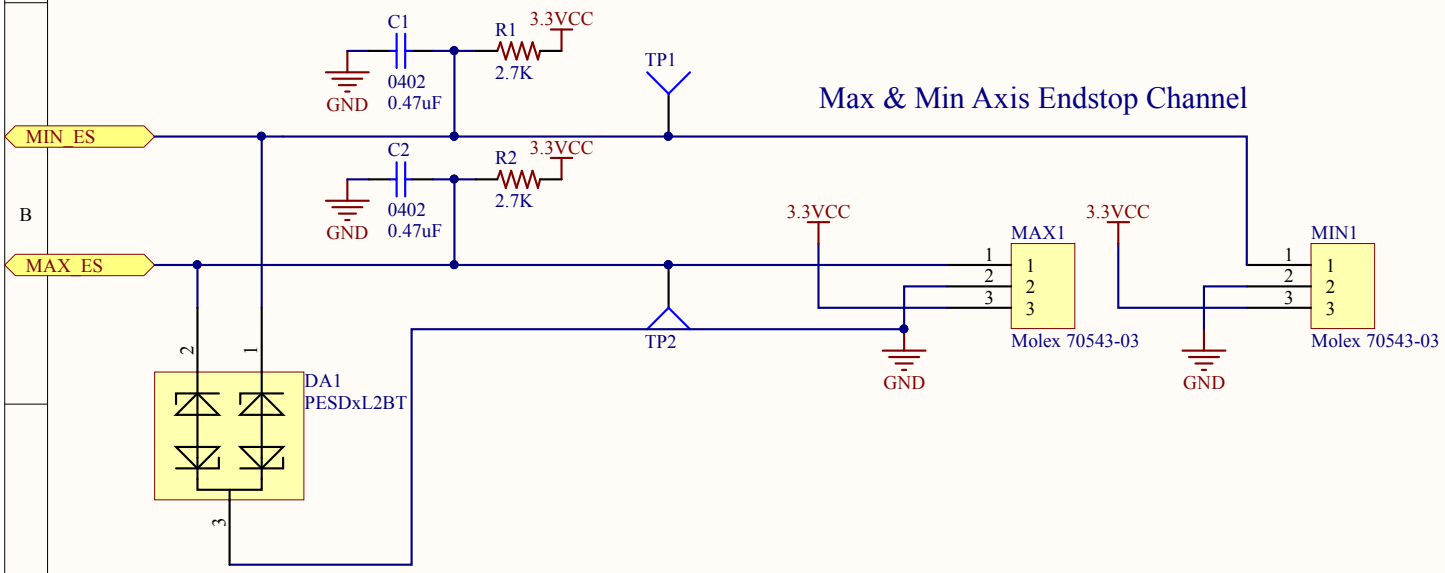
End Stop Channel



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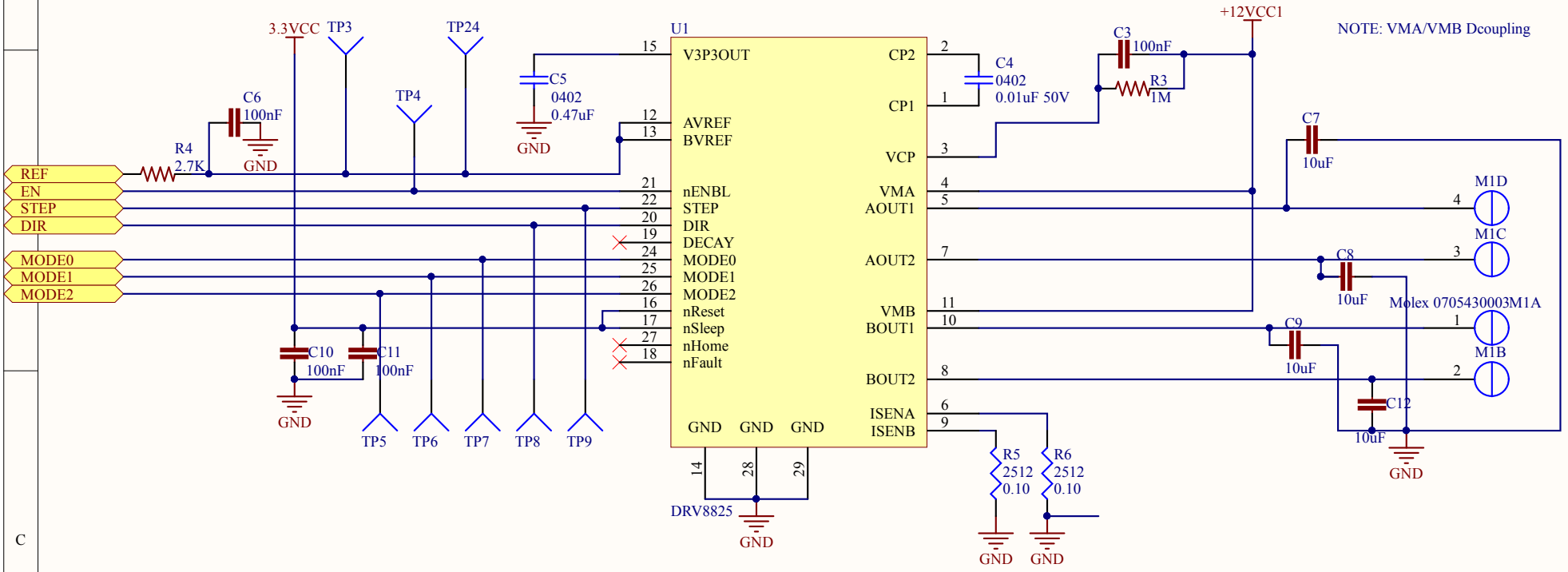

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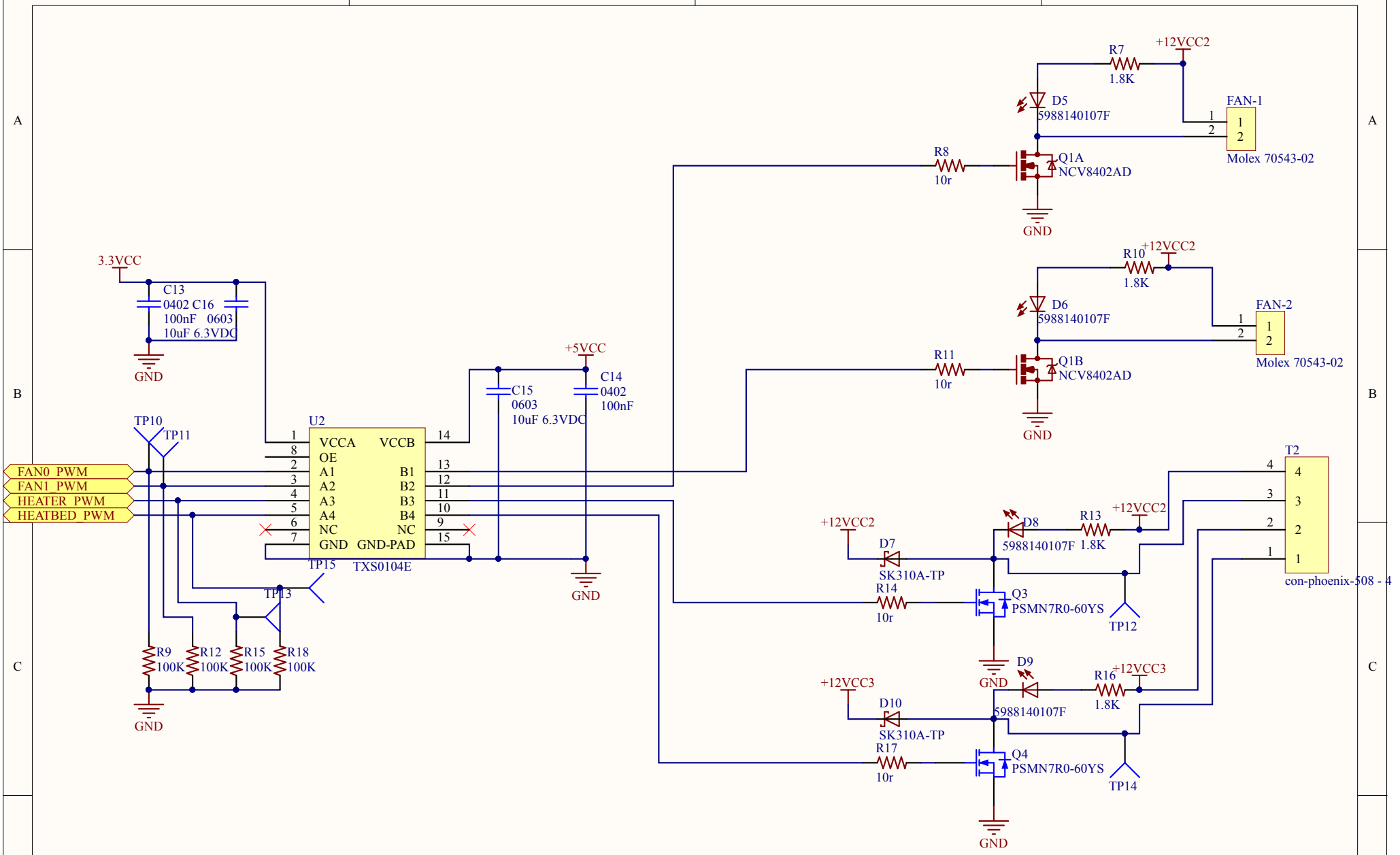

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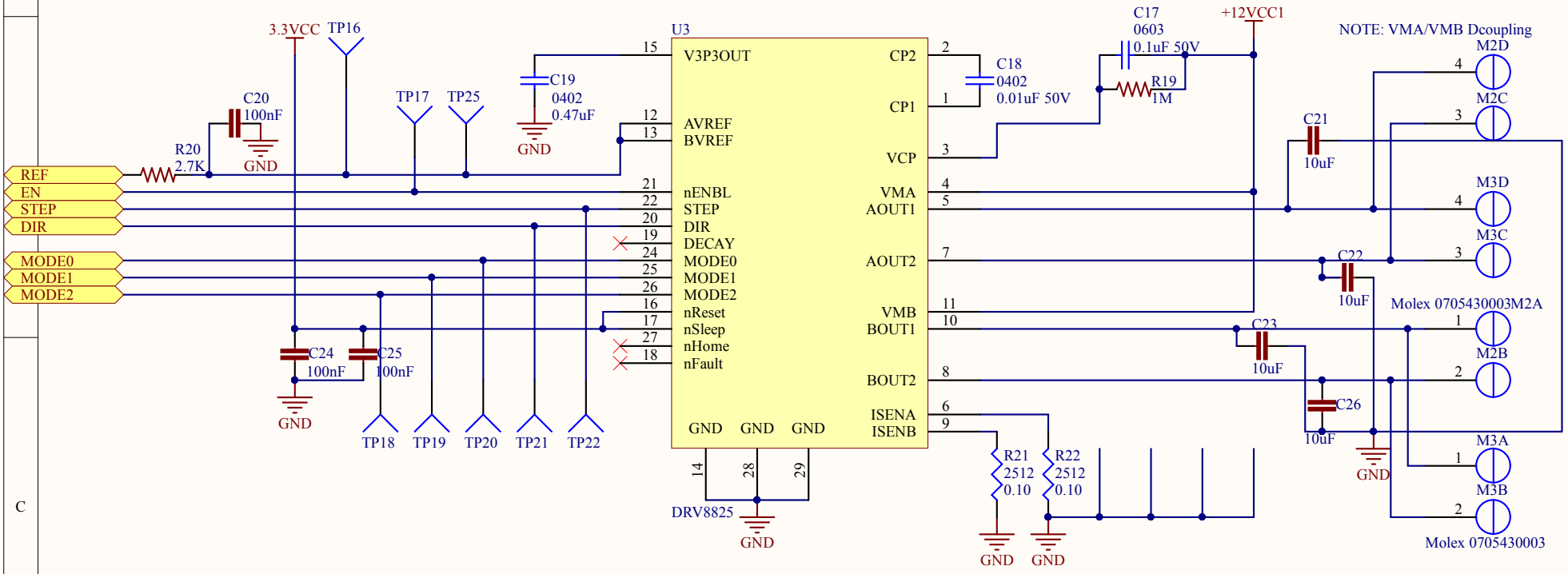

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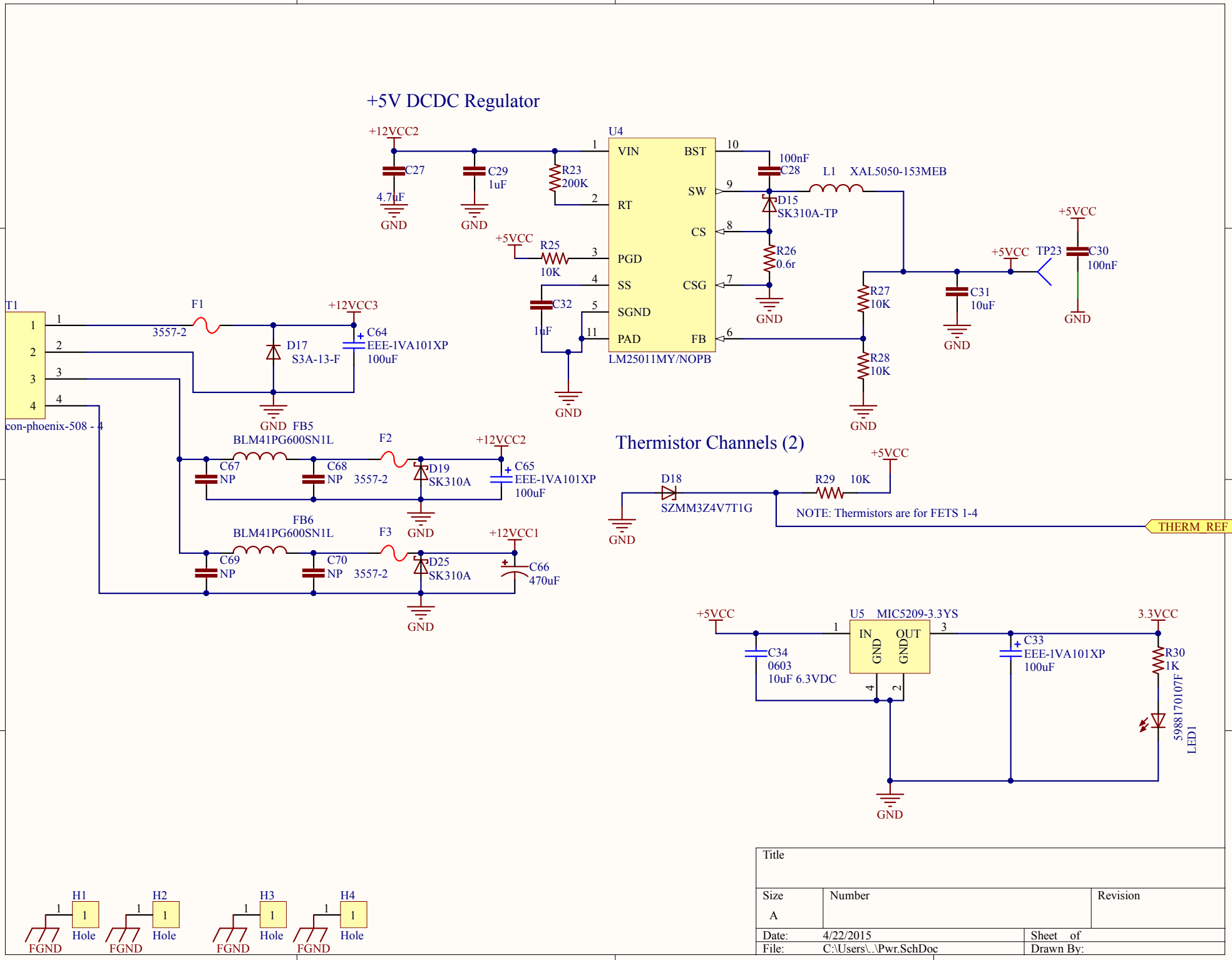
+5V DCDC Regulator
+12VCC2
C27
4.7uF
GND
C29
1uF
GND
R23
200K
U4
VIN
RT
PGD
SS
SGND
PAD
BST
SW
CS
CSG
FB
LM25011MY/NOPB
100nF
C28
L1
XAL5050-153MEB
D15
SK310A-TP
R26
0.6r
GND
+5VCC
R25
10K
C32
1uF
GND
R27
10K
R28
10K
GND
C31
10uF
GND
+5VCC
TP23
+5VCC
C30
100nF
GND
T1
con-phoenix-508 - 4
F1
3557-2
D17
S3A-13-F
+12VCC3
C64
EEE-1VA101XP
100uF
GND
FB5
BLM41PG600SN1L
C67
NP
C68
NP
F2
3557-2
D19
SK310A
+12VCC2
C65
EEE-1VA101XP
100uF
GND
FB6
BLM41PG600SN1L
C69
NP
C70
NP
F3
3557-2
D25
SK310A
+12VCC1
C66
470uF
GND
Thermistor Channels (2)
D18
SZMM3Z4V7T1G
GND
R29
10K
+5VCC
NOTE: Thermistors are for FETS 1-4
THERM_REF
+5VCC
U5
MIC5209-3.3YS
IN
GND
GND
OUT
C34
0603
10uF 6.3VDC
C33
EEE-1VA101XP
100uF
3.3VCC
R30
1K
5988170107F
LED1
GND
H1
H2
H3
H4
Hole
FGND
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Size
A
Number
Revision
Date:
4/22/2015
