Agilent Medalist
Bead Probe Technology

Product Overview
An Ingenious, Yet Simple Method for Dramatically Improving Test Access

Agilent Medalist Bead Probe Technology is the industry’s first, fully researched, documented and proven technology for placing test targets directly on printed circuit board (PCB) signal traces. These beads then serve as highly reliable test points for use during in-circuit testing. This new technique dramatically improves in-circuit test access on high density and gigabit-speed boards, resulting in excellent fault coverage. And best of all, placing bead probes on a PCB requires no changes to your existing SMT process.

Today’s Test Challenge: Smaller, Faster

As PCB’s get increasingly smaller, the ability to provide test points for in-circuit test becomes more difficult. Designs with high-speed buses also limit where test targets can be placed on board layouts. Workarounds for these issues can often be time consuming and costly, and sometimes simply not possible.

Unprecedented Access

No access? No problem. Agilent has the solution. Test engineers can now get the access they need for superior test coverage, even on the most densely populated boards. In fact, numerous bead probes can be placed on multiple traces. Sit back and let your Agilent ICT tester select the optimal bead locations for probing. It’s that easy.

No Signal Degradation; No Frustrating Layout Changes

PCB designers with be thrilled that bead probes will not impact signal integrity of the board design, even at gigabit-speeds. And life just got easier for the layout engineer. Bead probes eliminate the need to re-route traces to accommodate bulky traditional test pads or test circuits. Less debate between the test and layout departments means your products get to market faster.

Bead probes are easily placed on parallel traces with no re-routing

Use your current SMT processes

You can get started immediately with Agilent Medalist Bead Probe Technology because bead probes are placed on PCB’s using your existing solder mask and solder paste stencil processes. Manufacturing printed circuit boards with bead probes is easy and straightforward. And your other PCB development processes including EE CAD, layout, CAD translation, fixturing and ICT test creation are bead probe-ready.

“Over 1.5 million data points lead us to believe that solder-bead probing is not only feasible in a high volume production environment, but can be successfully implemented without any increase in cost or restrictions to design flexibility”

— A major electronics OEM after evaluating Agilent Medalist Bead Probe Technology
The Agilent Medalist In-Circuit Test Advantage

Bead probes can be placed on any PCB. But only the Agilent Medalist 3070 and i5000 in-circuit testers give you the most benefit from these additional probing locations. For example, Agilent’s fixturing software will automatically optimize which beads to probe to minimize the use of more costly 39 and 50 mil probes, which means lower fixturing cost. But that’s not all. Agilent in-circuit testers optimize probing locations to minimize board flex that could potentially damage the board assembly during ICT. Only Agilent provides an integrated fixturing solution that is bead probe-ready!

More probe options, not more probes

You don’t need a larger tester to realize the many benefits of Agilent Medalist Bead Probe Technology. You get more probe location flexibility, and that will give you more access, reduce your costs and help you get products to market faster.

Get Started Today!

Electronics manufacturers can obtain right-to-use licenses for Agilent Medalist Bead Probe Technology directly from Agilent. A copy of the “Bead Probe Handbook: Successfully Implementing Agilent Medalist Bead Probes in Practice” is included with each license. This comprehensive how-to guide developed by Agilent details the procedures for the successful implementation of bead probes, and includes valuable guidelines for the entire value added chain from board design, to layout, process, and in-circuit test. Agilent Medalist Bead Probe Technology is simple, reliable, and requires no changes to your existing SMT process.

For more information please visit, www.agilent.com/see/beadprobe

How It Works

Bead probes are created during the PCB manufacturing process by opening up the solder mask and exposing the copper trace wherever a test point is desired. Once solder paste is applied along the trace and reflowed, it can be readily probed at in-circuit test with flat-headed (not pointed) probes. The probe’s spring force partially crushes the bead, removing any residual flux residue and provides an excellent surface for electrical contact.

By probing this way, the traditional test paradigm has been inverted! Instead of probing a large test pad with a small sharp probe, you can now “probe” (with the bead probe) a large target: the flat headed probe in the fixture. You can now get excellent test coverage while conserving valuable PCB real estate by placing large “targets” in the test fixture, not on your board.

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Remove all doubt

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For more information on repair and calibration services, go to www.agilent.com/find/removealldoubt

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