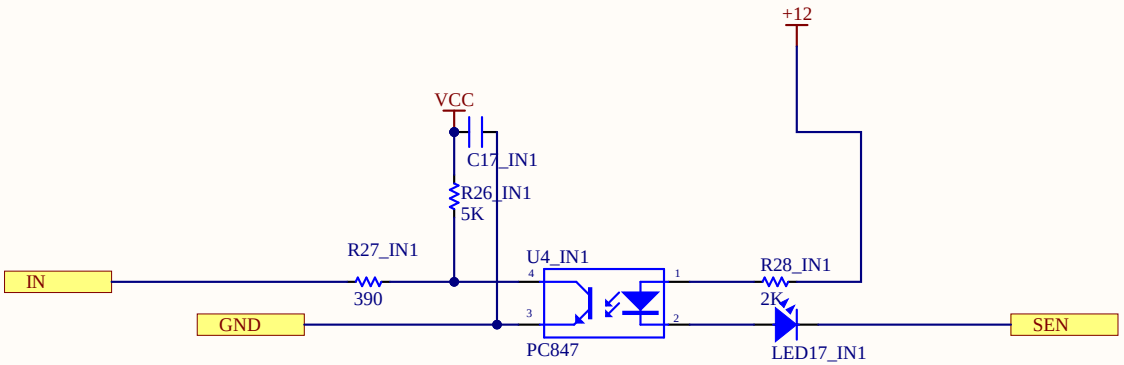

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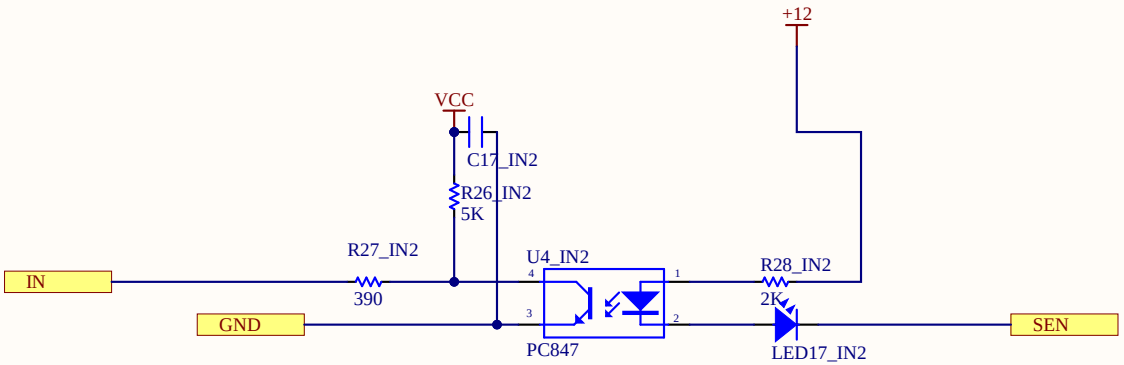

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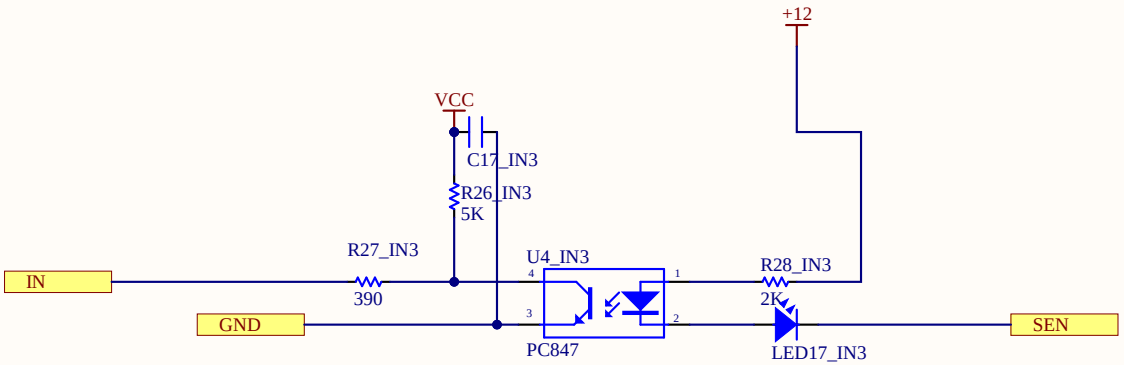

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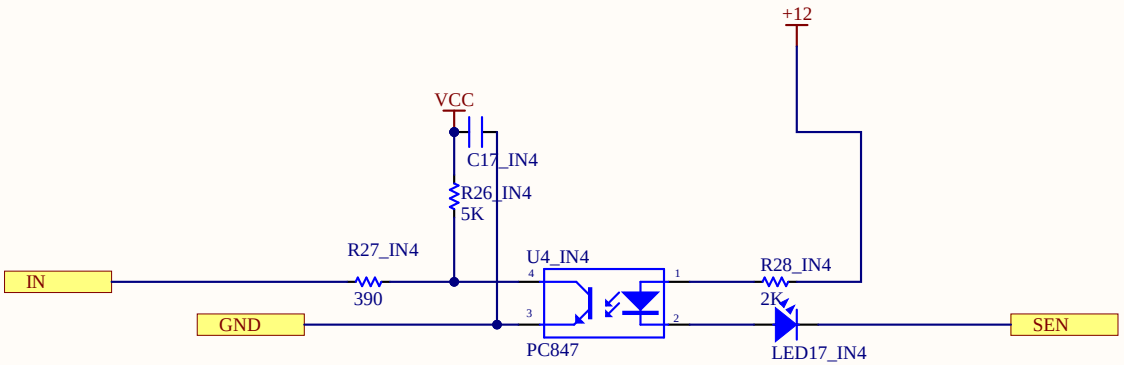

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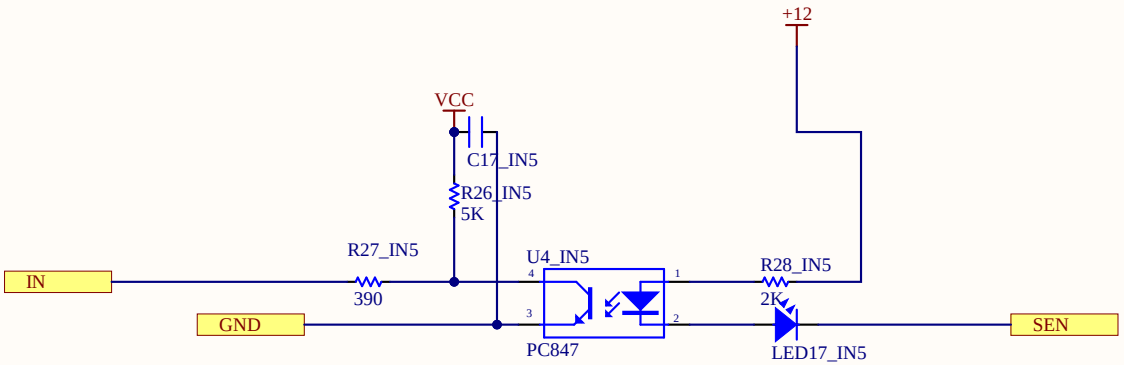

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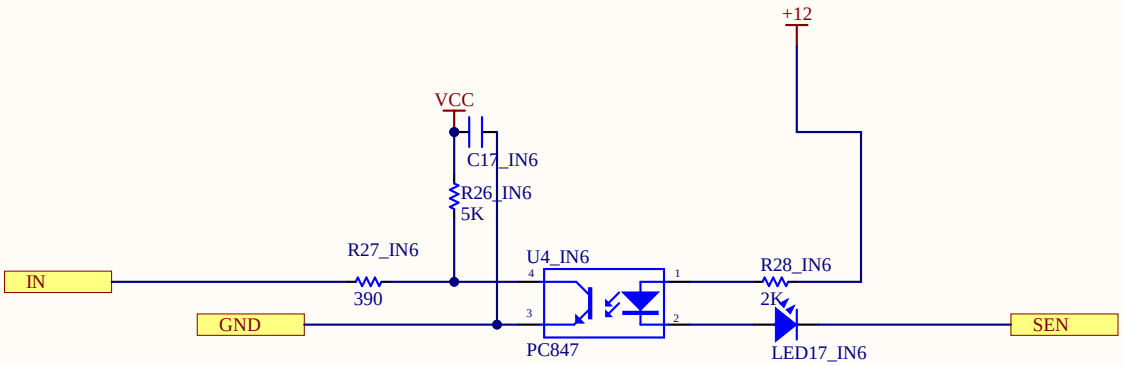

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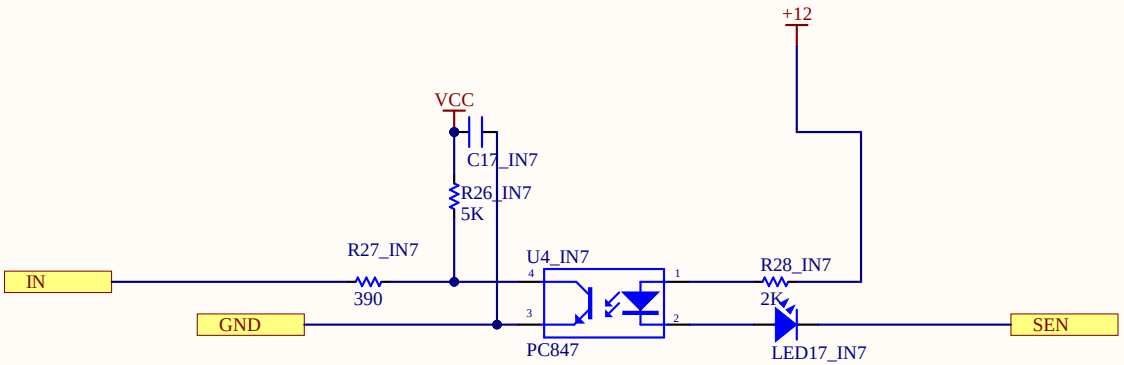

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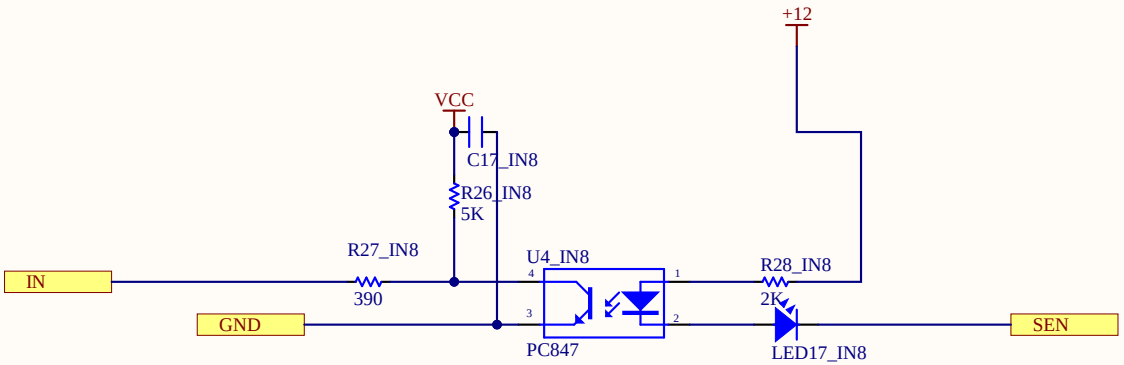