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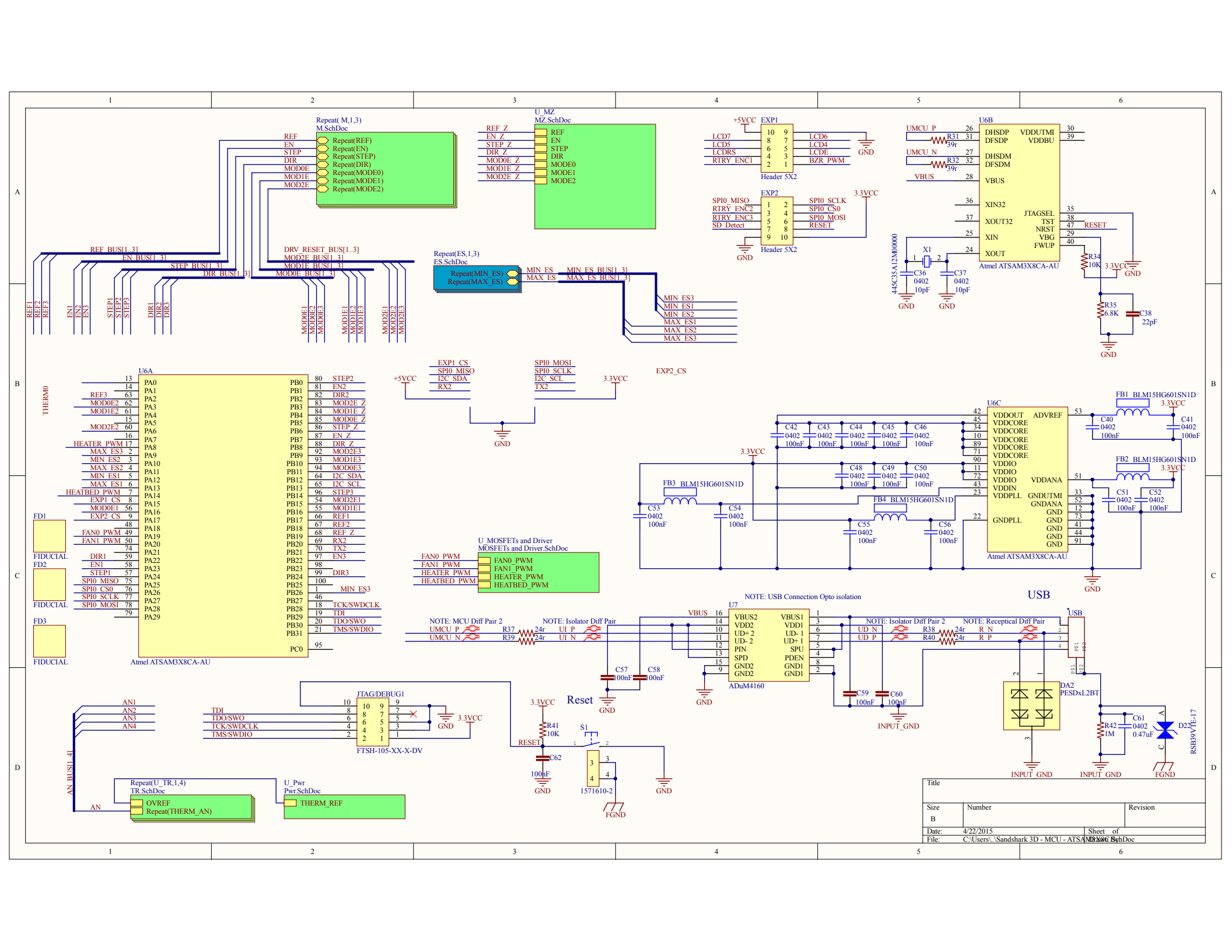
Repeat(M,1,3)
M.SchDoc
REF
EN
STEP
DIR
MOD0E
MOD1E
MOD2E
Repeat(REF)
Repeat(EN)
Repeat(STEP)
Repeat(DIR)
Repeat(MODE0)
Repeat(MODE1)
Repeat(MODE2)
U_MZ
MZ.SchDoc
REF_Z
EN_Z
STEP_Z
DIR_Z
MOD0E_Z
MOD1E_Z
MOD2E_Z
MODE0
MODE1
MODE2
EXP1
Header 5X2
LCD7
LCD5
LCDRS
RTRY_ENC1
LCD6
LCD4
LCDE
BZR_PWM
EXP2
SPI0_MISO
RTRY_ENC2
RTRY_ENC3
SD_Detect
SPI0_SCLK
SPI0_CS0
SPI0_MOSI
RESET
3.3VCC
+5VCC
GND
U6B
Atmel ATSAM3X8CA-AU
UMCU_P
UMCU_N
VBUS
R31 39r
R32 39r
X1
445C35A12M00000
C36 0402 10pF
C37 0402 10pF
R34 10K
R35 6.8K
C38 22pF
REF_BUS[1..3]
EN_BUS[1..3]
STEP_BUS[1..3]
DIR_BUS[1..3]
DRV_RESET_BUS[1..3]
MOD2E_BUS[1..3]
MOD1E_BUS[1..3]
MOD0E_BUS[1..3]
Repeat(ES,1,3)
ES.SchDoc
Repeat(MIN_ES)
Repeat(MAX_ES)
MIN_ES
MAX_ES
MIN_ES_BUS[1..3]
MAX_ES_BUS[1..3]
MIN_ES3
MIN_ES1
MIN_ES2
MAX_ES1
MAX_ES2
MAX_ES3
U6A
Atmel ATSAM3X8CA-AU
THERM0
FD1
FD2
FD3
FIDUCIAL
EXP1_CS
SPI0_MOSI
SPI0_SCLK
I2C_SDA
I2C_SCL
RX2
TX2
EXP2_CS
U6C
Atmel ATSAM3X8CA-AU
FB1_BLM15HG601SN1D
FB2_BLM15HG601SN1D
FB3_BLM15HG601SN1D
FB4_BLM15HG601SN1D
C40 0402 100nF
C41 0402 100nF
C42 0402 100nF
C43 0402 100nF
C44 0402 100nF
C45 0402 100nF
C46 0402 100nF
C48 0402 100nF
C49 0402 100nF
C50 0402 100nF
C51 0402 100nF
C52 0402 100nF
