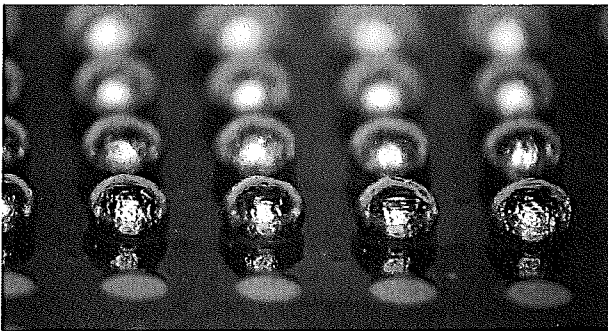


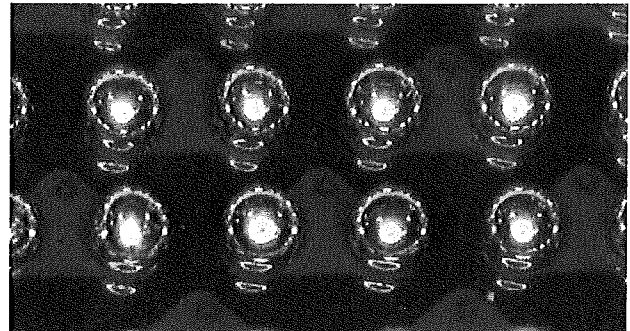
Laser Soldering Services

Heat just where you need it

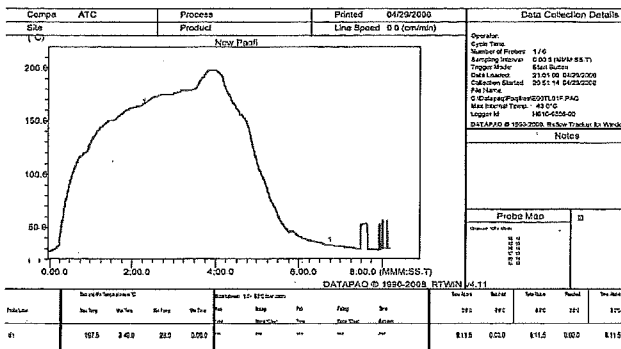
- Laser Balling and Re-balling
 - Re-ball BGAs or CSPs without sacrificing heat cycles
 - Maintain component reliability
 - Improved solder joint quality
 - Lead-free to lead/lead to lead-free conversions
- BGA and CSP ball repair
- Selective Soldering Applications
 - Low Tg materials
 - Temperature sensitive components
- Fully Characterized and Qualified Process
- Fast Turn Service Available



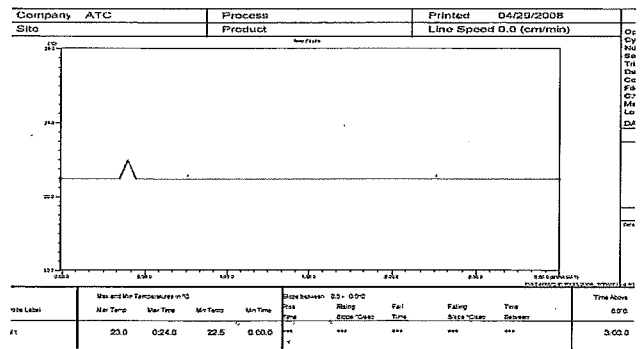
Convection Reflow: Solder balls attached in a convection oven with nitrogen. Irregular shape is caused by some oxygen presence (~75 ppm).



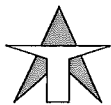
Laser Reflow: Typical untouched pristine appearance of laser-reflowed solder balls re-balled using proprietary process on the same BGA.



This profile shows the standard convection ball attachment temperature profile. The component is heated to above 220°C.



This internal profile during laser ball attachment shows a single spike from 22.2°C to 22.8 °C, seen only in the area of the thermocouples.



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