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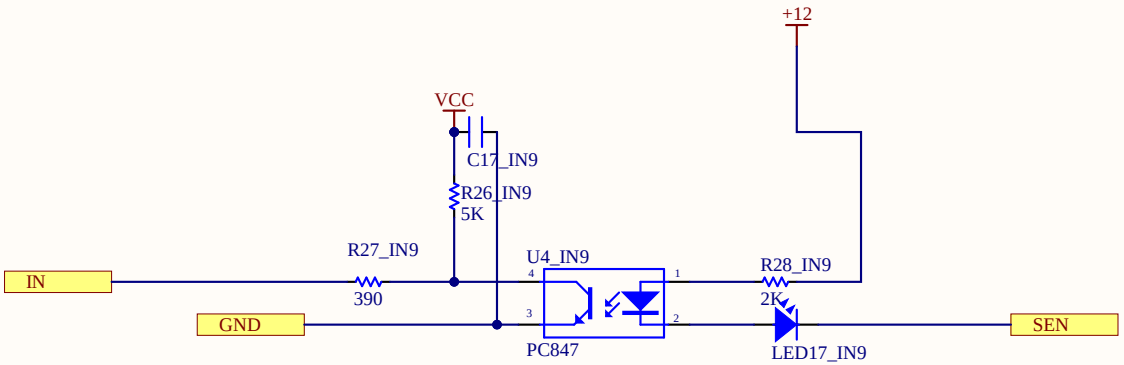

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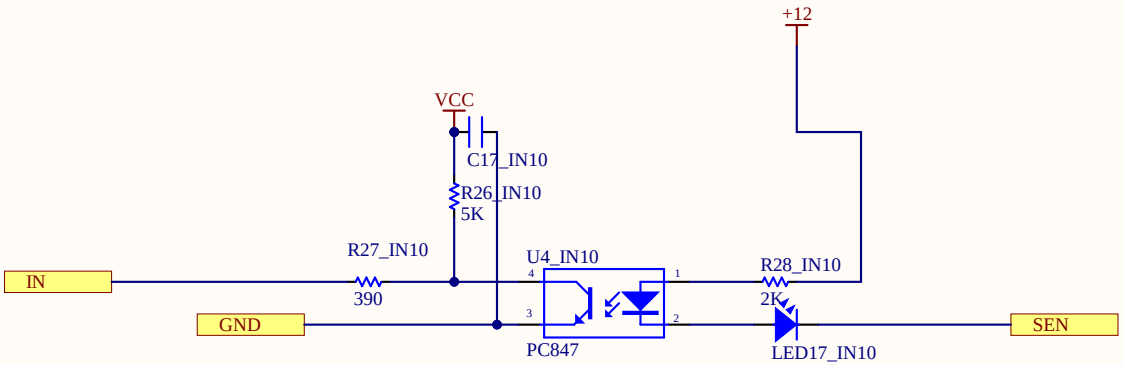

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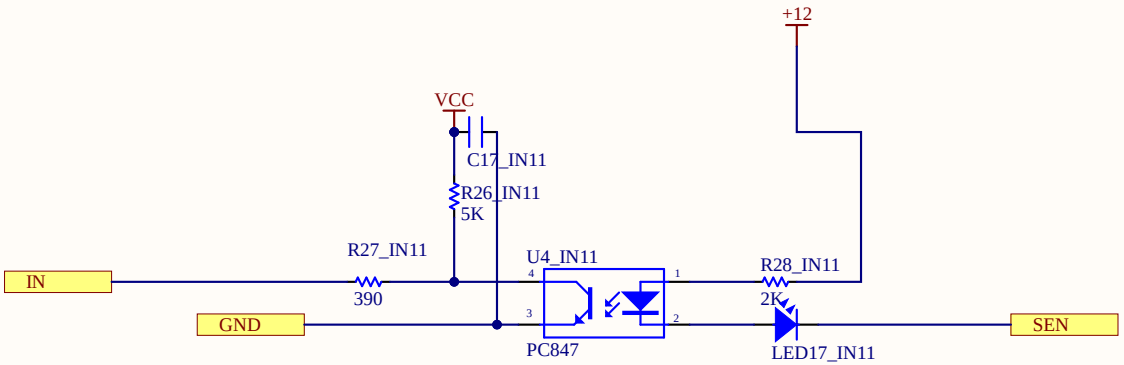

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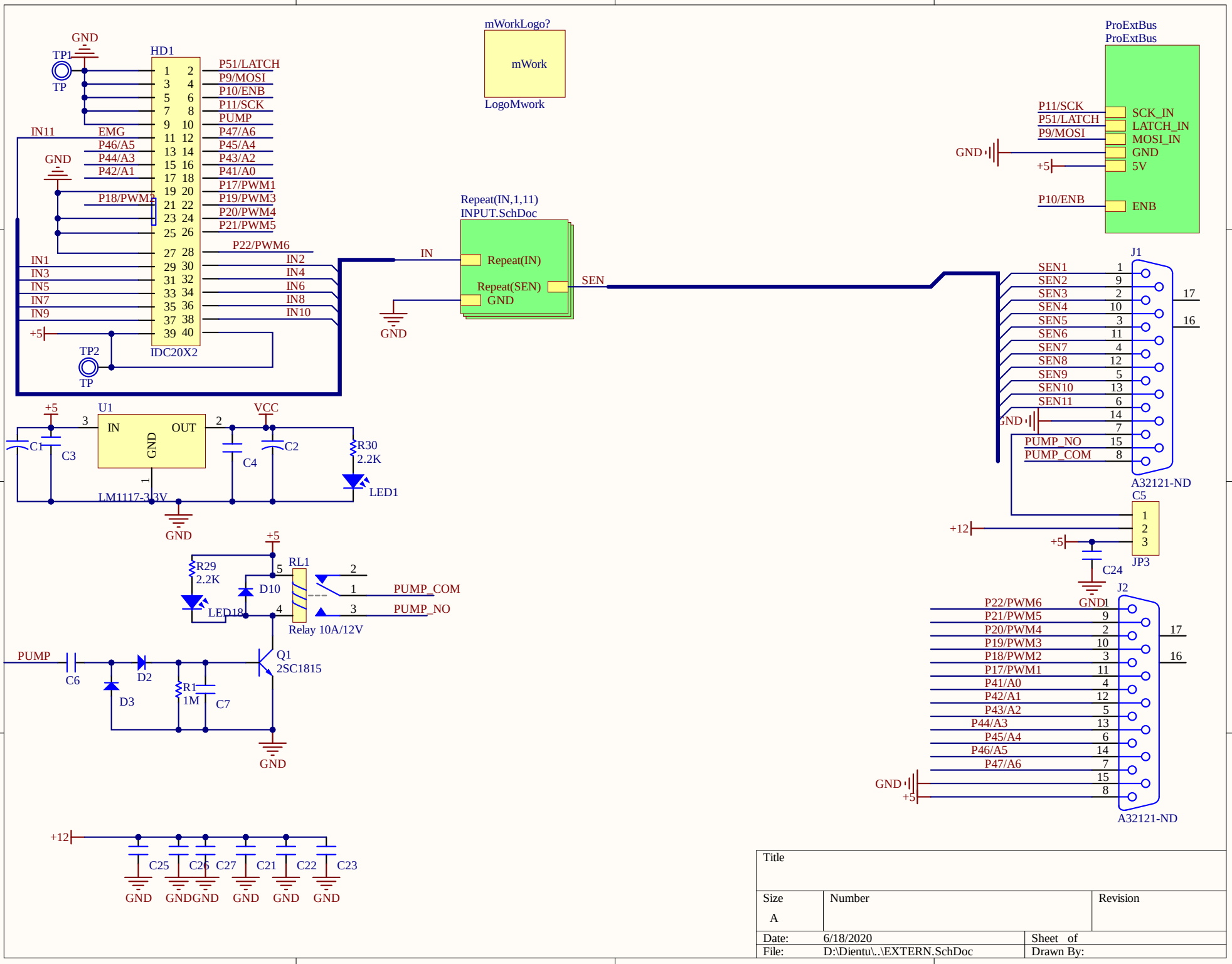
mWorkLogo?
mWork
LogoMwork
ProExtBus
ProExtBus
SCK_IN
LATCH_IN
MOSI_IN
GND
5V
ENB
P11/SCK
P51/LATCH
P9/MOSI
P10/ENB
HD1
IDC20X2
TP1
TP2
TP
P51/LATCH
P9/MOSI
P10/ENB
P11/SCK
PUMP
P47/A6
P45/A4
P43/A2
P41/A0
P17/PWM1
P19/PWM3
P20/PWM4
P21/PWM5