C53 0402 100nF
C54 0402 100nF
C55 0402 100nF
C56 0402 100nF
U_MOSFETs and Driver
MOSFETs and Driver.SchDoc
FAN0_PWM
FAN1_PWM
HEATER_PWM
HEATBED_PWM
NOTE: USB Connection Opto isolation
USB
U7
ADuM4160
NOTE: MCU Diff Pair 2
NOTE: Isolator Diff Pair
NOTE: Isolator Diff Pair 2
NOTE: Receptical Diff Pair
R37 24r
R39 24r
R38 24r
R40 24r
UI_P
UI_N
UD_N
UD_P
R_N
R_P
C57 100nF
C58 100nF
C59 100nF
C60 100nF
INPUT_GND
DA2
PESDxL2BT
C61 0402 0.47uF
R42 1M
D22
RSB39VTE-17
FGND
JTAG/DEBUG1
FTSH-105-XX-X-DV
TDI
TDO/SWO
TCK/SWDCLK
TMS/SWDIO
Reset
R41 10K
C62 100nF
S1
1571610-2
AN1
AN2
AN3
AN4
AN_BUS[1..4]
AN
Repeat(U_TR,1,4)
TR.SchDoc
OVREF
Repeat(THERM_AN)
U_Pwr
Pwr.SchDoc
THERM_REF
Title
Size
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Number
Revision
Date: 4/22/2015
Sheet of
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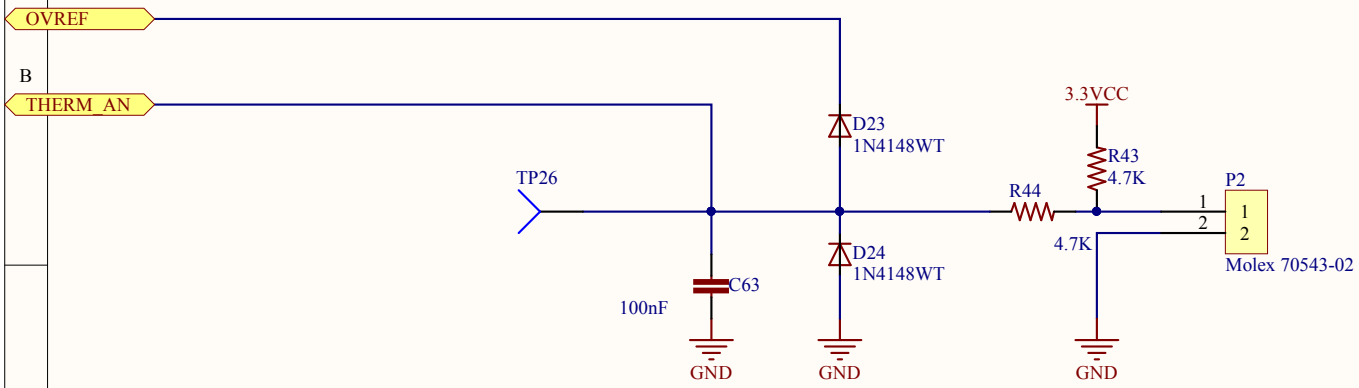
Thermistor Channel



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Date: 4/22/2015		Sheet of
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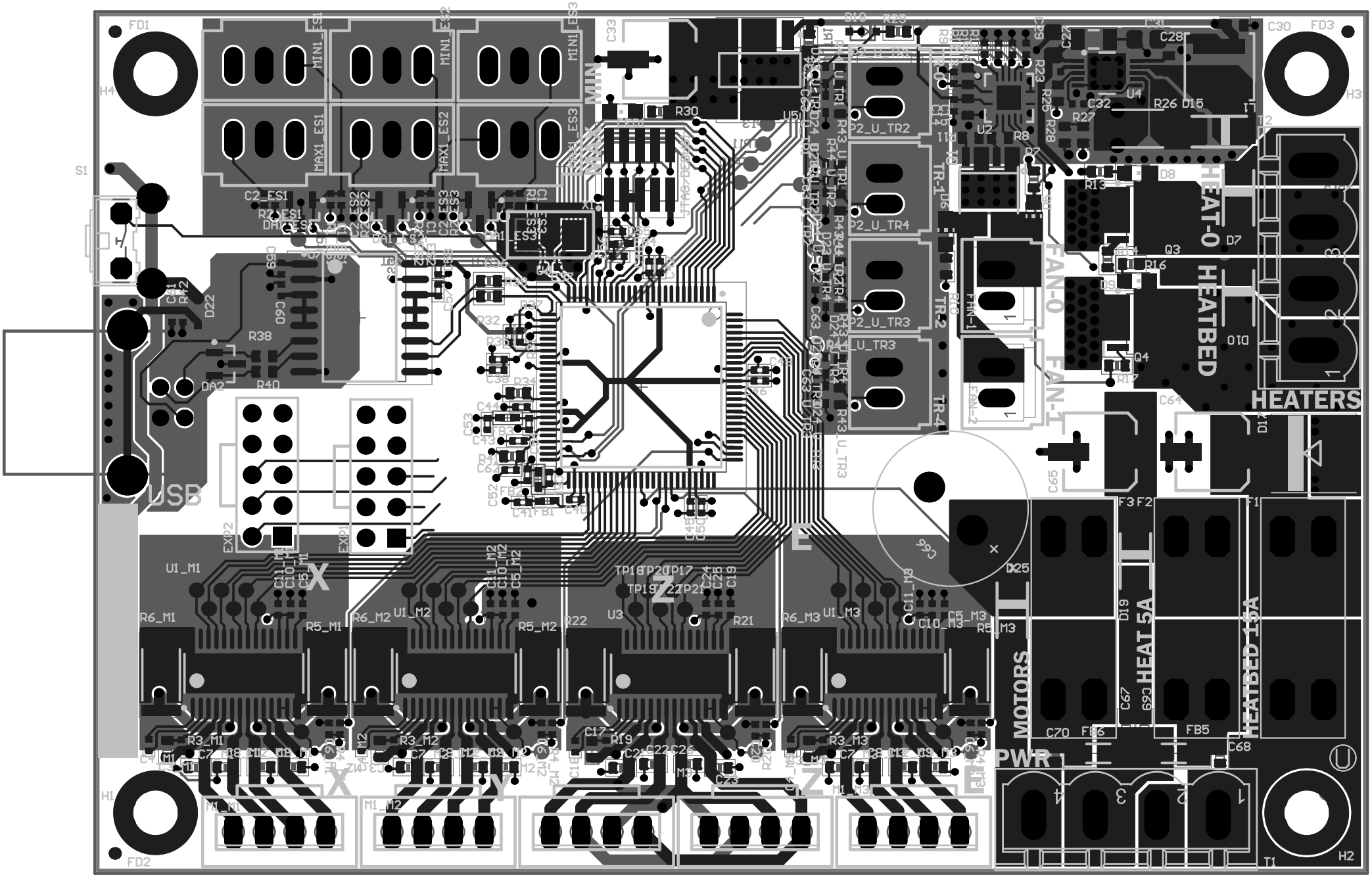
USB
HEATERS
HEAT-0
HEATBED
FAN-0
FAN-1
MOTORS
HEAT 5A
HEATBED 10A
PWR
X
Y
Z
E
MIN1_ES1
MIN1_ES2
MIN1_ES3
MAX1_ES1
MAX1_ES2
MAX1_ES3
P2_U_TR2
P2_U_TR4
P2_U_TR3
TR-1
TR-2
TR-4
FAN-1
FAN-2
EXP1
EXP2
U1_M1
U1_M2
U1_M3
R6_M1
