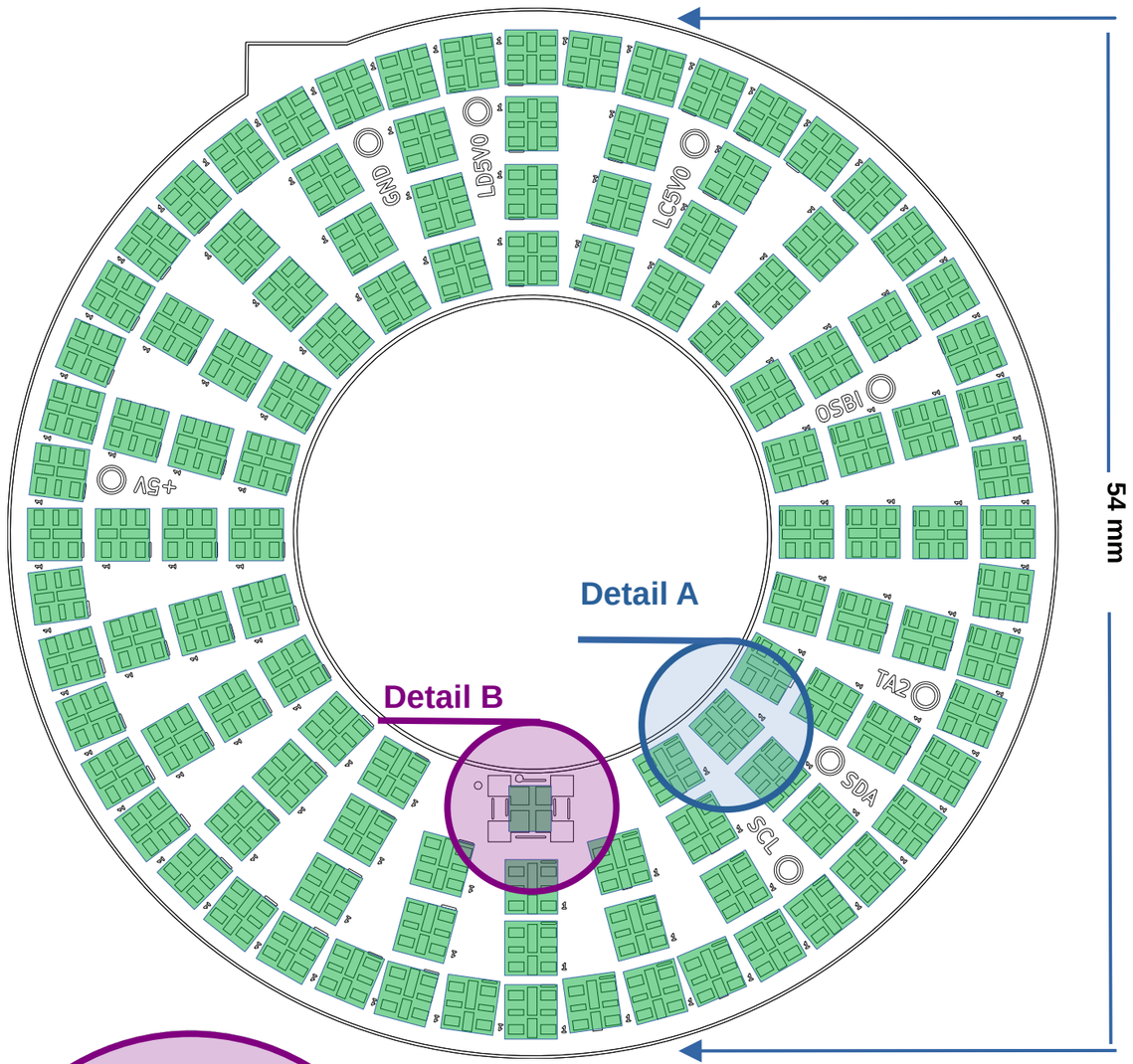
Top Side

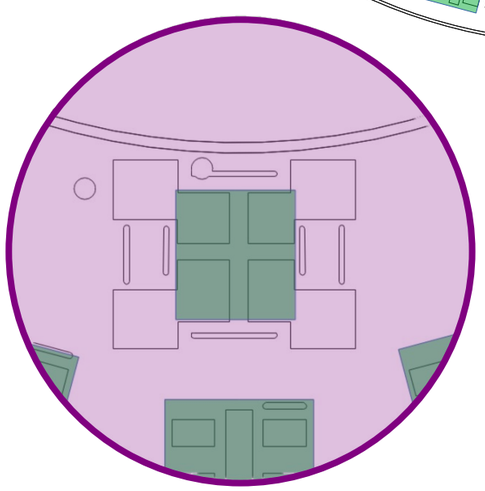


1. The top side of this PCB needs to be placed first so that the designed solder paste jig can be used. See page 2.

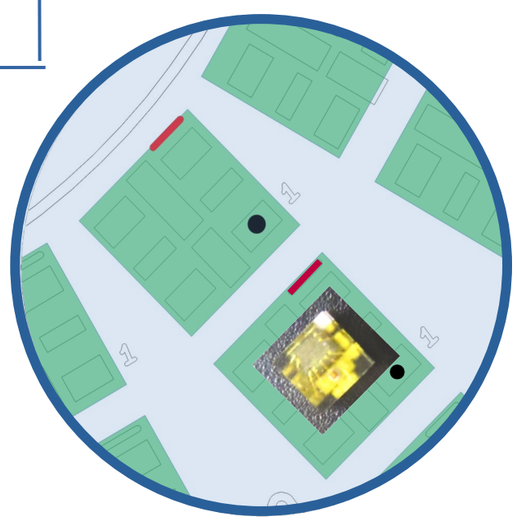
2. Components highlighted GREEN should be inspected for polarity prior to reflow or powering on the PCB. Follow the PCB's silkscreen for polarity.
    1. See Detail A for LED polarity. Index is shown with a RED line (silkscreen mark), pin 1 is indicated with a black dot and a "1" on the silkscreen. Reference the Datasheet for component markings.
    2. Polarity on the IR Reflective Sensor is denoted by the pad size. One side has pads slightly larger than the other. The larger pad goes toward the dot on the silkscreen. See Detail B for sensor polarity. Pin 1 (larger side) is shown with a black dot.

3. All the LEDs on this side of the board have **critical** placement Ensure the LEDs are placed as precisely as possible. Check every LED prior to reflow.