P22/PWM6
P18/PWM2
P46/A5
P44/A3
P42/A1
EMG
IN11
IN1
IN3
IN5
IN7
IN9
IN2
IN4
IN6
IN8
IN10
Repeat(IN,1,11)
INPUT.SchDoc
Repeat(IN)
Repeat(SEN)
GND
IN
SEN
J1
SEN1
SEN2
SEN3
SEN4
SEN5
SEN6
SEN7
SEN8
SEN9
SEN10
SEN11
PUMP_NO
PUMP_COM
A32121-ND
U1
IN
OUT
GND
LM1117-3.3V
VCC
C1
C2
C3
C4
C5
R30
2.2K
LED1
+5
+12
JP3
C24
R29
2.2K
LED18
D10
RL1
Relay 10A/12V
PUMP_COM
PUMP_NO
PUMP
C6
D2
D3
R1
1M
C7
Q1
2SC1815
J2
P22/PWM6
P21/PWM5
P20/PWM4
P19/PWM3
P18/PWM2
P17/PWM1
P41/A0
P42/A1
P43/A2
P44/A3
P45/A4
P46/A5
P47/A6
A32121-ND
C25
C26
C27
C21
C22
C23
Title
Size
A
Number
Revision
Date:
6/18/2020
Sheet of
File:
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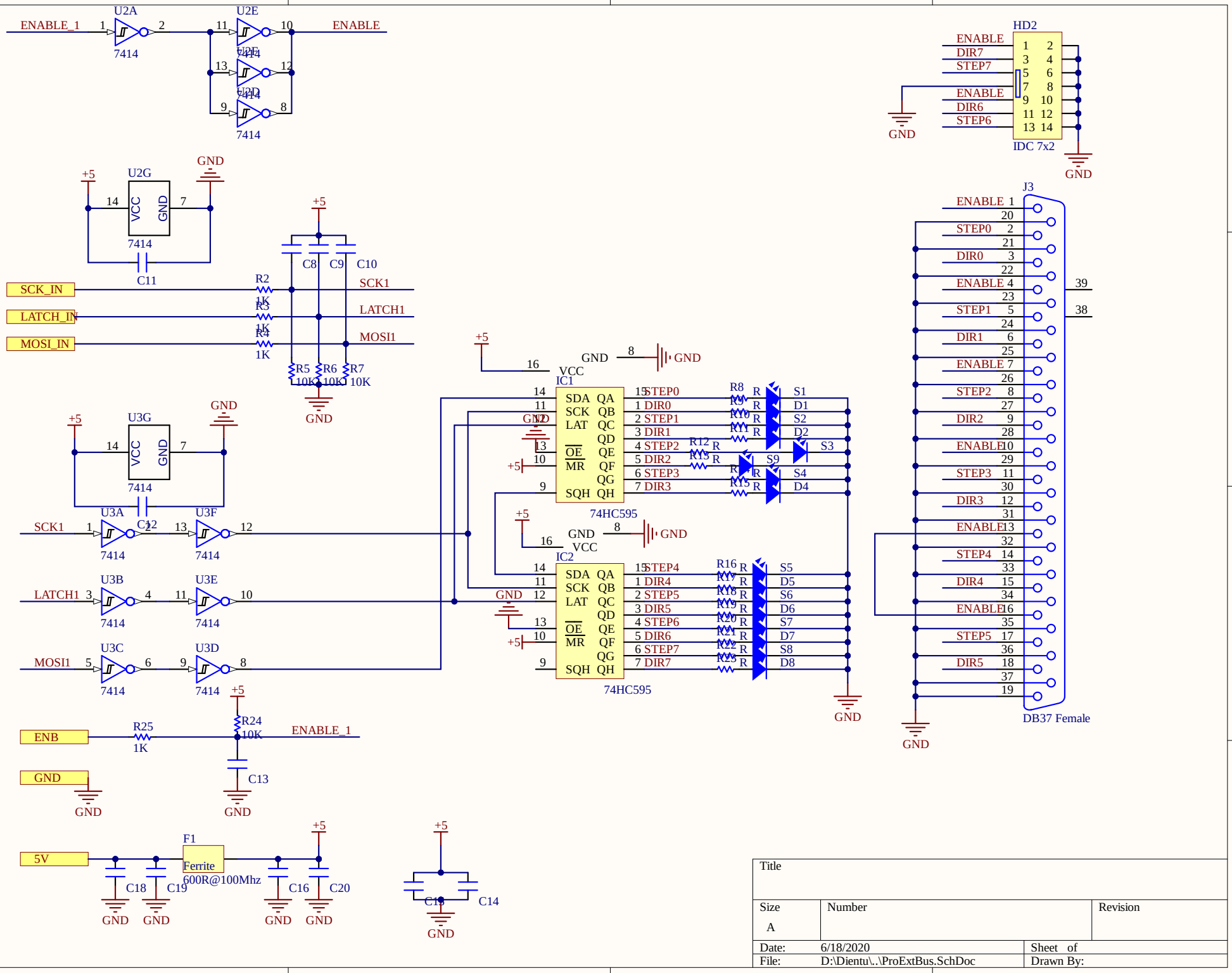