R6_M2
R6_M3
R5_M1
R5_M2
R5_M3
R3_M1
R3_M2
R3_M3
M1_M1
M1_M2
M1_M3
FD1
FD2
FD3
H1
H2
H3
H4
T1
T2
S1

Comment	Description	Designator	Footprint	LibRef	Quantity
0402	0.47uF 6.3v C0402 - GRM155R60J474KE19D, 0.47uF 6.3v C0402 - GRM155R60J474KE19D, 0.47uF 6.3v C0402 - GRM155R60J474KE19D, 0.47uF 6.3v C0402 - GRM155R60J474KE19D, 0.47uF 6.3v C0402 - GRM155R60J474KE19D, 0.47uF 6.3v C0402 - GRM155R60J474KE19D, 0.47uF 6.3v C0402 - GRM155R60J474KE19D, CAP CER 10000PF 50V X7R 0402, CAP CER 10000PF 50V X7R 0402, CAP CER 10000PF 50V X7R 0402, 0.47uF 6.3v C0402 - GRM155R60J474KE19D, 0.47uF 6.3v C0402 - GRM155R60J474KE19D, 0.47uF 6.3v C0402 - GRM155R60J474KE19D, CAP CER 0.1UF (100nF) 16V 10% X7R 0402, CAP CER 0.1UF (100nF) 16V 10% X7R 0402, CAP CER 10000PF 50V X7R 0402, 0.47uF 6.3v C0402 - GRM155R60J474KE19D, CAP CER 10PF 50V 5% NP0 0402, CAP CER 10PF 50V 5% NP0 0402, CAP CER 0.1UF (100nF) 16V 10% X7R 0402, CAP CER 0.1UF (100nF) 16V 10% X7R 0402, CAP CER 0.1UF (100nF) 16V 10% X7R 0402, CAP CER	C1_ES1, C1_ES2, C1_ES3, C2_ES1, C2_ES2, C2_ES3, C4_M1, C4_M2, C4_M3, C5_M1, C5_M2, C5_M3, C13, C14, C18, C19, C36, C37, C40, C41, C42, C43, C44, C45, C46, C48, C49, C50, C51, C52, C53, C54, C55, C56, C61	C0402	GRM155R71C104KA88D	35
100nF	CAP CER 0603 100nF 50V 10% X7R	C3_M1, C3_M2, C3_M3, C28, C30	C0603	C0603C104K5RACTU	5
