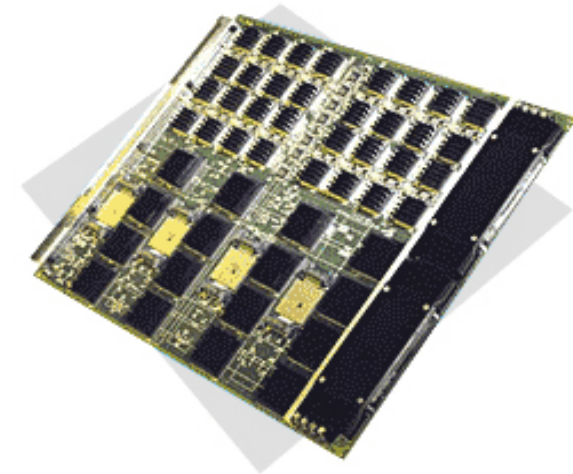


# CASE STUDIES SUMMARY

## K100 & K100*LD*

### SMT Dynamics and Ayrshire Electronics



By: Peter Biocca

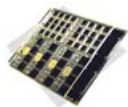
Date: August 2006

## SMT Dynamics, Anaheim, CA

They implemented lead-free wave, reflow and hand-soldering successfully and ran over 5000+ FutureLogic high-end thermal printer boards.

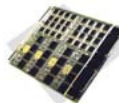
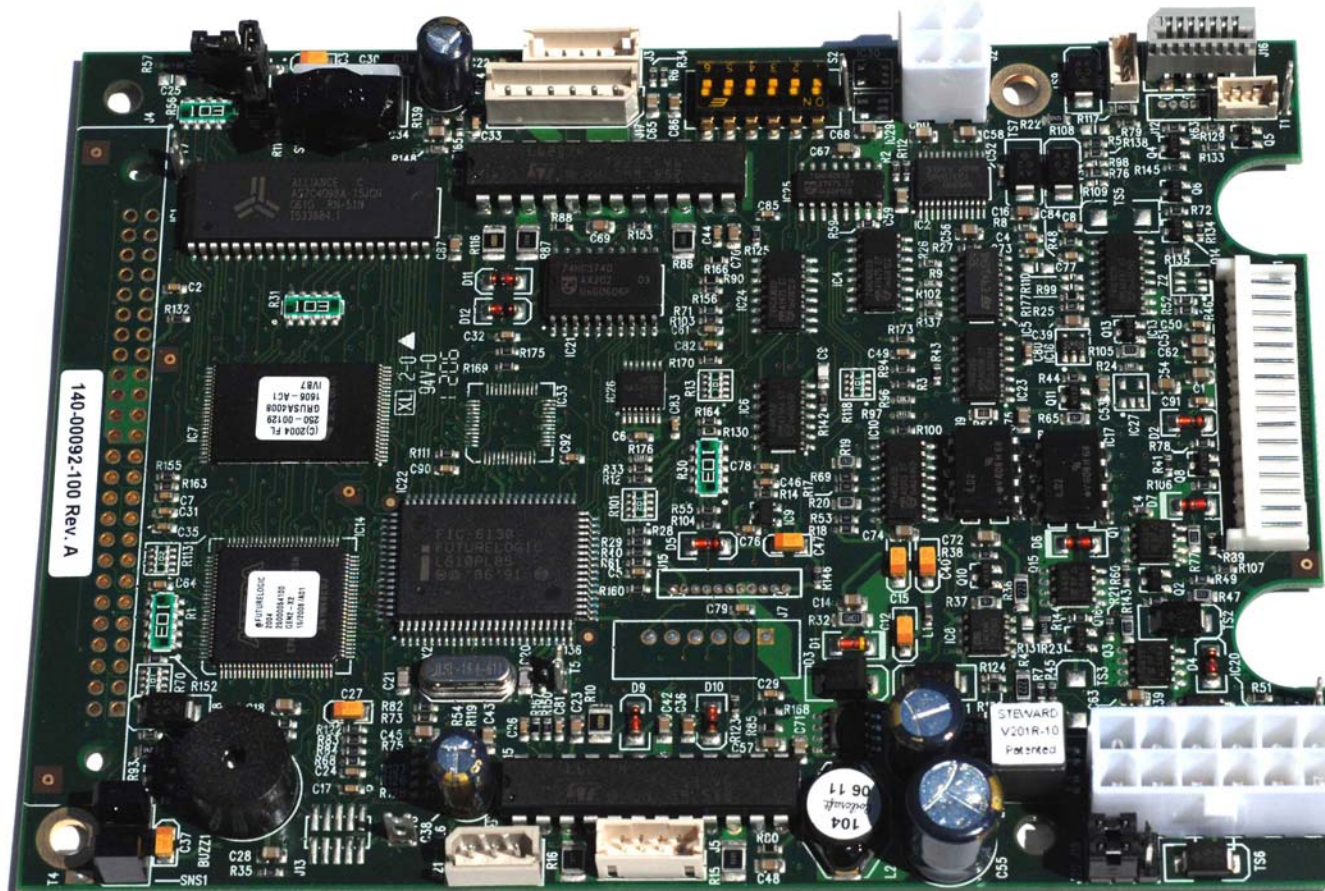
Boards were ENIG finish, 0.063" thick, top-side SMDs, all lead-free RoHS parts

- ❑ **Kester K100 solder bar; Kester 2235 water washable flux**
- ❑ **Kester SAC305 R520A water washable paste**
- ❑ **Kester K100 solder wire with 331 water washable flux**
- ❑ **Tested by CE Analytics passed the Lead-free Validation**
- ❑ **Report “SMT Dynamics Lead-free Validation Report” available to all**
- ❑ **Very successful lead-free implementation with all Kester**



