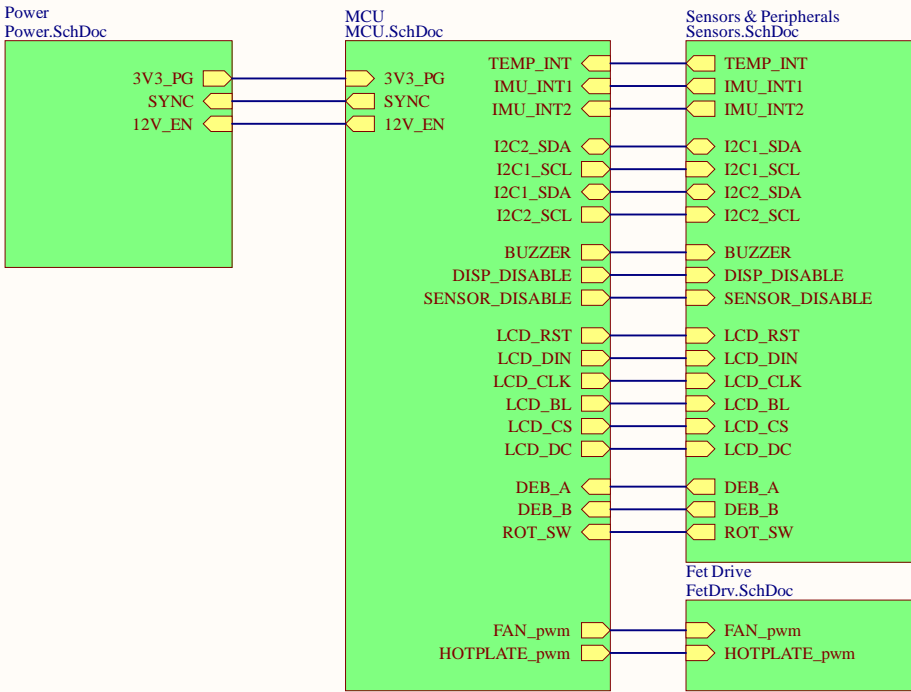


SMD Reflow Project



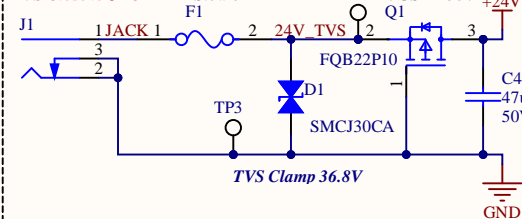
Title <i>SMD Reflow Hotplate: Main Schematic</i>		
Size A4	Number <i>1</i>	Revision <i>0</i>
Date:	6-22-2022	Sheet of
File:	E:\GitHub\...\Main.SchDoc	Drawn By: <i>Jesse Farrell</i>

Main Power

Reverse Protection

Designer:

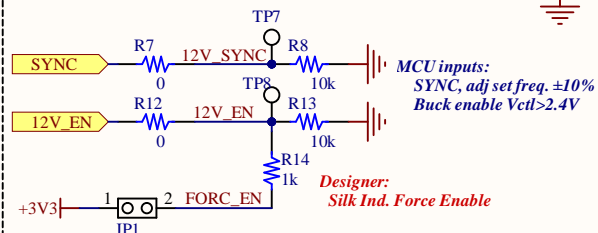
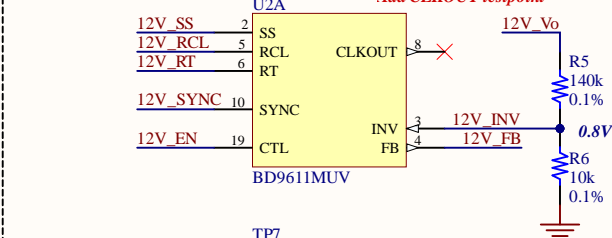
TVS Close to JACK



12V Buck Config

Designer:

