

**A and M Electronics**  
**Contract Manufacturing Circuit Board Assembly**  
25018 Avenue Kearny Valencia, Ca. 91355  
(661) 257-3680 or (800) 923-3058

"When Quality Counts, Choose A&M Electronics"

- SMT, BGA, & Through Hole Circuit Board Assembly
- ANSI/J-STD-001C Certified All Classes
- ISO 9001:2000 Certified

**Woman Owned Small Business!**

We know that it is difficult during your busy day to find the time to call the office to ask questions. And because we are sometimes unavailable when you call, we could end up playing phone tag. Also, you may want to talk directly with one of the members of our highly trained staff. So please feel free to ask us here. We look forward to your questions and addressing your needs.



**Ron Simpson, President**

Experience: Supervisory and Managerial positions in manufacturing engineering and industrial engineering for Aero-Space Commercial & Medical Electronics since 1956.

**Tiffany Simpson, Vice President**

Experience: Degreed Accountant, supervisory and managerial positions in accounting. Business experience since 1969.

**Facility**



Over 12,000 sq. feet of production area dedicated to our customers products.

Our facility is completely protected by fire and security systems, monitored 24 hours a day.

Inspection criteria are ANSI/J-STD-001C - specs and quality assurance is maintained to ISO 9001-2000.

## Equipment



Our SMT lines use advanced Vision recognition to insure repeatability and placement accuracy. They can place components to +/- 0.075mm (0.0029 in.) with a repeatability of +/- 0.025mm (0.001 in.)



Our Wave Soldering Machines are able to solder both through hole and SMT components, utilizing an SMT Chip Wave.



In-line de-ionized aqueous cleaning system insures that your product is thoroughly clean and dry. After cleaning our Ionic Contamination tester incorporates the most advanced innovations for high speed non-destructive testing.



Our Ionic Contamination Tester insures that any residual contamination is at levels that are within our customers' specifications.

## Defense



We assemble circuit boards that not only have to be reliable, but someone's life depends upon it! We have boards that are being used in the F-15, the F-117 and the F-22s

## Quality



Complete Customer satisfaction, on time deliveries, quick turn around, and our excellent quality keep our customers coming back.

## Submission Requests

### Documentation

- BOMs
- Software
- Drawings

Documents may be supplied as Word files, Excel files or hard copy.

Bill of Materials:

Manufacturer's part number

Component locations listed by reference designators and quantity

Through hole or SMT Device notation

Drawings:

Assembly drawings, including any change notices, may be supplied as "Gerber" files, ".dxf", ".pdf" files or hard copy.

Dimensional specifications for non-standard components such as connectors, headers, sockets, transformers, LEDs, etc.

Software requirements:

Solder paste stencil file in "Gerber" format.

Electronic "Centroid data" in ASCII format:

These are the "X" & "Y" coordinates for the location of the parts on the board. These coordinates should reflect the location of the center of the component body referenced to the same zero point. This information should also include the respective component designations as well as the component rotation. The preferred format for coordinates is in millimeters.

### PCB Requirements

- Fiducials
- Finish
- PCBs

## Fiducial marks

Fiducial marks must be used for registration of boards or panels is preferred.

Fiducial marks are isolated targets placed on the board for the purpose of verifying registration of the board, panel, or component location during assembly. Fiducials are usually placed diagonally opposing on two of the outside corners. There should be a minimum solder mask clearance of .015".

Fine pitch components with spacing of 25 mils or less should include 2 fiducials for placement verification. One should be in the center and the other should be diagonally placed to the outside edge of the component.

## PCBs

For assembly throughput, a minimum of 0.25" space clearance from any edge of the panel to the edge of the nearest component body.

Circuit boards must meet bow and twist specifications of IPC-D-600.

When boards are smaller than 4 X 5 inches, or not rectangular, please array the boards panel form with scores whenever possible.

## Finish

The finish on the surface mount pads must be flat to allow for proper placement of SMT components. Flatness becomes more critical as the pitch becomes smaller. Examples of a preferred flat finish would be Ni/Au (immersion gold over electroless nickel), OSP(Organic Solderability Preservatives) or Electroless Palladium(recommended). Soldermask should cover all traces and exhibit good registration.

## Components

- Packaging
- First Article
- Extra Parts
- Quotes

Component requirements apply for all components supplied by the customer and not supplied by A and M Electronics.

### Packaging

SOICs should be supplied in either tubes or on tape and reel (T&R) with a 12" leader. PLCC components should be supplied in trays, tubes, or T&R. QFP components are to be packaged in

trays. To prevent damage to QFPs, please do not remove from their original trays and do not break the hermetic seal. T&Rs are preferred for all components whenever possible.

#### Extra Parts

All SMT components provided on T&R should have a factory-attached leader approximately 12" long before the first component.

When practical, please provide 5% extra for all parts provided on T&R and 2% extra for all other forms of packaging. Unused parts will be returned after the completion of assembly.

#### First Articles:

The first time we set-up a new assembly for SMT, it is both important and necessary that we verify solder paste stencil set-up, placement programming, feeder set-up and optimization, placement accuracy and oven profile for proper reflow of the solder paste with the components mounted. It is not recommended that these parameters for proper assembly be learned "on the fly". The multitudes of possible problems encountered during this exercise are far too numerous to list. These potential problems must be identified and corrected before the production order is run through the entire sequence of events required for proper SMT assembly. It may often be required that we build 1 or 2 assemblies for purposes of proofing the set-up. It is possible that these boards may or may not be usable after this exercise. We will not mount components identified as expensive for this proofing and we request that if you are the supplier of the boards, please send any extra bare boards that you may have on hand. These bare boards may be scrap due to damage or defects in manufacturing, extras, or possibly an older revision that has become obsolete, but please identify them as scrap to be used for test purposes only.

#### Quotes

Prices are subject to change until after final review and receipt of all supplied parts and/or boards for assembly. Delivery times are based on the receipt of completed kits on customer furnished material. Set-up charges quoted are also based on the above requirements. Set-up charges include: Solder paste screen, custom tooling or fixtures, kit audit and verification, programming for pick and place, feeder preparation, and product specific thermal profile for solder paste reflow.