U2A
U2E
ENABLE_1
ENABLE
7414
U2G
U3G
U3A
U3F
U3B
U3E
U3C
U3D
+5
GND
C8
C9
C10
C11
C12
SCK_IN
LATCH_IN
MOSI_IN
SCK1
LATCH1
MOSI1
R2
R3
R4
R5
R6
R7
1K
10K
IC1
IC2
74HC595
SDA
SCK
LAT
OE
MR
SQH
QA
QB
QC
QD
QE
QF
QG
QH
VCC
STEP0
DIR0
STEP1
DIR1
STEP2
DIR2
STEP3
DIR3
STEP4
DIR4
STEP5
DIR5
STEP6
DIR6
STEP7
DIR7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
S1
S2
S3
S9
S4
D1
D2
D4
S5
S6
S7
S8
D5
D6
D7
D8
HD2
IDC 7x2
J3
DB37 Female
ENB
R24
R25
C13
5V
F1
Ferrite
600R@100Mhz
C18
C19
C16
C20
C14
C15
Title
Size
A
Number
Revision
Date:
6/18/2020
Sheet of
File:
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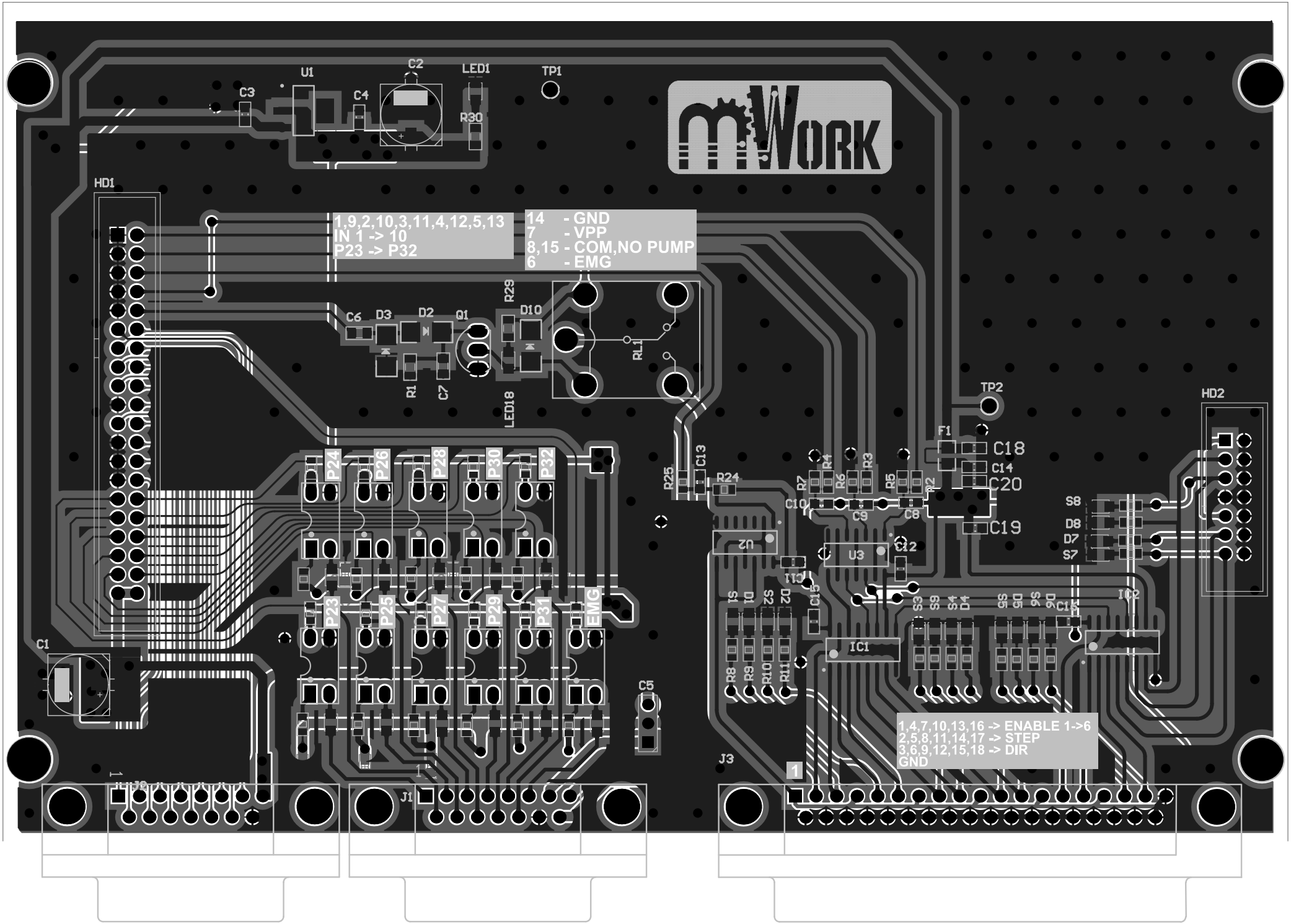