Add CLKOUT testpoint



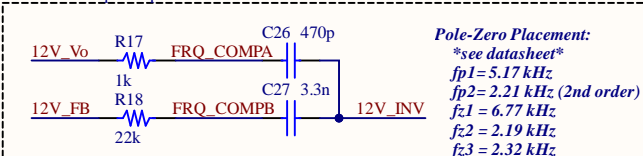
Designer: **Silk Ind. Force Enable**

Config Soft Start:
 $t = (C_{SS} * 0.8V) / 1uA = 8ms$

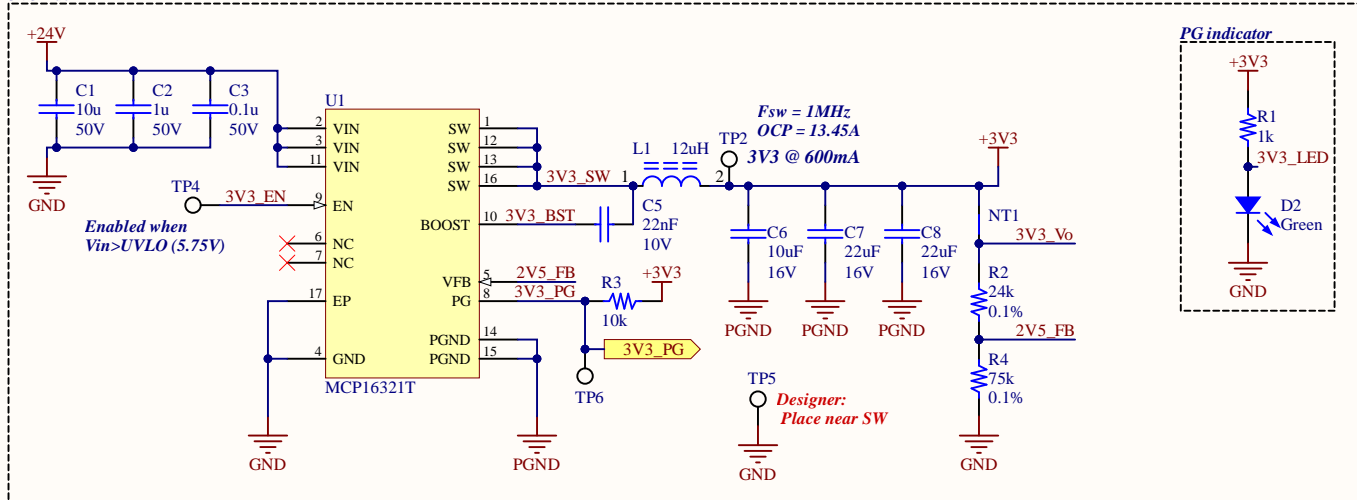
Config Current Limit:
 $V_{ocp} = (0.8/R_{cl}) * 1850mV = 67.3mV$
 $OCP = V_{ocp} / R_s = 13.45A$

Config Switching Freq:
 $F_{osc} = 15900 * (R_{rt} \sim 0.955) = 152kHz$

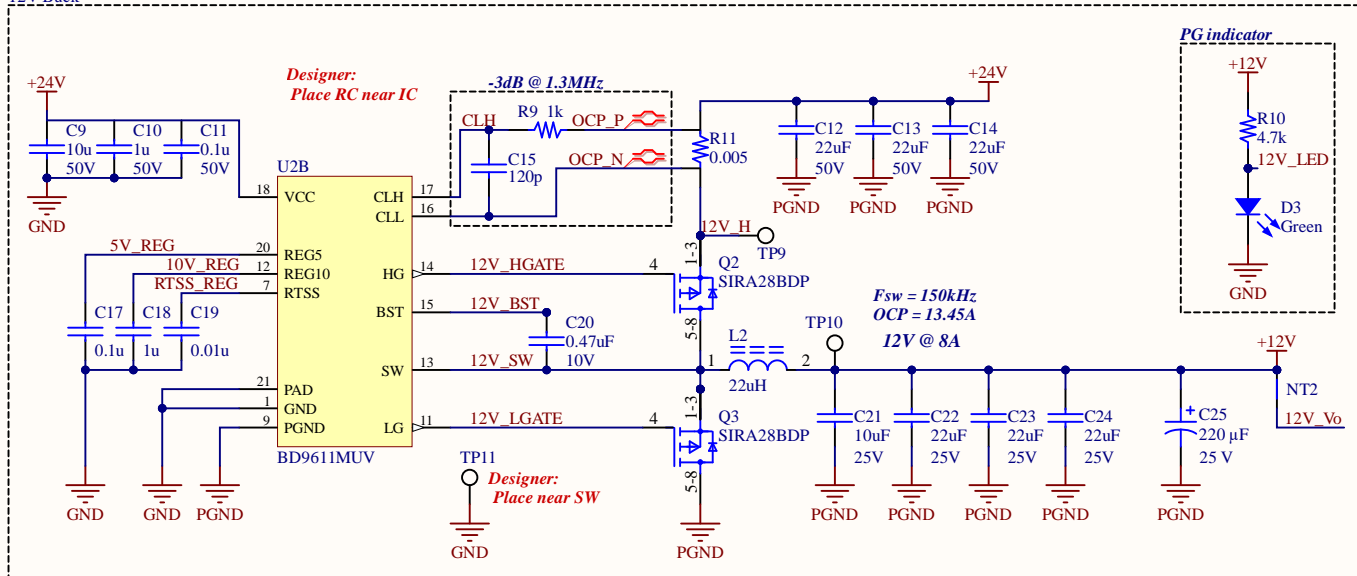
12V Buck Freq. Comp.



