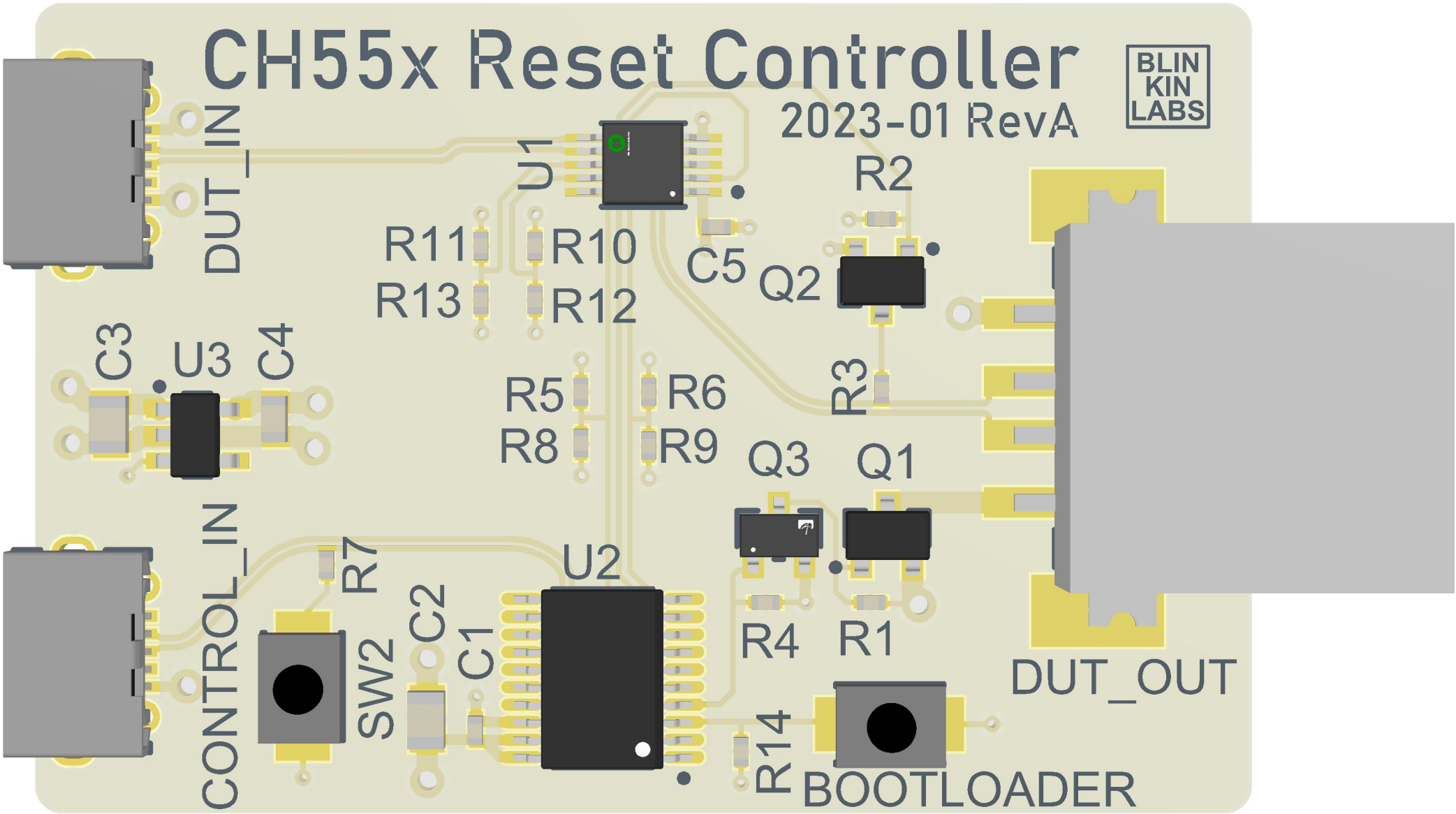
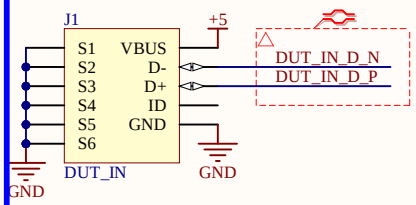
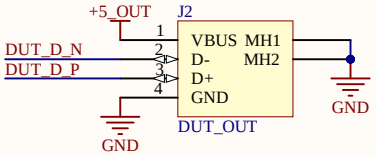

