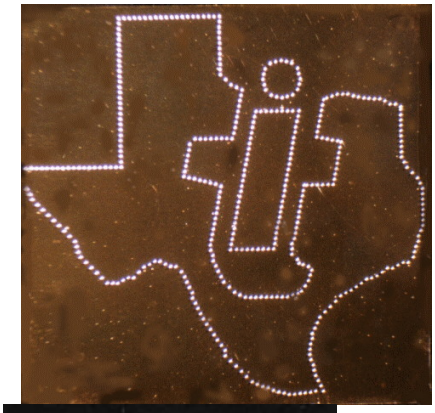
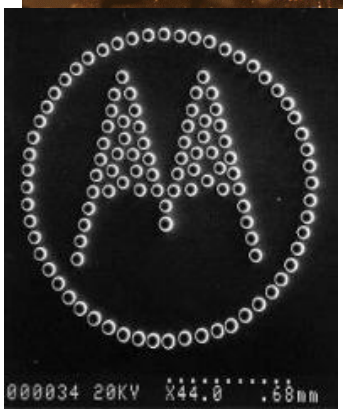
Solder Jet® Technology

Solder Jet® technology is targeted for use in electronics assembly process where solder is utilized as an attachment and/or structural material for assembly of electronic components to substrates.

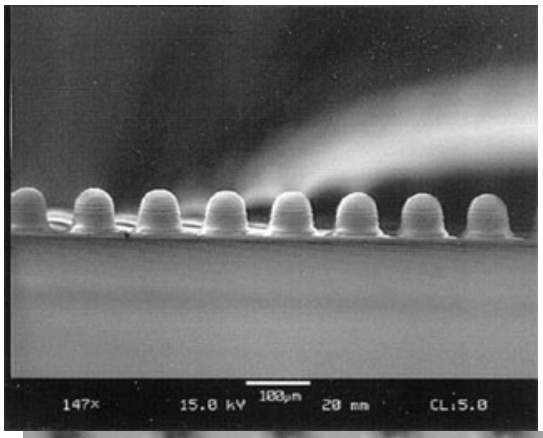
Solder Jet® technology is based on piezoelectric demand-mode ink-jet printing technology and is capable of placing molten solder droplets, 25-125µm in diameter, at rates up to 400 per second. Operating temperatures of 220ºC are normally used, and temperatures up to 300ºC have been demonstrated. This temperature range has been utilized to print conventional SnPb and lead free solder, such as SnCu, In and Sn. Solder jetting is an environmentally friendly process that does not require plating chemicals and prints only the desired amount of solder at an exact location.

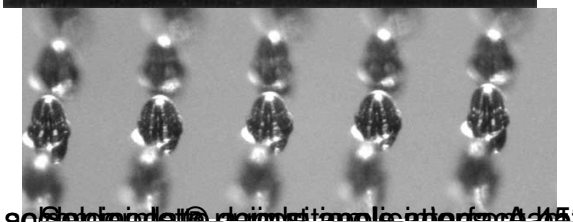
Solder Jet® deposition is data driven, therefore no hard tooling such as phototools or screens are required. The figures below (courtesy of Motorola and Texas Instruments) illustrate the data driven nature of Solder Jet® technology. These logos were formed using 60µm diameter, 63/37 SnPb solder droplets.

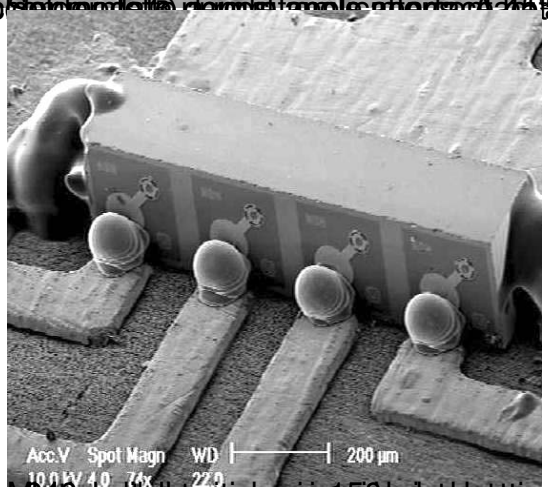


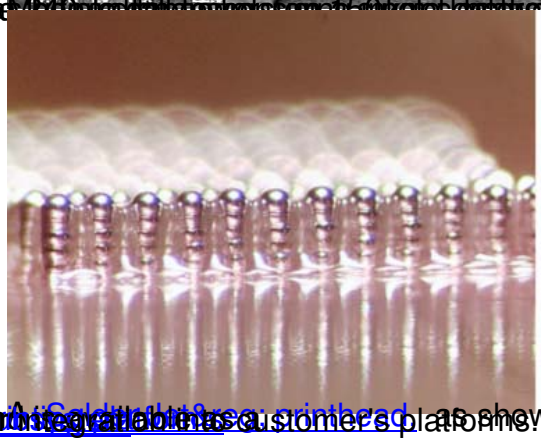


One application of Solder Jet® deposition is wafer bumping. The figures below illustrate a perimeter array bumped with 60µm balls on 150µm centers and an area array bumped with 100µm balls on 250µm centers.





