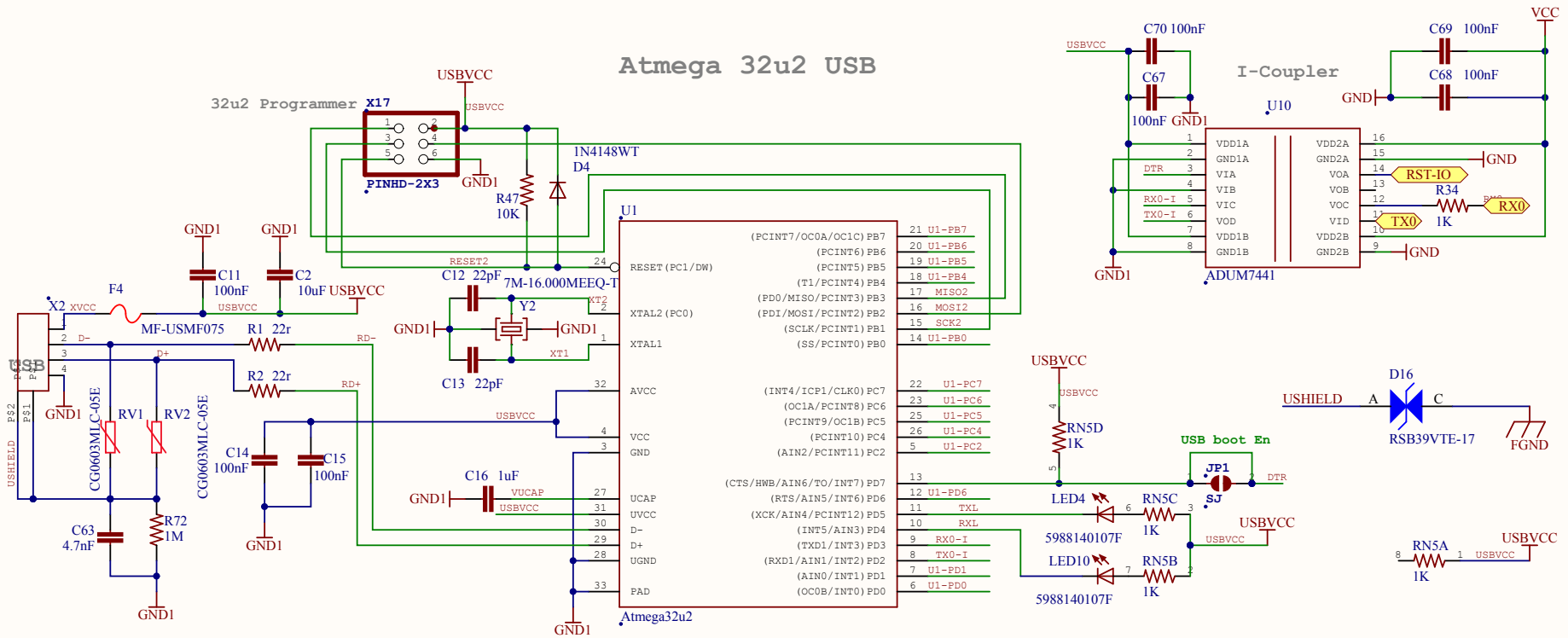


# USB to Serial

## Atmega 32u2 USB



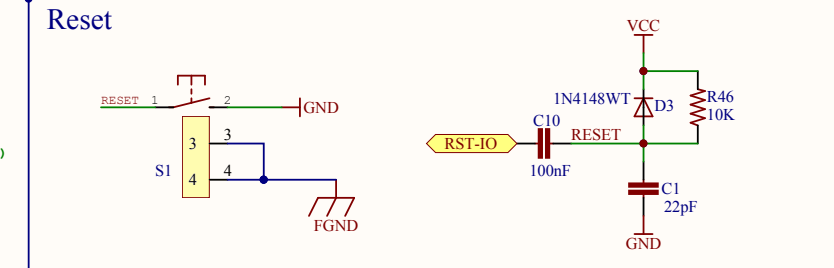
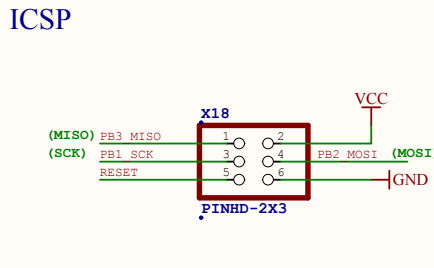
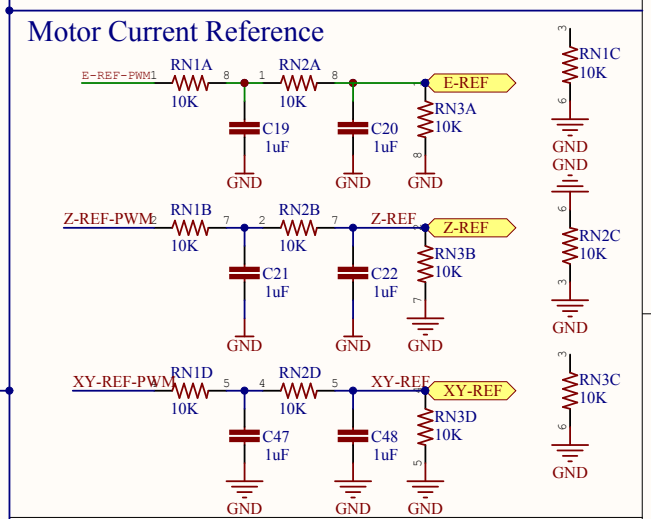
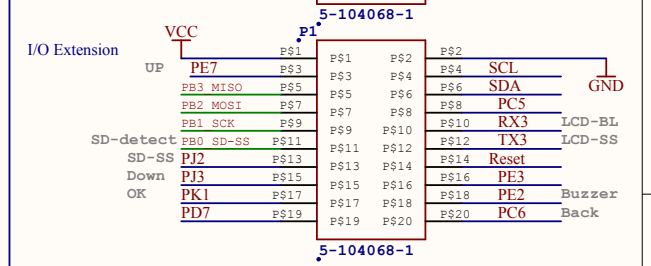
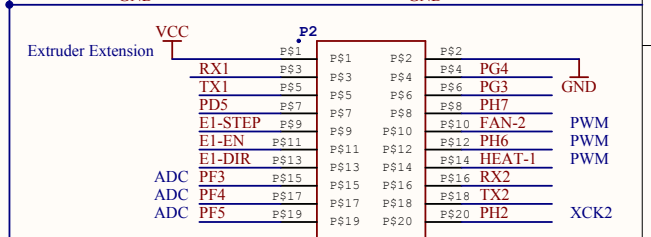