CH55x Reset Controller
2023-01 RevA
BLIN
KIN
LABS
DUT_IN
U1
R2
R11
R10
C5
Q2
R13
R12
C3
U3
C4
R5
R6
R3
R8
R9
Q3
Q1
CONTROL_IN
R7
U2
SW2
C2
C1
R4
R1
DUT_OUT
R14
BOOTLOADER

CH55x Reset Controller

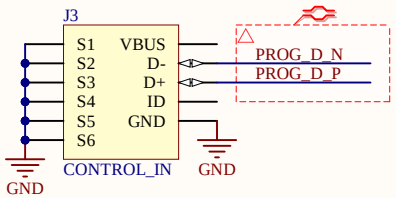
DUT micro USB input



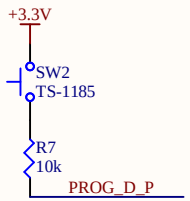
DUT USB A output



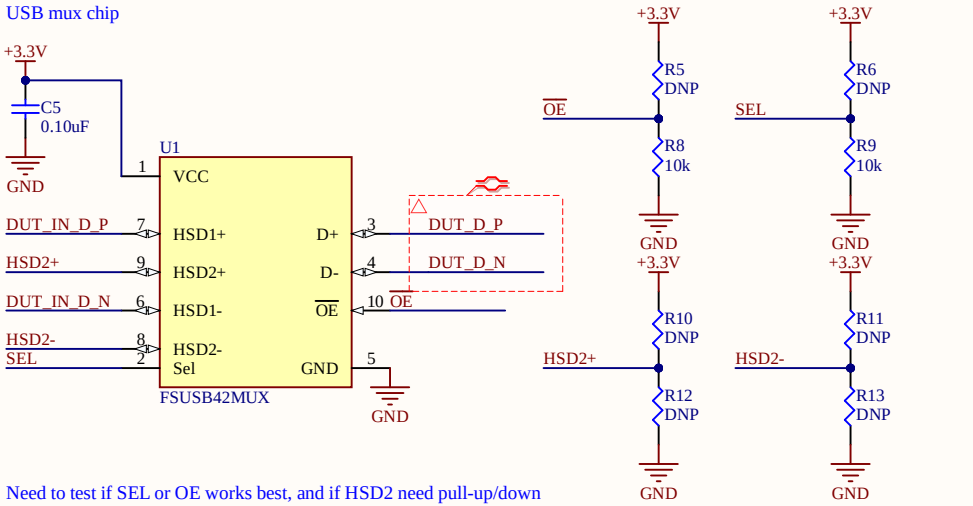
Switch control Micro USB input



Press to put U2 in program mode

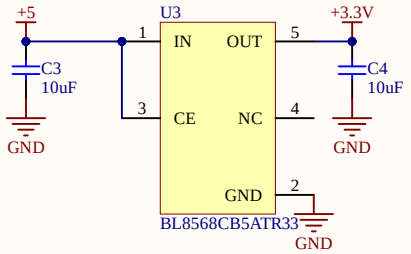


USB mux chip

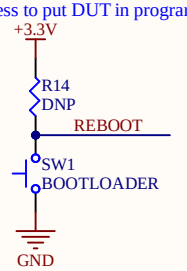


Need to test if SEL or OE works best, and if HSD2 need pull-up/down