4. This LED board has support for 2 different IR reflective sensor packages. The smaller one should be used.

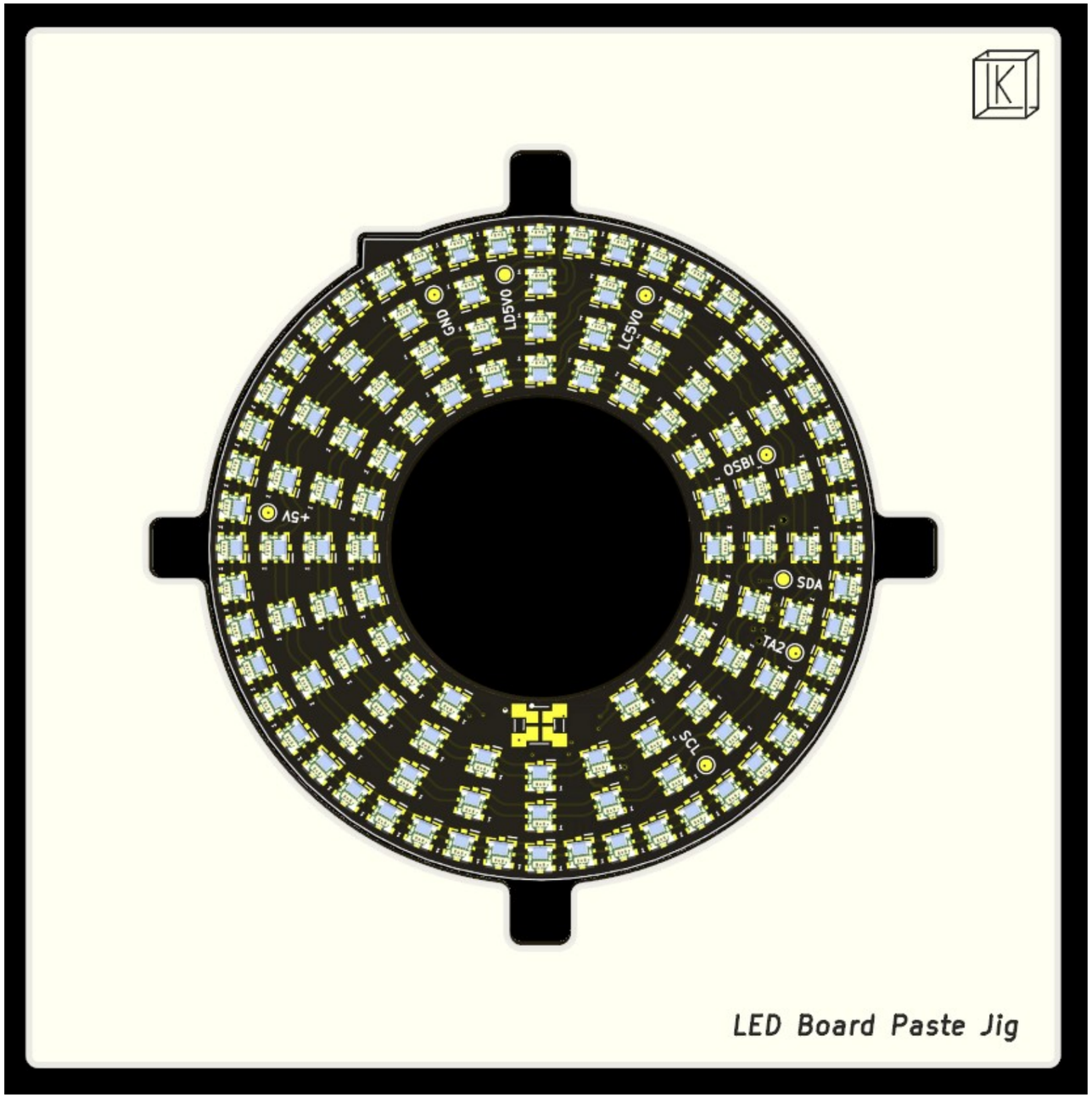


Detail B



Detail A

Project: HDD Clock V3.1 LED Board PCB Assembly		
Pg. Description: Top Side SMT Polarity and Component Notes		
Author: Kadin Whiting	REV: -	PG 1 of 5