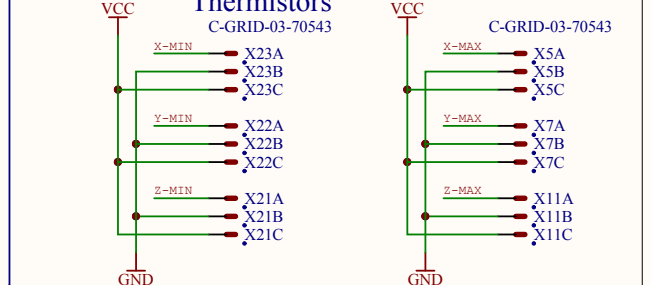
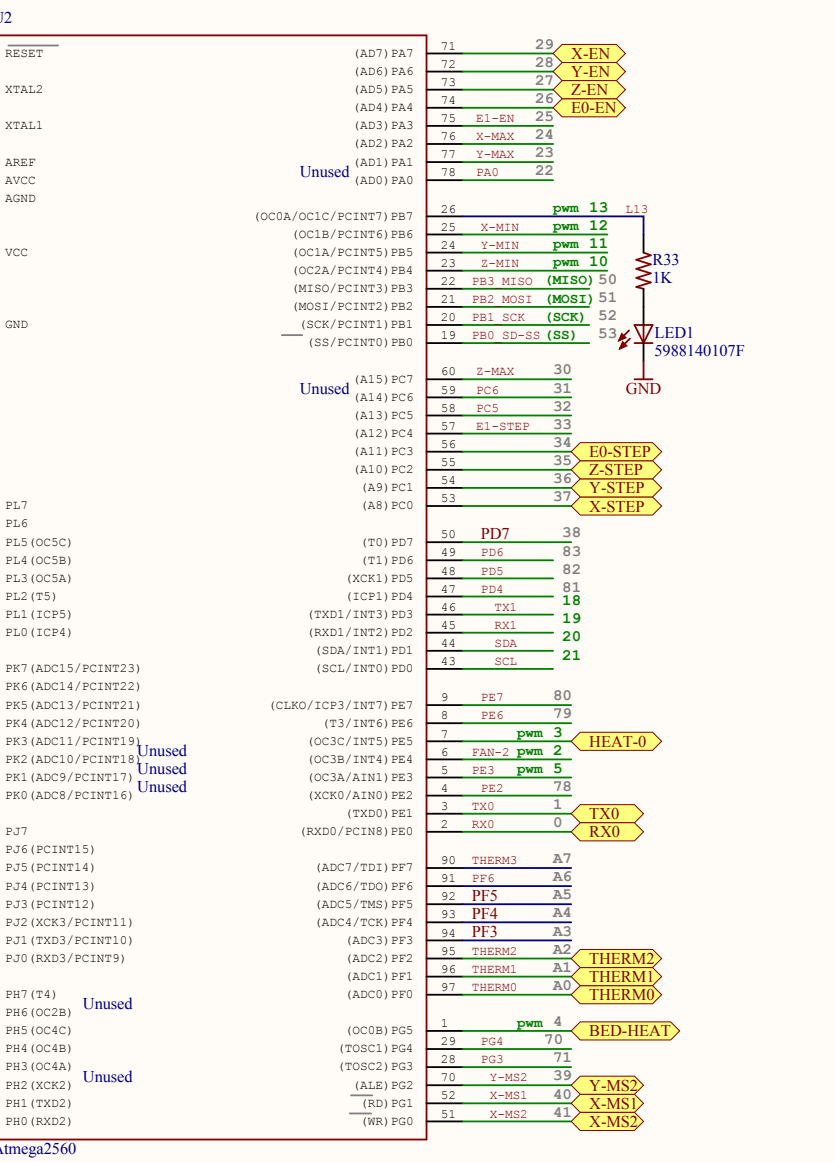
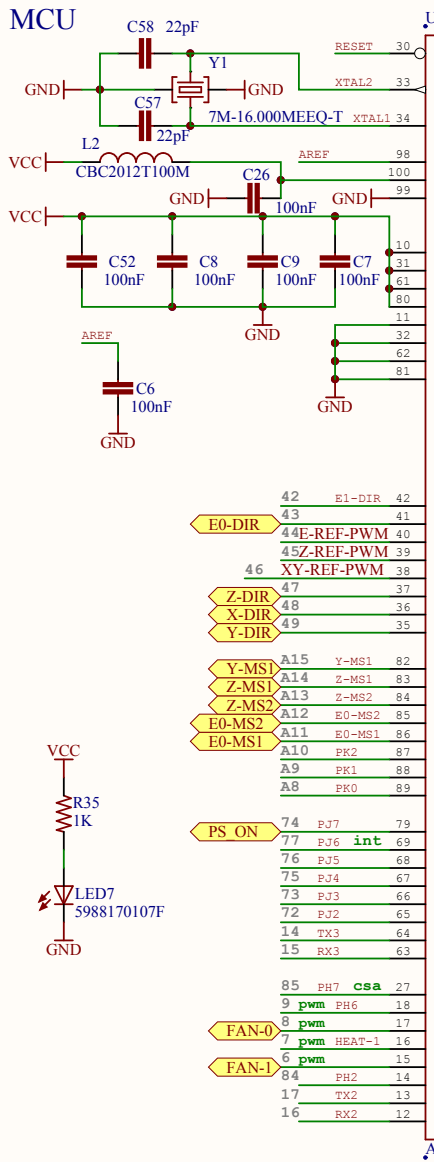
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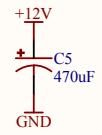
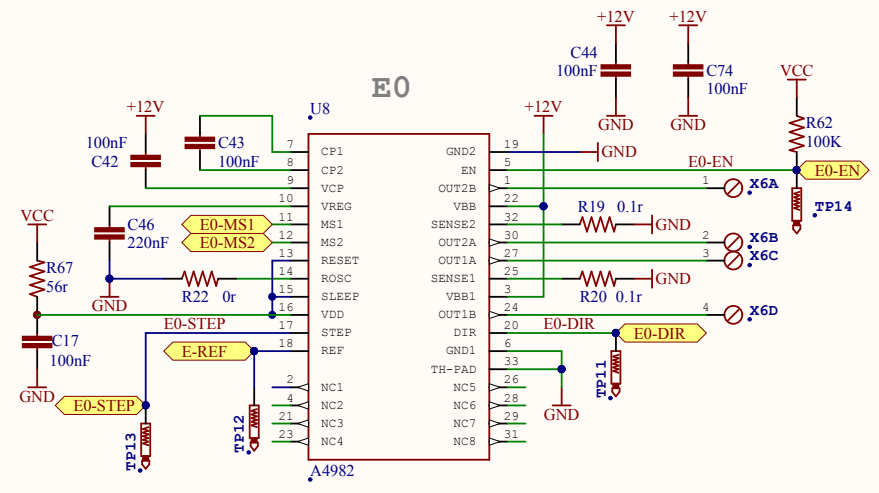
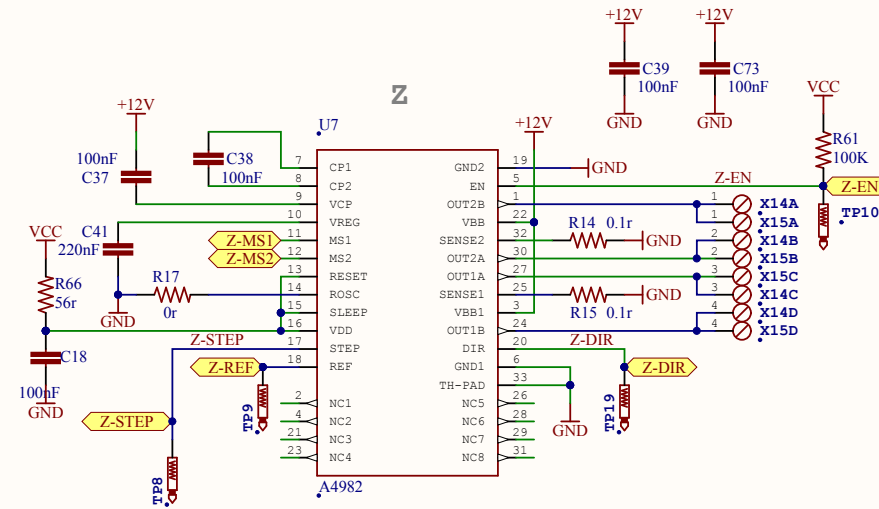