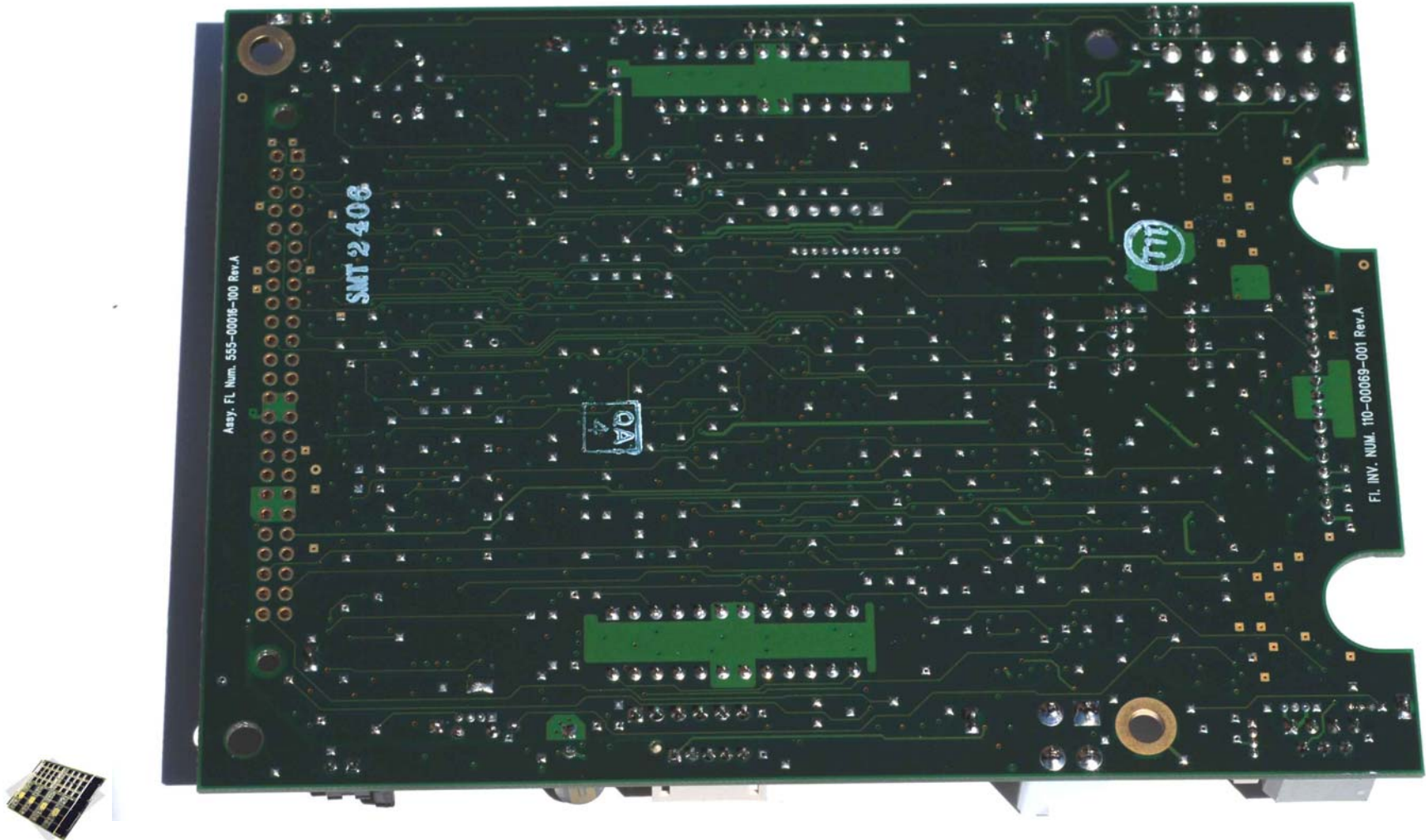
SMT Dynamics, Anaheim CA

K100 with 2235 Flux; SAC305 R520A and K100 331 66 core wire

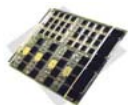
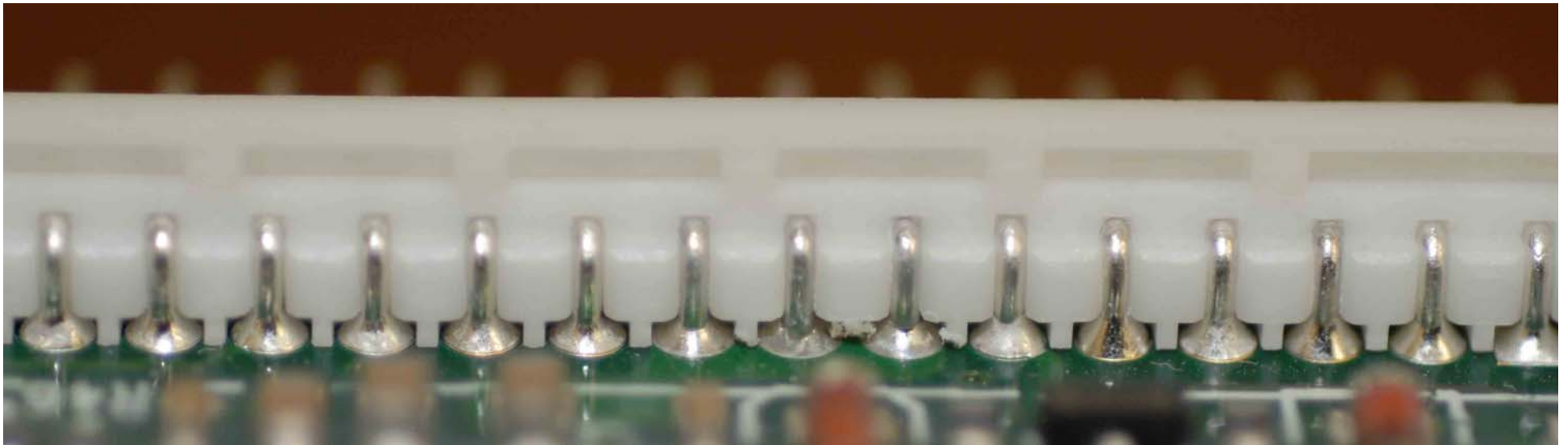


