

Test Definitions

Inspection

This is a visual and physical inspection of the devices, aimed to verify common issues found on sourced orders including count quantity, date and lot codes, condition of packaging, coplanarity, remarked and refurbished parts, marking consistent with OEM specifications, and physical damage to the devices. We use the internationally accepted JEDEC/IPC standards for solderability, coplanarity, visual, and dimension and supplement this with our procedures, updated regularly as new replication techniques are developed.

This process does not include electrical testing of the parts or Decapsulation, so electrical performance and authenticity cannot be assured. All of the testing services include this inspection service.

Authenticity Inspection

This group of processes is designed to verify that the devices are from the original OEM and that the hardware of the devices is intact. The continuity test usually identifies manufacturer defects such as crossed wires (shorts) and cracked dies (opens), along with opens caused by poor handling (ESD-related issues). No specific electrical parameters of the devices are tested.

The Decapsulation process is a destructive test, so is limited to the minimal amount of samples, to open the device and inspect the wafer under high magnification. OEM's are marking the wafers and are responsible for making these markings difficult to counterfeit. The die markings should be consistent with manufacturer specifications on good parts.

DC Functionality Test

Most devices specify direct current characteristics on the datasheet. These are not specific performance parameters but measurements on the amount and direction of current that flows through the device. When the device is manufactured correctly and is good condition, the direct current performance should be consistent with the specified characteristics. This implies that the other specified parameters are working correctly, but it is not a guarantee.

Functional Test

The more complex devices are more difficult to test. The programming required to develop a parametric test is a long process, and the OEM's are not sharing their programs. The functional test is a solution for the more complex devices, where a custom platform is developed to feed programming signals to the device which should provide predicted responses. This is similar to booting up a computer. Where we cannot measure the exact performance characteristics of each parameter, this does verify that the parameters are active.

Full Functional Test

This is the most complete test available, testing every parameter on the device to the range specified on the datasheet. This is the type of test that OEM's use when the part rolls off their production line.