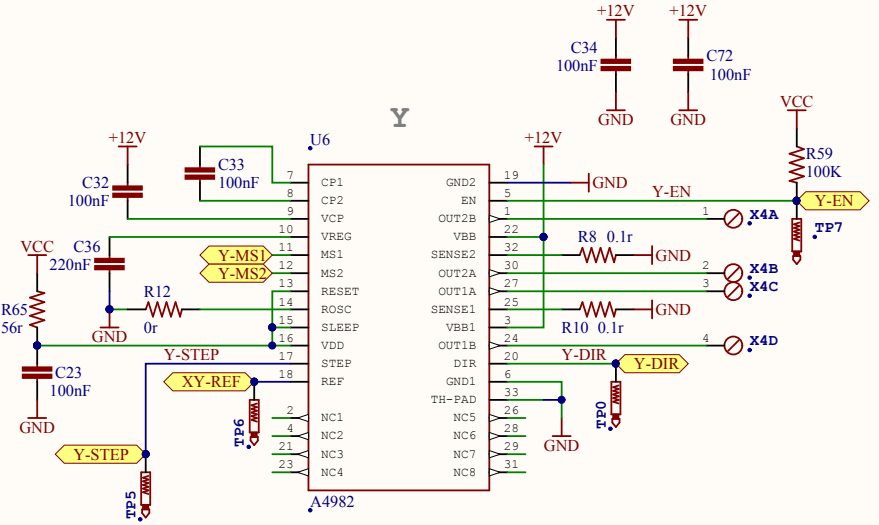
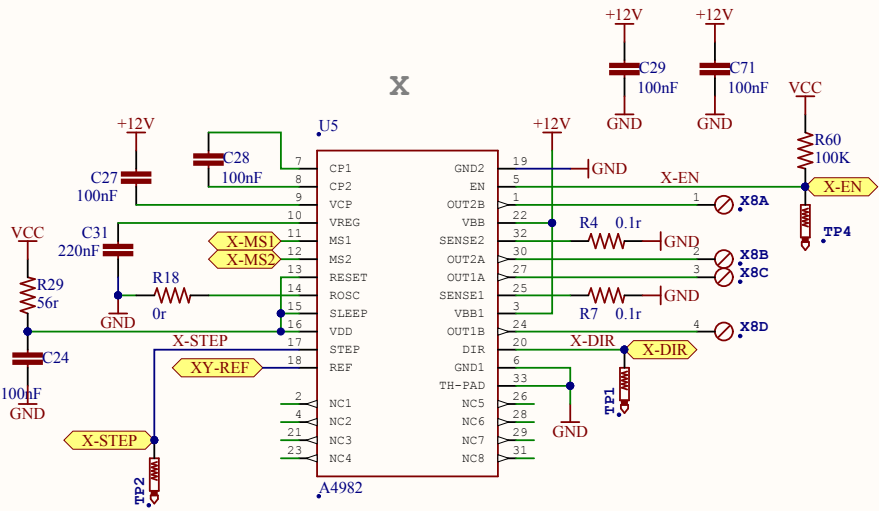
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Mini-Rambo-SMPS		
Size	Number	Revision
Letter	0.3	a
Date:	7/26/2014	Sheet 1 of 5
File:	C:\Users\UltiMachine\Documents\USBSerialSchDoc	Drawn By: UltiMachine