FutureLogic Thermal Printer ENIG Board 5000+ assembled

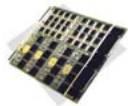
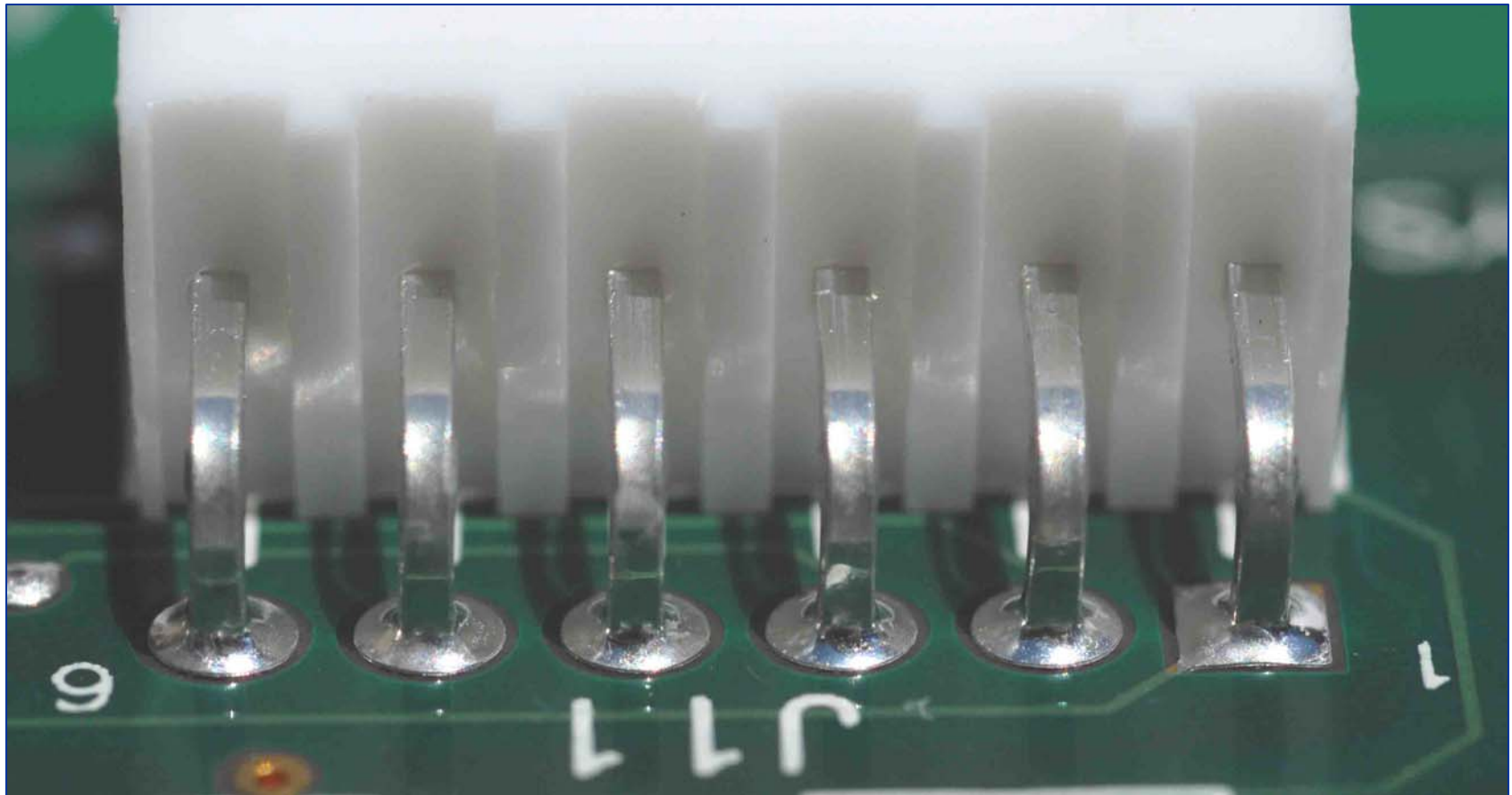
# Bottom-side FutureLogic ENIG Thermal Board with K100



## K100 Soldered Connector 0.063" thick ENIG PCB, looks like 63/37



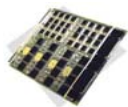
## K100 Solder Wire with 331 Flux, Hand-soldered Top-side J11 Connector



