WAFER PROBE TIP SELECTION

ADVANCED TECHNOLOGY FOR RESEARCH & INDUSTRY

KNOWLEDGE BASE FACT SHEET

- SCOPE: A guide on wafer probe tip selection.

Probe Tips - sometimes referred to as Probe Needles - come in a variety of materials, lengths, shapes and tip radii. They provide direct electrical contact to the circuit under test.

Probe Tips are specified to suit each individual application; considerations should be made regarding the material to be probed, temperature, bond pad size and bond pad thickness.

Probe Tips usually come in a variety of materials to suit individual applications:

Nickel Shank - Tungsten Tipped
(0.1µm - 1.0µm)
Submicron probe for small feature probing- can easily to be bent or cut to length.

Tungsten Shank - Tungsten Tipped
(0.06µm - 25.0µm)
General purpose probing.

Tungsten Shank and Tip - Gold Plated
(5.0µm - 50.0µm)
For probing gold contacts and pads - reduced contact impedance.

Tungsten Carbide Shank - Tungsten Carbide Tip
(5.0µm - 25.0µm)
Suitable for high temperature operation.

Beryllium Copper Shank - Beryllium Copper Tip
(5.0µm - 20.0µm)
Reduced contact impedance - suitable for probing soft materials, reduced pad damage.

Probe Tips with a larger radius will provide a lower impedance contact but have a larger footprint, although larger radius tips may be affected by any oxide contaminant layer on the contact pad. In this case, smaller radius tips will be sharper and able to pierce through to the contact material, whether this is Gold, Aluminium, Nickel or Copper. This compromise needs to be considered and chosen to suit the contact area available.