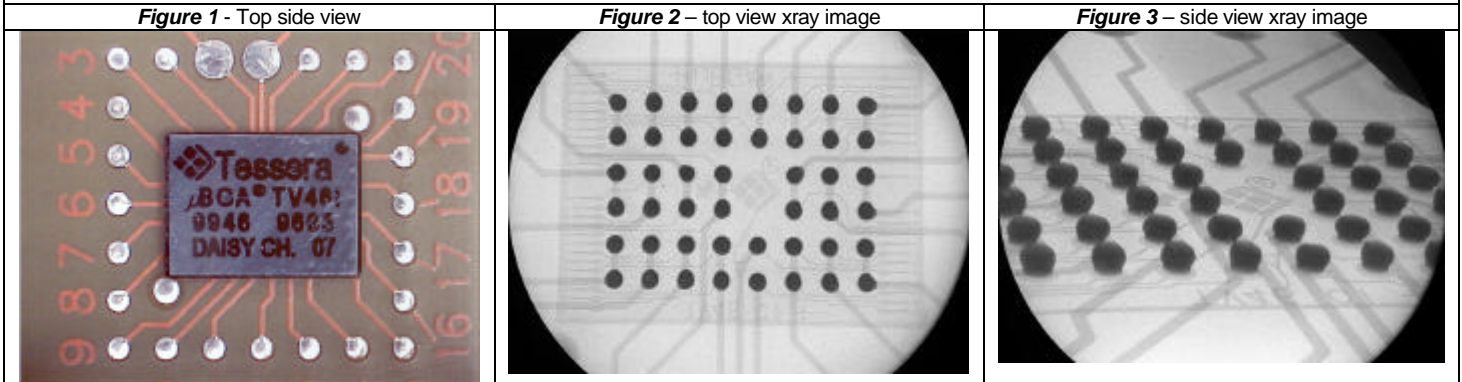


## FAILURE ANALYSIS REPORT

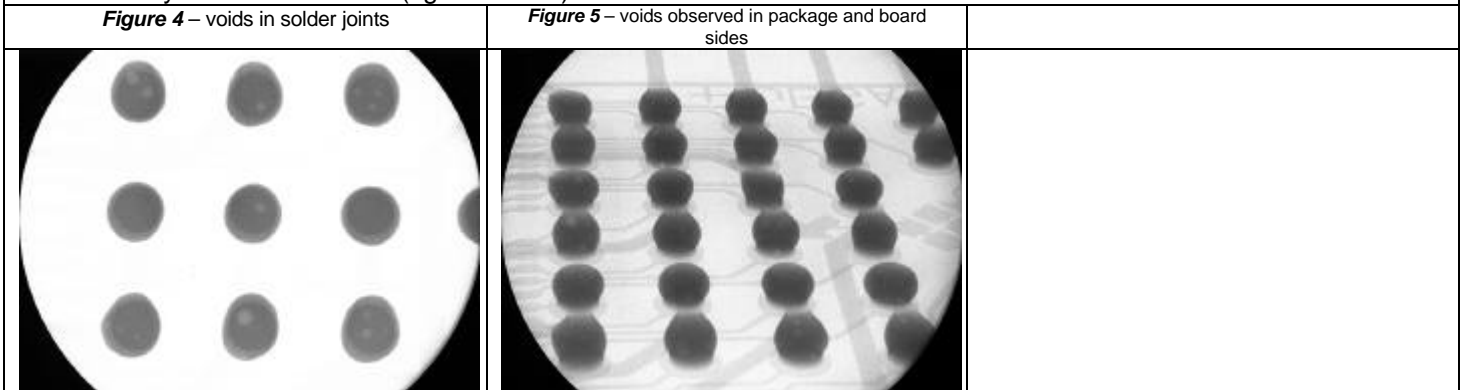
<b>DATE:</b> 6/29/2000	<b>CUSTOMER:</b> Internal	<b>NAME:</b> Vern Soldberg
<b>PART DESCRIPTION:</b> SIPAD board, TV46	<b>BATCH NUMBER:</b> N/A	<b>DATE CODE:</b> N/A
<b>JOB DESCRIPTION:</b> Examine solder joints after component placement onto an SIPAD board. The SIPAD board was previously equipped with non-conductive and tacky flux on the landing pads so no paste printing operation was necessary. Components were placed onto the adhesive flux and processed in a conventional reflow oven.		

