

Dye and Pry Method for Big-Size BGA Components

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Abstract: Dye and Pry is a useful method of detecting the presence of cracks in the solder joints or lifting of the pads from the PCB. The IPC-TM-650 standard is followed by the electronic industries to carry out this test. The IPC standard for dye and pull tests starts with cutting the sample out of the board and then removing the flux from the component using flux remover. After removing the flux, the component is cleaned with isopropyl alcohol (IPA). Once the sample is dried up, it is submerged in the red dye and after air blowing the red dye from around the component, it is kept in the drying oven to dry off before prying. The prying method involves attaching the T-nut to the component using an adhesive and after the adhesive is cured, the component is pulled off with the help of a force gauge. However, this method has some limitations for big-size components. We innovated a new Dye and Pry method to handle the special requirements of big-size BGA components. We tested our method by using a CPU component from the server-level motherboard for the dye and pull test. The big-size CPU components typically require a bigger size pull tester or force gauge and a bigger size T-nut to pull it out of the substrate. Instead, we used a table vise to hold the board and bend it from different angles to pry off the CPU component. Try to bend and pry all the corners first and then carefully pluck it out of the PCB carefully without damaging the solder joints. Air-blow the component and PCB site to remove any kind of contamination before capturing pictures under the microscope. This way of removing the big-size BGA components is faster and economically friendly as it does not require any bigger equipment to pull the component off. This method will save a lot of time and will provide exceptional results after prying.