

# Electronic parts diagnosis course

## Analytical procedures that can diagnose the appropriateness and the presence of defects

In order to demonstrate that the system is capable of withstanding various environmental tests and is sufficiently reliable, the internal structure of an electrically non-defective device can be closely monitored to detect even minute internal defects and defect structures.

### 1 Sample acceptance confirmation

By the time of full-scale analysis, the condition of the sample is observed with a measuring microscope, optical microscope, etc. to check the details of cracks, packaging conditions, damage, and discoloration of the leads. Failures during transportation are also checked at this point.

### 2 Electrical test

Use a digital multimeter to check for electrical damage.

### 3 Nondestructive test

**SEM-EDX:** Check surface condition (foreign matter adhered)  
Observation of solder joints, cracks, and wire shapes  
Elemental analysis

**SAT:** Microscopic internal defects (delamination, void)  
Check the wettability of the adhesive on the chip.

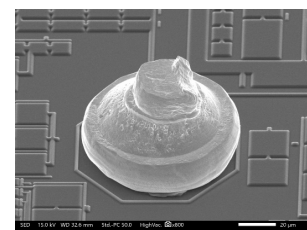
### 4 Destructive test

Abnormalities observed in electrical test or non-destructive test, cross-sectional polishing and chemical decapsulation allow observation of internal defects that are not seen from the surface in more detail.

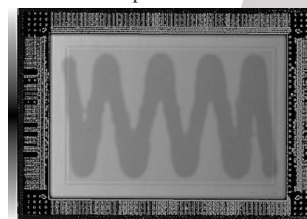
### 5 Other

If necessary, the concerned point can be measured the dimensions and analyzed elements.

#### Example: SEM Images Observation of bumps



#### Example: SAT images Wettability observation of the adhesive material of the chip



We pay close attention to the details of consultations and requests with the first priority on strict adherence. In particular, a confidentiality agreement shall be entered into in the event of a request.