

## 1. PCB Requirements:

- a. If your PCBs are 2 X 2 or less they must be in an array/panelized format or it could increase the assembly cost.
- b. All PCBs must have a minimum of 2 fiducials located on ANY side which contains SMT devices.
- c. For assembly of non-rectangle PCBs we require at least two parallel edges. These can be added as breakoff rails or can be part of the PCB itself. The same applies to circular PCBs.
- d. We require that all vias under BGA and leadless type devices are tented with solder mask to ensure there are no solder shorts created during the reflow process.

## 2. Data/File Requirements:

- a. A Bill of Materials (BOM) with Assembly Number and Revision clearly stated in electronic format (preferably Excel) should contain the following:
  - (1) Manufacturer's Part Number and/or Supplier Part #
  - (2) Component Description
  - (3) Quantity
  - (4) Reference Designator
  - (5) If possible, include Distributor Part # and Manufacturer #
  - (6) The BOM should also indicate any DNI ("Do not install") locations.
- b. Component Pick and Place File (PNP) in electronic format must contain the following: X/Y Centroid location, rotation, reference designator, and board side (top/bottom). We prefer the PNP to be in Excel or CSV (Comma-Separated Values) format.
- c. Gerber formatted solder paste files ( Consigned orders) or complete Gerber files including all layers ( Turnkey orders). Design must have a minimum of 2 fiducials on any side with SMT devices.
- d. CAD data also acceptable pending data review in lieu of Gerber data and Component Pick and Place File.
- e. Drawings of the finished assembly are requested and will help ensure correct component placement. If not available, documentation must be provided that indicates orientation and polarity of all components, detailing any safety critical components. Sample assembled units, if available, are appreciated as well.

## 3. Parts Requirements

- a. If SMT parts are not on reel, parts should be on continuous strip of at least with a leader of 6". IN ADDITION to to the 6" tape leader, we also need at least +5% overage (min. 5 pieces) for low value/passive parts and + 1% overage for ICs ( cost dependent). For components sized 0402 and below, we will need a minimum of +10% overage. When at all possible, please supply parts on TAPE and REEL or CONTINUOUS STRIP. Our Hi-Speed SMT machines do not utilize Tubes and/or Bulk packaging , requiring us to add a Tape and Reel operation or place components on the PCB's by hand Post automated process which could increase the cost of manufacturing.
- b. The 6" strip is needed for proper SMT machine operation and the overage accounts for any machine attrition and potential scrap.
- c. If overage is not available on tape, please send the overage parts in tubes or trays. Any unused components will be returned along with your loaded boards.

## 4. Kits/Supplied Parts (Green Light Mfg also provides Turnkey or Partial Turkey Services)

- a. Parts must be individually packaged and labeled with BOM line item number and either customer part number or manufacturers' part number.

- b. An inventory list of components in the kit indicating manufacturers' part number, quantity in kit, quantity required, and expected quantity to be returned.
- c. All consigned kits and documentation must be complete and correct prior to build. Once the kit documentation and the boards have been verified as complete and correct, the assembly turn-time will begin.
- d. If a current revision sample is available, please include with kit.

## **5. Warranty/Misc:**

- a. Green Light Manufacturing builds to IPC-A-610 Rev D standards. Classification to be determined by customer requirements.
- b. Green Light Manufacturing warrants that its manufactured items are free from any defects in workmanship. The warranty period shall be 90 days from the date of shipment of item. Green Light Manufacturing's sole obligation under its warranty is limited to the repair of the defective item provided it is returned to Green Light Manufacturing within a reasonable period. This warranty will not extend to items subjected to accident, misuse or alterations or repairs not made by Green Light Manufacturing.