Title: Mini-Rambo-SMPS

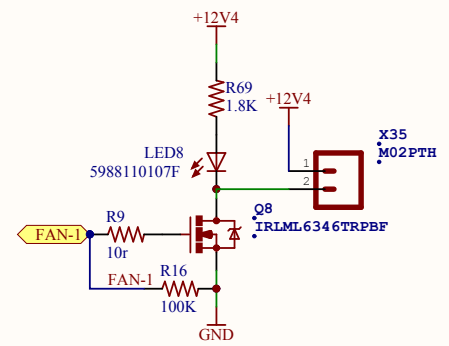
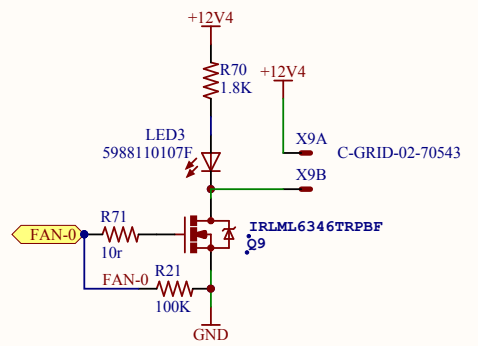
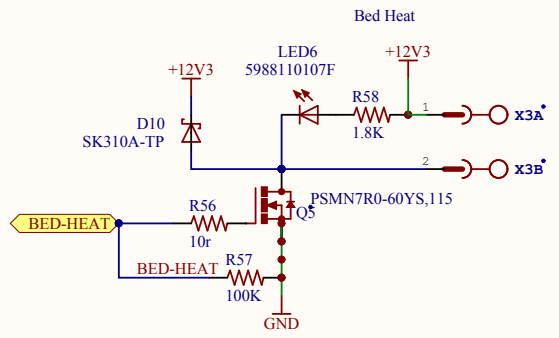
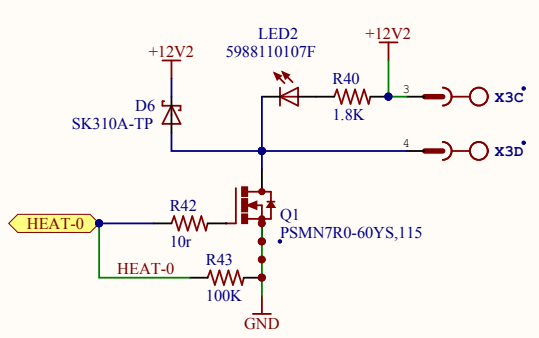
Size	Number	Revision
Letter	0.3	a
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File:	C:\Users\...MCU.SchDoc	Drawn By: UltiMachine