**Excellent flow and no dullness; no shrinkage effects**

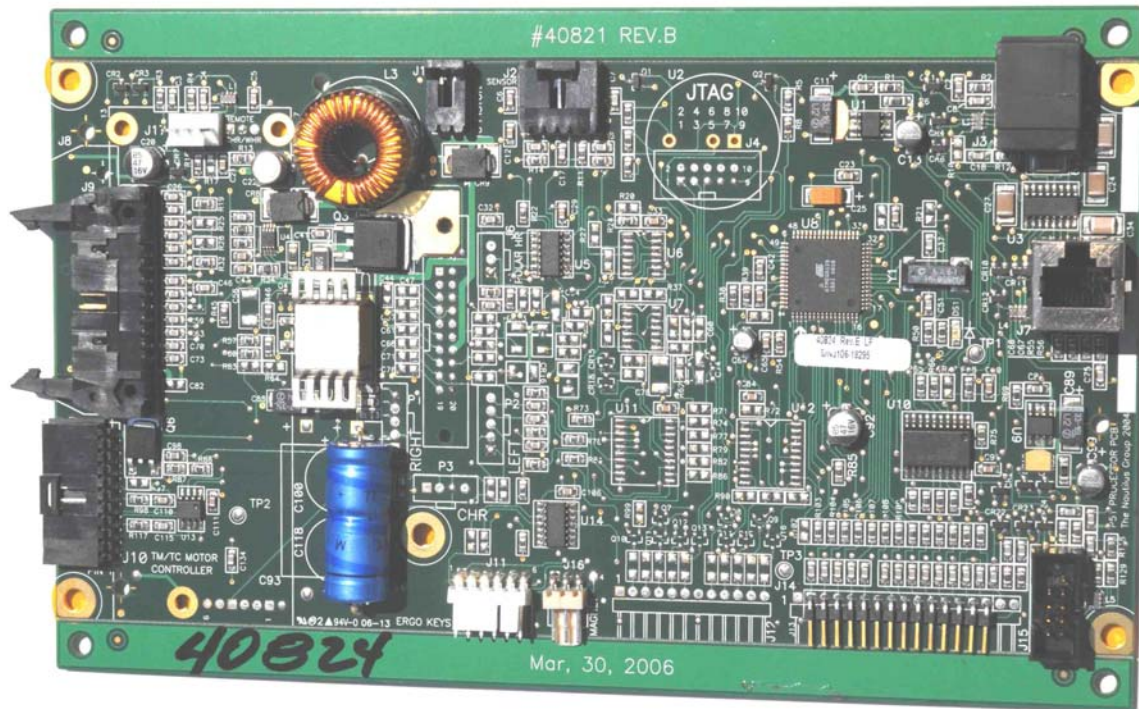
## Solder Wave Process Ayrshire, Fayetteville, Arkansas

- Solder Kester K100LD at 511 to 518 °F
- Three board types were run, ENIG and SN100CL finish
- Conveyor speed 30-36 inches per minute
- Flux Kester 2235, foamed with top-side preheat 93-102 °C
- Contact width 2 inches
- Contact time 3.3 - 4.0 seconds
- Board wave impingement  $\frac{3}{4}$  of PCB thickness
- Number of boards run 170 total, total through-hole joints 6074
- No soldering defects, no dross noted
- Successful implementation with K100LD, SAC305 EM907 and Kester 2335 Flux

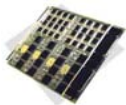


# Ayrshire Electronics LF Implementation

They built 3 board types for Nautilus Europe with Kester K100LD bar, 2235 flux and SAC305 EM907

