP_LMP2011MXNP0B	IC OPAMP GP3.5M 3.5M 12v CIRCUIT SOT23-5	U6	Texas Instruments	LMP2011MXNP0B	Digi-Key	LMP2011MXNP0BCT-ND	2.33	\$2.33
64	1	IC_LM4041CYB-ADJ-TR	IC VREF SHUNT ADJ 0.5% SOT23-3	U7	Microchip	LM4041CYB-ADJ-TR	Digi-Key	576-1049-1-ND	.39	\$0.39
65	2	ICINA226AIDR	IC CURRENT SENSE 0.4% 50V SOIC-8	U8, U13	Texas Instruments	INA226AIDR	Digi-Key	296-27820-1-ND	4.13	\$8.26
66	1	MODULE_STM62F746G-DISCO	DISCOVERY STM62F746V	U9	ST Microelectronics	STM62F746G-DISCO	Digi-Key	497-15680-5-ND	.57.50	\$57.50
67	2	OPAMP_OPA549S	IC OPAMP POWER 1 CRC 11PVRPAK	U12, U17	Texas Instruments	OPA549S	Digi-Key	OPA549S-ND	26.94	\$53.88
68	2	OPAMP_TLV9302IDR	IC OPAMP GP2 CIRCUIT 8SOIC	U14, U15	Texas Instruments	TLV9302IDR	Digi-Key	296-35313-1-ND	.66	\$1.32

Approved

Notes

Bill of Cost (Unit Buy):

\$31.04