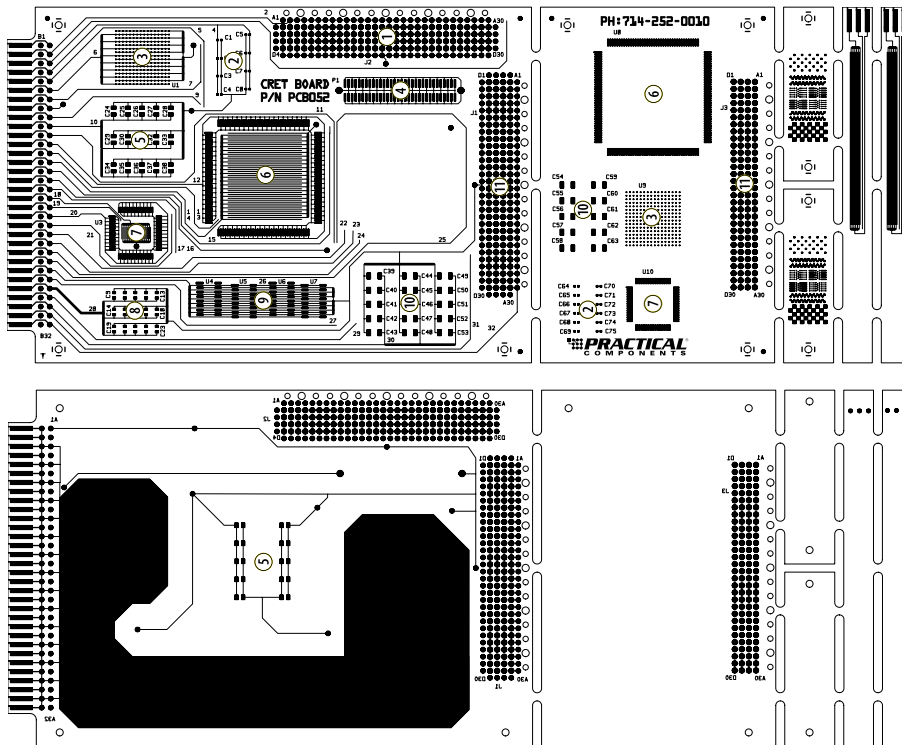


Test Boards for Cleanliness and Conformal Coating

Practical Components offers the following PCB Test boards for printed wiring assemblies materials for process qualification evaluations.

Practical Components Test Coupon Board Availability		Cu	HASL	ImAg	ENIG
PCB052	CRET board		X	X	X
PCB-B-24	Standard Test Board	X	X	X	
PCB-B-25A	Standard Test Board	X	X	X	
PCB-B-36	Standard Test Assembly	X	X	X	
PCB-SIR	Test Board	X	X	X	X
PCB-Saber	Evaluation Test Board	X	X	X	X
PCB015	Rework Test Board		X	X	X

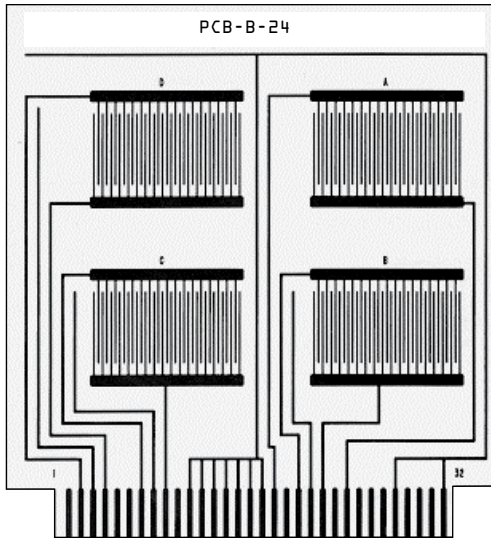
PCB052 CRET Board



The Practical Components B-52 CRET (Cleanliness & Residue Evaluation Test) board is designed to help determine the ionic cleanliness of a customers manufacturing process. The test board follows guidelines associated with the IPC-B-52 Test Vehicle. There are several different ways to measure residues and their effects on electrical performances, the two most common in the industry are ionic cleanliness testing, for determination of ionic residues, and surface insulation resistance (SIR) testing, for the evaluation of electrochemical failures in humid environments.