Drawn By:


mWORK
1,9,2,10,3,11,4,12,5,13
IN 1 -> 10
P23 -> P32
14 - GND
7 - VPP
8,15 - COM,NO PUMP
6 - EMG
1,4,7,10,13,16 -> ENABLE 1->6
2,5,8,11,14,17 -> STEP
3,6,9,12,15,18 -> DIR
GND
HD1
HD2
J1
J2
J3
TP1
TP2
U1
U2
U3
IC1
IC2
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C18
C19
C20
D2
D3
D7
D8
D10
F1
LED1
LED18
Q1
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R24
R25
R29
R30
RL1
P23
P24
P25
P26
P27
P28
P29
P30
P31
P32
EMG
S1
S2
S3
S4
S5
S6
S7
S8
S9

Comment	Description	Designator	Footprint	LibRef	Quantity
CN-ALU-SMD	Polarized Capacitor (Axial)	C1, C2	CAP-ALU-SMD-F	CN-ALU-SMD	2
CN		C3, C4, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17_IN1, C17_IN2, C17_IN3, C17_IN4, C17_IN5, C17_IN6, C17_IN7, C17_IN8, C17_IN9, C17_IN10, C17_IN11, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27	CN-SMD-0603_big	CN	32
JP3	WR-PHD 2.54 mm Angled Socket Header	C5	JP3-CLOSED	JP3	1
10nF		C6, C7	CN-SMD-0805	CN	2
LED		D1, D2, D4, D5, D6, D7, D8, LED1, LED18, S1, S2, S3, S4, S5, S6, S7, S8, S9	LED-0805-Blue	LED SMD	18
Diode	Default Diode	D2, D3	DIO-SMD-106-HayDung	Diode	2
1N4148	Default Diode	D10	DIO-SMD-106-HayDung	Diode	1
600R@100Mhz		F1	Capacitor_805	Ferrite	1
IDC20X2	IDC 13x2	HD1	IDC40	IDC20X2	1
IDC 7x2		HD2	IDC14	IDC 7X2	1
74HC595	8 Bit Serial input - Parallel Output	IC1, IC2	SO16	74595	2