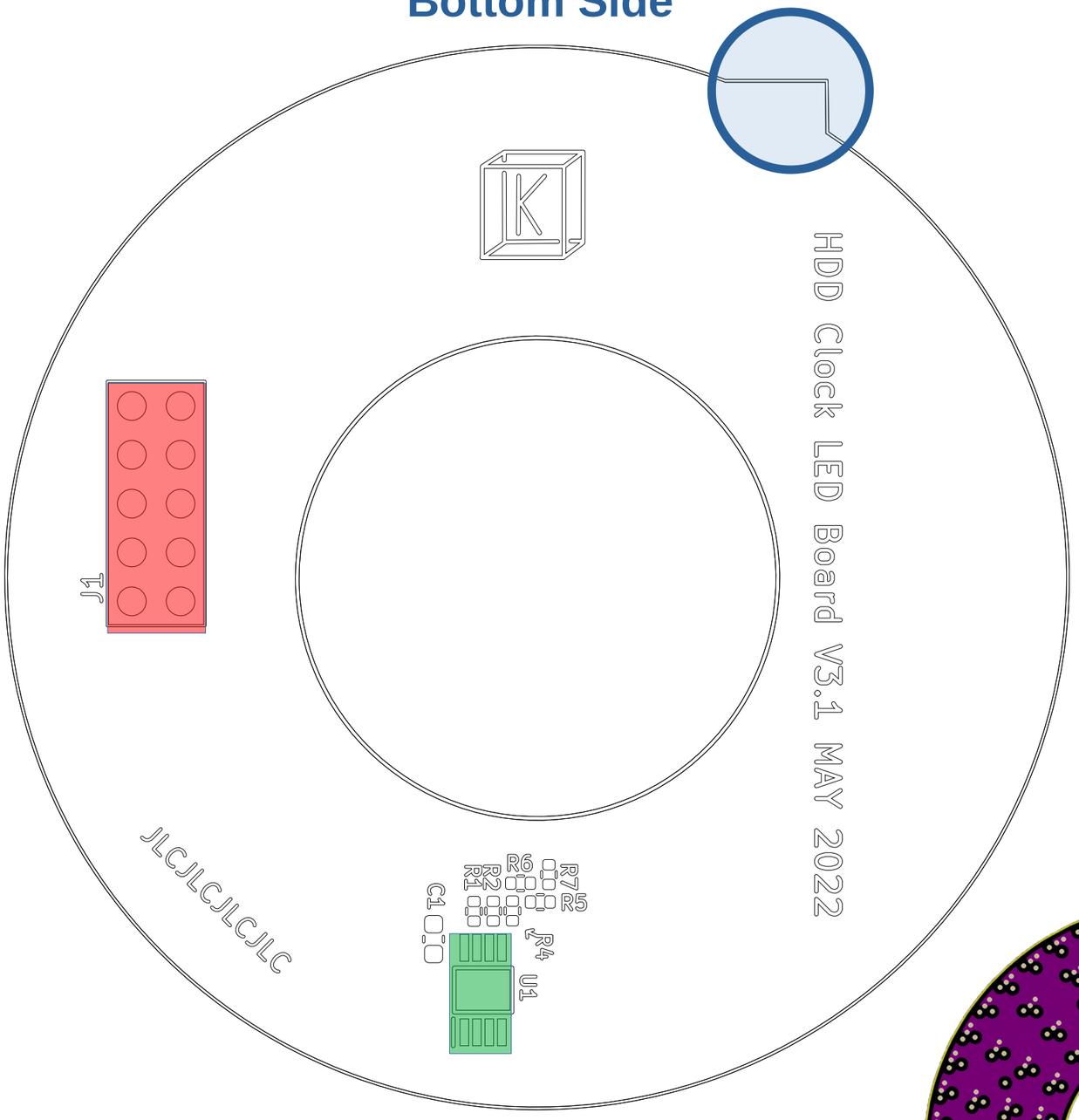


5. Shown to the left is the HDD Clock V3.0 LED Board Paste Jig with the LED board mounted inside. Load the LED board into the jig as shown for solder paste application. This jig can also be used to hold the PCB in place for component placement.
   1. A 3D printed jig is used for V3.1. It looks identical to the V3.0 jig.

6. Instructions to use this jig:
   1. Use tape to secure the HDD Clock V3.0 LED Board Paste Jig to a stable, flat surface.
   2. Place the HDD Clock V3.0 LED Board into the jig.
   3. Align the solder paste stencil to the pads on the PCB. Use tape to secure the solder stencil. The paste jig is about the same size as the ordered solder stencil
   4. Using an appropriate tool, apply solder paste to the PCB.
   5. Using tweezers, remove the HDD Clock V3.0 LED Board from the paste jig.

Project: HDD Clock V3.1 LED Board PCB Assembly		
Pg. Description: Top Side Solder Paste Jig		
Author: Kadin Whiting	REV: -	PG 2 of 5