Of the various methods for determination of ionic residues, the method of choice is ion chromatography, which determines both the type of ionic residue and the amount of the residue. The IPC method for ion chromatography is IPC-TM-650, method 2.3.28. For SIR testing, the most modern test method, involving frequent of continuous monitoring, is IPC-TM-650, method 2.6.3.7. Consequently, a test vehicle was needed which could be used for both ion chromatography and surface insulation resistance testing, but which was more representative of mainstream manufacturing materials and process.

Test Boards for Cleanliness and Conformal Coating

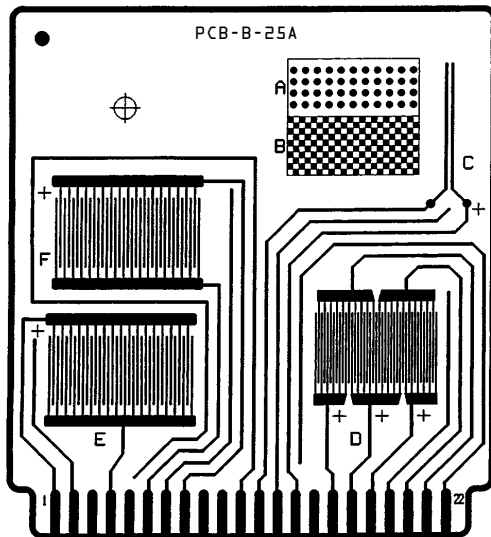


PCB-B-24 Standard Test Board

The PCB-B-24 standard test board is compliant with the IPC Phase 3 cleaning and cleanliness test program. It was designed to be a vehicle for examining the interactions between laminate, surface metalizations, and fluxes. It is the primary qualification vehicle for ANSI J-STD-004, which is the IPC specification on fluxes.

The four comb patterns are identical and have 16 mil lines and 20 mil space. These values were chosen both for ease of stencil printing solder paste, and the board can be wave soldered with minimal chance of solder bridging.

The PCB-B-24 test board is an excellent vehicle for narrowing down fluxes or solder material, or testing material interaction.

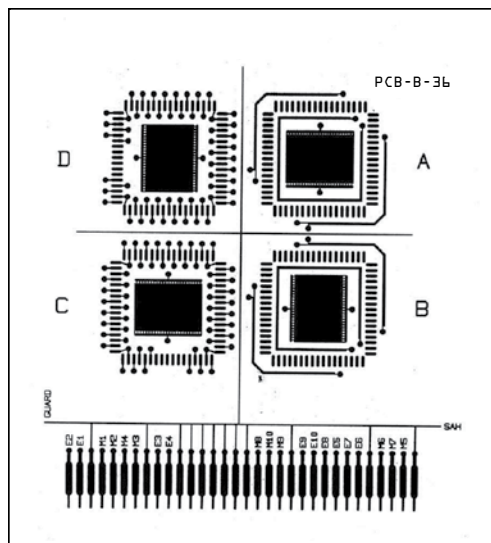


PCB-B-25A Standard Test Board

The PCB-B-25A test board meets the current guidelines for solder Masks (IPC-SM-804C) and conformal coatings (IPC-CC-830A).

The board is normally 0.062" FR-4. The board is simple print-and-etch. The surface is bare copper for materials qualification, but could be any Surface finish required.

The PCB-B-25A is used to evaluate interactions between solder masks, solder paste, and fluxes.

