

KIT CRITERIA FOR CUSTOMER SUPPLIED COMPONENTS AND DOCUMENTS

This document describes the guidelines on how customer supplied PCB assembly kits should be presented in order for automated assembly processes. Since board designs and quantity requirements vary with each customer, each case is different. But, these guidelines can be followed so you can obtain the highest quality and most competitive pricing from HI-Tech.

Our quotations are based upon the guidelines listed below. Kits arriving that differ significantly from this format will potentially have a cost impact associated with them:

1. Surface Mount Components and Data

- Electronic PCB Data - The following PCB data is needed for aiding in the manufacturing process: Gerber Files, Cad Files, and Bills of Material (in excel format). The Cad Files must be in ASCII format. This data can be supplied either with the kit or sent via e-mail to scottm@hitech5. This data will be used in solder stencil fabrication, automated pick and place machine programming, and our vision equipment.
- Kits supplied without this data may experience a delay in shipments. Sending this data prior to sending the component kit will, in most cases, assure on time delivery of the final product.

A. Passive parts (capacitors, resistors, etc.)

- These parts should all be received in proper pick and place format.
- If submitting on tape, please allow a minimum eighteen inches extra on the tape before the actual component count is determined (used as a leader and tail for pick & place machine).
- NOTE: Please allow some parts for attrition/production loss.
- NOTE: While customers occasionally need to use loose bulk components for smaller quantity requirements or availability situations, additional assembly process time is incurred processing these loose bulk components.

B. Integrated Circuits (IC's) or other leaded type components

- These components need to be in tape, tubes, trays or their original properly packaged containers in order to be placed by machine. Any chip tubes, trays, etc. that are loaded by the customer should have Pin1 consistently in the same direction. When parts are received that are not in the same direction, quality of the product is compromised, and further time is incurred in correcting the directional placement problem. Also when parts are handles by hand to fix rotation the co-planarity could be compromised.

C. DSP or Other Similar Parts

- Many times, these parts are packaged in containers requiring special handling. For instance, moisture sensitive components sometimes require baking. In cases like this, these sealed packages should not be opened. If they are opened, they need to be resealed in accordance with the manufacturers suggested methods. Usually, specially designed waffle trays are used as the containers for these parts and are easily suitable or can be adapted to P&P equipment.

D. SMT Sockets or Connectors

- These parts should be sent in their original waffle packaging avoiding damage to the leads.

E. SMT Stencils

- If stencil is supplied by customer it will be reviewed by Hi-Tech's engineers for production and machine compatibility. (This is to ensure no flaws of solder balling, tombstone, and shorting on fine pitch parts.)

2. Through Hole Components

A. Axial Leaded Components

- These components should be on reels whenever possible; however, loose components that are not pre-formed are also acceptable when received properly packaged and not oxidized.
- While customers occasionally need to use loose bulk components for smaller quantity requirements or availability situations, additional assembly process time is incurred processing these loose bulk components.

B. Integrated Circuits or DIP Packages

- These can be received in tubes or loose (parts should be plugged into anti-static foam). Parts received in loose form usually cause damage to the leads and creates potential quality and manufacturing problems.

C. Sockets or Connectors

- These parts should be supplied in their original package preventing damaged or bent leads. Parts received in loose form can create potential quality and manufacturing problems.

Multiple Kits in Manufacturing at the Same Time Using Shared Components

When multiple kits are issued that require sharing of components, we request that each kit be a complete kit (with sufficient overages supplied in multiple tubes, tapes and reels, and trays). This will facilitate building more than one assembly at the same time. Special circumstances can be discussed based upon your preset priorities. Shortages unnecessarily cost our customers administrative time and money. Kits received in the correct fashion will not only provide time savings in setting up and checking in the job, but also lost time waiting for shortages to be delivered, unnecessary delivery charges, unnecessary machine setups and tear downs, and costly hand placements.

1. General

- **Please make sure that the current, accurate and updated drawings and final BOM's (preferably in excel) are sent with each new kit matching the revision kit listed on the purchase order.**
- Please assure that all Assembly Drawings, BOM's, PO's and Part Containers (tapes, reels, tubes, trays, bags, etc.) are correctly labeled with your internal part number, and the corresponding manufacturer's part number on the BOM's. Itemized, accurate packing lists must accompany all packages sent to our facility. Hi-Tech verifies the parts, received in each kit for accuracy thru a sample lot (is it the right part specified?), quality (is it damaged or oxidized in any way?), the correct count, as well as form/fit (does the part match the corresponding location of the board?). A verification request is generated to the customer in the event of any discrepancies (customers are also asked to verify substitute parts). If any part are substituted, and is not readily obvious, please make some type of notation on the BOM, PO, etc... about what was substituted. This eliminates the need to include this type of confirming.
- Passive type components are generally requested in reasonable and customary overages in the amount of 1206, 0805, 0603 and smaller size reeled components. These attrition parts are needed to absorb any fallout from the manufacturing process. This minimizes the need for a request to our customer to fill shortages of low cost, minimal quantities.
- When boards have a mix of SMT and TH components, the SMT assembly process occurs first. Should any SMT shortages exist within the kit and the board is to be run through the P&P equipment, the assembly process can not start until the shortages are received (unless partials can be worked with and/or other unusual circumstances exist such as, the customer allows the boards to be shipped without the specified components or approval will be given for the costly process of manually installing components).
- All production starts. "After Receipt of Last Shortage". In order to maintain accurate delivery schedules, we request that the customer realize that an adjustment is necessary to any purchase order due date(s) according to when the final parts for assembly are received. You should review the quotation for the turn time and adjust the delivery date based on the receipt of the last shortage or part.

- Hi-Tech puts a large effort into the kitting process as to minimize any chance for glitches in the assembly process. A complete kit with all the required parts and documents is the most effective method to get the product assembled correctly and in a timely manner. When possible, a complete kit should account for reasonable and customary overages of all components including (1) extra PCB and component. (Our First Sample Board to be assembled will be kept at Hi-Tech for future reference on repeat orders.)
- Hi-Tech appreciates the business from our customers. Building partnerships and maintaining open lines of communication, along with mutual education of each other's requirements can only lead to the success of both companies. By adopting the aforementioned guidelines, we will be able to enhance successful scheduling and on time deliveries.
- If you need any additional information concerning the kitting process, please do not hesitate to contact our Inventory Manager at 815-220-1543.