# Stepper Motor Drivers

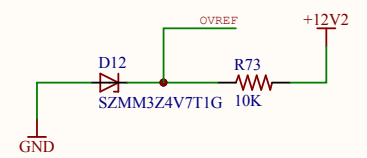
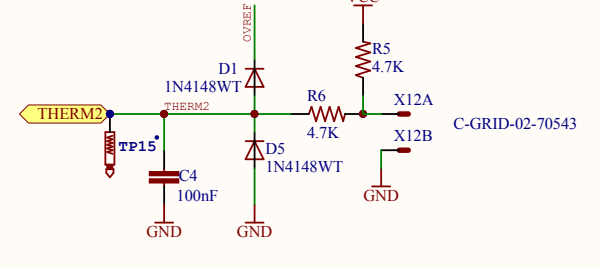
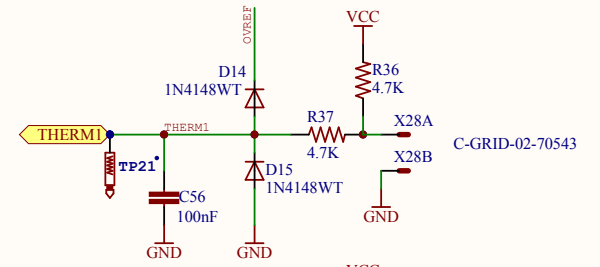
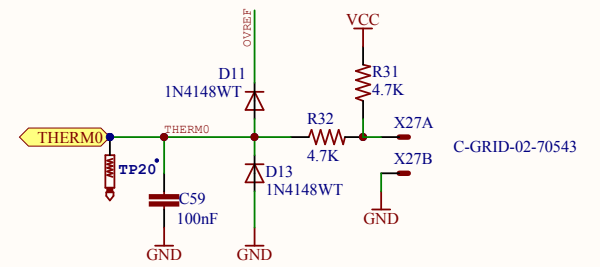


Title		
Mini-Rambo-SMPS		
Size	Number	Revision
Letter	0.3	a
Date:	7/26/2014	Sheet 3 of 5
File:	C:\Users\...Motors.SchDoc	Drawn By: UltiMachine