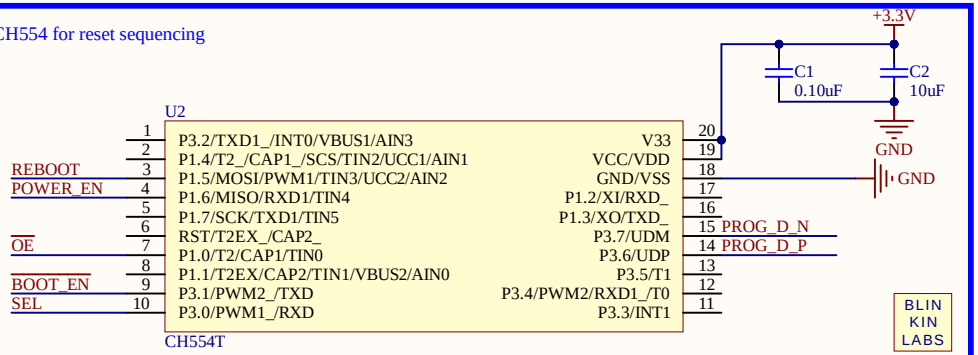
3.3V regulator



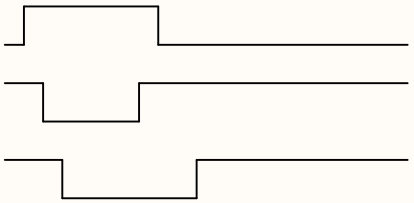
Press to put DUT in program mode



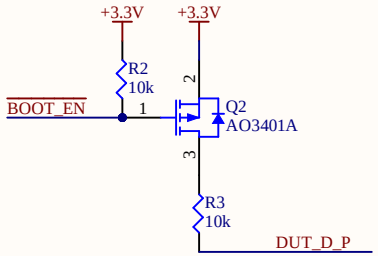
CH554 for reset sequencing



Reboot sequence

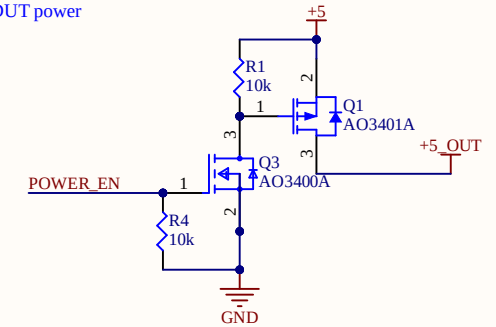


D+ pullup



When BOOT_EN is high, Q2 is off and R3 is left floating
When BOOT_EN is low, Q2 is on and R3 is connected to 3.3V

DUT power

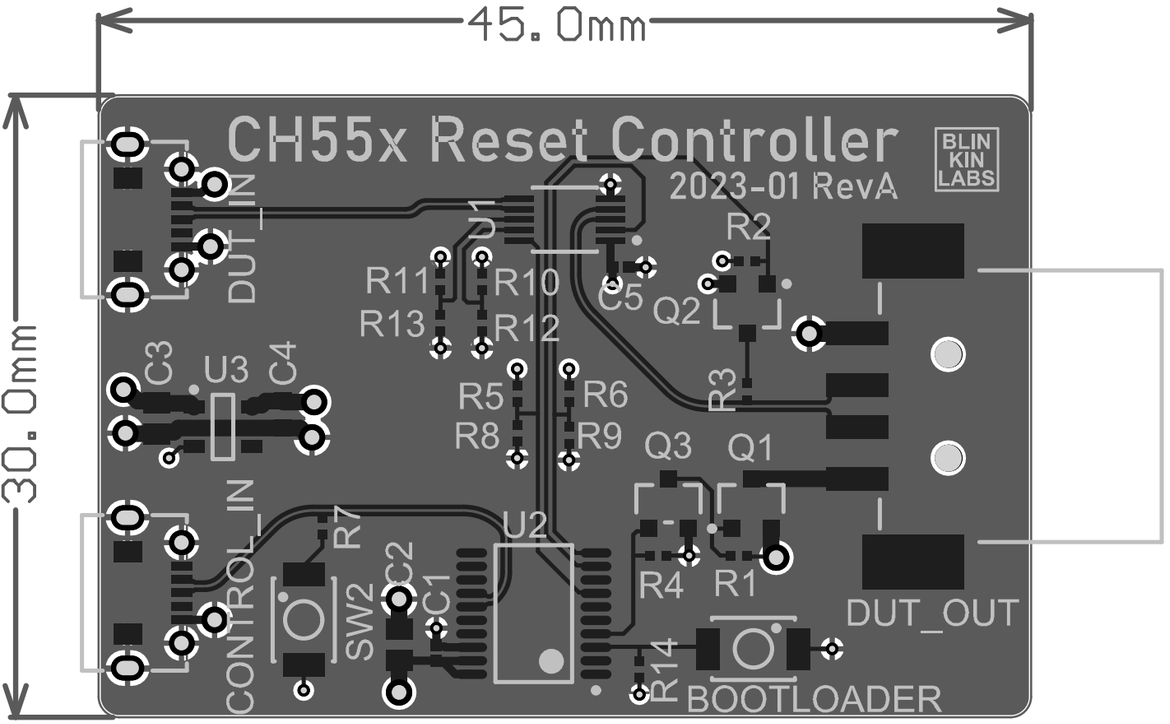


When POWER_EN is high, Q3 is on, Q1 is on, so +5V out is +5V
When POWER_EN is low, Q3 is off, Q1 is off, so +5V_OUT is floating

