

Bottom Termination Soldering Techniques

The Ironwood Electronics, Bottom Termination adapters are designed to solder to the standard gull-wing type quad flat pack (QFP) surface

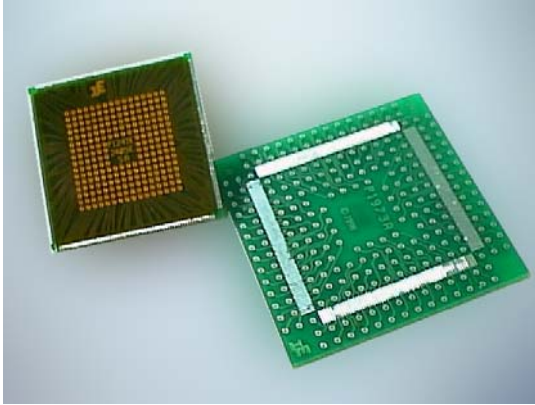


Figure 1: Target PCB/Emulator Foot

mount land pattern. Because Ironwood Bottom Terminations adapters do not emulate the physical characteristics of a QFP gull-wing package, the methods used to solder it to a target PCB are different. The recommended method is explained below with visual aids showing the step-by-step process. This method has produced very good results.

Figure 1 shows a Bottom Termination surface mount emulator foot and a clean target printed circuit board. The bottom side of the surface mount foot is covered by 0.005" thick kapton tape to provide insulation and clearance from the target PCB as recommended by IPC-A-610B, Section 10.2.1 chip components/bottom only termination standard.

The steps involved in the soldering process are as follows:

(1) Using a flux dispenser, place a small amount of Tac flux (water soluble or no clean) on the four corner pads of the target PCB as shown in Figure 2.

Figure 2 shows the Bottom Termination surface mount emulator foot and a clean target printed circuit board. The bottom side of the surface mount foot is covered by 0.005" thick kapton tape to provide insulation and clearance from the target PCB as recommended by IPC-A-610B, Section 10.2.1 chip components/bottom only termination standard.

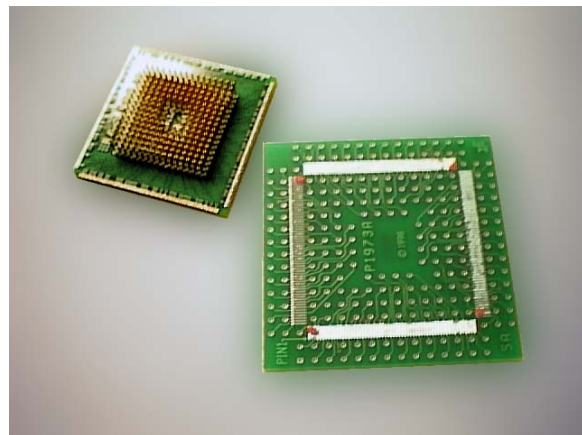


Figure 2: Placing Tac Flux

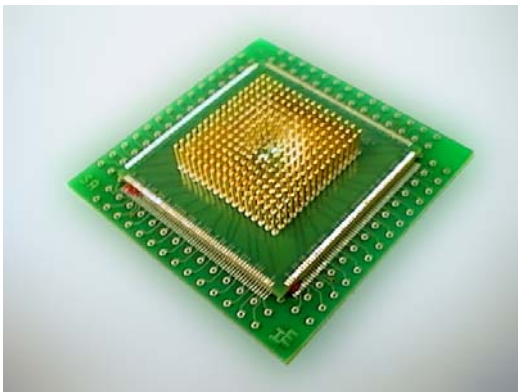


Figure 3: Align the Foot to PCB

(2) Note the target board QFP land pattern and the adapter Pin 1 locations. Place the adapter onto the flux and land pattern as shown in Figure 3. Handle the adapter by grasping the PCB edge (handle by pins when available) and aligning it on the land pattern with the aid of a microscope.

(3) Holding the adapter in place, by pressing down gently, use the soldering iron and tack the four corner pads with the aid of a microscope. This will keep the foot in alignment.

Bottom Termination Soldering Techniques (cont.)

(4) Apply a generous amount of flux along the side of the adapter PCB as shown in Figure 4.

(5) Using a very fine tipped soldering iron (spade tip 0.03" diameter and 60° chisel angle), add solder to the soldering tip using solder wire (low temp, 63Sn/37Pb) to form a blob of solder approximately 1/8" diameter on its tip. Use a microscope or magnifying lens, if available, to view the process while soldering.

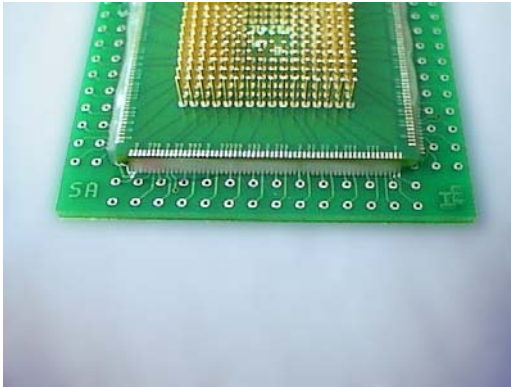


Figure 4: Applying Flux

lens, if available, to view the process while soldering.

(6) Start at one corner and pull the tip of the soldering iron along the side of the foot as shown in Figure 5. Continue down the side of the foot until a suitable fillet is present between all adapter pads and target PCB pads.

(7) Repeat this step for the remaining three sides of the adapter. Caution must be used when touching the soldering iron tip to the

emulator foot. Excessive heat or pressure may damage the pads on the adapter or on the target PCB.

(8) Clean thoroughly in an ultra-sonic cleaner. The picture of the solder connection is shown in Figure 6.

The adapter is similar to discrete chip components, leadless chip carriers, and other devices that have metalized terminations on the bottom side only. The

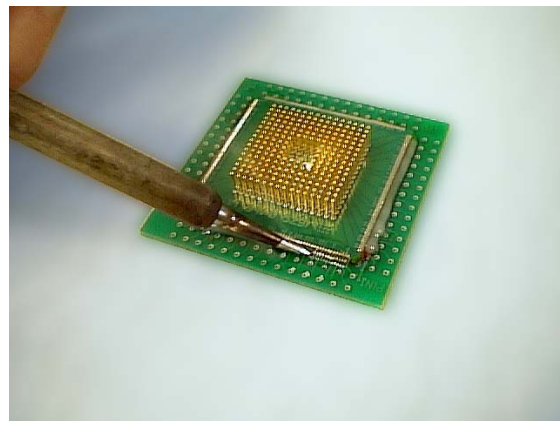


Figure 5: Soldering Process

solder joints produced by the above process are acceptable under class 1 and 2 of IPC-A-610B, Section 10. 2. 1, Chip Components/Bottom only Terminations standard.

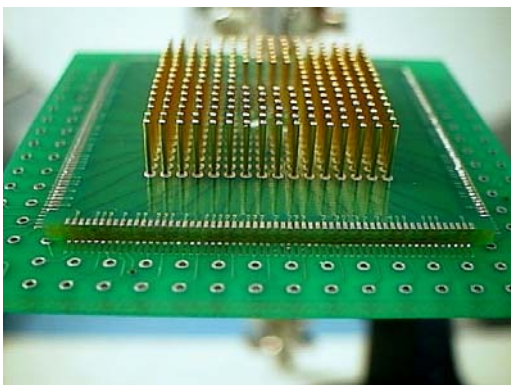


Figure 6: Solder Connections