

# Probing Optical Components

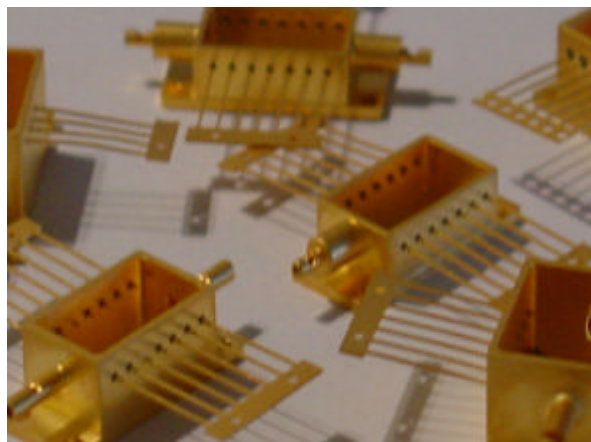
## PROBING OPTICAL COMPONENTS

Optical networks are increasingly being used to transport communications protocols such as those used to implement the Internet. A wide range of new optical components from optical interface units through to all optical switches provide the backbone to these new photonic networks.

Testing optical components prior to expensive packaging presents several new challenges, including:

1. The small size and tight pitch of pads on the device.
2. The large component size leading to relatively long perimeter arrays.
3. Multiple rows or columns of pads approaching those of complex semiconductor area arrays.
4. The need to simultaneously optically and electrically interface to the device limiting the usefulness of vertical probing technologies.

Accuprobe offers a wide range of cantilever probe and probe card solutions able to effectively test optical components from traditional metal and ceramic blades, to flexible z-adjustable probes, and multi-tier epoxy products.

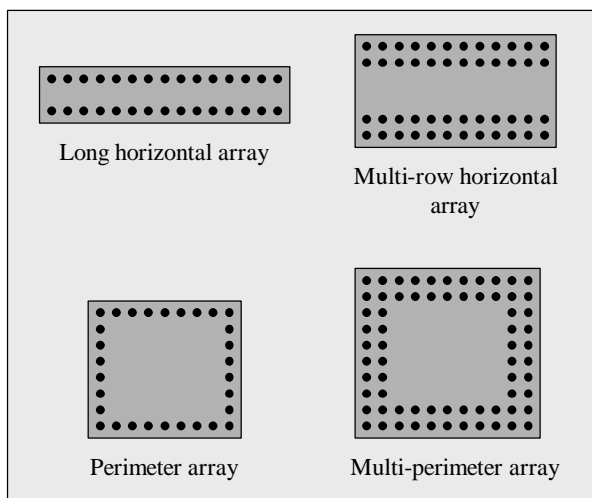


## BLADE PROBES

Standard metal and ceramic blades are able to probe low to moderate complexity optical devices. Metal blade probes are the workhorse of the probing industry and allow probing of very small pads with tight pitches. Accuprobe's new BH series metal blades are optimized for pad sizes as small as  $75\mu\text{m}$  and with less than 20 mil thickness, can access tight pitch perimeter pad organizations. Ceramic blade solutions are used where high-frequency interfaces are required or where electrical isolation of the probe from the device under test is required. Accuprobe metal and ceramic blade probes are available off-the-shelf and can be mounted on a wide range of probe cards.

## Z-ADJUSTABLE PROBES

Z-adjustable probes provide a flexible and easy to maintain solution to probing optical devices as the z-axis of the probe may be adjusted while the probe is in position to the device under test. This is particularly useful where the substrate or pad planarity is variable as, for example, the probes can be optimized for contact by batch, without the need for excessive overdrive which would be needed to make contact with the target if z-adjustability were not available.



Typical Optical Component Pad Layouts

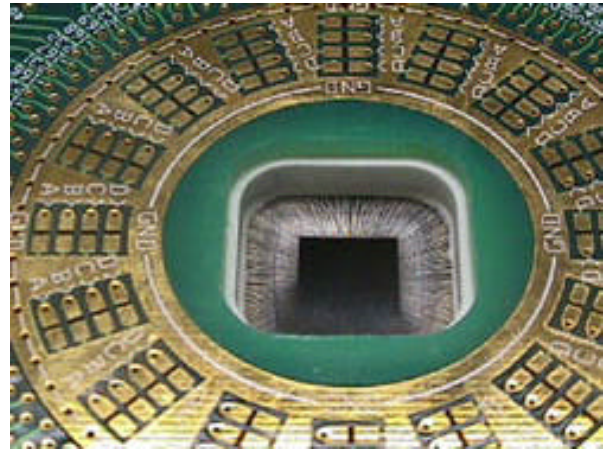
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# Probing Optical Components

## EPOXY RING AND BAR

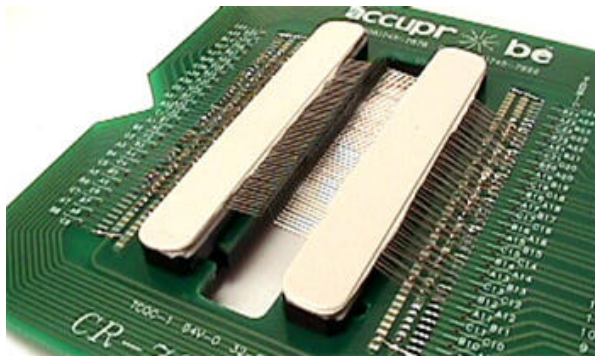
Epoxy ring and bar technologies provide the best solution for probing optical components where high pin counts, tight pitches and small pad sizes are involved. Pin counts up to 500 per device can be accommodated, with pad pitches down in the 150 $\mu$ m range possible using this technology. Needles with shaft diameters of 6-8 mils and tip diameters of 1 mil are used in epoxy solutions. Epoxy ring solutions are typically used for probing full perimeter arrays with device sizes up to 1" x 1". Accuprobe's linear array technology uses epoxy bars to provide solutions for probing devices up to 2" in length. Both epoxy ring and epoxy bars can accommodate multiple tiers of needles which can be used to access very fine pitch devices or multiple rows or columns of pads found in more complicated optical components.

Accuprobe has available a wide range of probe cards able to be used with

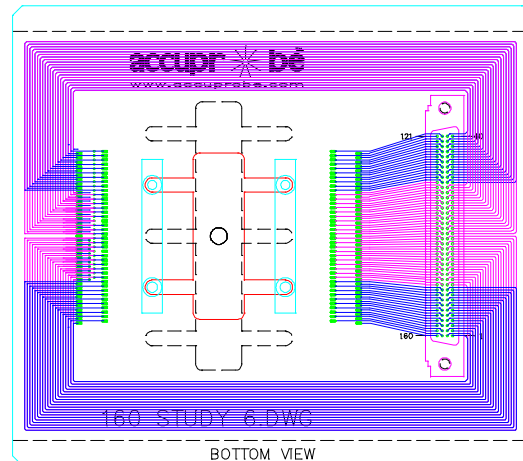


Typical perimeter array epoxy ring

both epoxy ring and bar technologies. Standard semiconductor and hybrid form factor cards are available off-the-shelf offering card edge, hypertac pin, or connector terminations to probers or other instruments. Accuprobe's newly available LAT45160 card provides an immediately available solution for probing long linear arrays with up to 160 pads.



Accuprobe's linear array technology



LAT45160 epoxy bar 4.5" probe card

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