100nF	CAP CER 0402 100nF 16V 10% X7R	C6_M1, C6_M2, C6_M3, C10_M1, C10_M2, C10_M3, C11_M1, C11_M2, C11_M3, C20, C24, C25, C57, C58, C59, C60, C62, C63_U_TR1, C63_U_TR2, C63_U_TR3, C63_U_TR4	C0402	GRM155R71C104KA88D	21
10uF	CAP CER 0603 1uF 10V Y5V	C7_M1, C7_M2, C7_M3, C8_M1, C8_M2, C8_M3, C9_M1, C9_M2, C9_M3, C12_M1, C12_M2, C12_M3, C21, C22, C23, C26	C0603	CC0603ZRY5V6BB105	16
0603	CAP CER 10UF 6.3V 10% JB 0603	C15, C16, C34	C0603	C1608JB0J106K080AB	3
0603	Capacitor Semiconductor SIM Model0	C17	1608[0603]	Cap Semi	1
4.7uF	CAP CER 1206 4.7uF 50V 10% X5R	C27	C1206	C1206C475K5PACTU	1
1uF	CAP CER 0805 1uF 50V 10% X7R	C29	C0805	GRM21BR71H105KA12L	1
10uF	CAP CER 0805 10uF 10V 10% X5R	C31	C0805	C0805C106K8PACTU	1
1uF	CAP CER 0402 1uF 6.3V 10% X5R	C32	C0402	GRM155R60J105KE19D	1
EEE-1VA101XP	CAP ALUM 100UF 35V 20% SMD	C33, C64, C65	EEE-1VA101XP	EEE-1VA101XP	3
22pF	CAP CER 0402 22pF 50V 5% C0G	C38	C0402	04025A220JAT2A	1
470uF	CAP ALU 470uF 50V 20%	C66	C12.5-5	UPW1H471MHD1TD	1
NP	CAP CER 0603 100nF 50V 10% X7R	C67, C68, C69, C70	C0603	C0603C104K5RACTU	4
598814010?F	LED 0805 Yellow	D5, D6, D8, D9	LED2012120	598814010?F	4
SK310A-TP	DIODE Schottky 3A SMA	D7, D10, D15	SMA-SM	SK310A	3
S3A-13-F	DIODE DO-214AB	D17	DO-214AB	S3A-13-F	1
