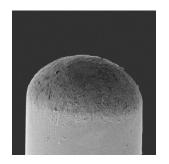


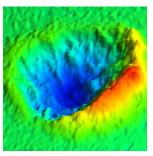


Performance Study

- C_{Res} measurements when probing on customer or blank wafer with FM-technologies
- Probing with different parameters such as temperature, overtravel, multi TDs on same pad/bump
- Analysis on lateral scrub dimensions with wafer microscope
- Scrub mark-depth and pile-up analysis with atomic force microscope
- Optional: Pad crack analysis







AFM-Analysis

Pad Crack Analysis

- Probing with different parameters such as temperature, overtravel, multi TDs on same pad/bump
- Analysis on lateral scrub dimensions with wafer microscope
- · Etching off pad material
- Pad crack analysis with wafer microscope
- Optional: Scrub mark-depth and pile-up analysis with atomic force microscope before etching



Scrub Mark after Probing

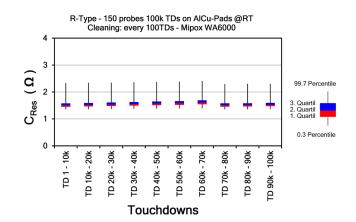


Pad Crack after Etching



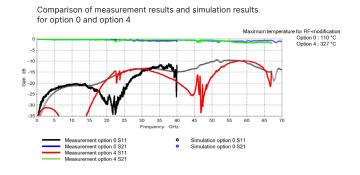
Lifetime Study

- C_{Res} measurements when probing on customer or blank wafer with FM-technologies
- Probing with different parameters such as temperature, overtravel, multi TDs on same pad/bump
- Analysis on lateral scrub marks dimensions with wafer microscope
- Optional: Customized cleaning recipe design (with preferred cleaning material)



RF Analysis

- Offering encrypted CAD (Protected project) data for the purpose of high-frequency simulation
- RF-Simulation data and information on lumped devices as well as information on power and signal integrity can be created on request



FM Services at a Glance

| | Encrypted CAD (Protected project) data | RF Simulation | | | Signal integrity |
|------------------|--|------------------|----------|----------|---------------------|
| Data packages | ✓ | Optional | Optional | Optional | Optional |

| | Performance Study | Pad Crack Analysis | Lifetime Study |
|--------------------------------------|----------------------|-----------------------|-------------------|
| C _{Res} measurements | \checkmark | - | \checkmark |
| Probing with different parameters | ✓ | ✓ | ✓ |
| Analysis on lateral scrub dimensions | \checkmark | \checkmark | \checkmark |
| Scrub-depth and pile-up analysis | \checkmark | Optional | - |
| Pad Crack analysis | Optional | \checkmark | - |
| Customized cleaning recipe | _ | _ | Optional |

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