Volume 1, Issue 2

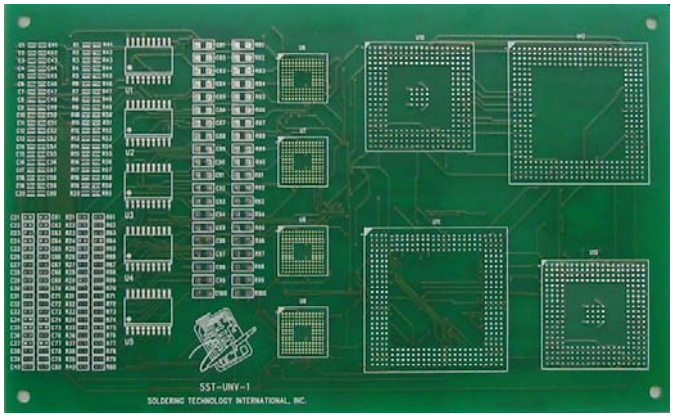
February 2002

The Target Connection

Second Edition: Look for issues bi-monthly

Soldering Technology International, Inc. (STI)

Fine Pitch Surface Mount Kit now available



CONTAINS

SST-UNV-1 PWB
0201-R-TR7 (0201 Resistors)
0402-R-TR7 (0402 Resistors)
1206-R-TR7 (1206 Resistors)
SOLIC18-T2 (SOLIC 18)
FPBGA144 (FPBGA144)
BGA272 (BGA 272)
TBGA352 (TBGA 352)
LQFP44-T30 (LQFP44)
LQFP168-T12 (LQFP168)
TQFP64-T20 (TQFP64)
Tape and Reel LQFP'S and TQFP

Special points of interest:

- Fine Pitch Surface Mount Kit
- Apex News
- STI's Analytical Lab
- STI's Sales and Distribution department features two new solder pastes
- Jim's Corner

To Register for classes call
(256) 705-5512
or
(800) 858-0604

Training Calendar

J-STD-001 Registered Instructor Certification
February 25-March 1

J-STD-001 Registered Instructor Recertification
February 6-7

MSFC/NASA Staking and Conformal Coating Course
March 11-14

IPC-7711/21 Rework & Repair Registered Instructor Course
February 11-15 (Atlanta)
March 18-22

IPC-A-610 Instructor Certification
February 25-March 1 (Atlanta)
March 4-8

IPC-A-610 Instructor Recertification
February 4-5

Apex News

By: Mel Parrish

The technical committee for IPC-A-610 met before the APEX show to continue work on Revision D of the document. IPC-A-610C is a very successful document and has become the standard of choice throughout the world for definition of acceptability. There has been a continual effort to improve and expand acceptability content as well as the graphic content. We felt that there was a need in the industry to include newer technology definition to expand application for mainstream industry applications. This included BGA, Flip Chip, Chip on Board, Optoelectronics, etc. If any of the readers have information to contribute to this effort please contact us with your recommendations.

After over three years of effort, IPC-A-620, Requirements and Acceptance for Cable and Wire Harness Assemblies, is complete and released for publication at the APEX show. Notice that there are no revision letters after the number, since this is the first of its type available from IPC or any other source that I am aware of. The content deals with Requirements and Acceptability for Cable and Harness Assemblies. It uses a graphic format of the 610 document to clearly illustrate criteria for the Cable and Harness application. The new document is now available from STI.

For additional information please contact Mel Parrish at (256) 705-5530

Awards

STI members received awards at the APEX show in recognition of their technical committee leadership and continued support for IPC programs over the many years. **Dan Foster** received the Presidents Award and **Mel Parrish** received a Distinguished Committee Service Award. Congratulations!

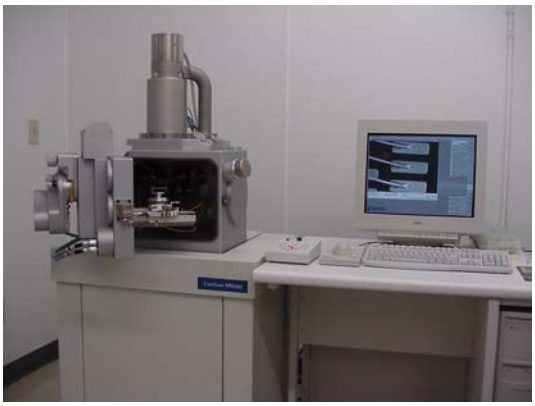
Note:

If you would like to continue receiving upcoming issues of the Target Connection please contact us at training@solderingtech.com or call us at (800) 858-0604 Ext. 5512.

STI² features its Analytical Laboratory

STI² is a division of Soldering Technology International, Inc. (STI) focusing on engineering services and advanced technologies. One of the departments in this division is the Analytical Laboratory. Two of this group's primary functions are inspection and analysis.

STI²'s Analytical Laboratory's enhanced capabilities are the result of the recent addition of several new analytical tools and equipment. The analytical equipment includes the industry's newest and most advanced scanning electron microscope, energy dispersive x-ray, real time optical x-ray, and optical ball grid array (BGA) inspection. Each of these stations has been installed to enhance the technical staff and tools that are currently in place. Additional capabilities include microsectioning, sputter coating, solderability testing, and cleanliness testing.