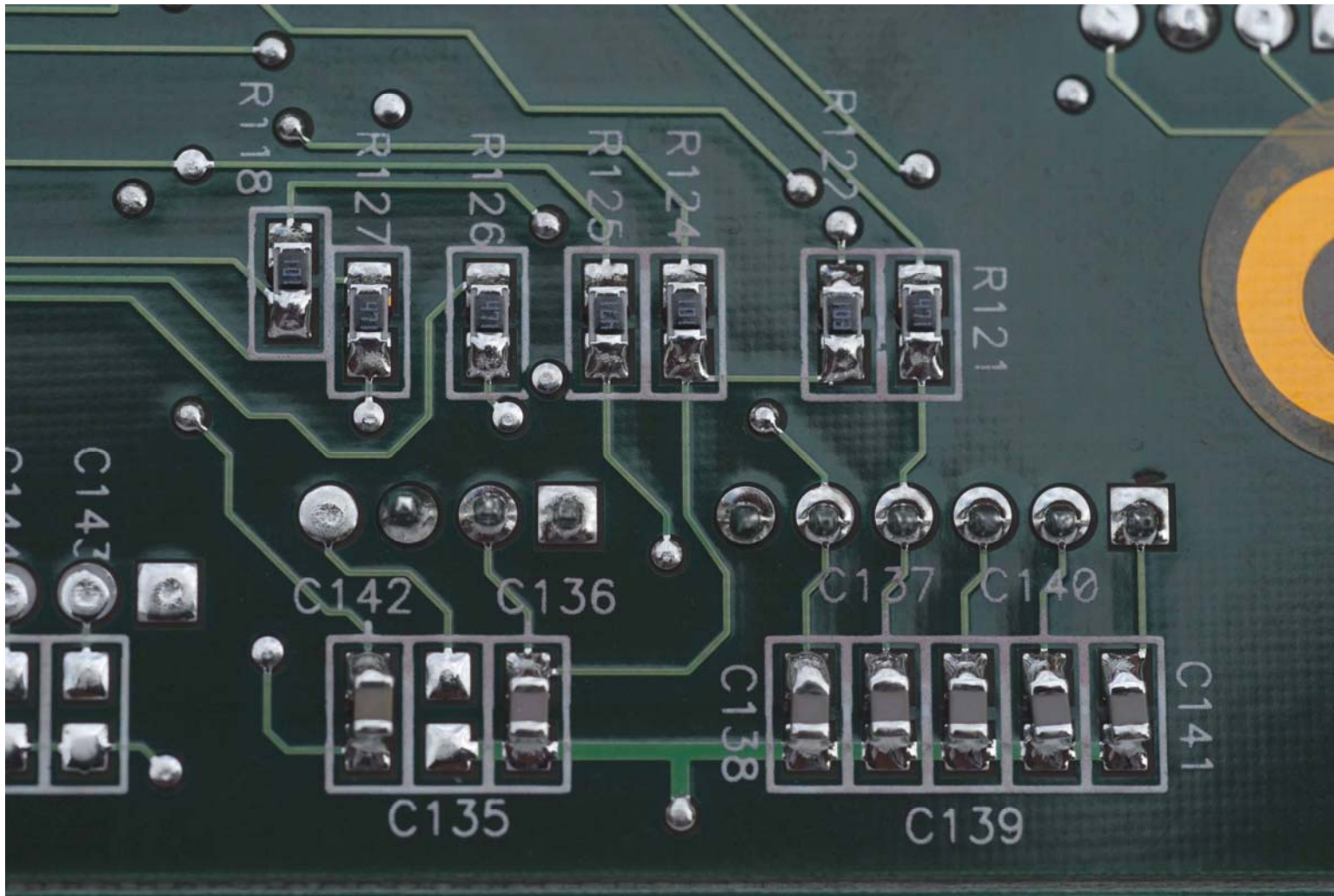


Mixed technology board with top and bottom-side SMDs, 0.063" SN100CL

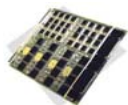




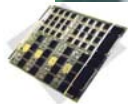
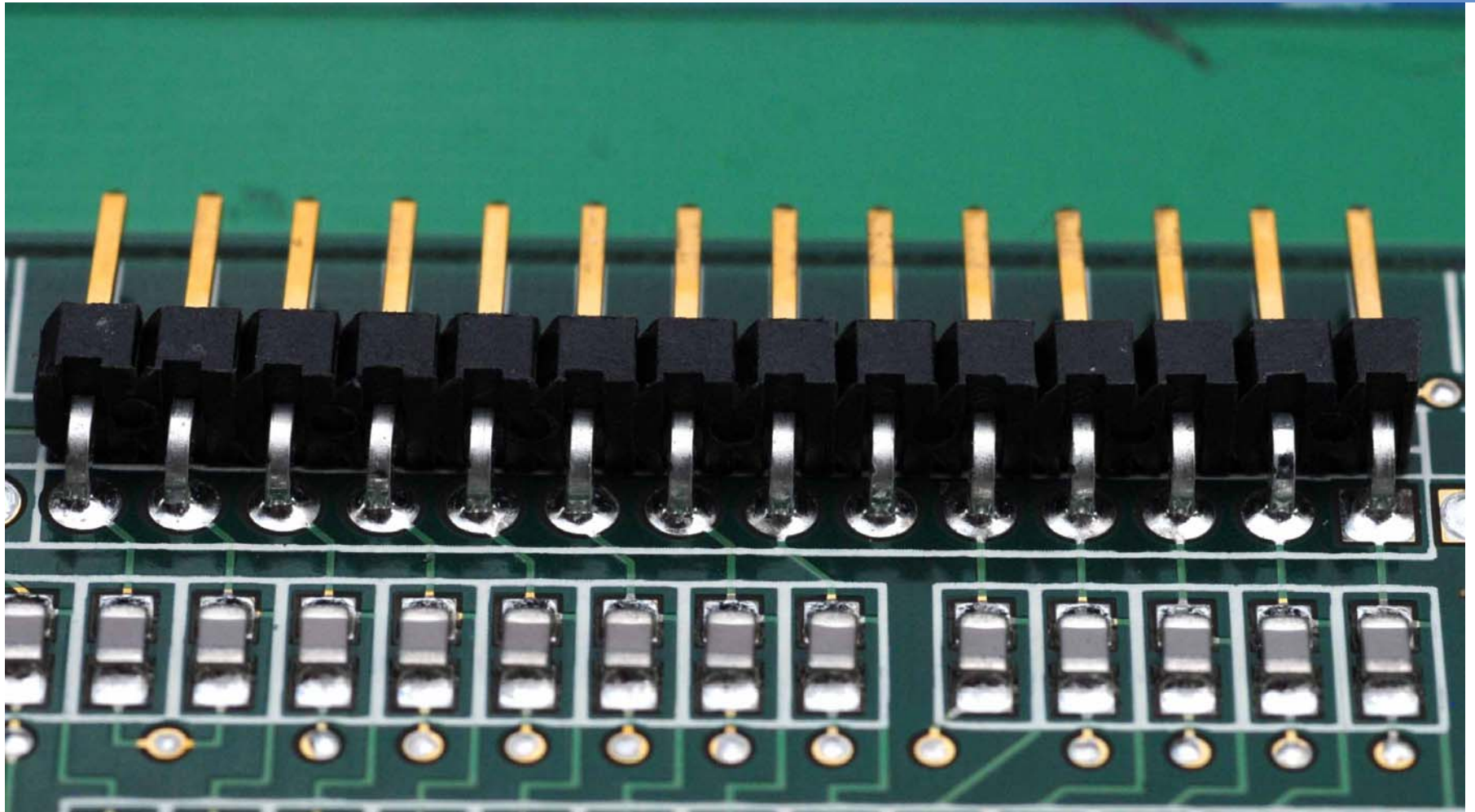
## Bottom-side SMDs and PTHs done with K100LD and Kester 2235