**TEST SAMPLE:**



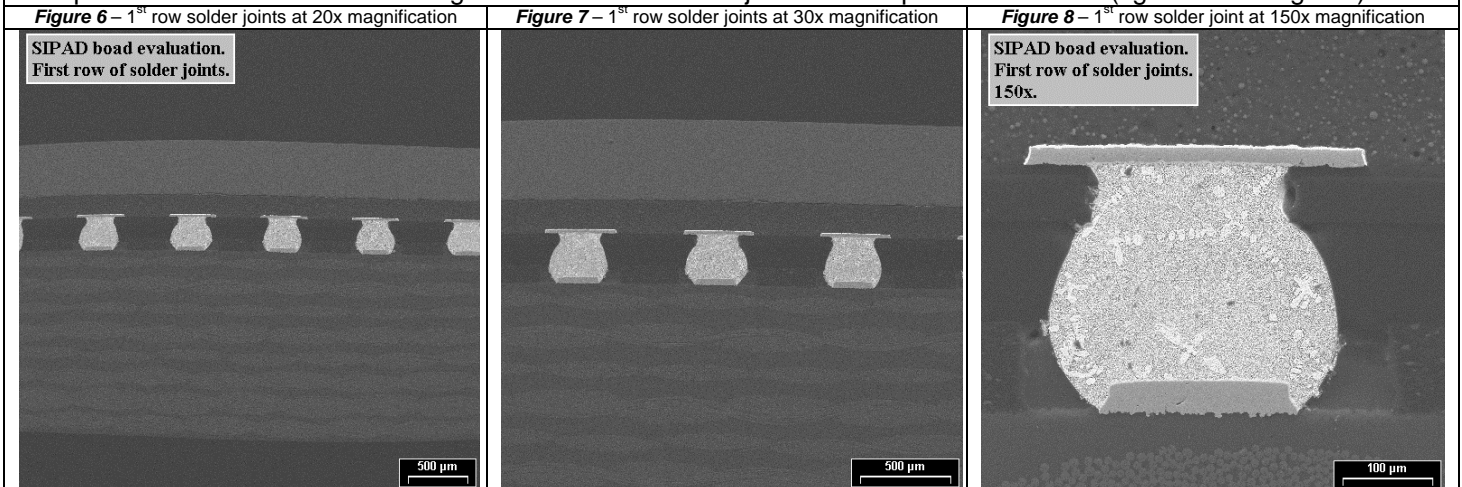
**X-RAY INSPECTION:**

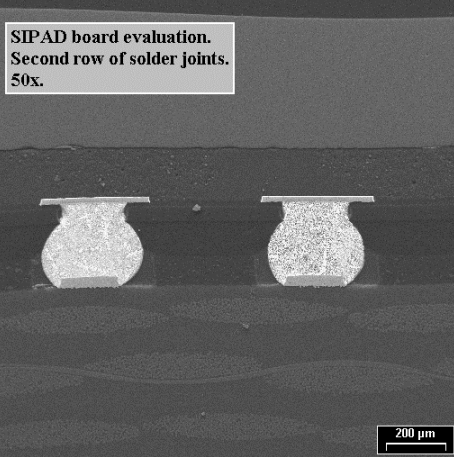
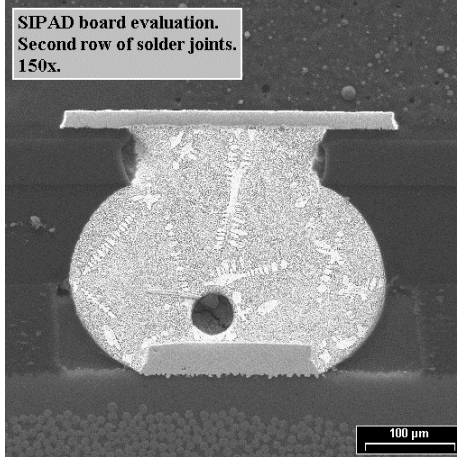
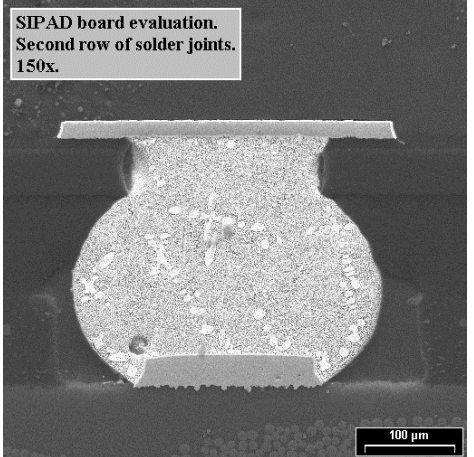
Inspection using x-ray showed some voids in the solder joints. This suggests further optimization of reflow profile may be necessary to minimize voids (figures 4 & 5).



**CROSS-SECTION AND SEM:**

Samples were cross-sectioned through 1<sup>st</sup> two rows of solder joints and inspected with SEM (figures 6 through 11).



**Figure 9** – 2<sup>nd</sup> row solder joints at 50x magnification**Figure 10** – 2<sup>nd</sup> row solder joint at 150x magnification**Figure 11** – 2<sup>nd</sup> row solder joint at 150x magnification**CONCLUSION:**

All 10 TV46 components passed continuity tests after surface mount. Examination of solder joints with x-ray and SEM after cross-section showed good alignment and wetting of solder joints to board pads. Reduction of observed voids may be accomplished with further optimization of reflow profile.