Title: *			
Project: CH55x Reset Controller		Revision: RevA	
Date: 1/9/2023	Time: 9:04:54 PM	Sheet *	of *

BLIN KIN LABS

CH55x Reset Controller



Silkscreen: white / don't care
Soldermask: green / don't care
Surface finish: ENIG
Copper weight: 1oz outer, 0.5oz inner

Layer	Name	Material	Thickness	Constant
	Top Overlay			
	Top Solder	SM-001	0.013mm	4
1	Top Layer	CF-004	0.035mm	
	Dielectric 2	PP-022	0.200mm	4.6
2	Layer 1	CF-004	0.015mm	
	Dielectric 3	Core-039	0.700mm	4.8
3	Layer 2	CF-004	0.015mm	
	Dielectric 4	PP-022	0.200mm	4.6
4	Bottom Layer	CF-004	0.035mm	
	Bottom Solder	SM-001	0.013mm	4
	Bottom Overlay			
Total board thickness:			1.226mm	

Design Rules Verification Report

Filename : D:\Dropbox\junk\board sketches\ch55x_programmer\PCB1.PcbDoc

Warnings 0
Rule Violations 60

Warnings	
Total	0

Rule Violations	
Clearance Constraint (Gap=0.127mm)	0
Clearance Constraint (Gap=0.2mm) (All),(All)	0
Short-Circuit Constraint (Allowed=No) (All),(All)	0
Un-Routed Net Constraint ((All))	0
Modified Polygon (Allow modified: No), (Allow shelved: No)	0
Width Constraint (Min=0.2mm) (Max=0.8mm) (Preferred=0.4mm) (All)	0
Power Plane Connect Rule(Relief Connect)(Expansion=0.508mm) (Conductor Width=0.254mm)	0
Hole Size Constraint (Min=0.025mm) (Max=2.54mm) (All)	0
Hole To Hole Clearance (Gap=0.254mm) (All),(All)	0
Minimum Solder Mask Sliver (Gap=0.254mm) (All),(All)	38
Silk To Solder Mask (Clearance=0.254mm) (IsPad),(All)	6
Silk to Silk (Clearance=0.254mm) (All),(All)	7
Net Antennae (Tolerance=0mm) (All)	0
Board Clearance Constraint (Gap=0mm) (All)	9
Room Sheet1 (Bounding Region = (120.775mm, 77.5mm, 184mm, 122.5mm)	0
Height Constraint (Min=0mm) (Max=25.4mm) (Prefered=12.7mm) (All)	0
Total	60

Minimum Solder Mask Sliver (Gap=0.254mm) (All),(All)
Minimum Solder Mask Sliver Constraint: (0.017mm < 0.254mm) Between Pad C1-1(16.3mm,2.71mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.017mm < 0.254mm) Between Pad C5-1(24.81mm,21.7mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad J1-D-(4mm,24.65mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad J1-D-(4mm,24.65mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad J1-D+(4mm,24mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad J1-GND(4mm,22.7mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.122mm < 0.254mm) Between Pad J1-GND(4mm,22.7mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.122mm < 0.254mm) Between Pad J1-S4(4mm,26.425mm) on Multi-Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad J3-D-(4mm,6.65mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad J3-D-(4mm,6.65mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad J3-D+(4mm,6mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad J3-GND(4mm,4.7mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.122mm < 0.254mm) Between Pad J3-GND(4mm,4.7mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.122mm < 0.254mm) Between Pad J3-S4(4mm,8.425mm) on Multi-Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R10-1(18.5mm,20.6mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R1-1(30.5mm,7.8mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R11-1(16.5mm,20.6mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R12-1(18.5mm,18.6mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R13-1(16.5mm,18.6mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R14-1(26.1mm,2.7mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R2-1(31.7mm,22mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R3-1(31.3mm,15.3mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R4-1(27.4mm,7.8mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R5-1(20.2mm,15.2mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R6-1(22.7mm,15.2mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R7-1(10.8mm,9.6mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R8-1(20.2mm,13.3mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad R9-1(22.7mm,13.2mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.2mm < 0.254mm) Between Pad U1-1(24.7mm,23mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.2mm < 0.254mm) Between Pad U1-10(20.3mm,23mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.2mm < 0.254mm) Between Pad U1-2(24.7mm,23.5mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.2mm < 0.254mm) Between Pad U1-3(24.7mm,24mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.2mm < 0.254mm) Between Pad U1-4(24.7mm,24.5mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.2mm < 0.254mm) Between Pad U1-6(20.3mm,25mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.2mm < 0.254mm) Between Pad U1-7(20.3mm,24.5mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.2mm < 0.254mm) Between Pad U1-8(20.3mm,24mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad U3-1(4.6mm,14.95mm) on Top Layer And
Pad
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.254mm) Between Pad U3-2(4.6mm,14mm) on Top Layer And Pad