The boards exhibited no defects and bright joints

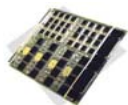
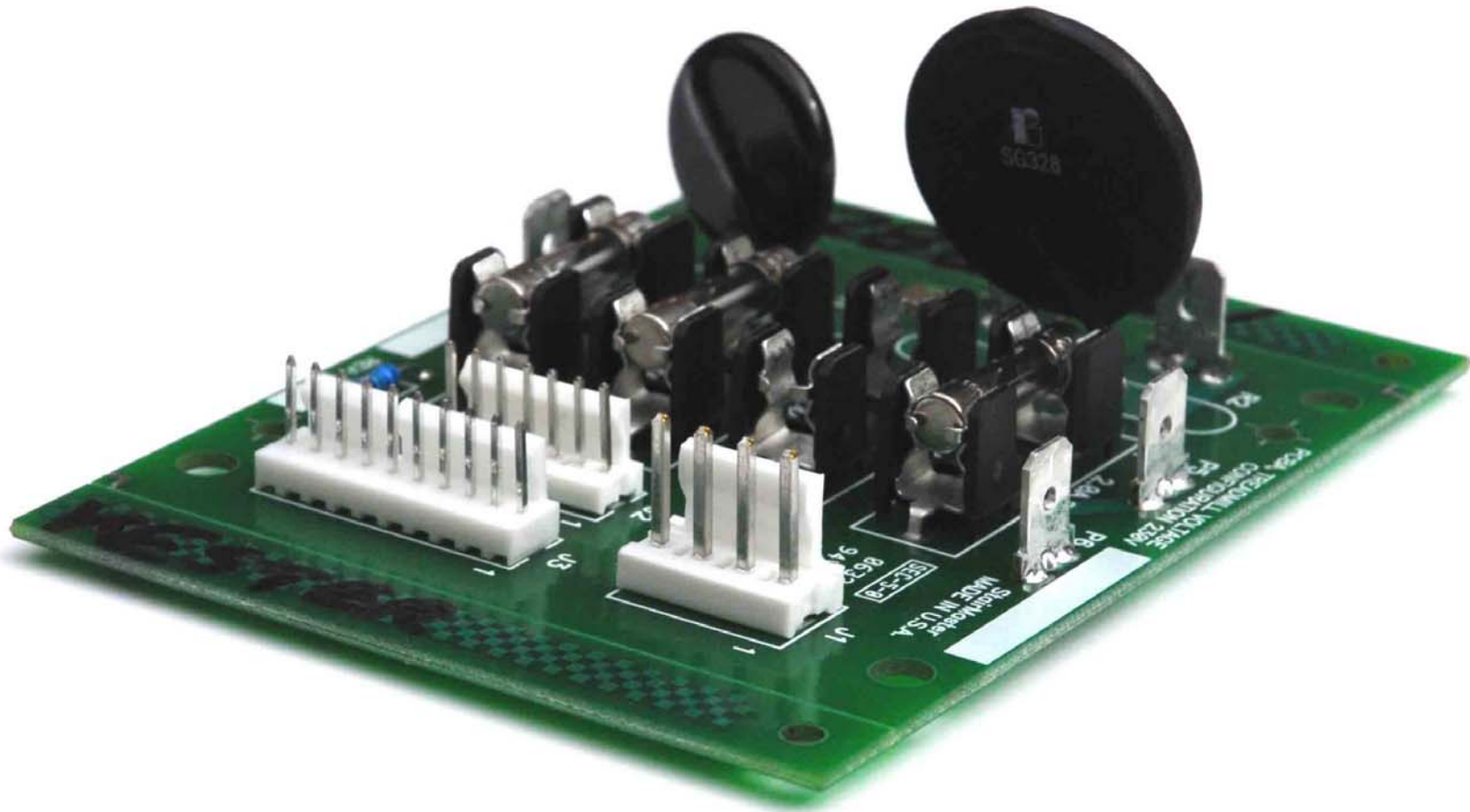


## K100LD Excellent Top-side Fillets; No Dullness, No Shrinkage

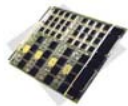
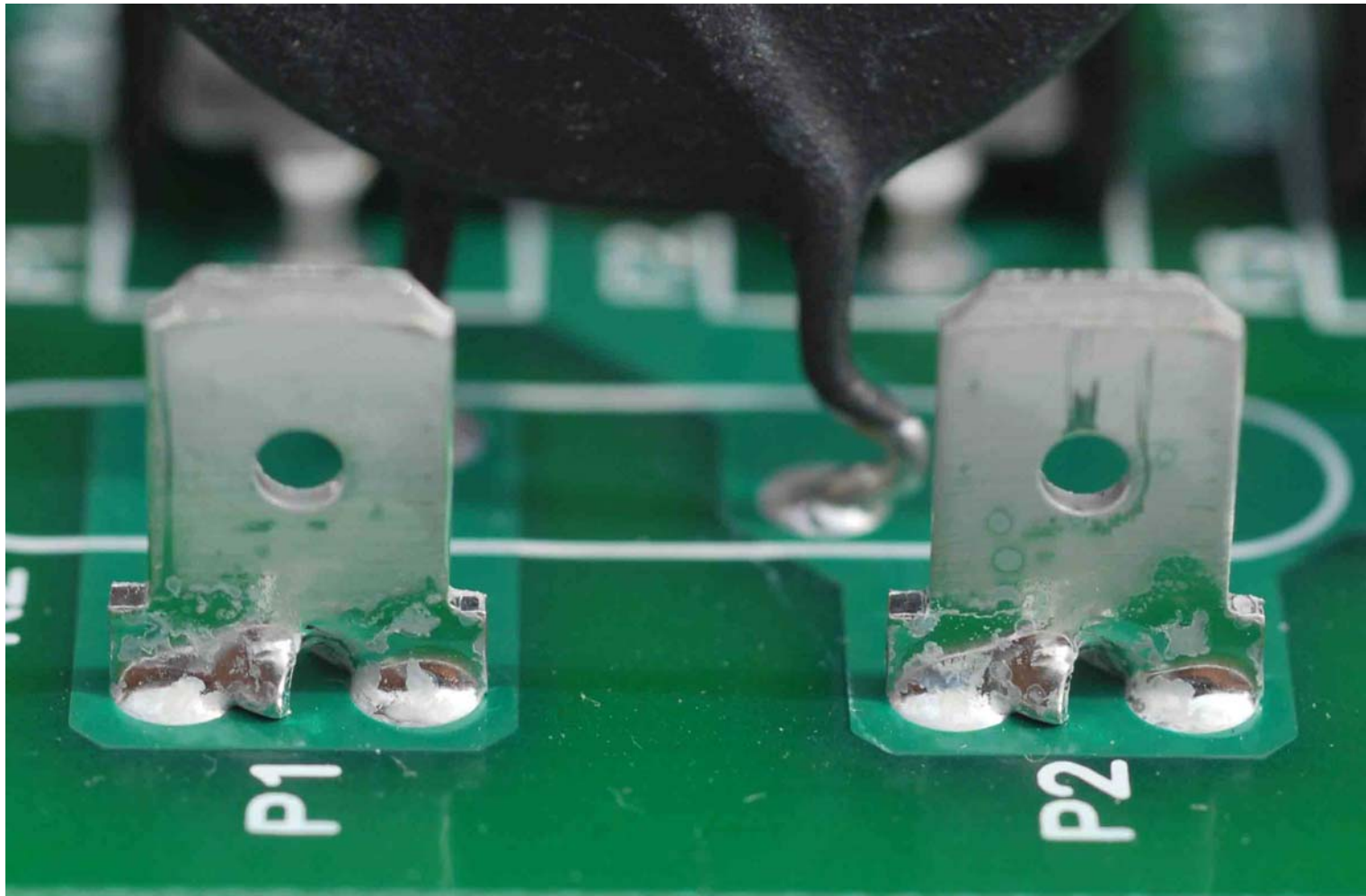