SZMM3Z24VT1G	Z-Diode	D18	SOD323-R	SZMM3Z24VT1G	1
SK310A	DIODE Schottky 3A SMA	D19, D25	SMA-SM	SK310A	2
RSB39VTE-17	DIODE TVS	D22	SOD323-R	RSB39VTE-17	1
1N4148WT	DIODE SOD523	D23_U_TR1, D23_U_TR2, D23_U_TR3, D23_U_TR4, D24_U_TR1, D24_U_TR2, D24_U_TR3, D24_U_TR4	SOD523	1N4148WT	8
PESD4L2BT	PESD4L2BT TVS Diode Array 2x	DA1_ES1, DA1_ES2, DA1_ES3, DA2	SOT95P233X110-3N	PESD4L2BT	4
Header 5X2	Header, 5-Pin, Dual row	EXP1, EXP2	HDR2X5	Header 5X2	2
3557-2	FUSE PTH ATO	F1, F2, F3	3557	3557-2	3
Molex 70543-02	Molex 70543-02	FAN-1, FAN-2, P2_U_TR1, P2_U_TR2, P2_U_TR3, P2_U_TR4	70543-02	Molex 70543-02	8
BLM15HG601SN1D	BLM15HG601SN1D	FB1, FB2, FB3, FB4	BLM18PG121SN1D	BLM15HG601SN1D	4
BLM41PG600SN1L	FERRITE BEAD 1806 60ohm	FB5, FB6	L1806	BLM41PG600SN1L	2
FIDUCIAL		FD1, FD2, FD3	FIDUCIAL-1X2	FIDUCIAL	3
FTSH-105-XX-K-DV		JTAG/DEBUG1	FTSH-105-XX-K-DV	ARM Cortex JTAG-DEBUG Header	1
XAL5050-153MEB	IND 15uH 3.9A 20%	L1	XAL50xx-153	XAL5050-153MEB	1
598817010?F	LED 0805 Green	LED1	LED2012120	598817010?F	1
Molex 0705430003	Molex 4 Pin Clip Connector	M1_M1, M1_M2, M1_M3, M2_M1, M2_M2, M2_M3	4POLF54	Molex 0705430003 Alt	6
Molex 70543-03		MAX1_ES1, MAX1_ES2, MAX1_ES3, MINI1_ES1, MINI1_ES2, MINI1_ES3	70543-03	Molex Endstop	6
NCV8402AD		Q1	NCV8402AD-SOIC8	NCV8402AD	1
PSMN7R0-60YS	N-Channel MOSFET	Q3, Q4	PSMN7R0-60YS	PSMN7R0-60YS	2
