

Application for Measurement & Analysis of Squeegee Force Settings and Traverse Pressure Distribution during Screen Printing

This brief highlights a method of electronically measuring the pressure distribution under a Squeegee during the Solder Paste Stenciling and Screen-Printing Operation in PCB Manufacturing

The I-Scan system provides the diagnostic tools necessary to evaluate, view, and balance the forces under a squeegee blade. The system uses a very thin (0.004"), grid-based electronic sensing circuit, printed on a thin polyester substrate to measure pressure distribution. The sensor was placed under the screen as shown in (Fig. 1) and the squeegee passed over it. The system hardware can capture the analog signal produced and convert it to an 8-bit digital signal that is read by a computer (Figs. 2 and 3).

The data is presented on a computer screen and can be seen as informative 2-dimensional (Fig.2) and 3-dimensional (Fig. 3) displays. The cross-sectional pressure profile at two selected locations of the print stroke is illustrated in the Pressure Profile Graph shown in (Fig. 4).

The system can be used as a set-up tool to measure squeegee force settings and distribution. It can also be used to capture and analyze the peak pressures and their locations as the squeegee traverses the print stroke during the printing cycle.



Figure 1. I-Scan sensor placed on Squeegee

Figure 2

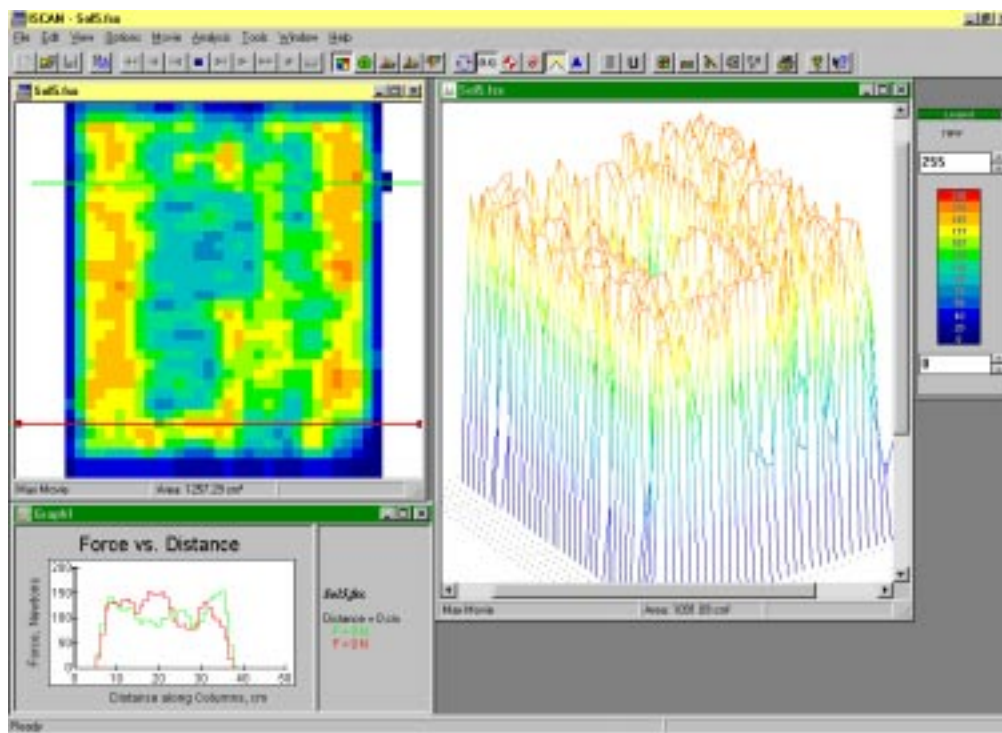


Figure 3

Figure 4