Bottom Side



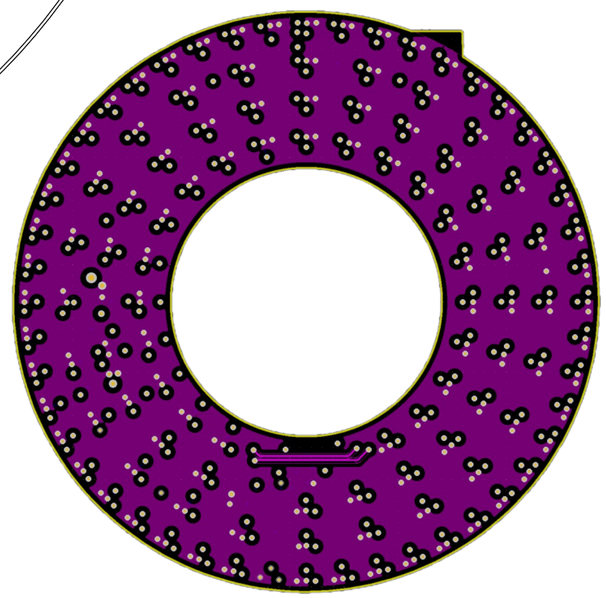
7. Assembly contains MLCC capacitors. MLCC capacitors are sensitive to heat. Temperatures shall be controlled when hand and reflow soldering.

8. Components highlighted GREEN should be inspected for polarity prior to soldering or powering on the PCB. Follow the PCB's silkscreen for polarity.

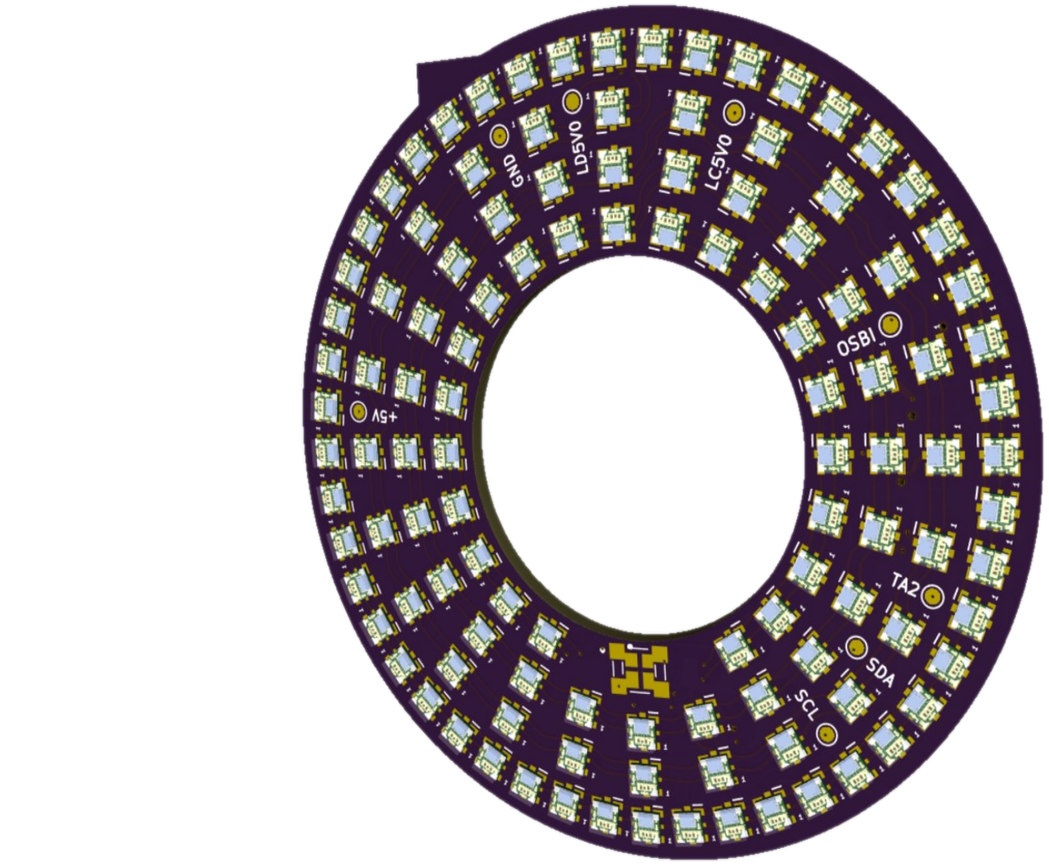
9. Highlighted RED are the target contact points for the spring-loaded connector on the Driver Board. If needed, gold disks can be soldered to these pads to decrease the distance between the two boards.