3V3 Buck



12V Buck

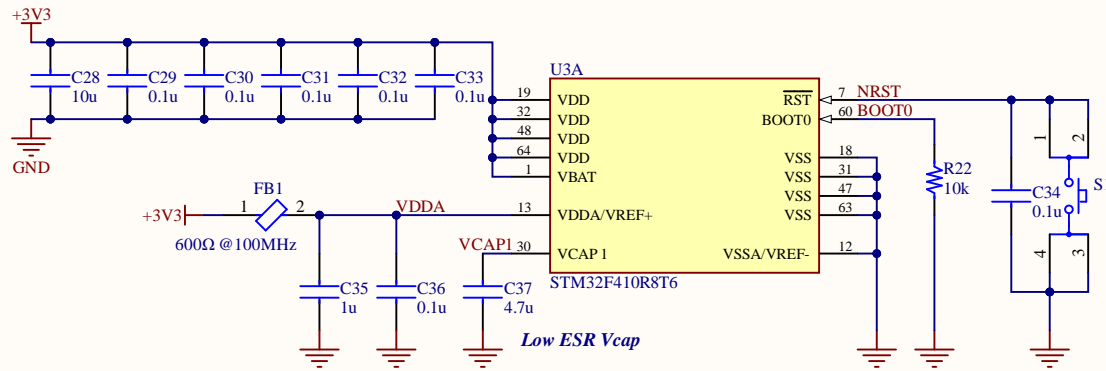


Title **SMD Reflow Hotplate: Power**

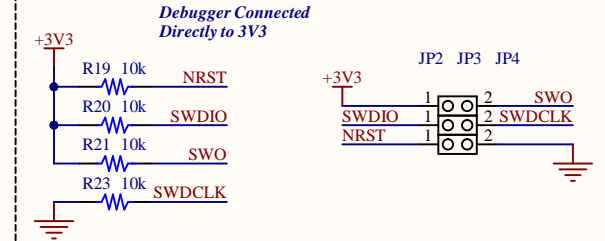
Size	Number	Revision
A4	2	0
Date:	6-22-2022	Sheet of
File:	E:\Git\Hub\...\Power.SchDoc	Drawn By: Jesse Farrell