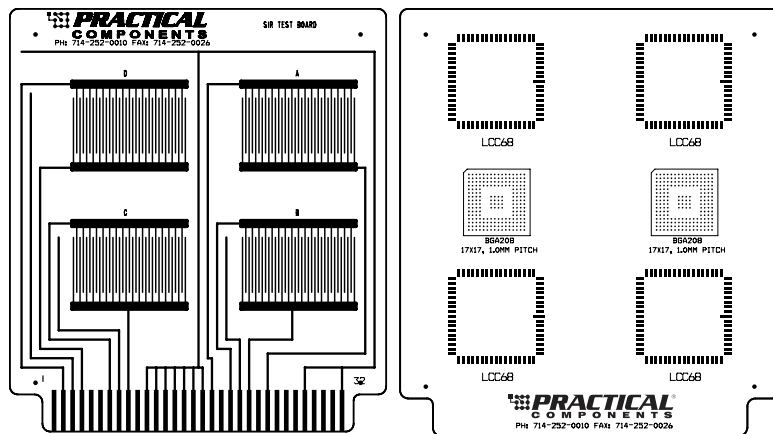


PCB-B-36 Standard Test Assembly

The PCB-B-36 standard test board was designed for the IPC cleaning cleanliness test program, Phase 1. It was designed for examining the ability of a cleaning solvent to remove flux residues, and to examine the effects of entrapped residues under low standoff components. The PCB-B-36 test board can be used as a process qualification vehicle for the J-STD-001. This board has 10 SIR test patterns. Two patterns #2 and #4 are mounting pads in quadrants C and D. The pad spacing is 25 mils for patterns #2 and #4. The contact fingers of the board are normally gold plated for compatibility with edge card connectors. The remaining metalization is normally bare copper, or any surface finish. In most cases, four leadless ceramic chip carriers (LCCs) are mounted on the board, one in each quadrant.

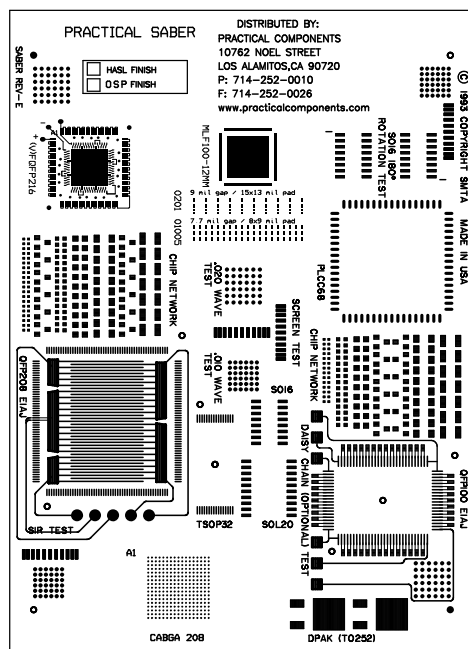
This test vehicle is designed to test combinations of conformal coatings, fluxes, solder paste and their interactions with each other. Testing cleaning residue under low stand off components is a benefit of the PCB-B-36 test board.

Test Boards for Cleanliness and Conformal Coating



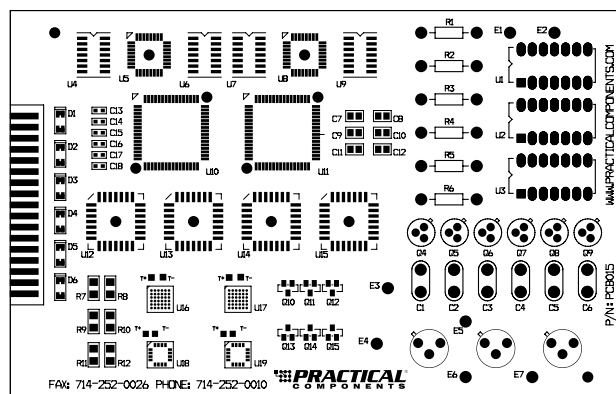
Practical Components SIR Test Board

The Practical Components SIR board is a double sided board to characterize fluxes by determining the degradation of electrical insulation resistance of rigid printed wiring board specimens after exposure to the specified flux. The board contains pads for LCC68 and A-PBGA208-1.0mm-17mm components. Boards and kits are available in Tin-Lead or Lead-Free.



Practical Components Saber Board

The SABER evaluation board can be used to evaluate pick and place equipment, reflow process, component, cleanliness and solder paste screening. The SABER board also has honeycomb patterns for SIR testing. Board finishes include ImAg, ENIG and Pb-Free HASL. Standard board material is IS-410.



Practical Components PC015 Assembled Test Board

Available Pre-Assembled, this board is the ideal vehicle for Off the shelf Conformal Coating testing. Pre-Populated with a variety of component types, from LQFPs and CABGAs, DIPs down to 0603 chips this board offers a real-world conformal coating testing surface and gives standardized and repeatable results. The PC015 is available in Tin-Lead or Lead-Free versions. The PC015 and components can also be delivered unassembled or partially assembled, example: only the surface mount components mounted on the board. Practical Components also specializes in designing PCB test boards made to size, thickness, material or specified requirements as requested. Practical can also manage the procurement process and supply chain, including assembly and application of materials. Practicals PC015 Rework Kit conforms to IPC 7711/7721 standards or reworking.