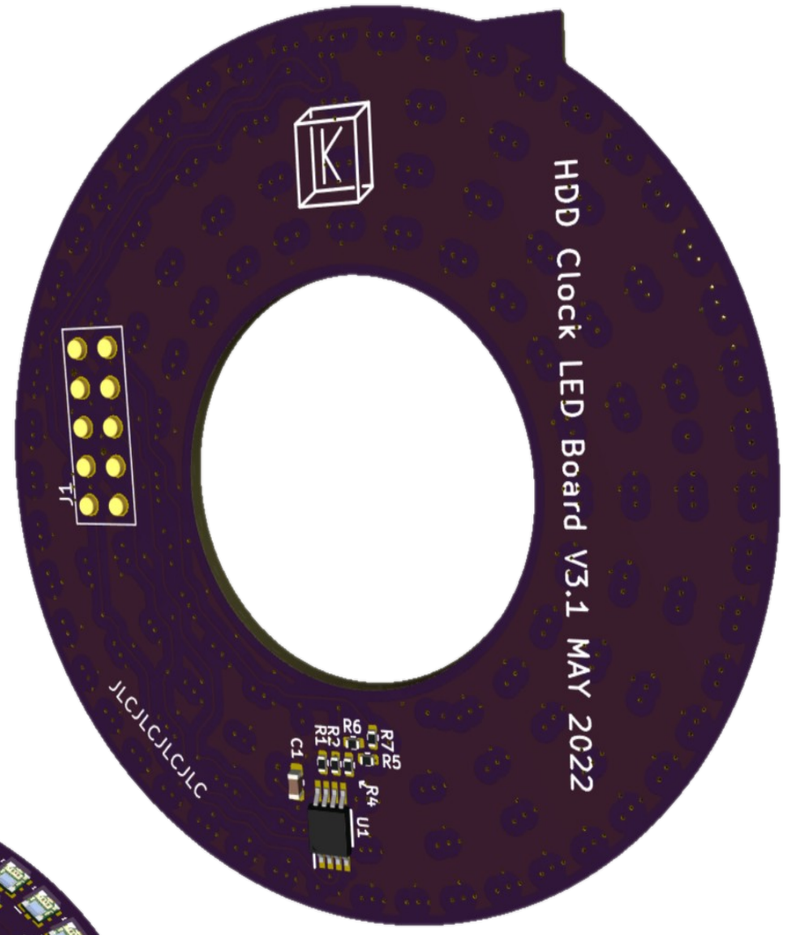
10. Assemble bottom side parts by hand after the LEDs on the top side have been installed.
    1. Apply solder paste to footprint J1, place the gold disks (see note 9), then use hot-air soldering method to solder the gold disks.

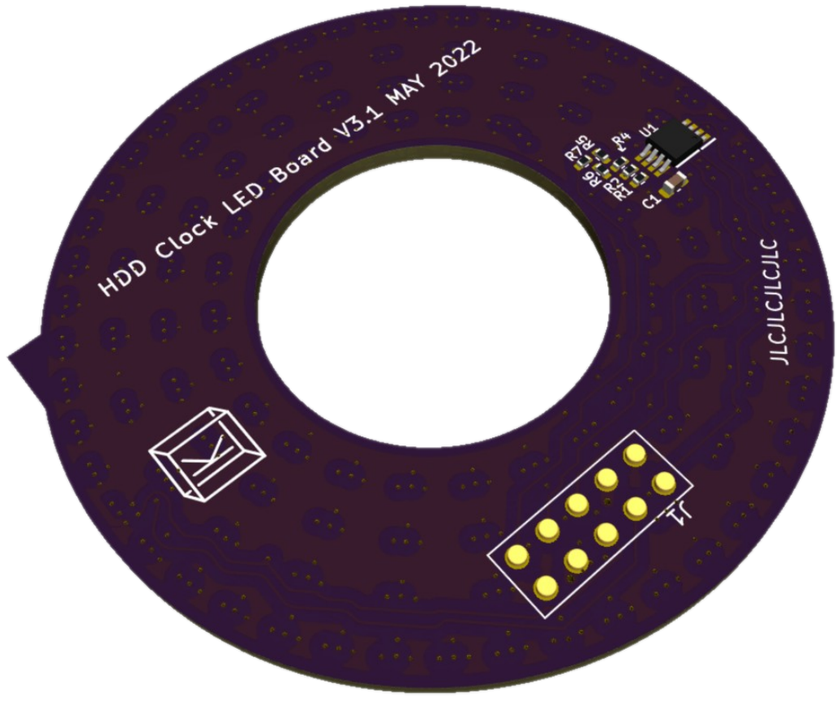
11. Circled in BLUE is a tab intended to assist with the indexing of this board in the HDD case. This tab purposefully does not contain any copper. It may be shaped or removed. See in the image below where the copper layers are shown in PURPLE.