2.7K	RES SMD 2.7K OHM 5% 1/10W 0402, RES SMD 2.7K OHM 5% 1/10W 0402, RES SMD 2.7K OHM 5% 1/10W 0402, RES SMD 2.7K OHM 5% 1/10W 0402, RES SMD 2.7K OHM 5% 1/10W 0402, RES SMD 2.7K OHM 1% 1/10W 0402, RES SMD 2.7K OHM 1% 1/10W 0402, RES SMD 2.7K OHM 1% 1/10W 0402	R1_ES1, R1_ES2, R1_ES3, R2_ES1, R2_ES2, R2_ES3, R4_M1, R4_M2, R4_M3, R20	R0402	ERJ-2GE0272X, ERJ-2GE0272X, ERJ-2GE0272X, ERJ-2GE0272X, ERJ-2GE0272X, ERJ-2GE0272X, ERJ-2RKF2701X, ERJ-2RKF2701X, ERJ-2RKF2701X	10
1M	RES 0402 1M 100mW 5%	R3_M1, R3_M2, R3_M3, R19, R42	R0402	ERJ2GEJ105X	5
2512	RES SMD 0.1 OHM 1% 2W 2512	R5_M1, R5_M2, R5_M3, R6_M1, R6_M2, R6_M3, R21, R22	2512R-0.55	CSRN2512FTR100	8
1.8K	RES 0603 1.8K 100mW 5%	R7, R10, R13, R16	R0603	RC0603JR-071K8L	4
10r	RES 0603 10r 100mW 1%	R8, R11, R14, R17	R0603	CRCW060310R0FKEA	4
100K	RES SMD 100K OHM 1% 1/16W 0402	R9, R12, R15, R18	R0402	RC1005F104CS	4
100K	RES 0402 22r 63mW 1%	R23	R0402	CRCW0402200KFKED	1
10K	RES 0603 10K 100mW 1%	R25, R27, R28, R29, R34, R41	R0603	ERJ-3EKF1002V	6
0.6r	RES 0.06 OHM 1W 1% 2512 SMD	R26	2512R-0.55	RL2512FK-070R06L	1
1K	RES 0603 1K 100mW 1%	R30	R0603	ERJ-3EKF1001V	1
09r	RES SMD 39 OHM 1% 1/10W 0402	R31, R32	R0402	ERJ-2RKF3990X	2
6.8K	RES SMD 6.8K OHM 1% 1/10W 0402	R35	R0402	CRCW04026K80FKED	1