Silk To Solder Mask (Clearance=0.254mm) (IsPad),(All)
Silk To Solder Mask Clearance Constraint: (0.25mm < 0.254mm) Between Arc (32.7mm,4.3mm) on Top Overlay And Pac
Silk To Solder Mask Clearance Constraint: (0.25mm < 0.254mm) Between Arc (8.9mm,5.8mm) on Top Overlay And Pac
Silk To Solder Mask Clearance Constraint: (0.175mm < 0.254mm) Between Pad J2-5(39.3mm,22.5mm) on Top Layer Anc
Silk To Solder Mask Clearance Constraint: (0.175mm < 0.254mm) Between Pad J2-6(39.3mm,7.5mm) on Top Layer Anc
Silk To Solder Mask Clearance Constraint: (0.242mm < 0.254mm) Between Pad R9-1(22.7mm,13.2mm) on Top Layer Anc
Silk To Solder Mask Clearance Constraint: (0.242mm < 0.254mm) Between Pad R9-2(22.7mm,14mm) on Top Layer And
Text

Silk to Silk (Clearance=0.254mm) (All),(All)
Silk To Silk Clearance Constraint: (0.108mm < 0.254mm) Between Text "BLIN

KIN

LABS" (40.4mm,25.4mm) on Top Overlay And Track (40.4mm,25.4mm)(40.4mm,28.4mm) on Top Ove

Silk to Silk (Clearance=0.254mm) (All),(All)
Silk To Silk Clearance Constraint: (0.178mm < 0.254mm) Between Text "BLIN

KIN

LABS" (40.4mm,25.4mm) on Top Overlay And Track (40.4mm,25.4mm)(43.4mm,25.4mm) on Top Ove

Silk to Silk (Clearance=0.254mm) (All),(All)
Silk To Silk Clearance Constraint: (0.178mm < 0.254mm) Between Text "BLIN

KIN

LABS" (40.4mm,25.4mm) on Top Overlay And Track (40.4mm,28.4mm)(43.4mm,28.4mm) on Top Ove

Silk to Silk (Clearance=0.254mm) (All),(All)
Silk To Silk Clearance Constraint: (0.108mm < 0.254mm) Between Text "BLIN

KIN

LABS" (40.4mm,25.4mm) on Top Overlay And Track (43.4mm,25.4mm)(43.4mm,28.4mm) on Top Ove

Silk to Silk (Clearance=0.254mm) (All),(All)
Silk To Silk Clearance Constraint: (0.138mm < 0.254mm) Between Text "BOOTLOADER" (28.471mm,0.26mm) on Top
Silk To Silk Clearance Constraint: (0.161mm < 0.254mm) Between Text "BOOTLOADER" (28.471mm,0.26mm) on Top
Silk To Silk Clearance Constraint: (0.247mm < 0.254mm) Between Text "U2" (19.575mm,8.669mm) on Top Overlay And Track