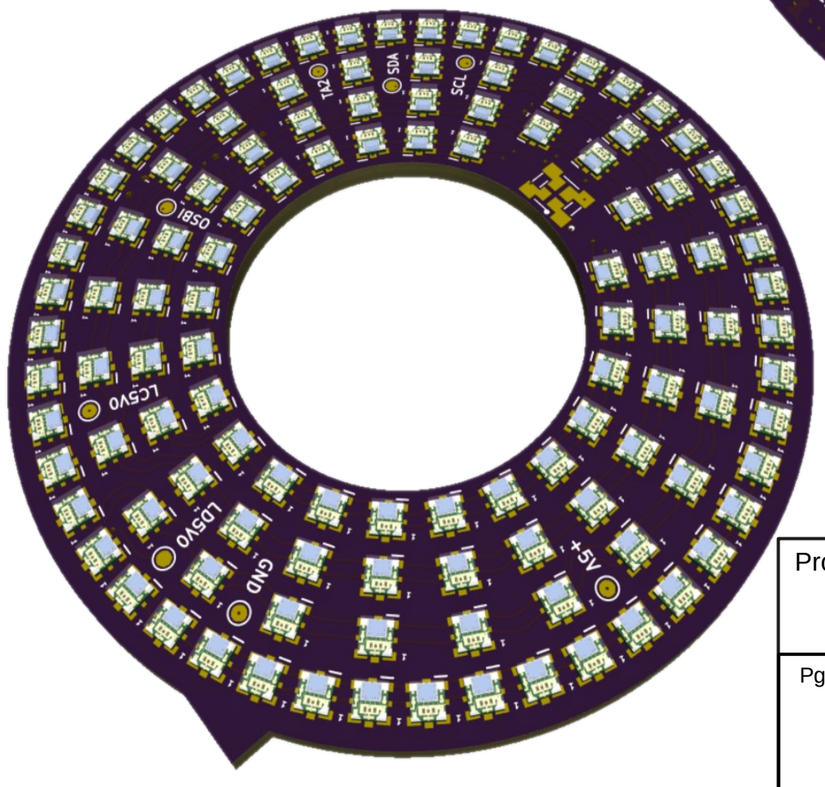


Project: HDD Clock V3.1 LED Board PCB Assembly			
Pg. Description: Top Side SMT Polarity and Component Notes			
Author: Kadin Whiting		REV: -	PG 3 of 5