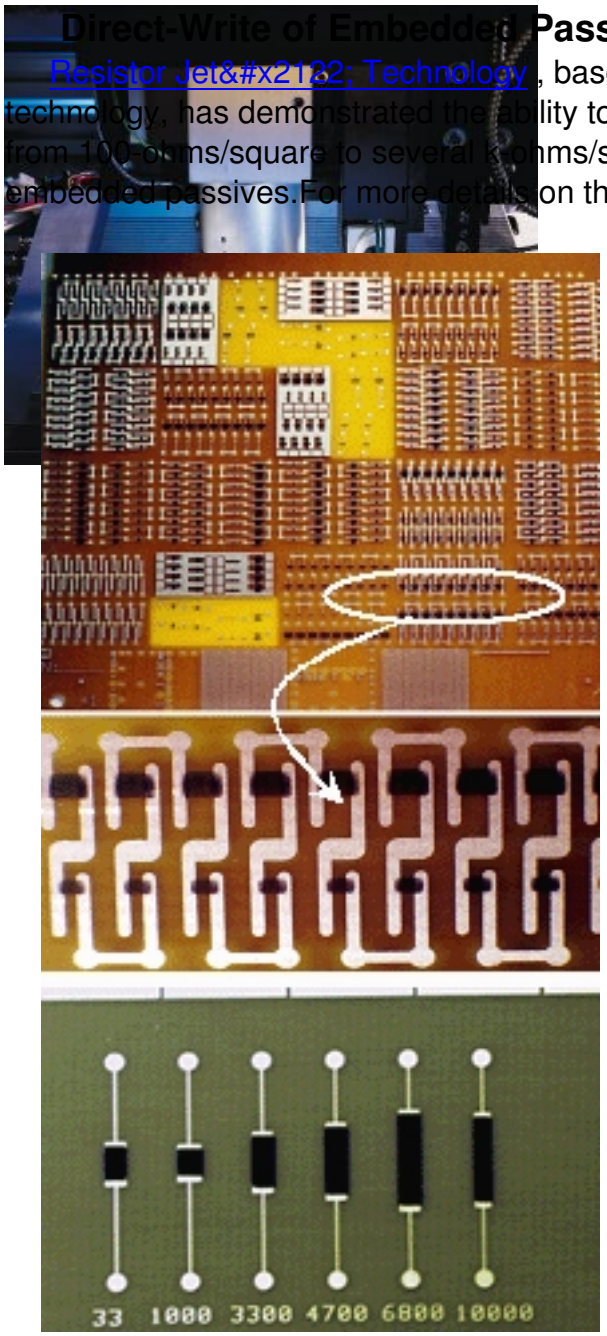




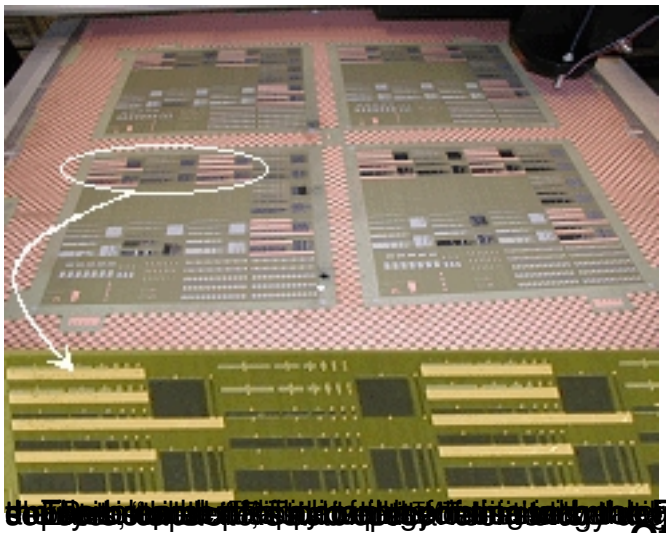
[illegible] as shown in below, can be mounted on MicroFab's jet**lab**®

Direct-Write of Embedded Passives

Resistor Jet™ Technology , based on demand-mode piezoelectric ink-jet printing technology, has demonstrated the ability to print embedded resistors with a range of values from 100-ohms/square to several k ohms/square as part of a NIST/ATP sponsored program on embedded passives.For more details on this program, go to aept.ncms.org.



The data-driven nature of ink jet printing allows the formation of precise geometries at any location on the printed wiring board inner-layer.



Other Applications

MicroFab has successfully demonstrated dispensing a number of other materials used in electronics manufacturing. These include dielectrics, adhesives, organometallic inks for conductors, solder mask, and ferrite particles for inductors.