

Eliminate **selective** soldering for **massive gains** in **assembly efficiency**

Selective soldering of odd-form and through-hole components imposes a heavy average cost per solder joint. The most effective way to reduce this overhead is through Alternative Assembly and Reflow Techniques (AART). With AART, you can reduce the number of process steps and the time necessary to assemble each board – and achieve significant cost savings on every board you produce. AART is also more repeatable than wave soldering.

Though the concept is elegant and straightforward, the science is critical. Implementing repeatable, high-yield AART – and measuring, maintaining and improving performance – is not trivial. Universal has devoted considerable resource from the SMT Laboratory to develop AART as a production-ready process for you to quickly and efficiently integrate with your manufacturing. Our cost-effective services help you address the critical success factors that will unlock big savings by optimal implementation of AART.

Comprehensive Implementation Solutions:

Universal has developed a range of implementation solutions, including step-by-step process training guided by our comprehensive, interactive CD-ROM. Direct, on-site assistance by experts from the Universal SMT Laboratory is also available. View the demonstration CD, and talk to us about the full AARTIST CD-ROM:

- Decision support system formalizes systematic approach to implementation
- Comprehensive, easy-to-use tutorials
- Programs to calculate solder paste volumes, stencil aperture sizes and predict hole fills
- AARTIST is a line into the Universal SMT Laboratory for implementation assistance

Following are just some of the issues our expertise, whether delivered via CD-ROM or by personal interaction, will help you resolve. Invest in our knowledge, to successfully implement, maintain and continuously improve your AART program and processes.

Materials:

Understanding material properties, behavior and compatibility issues will govern the end result:

- Solder paste selection determines joint quality and strength
- Mechanical stability of components at reflow temperatures is rarely well defined
- Some component materials, such as resins, may degrade at elevated temperatures

Processes:

We have investigated each process, from pre-placement to reflow, that influence AART performance:

- Solder deposition: optimization of printing or dispensing process parameters, tooling selection
- Component placement: automatic and hand placement, alignment, high pin counts, inspection
- Reflow: peak temperature and profile to ensure optimal solder joint formation

Design issues:

Whether designing new products to exploit the advantages of AART, or dropping AART into an existing product build, you need to control fundamental product and process design parameters:

- Stencil design: critical impact on paste volume, with implications for solder joint quality and reliability.
- Board design: guidelines to maximize repeatability and reliability
- Exploiting AART to extend board design rules from the outset
- Migrating existing products to use AART

Evaluation and optimization:

Our extensive research under laboratory conditions and on shop floors world-wide position us uniquely to help you get the best from your AART program:

- Solder joint strength, including benchmarking, verification, failure mechanisms
- Setting repeatability and yield targets
- Troubleshooting
- New product introduction
- Continuous improvement

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