SAC305 EM907 was used for top-side SMDs

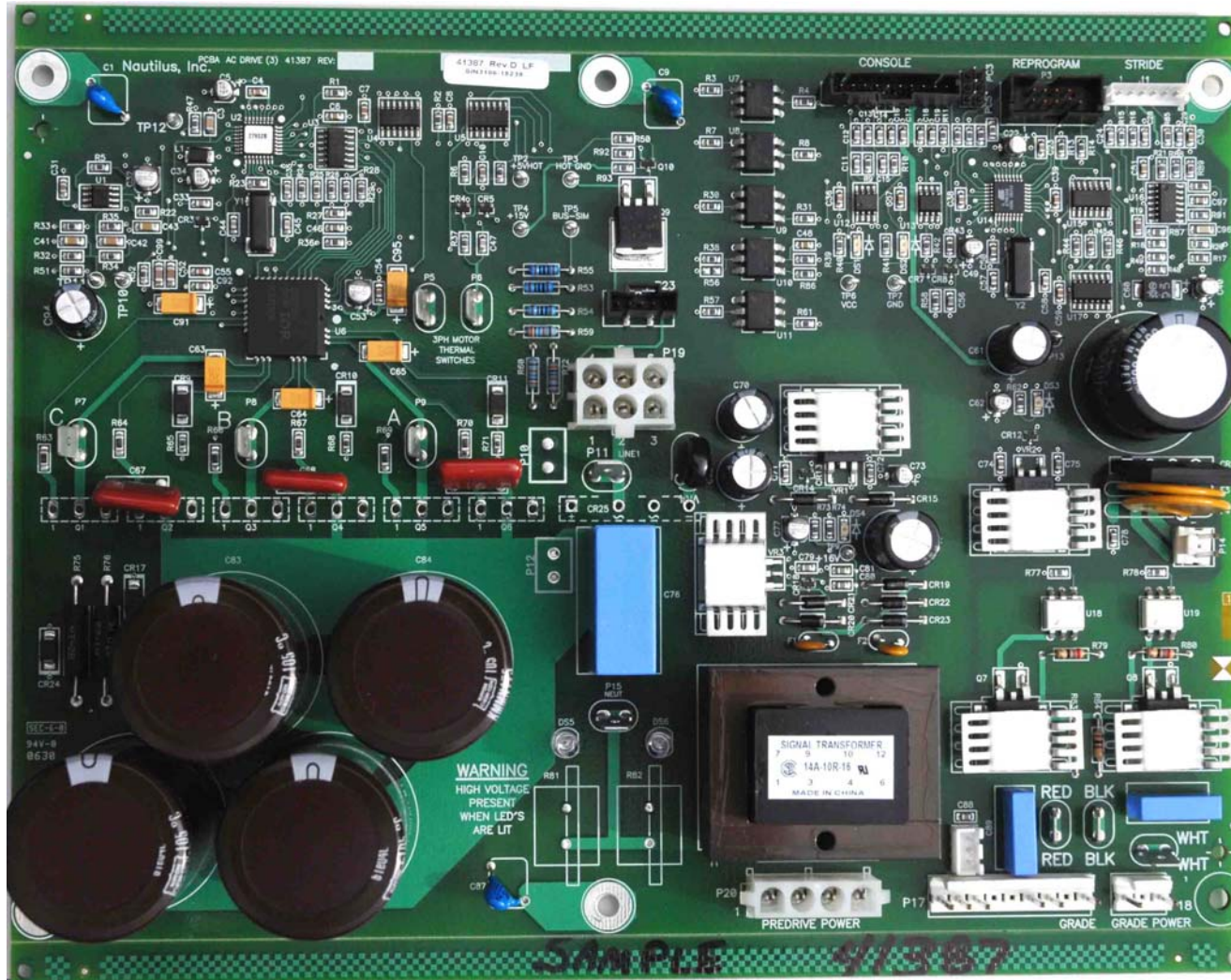
## K100LD and 2235 used to solder 0.063" SN100CL Finish



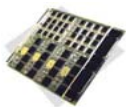
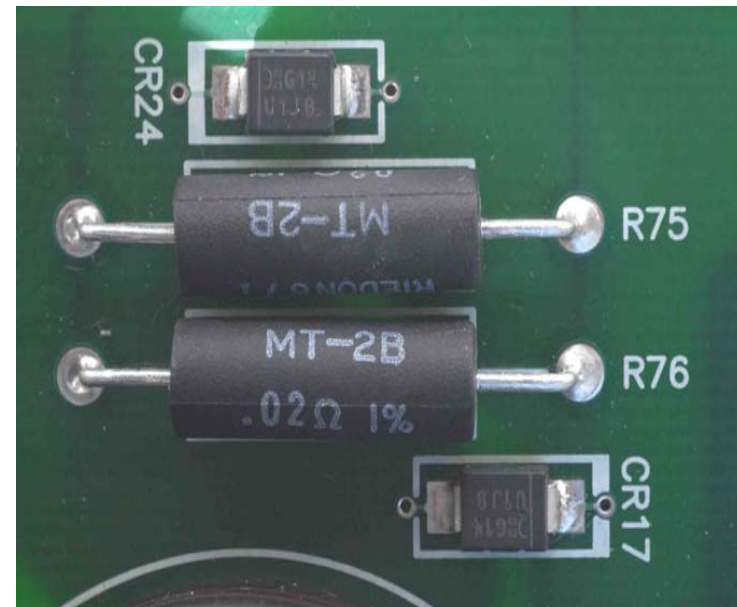
## Top-side Connector Excellent Wetting