Microcontroller

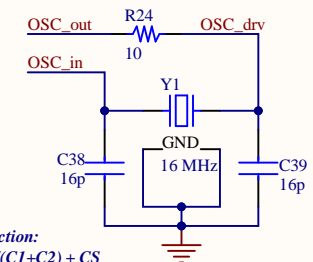
Decoupling & Config



Debug Header

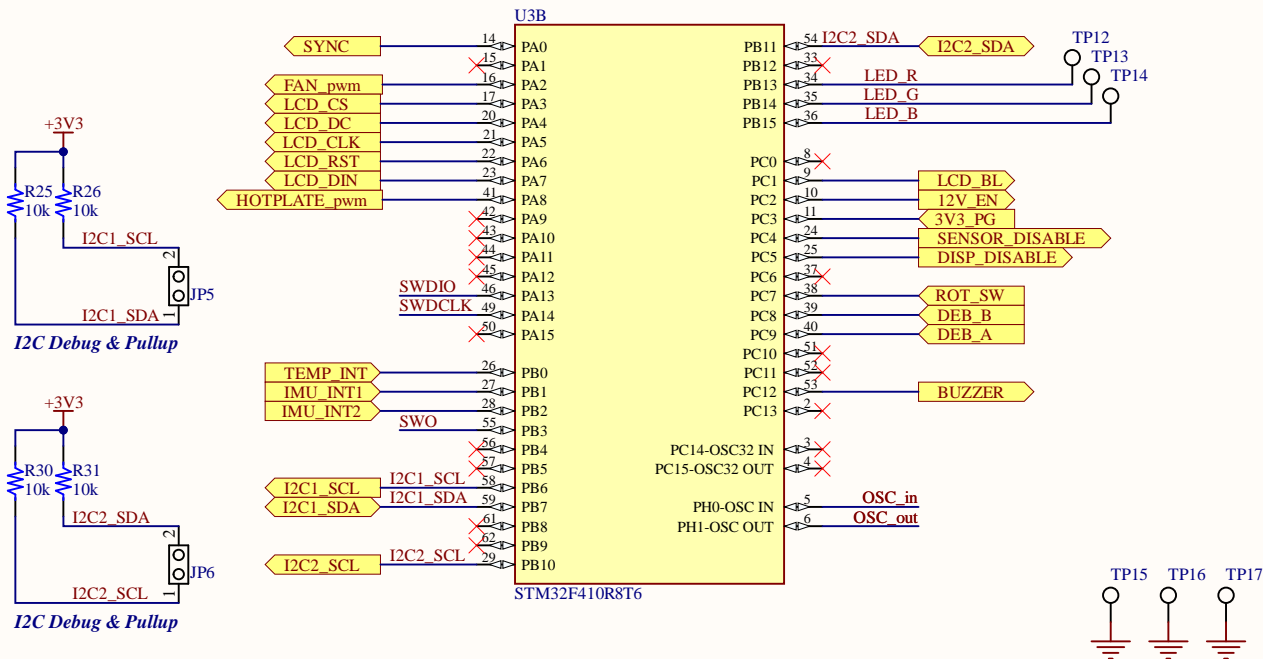


External Clock

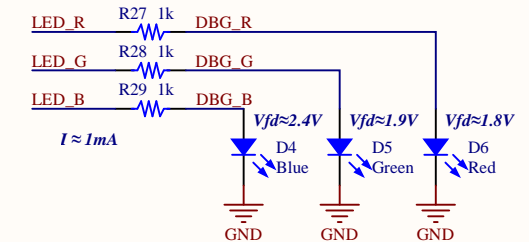


Capacitor Selection:
 $C_L = (C1 * C2) / (C1 + C2) + C_S$
 $C_L = 12pF, C1 = C2, C_S \approx 4pF$
 $C = 16pF$

MCU I/O



Debug LEDs



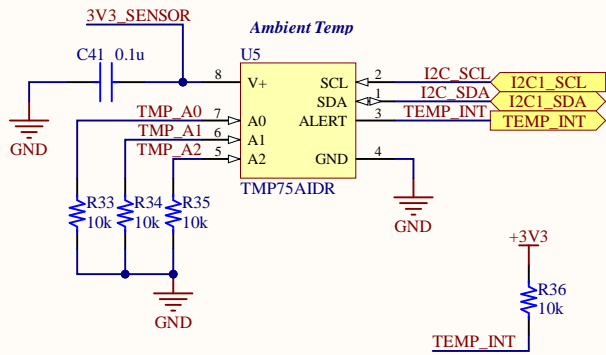
Title: **SMD Reflow Hotplate: Microcontroller**

Size	Number	Revision
A4	3	0
Date:	6-22-2022	Sheet of
File:	E:\GitHub\...\MCU.SchDoc	Drawn By: Jesse Farrell

