Level 1 Failure Analysis

Level 1 FAs include: non-destructive tests optical inspection, X-ray, C-SAM, and electrical characterization. This can complete an analysis or indicate the path for deeper analyses.

PACKAGE OPTICAL INSPECTION

X-RAY INSPECTION

Voids in the die attach are observed

C-SAM INSPECTION

PADDDLE

DIE SURFACE

THRU SCAN
Level 1 Failure Analysis

ELECTRICAL CHARACTERIZATION

Drain I-V curve: Good vs. Leaky device

Gate I-V curve: Good vs. Leaky device

Vth I-V curve: Good vs. Leaky device

Drain I-V curve: Good vs. Short device

Gate I-V curve: Good vs. Short device

Vth I-V curve: Good vs. Short device
**Level 1 Failure Analysis**

Vth I-V curve: Good vs. Leaky device (log scale)

Transistor Characteristic Curves

**DECAPSULATION**

Full boil out to remove all the encapsulation material

Using drop method to preserve encapsulation material and protect leads

- **Drain Leadframe**
- **Gate Lead**
- **Source Lead**
- **Drain Leadframe**
- **Gate Lead**
- **Source Lead**