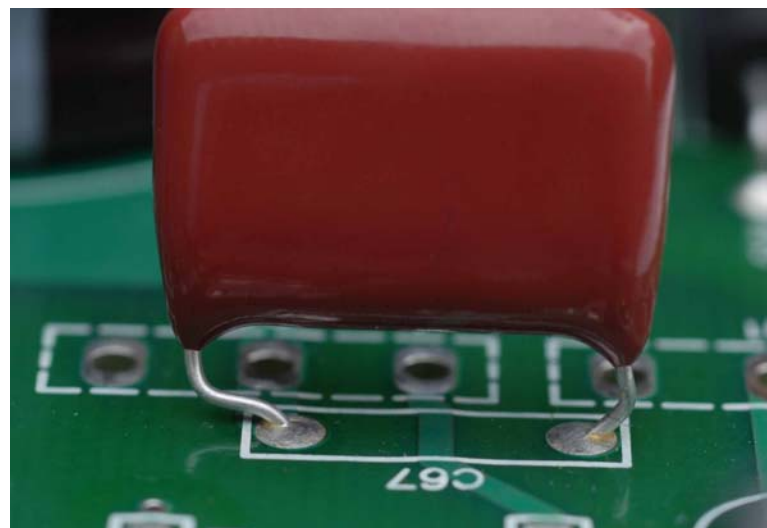
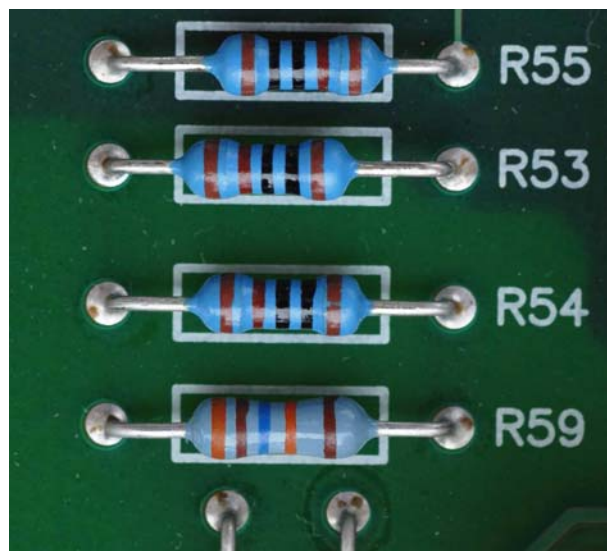
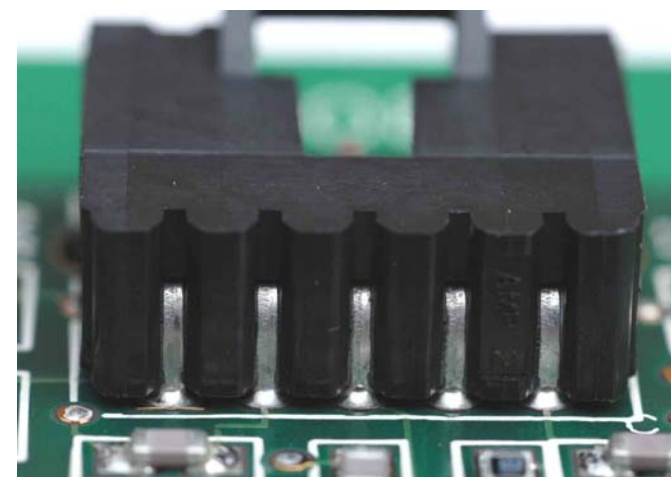
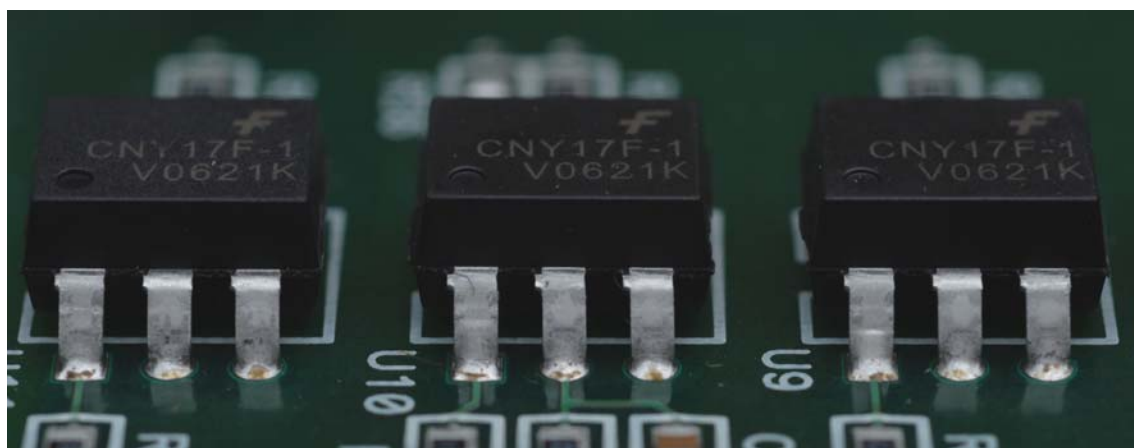
# K100LD and 2235 Flux with SAC305 EM907 Top-side reflow, 0.093" Thick SN100CL Finished



# K100LD excellent defect-free bottom-side and top hole-fill



# K100LD on 0.093" thick board with excellent hole-fill



End