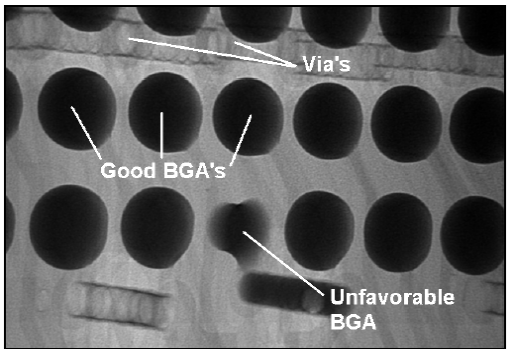
Scanning Electron Microscope (SEM)

The Scanning Electron Microscope (SEM) enables visual inspection and both linear and geometric dimensional measurement. This equipment also has the capability of providing digital imaging of specimens with a magnification up to 40,000 times. The photograph that appears to the left is an example of the clarity and detail this piece of equipment offers.

In conjunction with the SEM, STI has installed an energy dispersive x-ray (EDX), which is useful in identifying different elements on a sample's surface.

Real Time Optical X-Ray

Real time optical x-ray analysis allows for immediate imaging of specimens. The extra large chamber permits specimens ranging from small micro ball grid array packages to large circuit board assemblies (24" X 36"). Interior defect characterization is possible using the digitally projected x-ray image. The image below is a digitally stitched image comprised of 14 separate x-ray images.



Trade Show Schedule

Pan Pacific Microelectronics Expo ▪ Lahina, HI ▪ February 5-7, 2002
Commercialization of Military & Space Electronics ▪ Los Angeles, CA ▪ February 11-14, 2002
Houston SMTA Vendor Show ▪ Houston, TX ▪ March 22, 2002
Atlanta SMTA Expo ▪ Duluth, GA ▪ April 18, 2002
Florida IMAPS/SMTA Technical Symposium ▪ Orlando, FL ▪ April 23, 2002
1ST Annual MEPTEC Southern Technical Conference ▪ Huntsville, AL ▪ May 8-9, 2002

Analytical Lab (Cont.)

Solderability Testing/Wetting Balance

Solderability Testing provides solderability measurements in accordance with the wetting balance method.

STI has the capability to perform solderability testing (including steam aging), failure analysis and consulting.

Jerry Green working with the Kester (KS-150) Solderability Tester

ERSA™ Scope

STI also has the state of the art in optical ball grid array inspection capabilities. Using an ERSA™ Optical Inspection station, high quality digital images can be viewed in real time, using a CCD camera and computer interface.

For additional information please contact Mark McMeen at (256) 705-5515.

Norma Couch using the ERSA optical inspection station

STI's Sales and Distribution Department features two new AIM solder pastes

NC251 is a no-clean solder paste designed to improve the SMT process and simplify pin probe testing. NC251 greatly reduces or eliminates solder defects such as voiding on Micro-BGAs and solder beading. NC251 offers low post process residues, excellent wetting properties, extended idle time, tack time, and stencil life, and passes all reliability testing. NC251 is robust enough to accommodate a wide variety of applications and is compatible with lead-free materials.

The residues of NC251 are probeable from directly after reflow to two months later, even after multiple reflows. NC251 is pin testable with a variety of probe styles, materials and pressures and will not gum up probe heads or shatter during testing. This broad testing process window increases production efficiency, prevents false testing failures, and reduces costs.

NC251 may be reflowed in air, has one-year refrigerated/six month room temperature shelf life, and is cleanable with saponified water.

For additional information please contact Mike Gainey. (256) 705-5505 or (256) 797-6077

WS483 is a newly developed organically activated, halide-free water soluble solder paste. Due to its unique solvent-free polymer system, WS483 provides users of water-soluble paste with never-before-experienced stencil life, tack time, printing characteristics, slump resistance, and heat and high humidity tolerance. In addition, WS483 offers excellent activity, tack time and force, cleaning properties and is virtually odor-free.

WS483 has been developed in order to meet the highest standards of quality and ease of use. Users of WS483 will benefit from up to 48 hours of stencil life and up to 24 hours of tack time.

WS483 offers an exceptionally broad printing-process window. For high-speed applications, WS483 provides superior slump resistance allowing print speeds up to eight inches per second. Furthermore, the lengthy tack time and stencil life of WS483 makes it an excellent choice for batch-print operations.

The excellent activity of WS483 makes it a suitable choice when soldering to standard or difficult-to-wet parts, including lead-free materials. WS483 may be reflowed in air or nitrogen, and reduces activity-related defects such as non wetting.

The residues of WS483 may be cleaned easily in straight water, with the result being exceptional electrical reliability. In addition, WS483 will not foam during washing, even in high-pressure wash systems.

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Jim's Corner

By: Jim D. Raby, PE

The early days of my working life were spent in an Army laboratory working for the Army Ballistic Missile Agency (ABMA). This was where Dr. Wernher Von Braun, one of the world's first and foremost rocket engineers, worked and developed the first satellite. The facility later became the George C. Marshall Space Flight Center (MSFC), NASA's premiere center. The Saturn/Apollo program was conceived, designed and developed at MSFC. MSFC played a huge role in the moon landing and return, which was of great significance to our country and our industry.

I consider myself extremely fortunate to have lived during this era, and to have played a small role in the emergence of this technology. Working on these programs has taught me to respect failure and to learn from and not fear it. Failure analysis has become an important subject during this time. It has provided us with data that assisted in root cause analysis and helped out in the development of specification requirements and the clarification of accept/reject criteria that's still used by industry today. The need for this type data and service has not gone away.

STI, under the leadership of my son David E. Raby, has established the most advanced analytical laboratory in the industry. To serve this industry, he has purchased the best equipment and hired some of the most brilliant young minds available. While these young people form the nucleus, he has also hired enough experienced people to assist in the understanding of the data and the application of the data cultivated.

STI will continue to lead the industry in understanding Lead - Free Processes, Solderability Testing, and new and emerging technologies. Our prototype development laboratory will continue to serve, and to be counted on, as the leader in the industry in subjects like BGA technology and process development.