Failure Analysis Function

The failure analysis function can be divided into two major categories. One is “Lab Service Items” and the other is “Internal Engineering Application”. The detailed contents are listed in Figure 1.

Glossary:
- SAT: Scanning Acoustic Tomograph
- SEM: Scanning Electron Microscope
- EDS: Energy Dispersive Spectroscopy

- Emission Point Localization
- Hot Spot Detection
- Passivation Removal
- Package De-capsulation
- Package Defect Observation (SAT, X-ray)
- Oxide/metal/polysilicon De-layering
- Various Chemical Stain for Sample Preparation
- Surface Micro Visual Inspection (SEM)
- Precision cross-section for SEM Inspection
- Element Analysis (EDS)
- Low Yield Wafer Failure Analysis
- Product Reliability (IM, HTOL) Failure Analysis
- Customer Returned units Failure Analysis
- RD New Device Failure Analysis
- Product ESD/latch up Failure Analysis
- Device Construction Analysis

Figure 1 Failure Analysis Function
A general failure analysis procedure is shown in Figure 2. The method demonstrated in the flow chart is utilized for all failure analyses.
GLOSSARY:
SAM: Scanning Acoustic Microscope
EMMI: Emission Microscope with Si detector
LC: Liquid Crystal
InGaAs: Emission Microscope with InGaAs detector
OBIRCH: Optical Beam Induced Resistance Change
CAFM: Conductive Atomic Force Microscope
OM: Optical Microscope
SEM: Scanning Electron Microscope
TEM: Transmission Electron Microscope
FIB: Focus Ion Beam
EDS: Energy Dispersive Spectroscopy
FA: Failure Analysis