TIPS FOR DESIGNING FOR ELECTROUV3D PRINTING

- **Preferred file types:** Gerber files converted to PDFs.
- **Minimum trace width:** 100 microns.
- **Minimum spacing:** 200 microns, edge to edge.
- **Pay close attention** to spacing not only between traces, but also between traces and drill holes/vias.
    - **Recommended spacing:** ~200 microns, edge of trace to wall of via.
    - Traces too close to vias can potentially cause shorting between layers as the conductive ink may unintentionally fall through.
- **Drill holes** are printed within insulating layers, essentially printing an inverse image of a standard drill hole file, leaving voids in the layer to serve as vias.
    - **Minimum via size:** 200 micron diameter.
- **Soldermasks** can be printed using the same dielectric material as the insulating layers.
- **External fiducials** are extremely useful for alignment purposes.
    - **At least 1 external fiducial** that is consistent throughout all layers is strongly recommended for easier layer-to-layer alignment within the software as well as throughout the actual build.
- **Hatched ground planes** are an option, if possible, to reduce silver ink consumption.
- **For pads in which a component will be attached:**
    - It is recommended to **print additional silver layers** to provide a solid foundation to solder to.
    - For these repeat pad build-up layers, a **separate file is recommended**, containing only the pads that will be soldered to with the **pads being shrunk by ~20%** to account for any spread that may occur during build-up.
- **For power traces:**
    - Same concept as pads for component attachment, where a **separate file** containing only power traces can be **repeat printed** as necessary to meet design specs.
- **General substrate recommendations:**
    - Most common: Kapton/polyimide, FR4 board, PET (Polyethylene terephthalate).
    - **Any planar surface,** rigid or flexible.
        - If adhesion is an issue, either print a dielectric base layer or use our wipe-on primer to enhance adhesion.
- **Basic file/design manipulations** can be done using features in the front-end printer software, allowing quick alterations to design aspects such as:
    - Expand/shrink vias.
    - Thicken/thin traces.
    - Add/remove basic details.