## Power Outputs

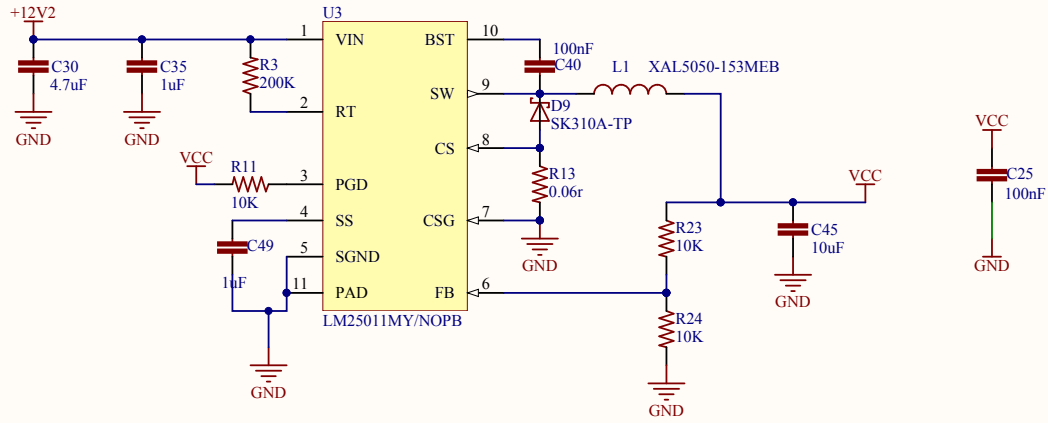


## Thermistors

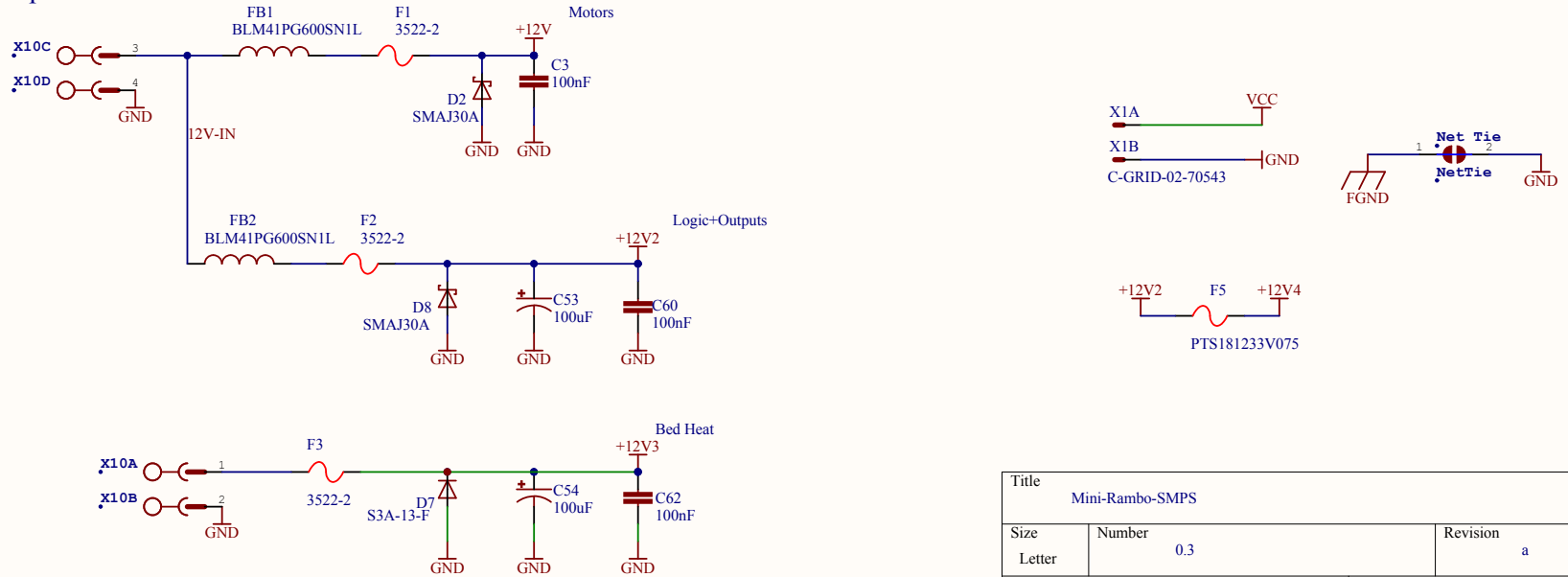


Title		
Mini-Rambo-SMPS		
Size	Number	Revision
Letter	0.3	a
Date:	7/26/2014	Sheet 4 of 5
File:	C:\Users\...\Heaters.SchDoc	Drawn By: UltiMachine