Board Clearance Constraint (Gap=0mm) (All)
Board Outline Clearance(Outline Edge): (Collision < 0.1mm) Between Board Edge And Track
Board Outline Clearance(Outline Edge): (Collision < 0.1mm) Between Board Edge And Track
Board Outline Clearance(Outline Edge): (Collision < 0.1mm) Between Board Edge And Track
Board Outline Clearance(Outline Edge): (Collision < 0.1mm) Between Board Edge And Track
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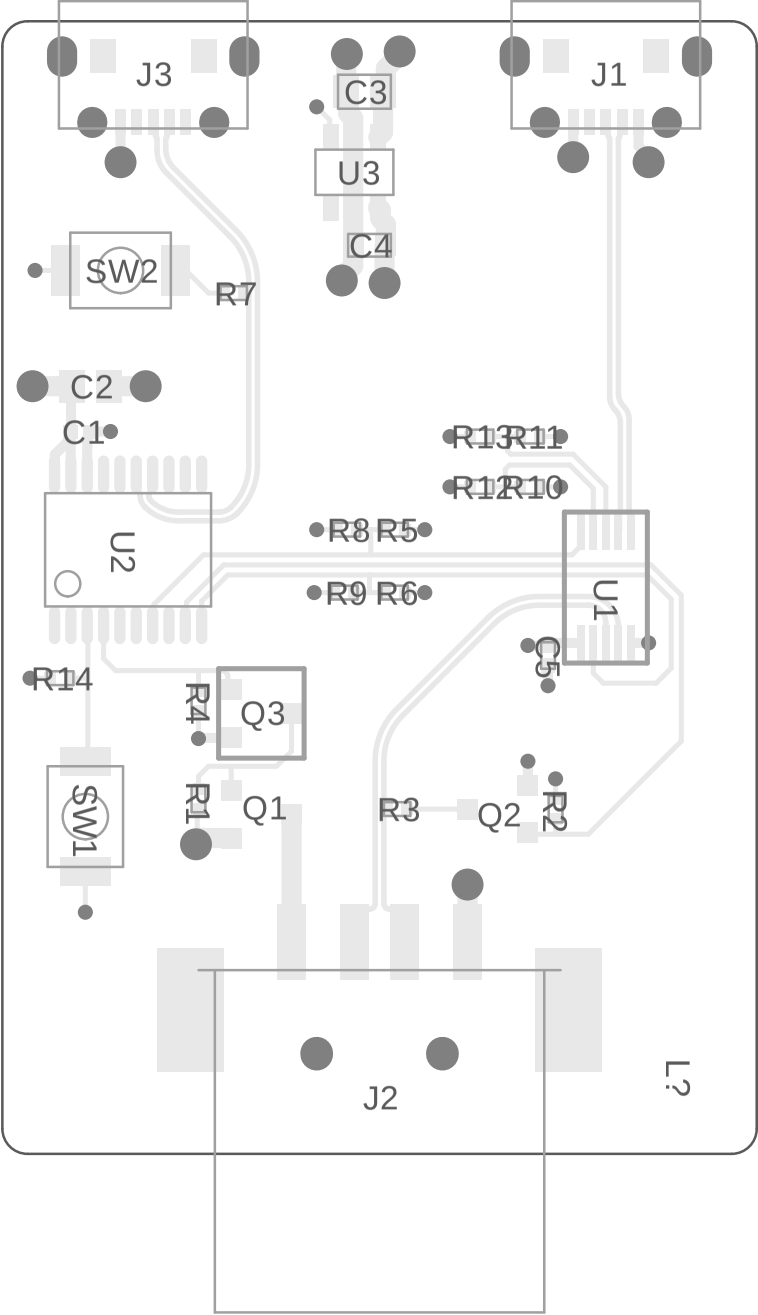
Board Outline Clearance(Outline Edge): (Collision < 0.1mm) Between Board Edge And Track
Board Outline Clearance(Outline Edge): (Collision < 0.1mm) Between Board Edge And Track
Board Outline Clearance(Outline Edge): (Collision < 0.1mm) Between Board Edge And Track

Electrical Rules Check Report

Class	Document	Message
Warning	Sheet1.SchDoc	Net O\E\ has no driving source (Pin R5-1, Pin R8-2, Pin U1-10, Pin U2-7)
Warning	Sheet1.SchDoc	Un-Designated Part L?


J3
C3
J1
U3
C4
SW2
R7
C2
C1
R13
R11
R12
R10
U2
R8
R5
U1
R9
R6
C5
R14
R4
Q3
SW1
R1
Q1
R3
Q2
R2
J2
L?