SENSORS & PERIPHERALS

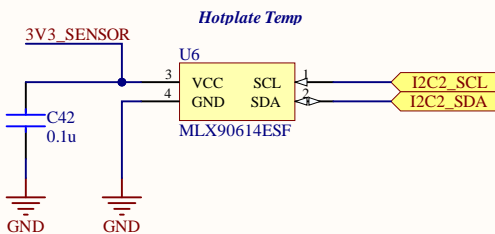
Temp Sense 1

Address: 0b1001000



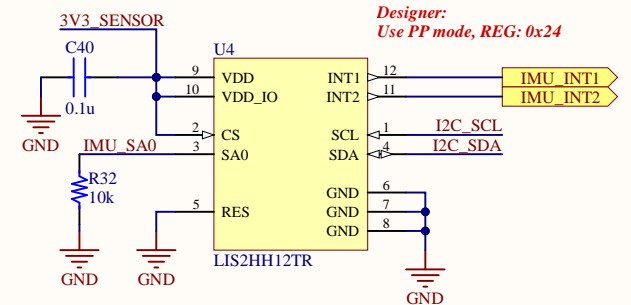
Temp Sense 2

Address: 0b01011011

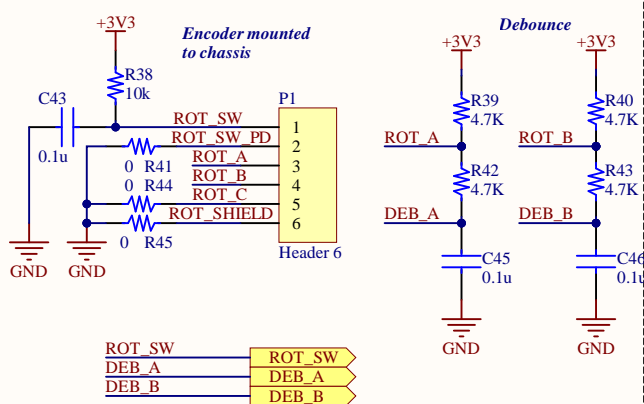


IMU

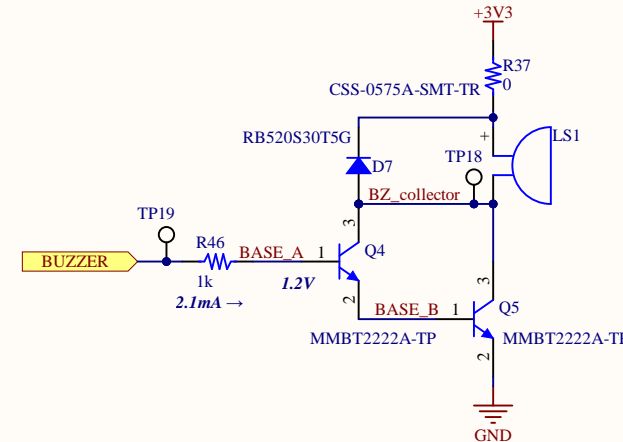
Address: 0b0011110



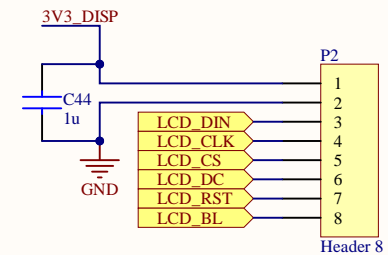
Rotary Encoder



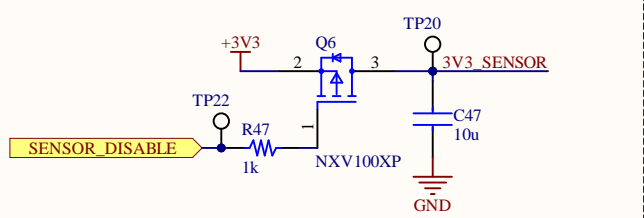
Buzzer



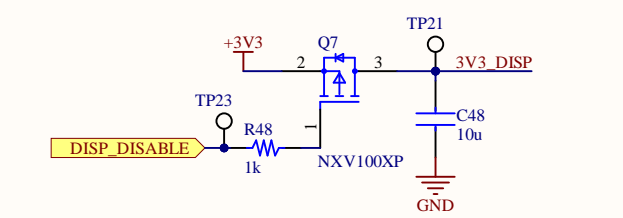
LCD I/O



Sensor Force RESET