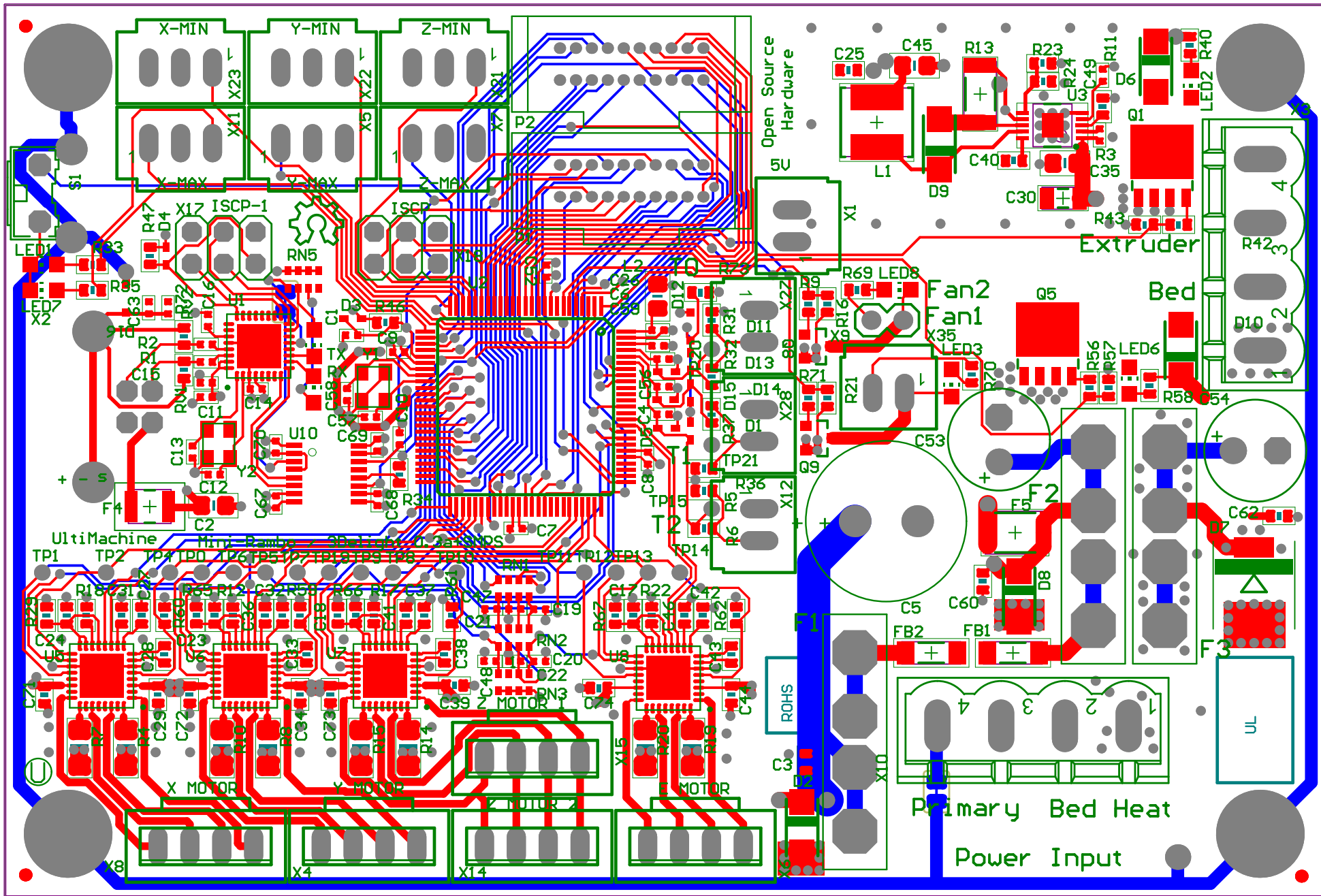
# Voltage Regulator



# Power Input



Title		
Mini-Rambo-SMPS		
Size	Number	Revision
Letter	0.3	a
Date:	7/26/2014	Sheet 5 of 5
File:	C:\Users\...Power-SMPS.SchDoc	Drawn By: UltiMachine