24r	RES SMD 24 OHM 1% 1/10W 0603	R37, R38, R39, R40	R0603	RC1608F240CS	4
4.7K	RES 0603 4.7K 100mW 1%	R43_U_TR1, R43_U_TR2, R43_U_TR3, R43_U_TR4, R44_U_TR1, R44_U_TR2, R44_U_TR3, R44_U_TR4	R0603	ERJ3EKF4701V	8
1571610-2	SWTCH Momentary Washable	S1	B3F-31XX	1571610-2_1	1
con-phoenix-508 - 4	con-phoenix-508 - 4	T1, T2	MSTBVH	con-phoenix-508_4	2
TP4	Socket	TP1_ES1, TP1_ES2, TP1_ES3, TP2_ES1, TP2_ES2, TP2_ES3, TP3_M1, TP3_M2, TP3_M3, TP4_M1, TP4_M2, TP4_M3, TP5_M1, TP5_M2, TP5_M3, TP6_M1, TP6_M2, TP6_M3, TP7_M1, TP7_M2, TP7_M3, TP8_M1, TP8_M2, TP8_M3, TP9_M1, TP9_M2, TP9_M3, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20, TP21, TP22, TP23, TP24_M1, TP24_M2, TP24_M3, TP25, TP26_U_TR1, TP26_U_TR2, TP26_U_TR3, TP26_U_TR4	TP-2	Socket	49
DRV8825	DRV8825 TI Stepper Driver	U1_M1, U1_M2, U1_M3, U3	DRV8825PWPR	DRV8825	4
TXS0104E	TXS0104E - Bidirectional Opendrain/pushpull level shift	U2	RGY (S-PVQFN-N14)	TXS0104E	1
LM2501?M5/NOPB	REG BUCK	U4	VSSOP10	LM25011	1
MIC5209-3.3YS		U5	SOT23XP700X190-4N	MIC5209-3.3YS	1
Atmel ATSAMD30CA-AU	Atmel ARM Cortex M3 MCU ATSAMD30CA-AU	U6	ATSAMD30CA-AU	ATMEL-ATSAMD30CA-AU-TQFP100	1
ADuM4160	4Bit iCoupler - USB 2.0 Galvanic Isolator	U7	ADUM4160BRWZ-RL	ADuM4160	1
USB-B	USB connector B PTH	USB	PJ457129	USB-B	1
445C35A12M00000	Crystal Oscillator	Y1	445C35A12M00000	XTAL	1