A32121-ND	Receptacle Assembly, 15 Position, Right Angle	J1, J2	DB15	DB15	2
DB37 Female		J3	DB37	DB37 Female	1
LED		LED17_IN1, LED17_IN2, LED17_IN3, LED17_IN4, LED17_IN5, LED17_IN6, LED17_IN7, LED17_IN8, LED17_IN9, LED17_IN10, LED17_IN11	LED-0805-Green	LED SMD	11
LogoMwork		mWorkLogo?	LogoMwork30*12	LogoMwork	1
2SC1815	NPN 600mW, ECB	Q1	TO92-123	2SC1815	1
1M		R1	RES-SMD-0805	R	1
1K		R2, R3, R4, R25	RES-SMD-0603_BIG	R	4
10K		R5, R6, R7, R24	RES-SMD-0603_BIG	R	4
R		R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23	RES-SMD-0603_BIG	R	16
5K		R26_IN1, R26_IN2, R26_IN3, R26_IN4, R26_IN5, R26_IN6, R26_IN7, R26_IN8, R26_IN9, R26_IN10, R26_IN11	RES-SMD-0603_BIG	R	11
390		R27_IN1, R27_IN2, R27_IN3, R27_IN4, R27_IN5, R27_IN6, R27_IN7, R27_IN8, R27_IN9, R27_IN10, R27_IN11	RES-SMD-0603_BIG	R	11
2K		R28_IN1, R28_IN2, R28_IN3, R28_IN4, R28_IN5, R28_IN6, R28_IN7, R28_IN8, R28_IN9, R28_IN10, R28_IN11	RES-SMD-0603_BIG	R	11
2.2K		R29, R30	RES-SMD-0805	R	2
Relay 10A/12V	Relay SPDT,10A - 12VDC 5 Pin	RL1	RELAY 5	Relay 5	1
TP	Test Point	TP1, TP2	TP1	TP1	2
LM1117-3.3V	800mA Low-Dropout Linear Regulator	U1	SOT223	LM1117	1
7414	IC, M74HC04M, Hex Inverter, SO-14	U2, U3	SO14	7414	2
PC847	Single Opto	U4_IN1, U4_IN2, U4_IN3, U4_IN4, U4_IN5, U4_IN6, U4_IN7, U4_IN8, U4_IN9, U4_IN10, U4_IN11	DIP4	PC817	11