accuprobe *Probing the World of Microelectronics*

PROBE TIPS #1

A Technical Bulletin for Probing Applications (Glossary of Terms)

Contact Resistance

The resistance which occurs at the junction between the probe tip and the device contact surface
metalization.

Die

A single square or rectangular piece of semi-conductor material into which a specific electrical circuit has been fabricated. Plural is dice. Also called a chip.

Glassivation

Passivation using silicon dioxide (glass) as the coating.

Gram Loading

Contact force exerted by the probe onto the contact surface of the device. It it measured in grams per mil of overdrive and ranges from .5 gram to over 5 grams per mil.

Hybrid Circuit

A microelectronic device consisting of both film circuits and semiconductor elements.

Mask

A patterned screen, usually of glass, used to allow exposure of selected areas of photoresist-coated wafer by a light source.

Micron

Synonymous with micrometer: one millionth of a meter.
Mil

One thousandth of an inch. Equal to 25.4 microns.

Monolithic Device

A device whose circuitry is completely contained on a single chip.

Overdrive of Overtravel

Z-axis (vertical) distance measurement calculated from the first contact point of the probe to the device surface. As overdrive id applied to the device with a probe card, flexure of the probe tip causes scrub mark.

Passivation

A protective coating placed on a wafer surface. Sometimes called glassivation.

Planarization

The ideal probing operation would result in simultaneous contact of all test pads on each and every device across the substrate. It would be a PLANARIZED system.

Scrub Mark

Mark on the contact surface created by scrubbing action as the probe tip moves across the device metalization when over drive is applied. A prober planarized at the specific depths causes marks with a 10:1 ratio of overdrive to scrub length.

Wafer

A thin disk of semiconducting material (usually silicon) on which many separate circuits can be fabricated and then cut into individual ICs. Also called a slice.

Yield

The number of acceptable units produced compared to the maximum number possible.