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.
Level 1 Failure Analysis

ELECTRICAL CHARACTERIZATION

Drain I-V curve: Good vs. Leaky device

![Drain I-V curve: Good vs. Leaky device](image1)

- Blue = leaky device
- Yellow = good device

Drain I-V curve: Good vs. Short device

![Drain I-V curve: Good vs. Short device](image2)

- Red = short device
- Yellow = good device

Gate I-V curve: Good vs. Leaky device

![Gate I-V curve: Good vs. Leaky device](image3)

- Red = leaky device
- Yellow = good device

Gate I-V curve: Good vs. Short device

![Gate I-V curve: Good vs. Short device](image4)

- Red = short device
- Yellow = good device

Vth I-V curve: Good vs. Leaky device

![Vth I-V curve: Good vs. Leaky device](image5)

- Red = device suffering from negative Vth shift due to leaky Drain current in transistor
- Yellow = good device
**Level 1 Failure Analysis**

**DECAPSULATION**

Full boil out to remove all the encapsulation material

Using drop method to preserve encapsulation material and protect leads

![Drain Leadframe](image1)

![Gate Lead](image2)

![Source Lead](image3)

![Transistor Characteristic Curves](image4)