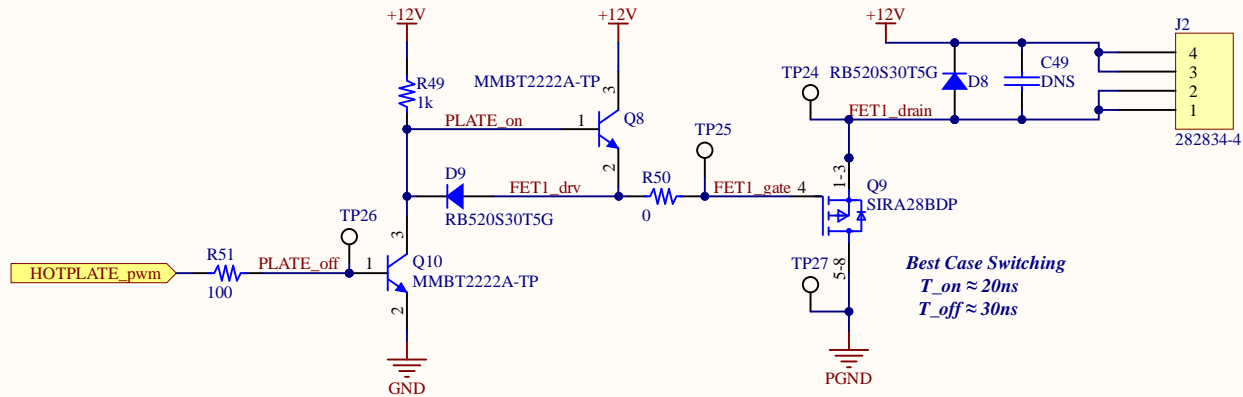
Display Force RESET



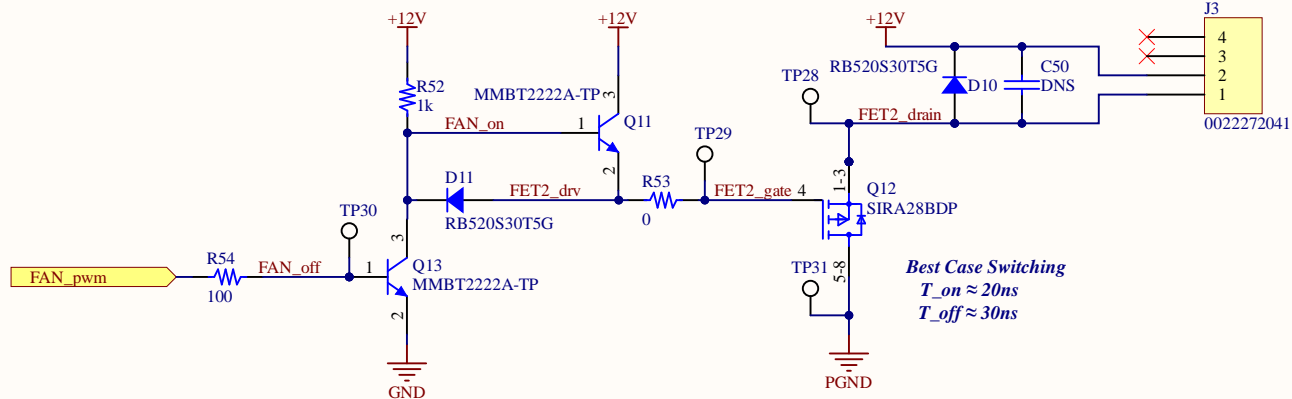
Title SMD Reflow Hotplate: Sensors and Peripherals		
Size A4	Number 4	Revision 0
Date: 6-22-2022	Sheet of	
File: E:\GitHub\...\Sensors.SchDoc	Drawn By: Jesse Farrell	

FET DRIVERS

Hot Plate FET



Case Fan FET



Title SMD Reflow Hotplate: Fet Drivers		
Size A4	Number 5	Revision 0
Date: 6-22-2022	Sheet of	
File: E:\GitHub\...\FetDrv.SchDoc	Drawn By: Jesse Farrell	