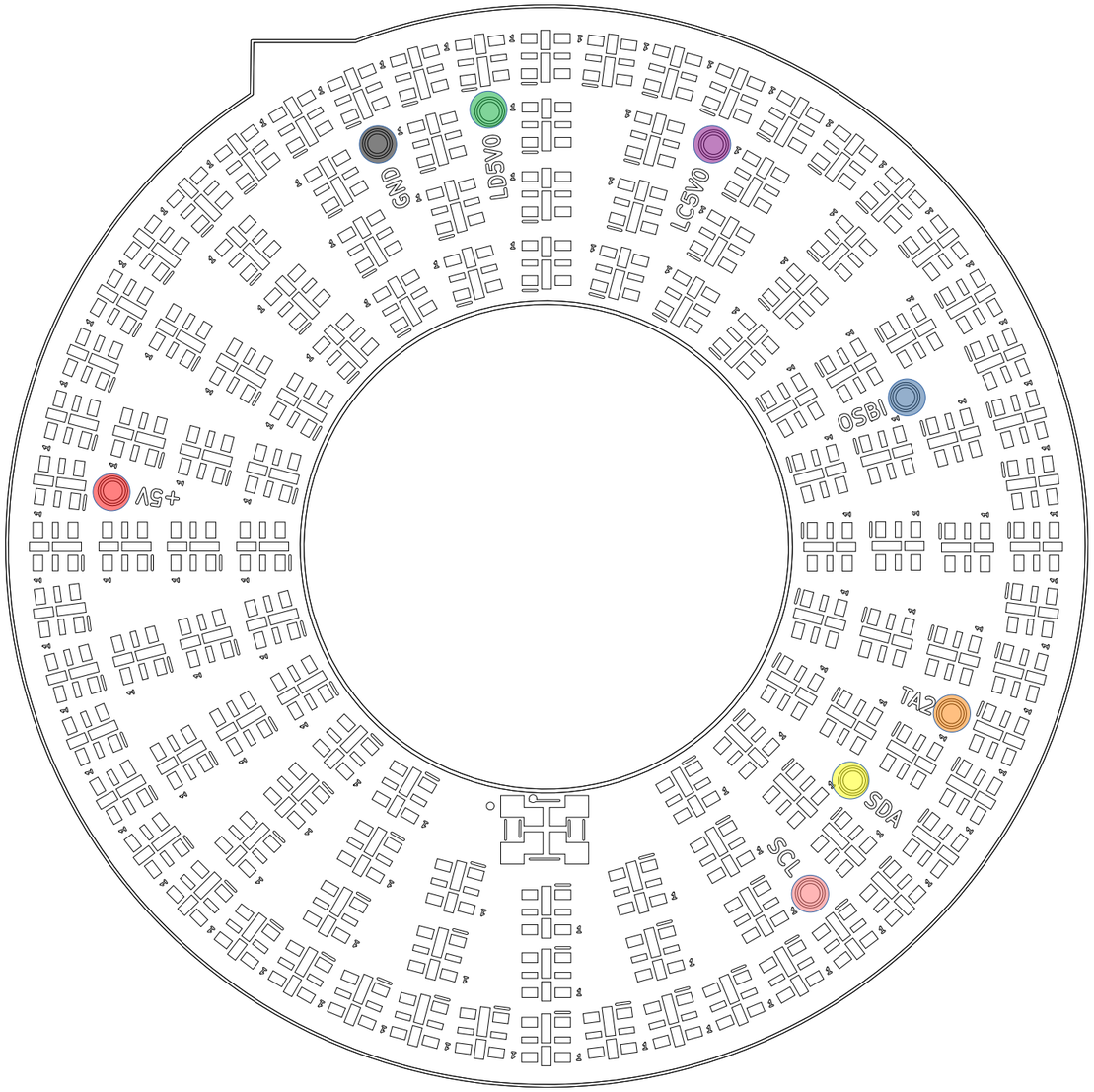






Project: HDD Clock V3.1 LED Board PCB Assembly		
Pg. Description: Completed Isometric Views		
Author: Kadin Whiting	REV: -	PG 4 of 5

Top Side



12. Using a DMM check for shorts between all the highlighted test points prior to applying power to the PCB.

13. See the assembly drawing for the HDD POV Clock V4.0 Driver Board for the alignment test. Don't try the alignment test or mount this assembly into the HDD frame until no shorts are detected between the highlighted test points.

Project: HDD Clock V3.1 LED Board PCB Assembly			
Pg. Description: Check For Electrical Shorts			
Author: Kadin Whiting		REV: -	PG 5 of 5