Designator	Manufacturer 1	Manufacturer Part Number 1	Description	Comment	Quantity	LibRef
			PCB	PCB	1	PCB
C1, C12, C13, C57, C58	AVX	04025A220IAT2A	CAP CER 0402 22pF 50V 5% COG	22pF	5	04025A220IAT2A
C2, C45	Kemet	C0805C106K8PACTU	CAP CER 0805 10uF 10V 10% X5R	10uF	2	C0805C106K8PACTU
C3, C17, C18, C23, C24, C25, C27, C28, C29, C32, C33, C34, C37, C38, C39, C40, C42, C43, C44, C60, C62, C71, C72, C73, C74	Kemet	C0603C104K5RACTU	CAP CER 0603 100nF 50V 10% X7R	100nF	25	C0603C104K5RACTU
C4, C5, C7, C8, C9, C10, C11, C14, C15, C26, C52, C56, C59, C67, C68, C69, C70	Kemet	GRM155R71C104K88D	CAP CER 0402 100nF 16V 10% X7R	100nF	17	GRM155R71C104K88D
C5	Nichicon	LIPW1H471MHHD1TO	CAP ALU 470uF 50V 20%	470uF	1	LIPW1H471MHHD1TO
C16, C19, C20, C21, C22, C47, C48, C49	Murata	GRM155R60J105KE19D	CAP CER 0402 1uF 6.3V 10% X5R	1uF	8	GRM155R60J105KE19D
C30	Murata	GRM31CR71H475KA12L	CAP CER 1206 4.7uF 50V 10% X7R	4.7uF	1	GRM31CR71H475KA12L
C31, C36, C41, C46	Yageo	CC0603KRX7R78B224	CAP CER 0603 220nF 10V 10% X7R	220nF	4	CC0603KRX7R78B224
C35	Murata	GRM21BR71H105KA12L	CAP CER 0805 1uF 50V 10% X7R	1uF	1	GRM21BR71H105KA12L
C53, C54	Nichicon	UV21H101MPD1TD	CAP ALU 100uF 50V 20% 105C	100uF	2	UV21H101MPD1TD
C63	Yageo	CC0402RXR7R88B472	CAP CER 0402 4.7nF 25V 10% X7R	4.7nF	1	CC0402RXR7R88B472
D1, D3, D4, D5, D11, D13, D14, D15	Fairchild	1N4148WT	DIODE SOD523	1N4148WT	8	1N4148WT
D2, D8			DIODE TVS 30V SMA	SMAJ30A	2	SMAJ30A
D6, D9, D10			DIODE Schottky 3A SMA	SK310A-TP	3	SK310A
D7	Diodes inc	S3A-13-F	DIODE DO-214AB	S3A-13-F	1	S3A-13-F
D12	ON Semiconductor	SZMM324V7T1G	Z-Diode	SZMM324V7T1G	1	ZENER-DIODE
D16	Rohm	RSB39VTE-17	DIODE TVS	RSB39VTE-17	1	RSB39VTE-17
F1, F2, F3	Keystone	3522-2	FUSE PTH ATO	3522-2	3	3522-2
F4			FUSE 1210 PTC 750mA	MF-USMF075	1	MF-USMF075
F5			FUSE 1812 PTC 750mA 6V	PT1S181233V075	1	PT1S181233V075
F81, FB2	Murata	BLM41PG6005N1L	FERRITE BEAD 1806 60ohm	BLM41PG6005N1L	2	BLM41PG6005N1L
FID1, FID2, FID3			Fiducial	FIDUCIAL	3	FIDUCIAL
L1	Coilcraft	XAL5050-153MEB	IND 15uH 2 9A 20%	XAL5050-153MEB	1	XAL5050-153MEB
L2	Taiyo Yuden	CBC2012T100M	IND 0805 10uH 240mA 20%	CBC2012T100M	1	CBC2012T100M
LED1, LED4, LED10	Dialight	5988140107F	LED 0805 Yellow	5988140107F	3	5988140107F
LED2, LED3, LED6, LED8	Dialight	5988110107F	LED 0805 Red	5988110107F	4	5988110107F
LED7	Dialight	5988170107F	LED 0805 Yellow	5988170107F	1	5988170107F
PL, P2	TE	5-104068-1	HDR 20pin Vert Dual Row	5-104068-1	2	5-104068-1
Q1, Q5	NXP	PSMN7R0-60YS115	Mosfet N-channel 60V 356A 117W 9.3mOhms	PSMN7R0-60YS,115	2	PSMN7R0-60YS,115
Q8, Q9	International Rectifier	IRLML6346TRPBF	Mosfet N-Channel 30V 3.4A 63mOhm	IRLML6346TRPBF	2	IRLML6346TRPBF
R1, R2	Yageo	RC0402FR-0722RL	RES 0402 22r 62.5mW 1%	RC0402FR-0722RL	2	RC0402FR-0722RL
R3	Vishay	CRCW0402200KFKEDE	RES 0402 22r 63mW 1%	200K	1	CRCW0402200KFKEDE
R4, R7, R8, R10, R14, R15, R19, R20	Bourns	CRM1206-FX-R100ELF	RES 1206 0.1r 0.5w 1%	0.1r	8	CRM1206-FX-R100ELF
R5, R6, R31, R32, R36, R37	Panasonic	ERJ3KF4701V	RES 0603 4.7K 100mW 1%	4.7K	6	ERJ3KF4701V
R9, R42, R56, R71	Vishay	CRCW060310R0FKEA	RES 0603 10r 100mW 1%	10r	4	CRCW060310R0FKEA
R11, R23, R24, R46, R47, R73	Panasonic	ERJ-3EKF1002V	RES 0603 10K 100mW 1%	10K	6	ERJ-3EKF1002V
R12, R17, R18, R22	Bourns	CR0603J000ELF	RES 0603 0r 100mW 1%	0r	4	CR0603J000ELF
R13	Stackpole	CSRN2010F0K60L0	RES 2010 0.06r 1W 1%	0.06r	1	CSRN2010F0K60L0
R16, R21, R43, R57, R59, R60, R61, R62	Yageo	RC0603FR-07100KL	RES 0603 10r 100mW 1%	100K	8	RC0603FR-07100KL
R29, R65, R66, R67	Vishay	CRCW060356R0INEA	RES 0603 56r 100mW 5%	56r	4	CRCW060356R0INEA
R33, R34, R35	Panasonic	ERJ-3EKF1001V	RES 0603 1K 100mW 1%	1K	3	ERJ-3EKF1001V
R40, R58, R69, R70	Yageo	RC0603JR-071K8L	RES 0603 1.8K 100mW 5%	1.8K	4	RC0603JR-071K8L
R72	Panasonic	ERJ2GEJ105X	RES 0402 1M 100mW 5%	1M	1	ERJ2GEJ105X
RN1, RN2, RN3	Bourns	CAY16-103J4LF	RES ARRAY 4 RES 10K 1206 62.5mW 5%	10K	3	CAY16-103J4LF
RN5	Bourns	CAY16-102J4LF	RES ARRAY 4 RES 1K 1206 62.5mW 5%	1K	1	CAY16-102J4LF
RV1, RV2	Bourns	CG0603MLC-05E	VAR 0603 5V	CG0603MLC-05E	2	CG0603MLC-05E
S1	TE	1571610-2	SWITCH Momentary Washable	1571610-2	1	1571610-2
U1	Atmel	ATMEGA32U2MU	Atmega32u2	Atmega32u2	1	ATMEGA32U2-MU2
U2	Atmel	ATMEGA2560-16AUR	Atmega2560	Atmega2560	1	ATMEGA2560AU
U3	TI	LM25011MY/NOPB	REG BUCK Stepper Driver - Fully Integrated, Control and Power Stage	LM25011MY/NOPB	1	LM25011
U5, U6, U7, U8	Allegro	A4982SETR-2	ADUM7441ARQZ-RL7	A4982	4	A4982QFN32
U10	ANALOG DEVICES	ADUM7441ARQZ-RL7	Ich iCoupler	ADUM7441	1	ADUM7441
X1, X9, X12, X27, X28	4ucon	02004	Connector 2pos 2.54mm locking	C-GRID-02-70543	5	C-GRID-02-70543
X2	FCI	61729-0010BLF	USB connector 8 PTH	USB-8	1	USB-8
X3, X10	Molex	0395311004	PHOENIX	0395311004	2	MSTB4
X4, X6, X8, X14, X15	4ucon	02006	PHOENIX CONNECTOR	MPT4	5	MPT4
X5, X7, X11, X21, X22, X23	4ucon	02005	Connector 2pos 2.54mm locking	C-GRID-03-70543	6	C-GRID-03-70543
X17, X18	4ucon	00989	PIN HEADER	PINHD-2X3	2	PINHD-2X3
X35	00795	4ucon	Connector 2x1 2.54mm PTH	M02PTH	1	M02PTH
Y1, Y2	TXC	7M-16.000MEEQ-T	Crystal 16mHz 10ppm	7M-16.000MEEQ-T	2	7M-16.000MEEQ-T
1, 2, 3			Description	ATO Fuses	3	Fuses