

GPD Global Vertical Interconnects with MicroShot Dispensing and MicroCoat Technologies

The push for size reduction is reaching the segment of vertical interconnects. Current technology has a lower limit of approximately 0.150mm (0.006") with pump and materials being the limiting factor. GPD Global through cooperation with MicroCoat Technologies have developed a process to dispense vertical interconnects at line widths from 0.075 to 0.100 mm. A combination of fluid formulation and pump development has resulted in the ability to dispense these line widths.

Dispensing vertically requires precise control of the dispensing tip. Angling the nozzle towards the product ensures strong tacking of the fluid to the stack. Precise alignment of the dispense tip through calibration and vision algorithms ensures consistent results. The resultant lines were 75 to 100 micron in width and were achieved with a 50micron nozzle.

MicroCoat SD0802/31 with ultra-pure formulation and particle size

Vertically dispensed lines

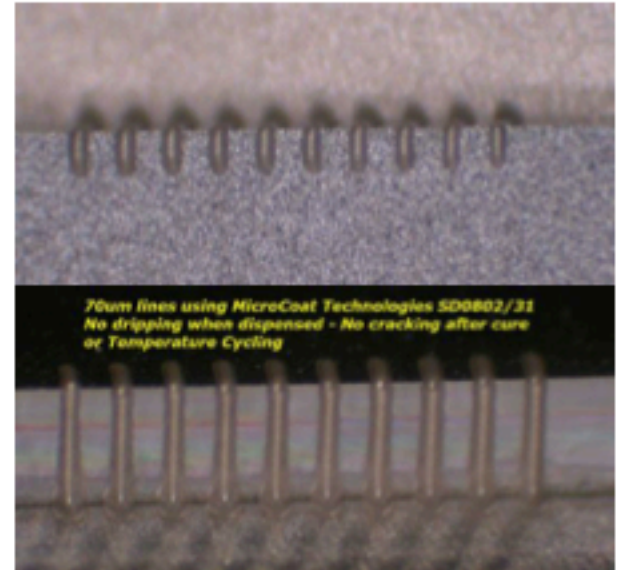
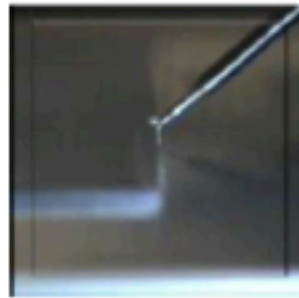
Silicon height –

0.5mm Line

width –

0.85mm

Line Rate – 1,900 lines per hour



Notice the uniformity of line width and uniform starts and ends. GPD Global pump technology eliminates "snake heads" that are common with other technologies.

Dot dispensing is also optimized with exceptional control of small volumes using the same MicroCoat material. Dot sizes of 75micron are achievable. The MicroDot Technologies fluid exhibits exceptional properties that allow the fluid to break cleanly from the nozzle tip. For these small volumes dot rates are in excess of 10,000 dph.



Deposits are formed by filling a metering chamber then evacuating the chamber with a piston of adjustable stroke. Because a chamber is filled and evacuated, the volumetric repeatability is exceptional. The chamber size is controlled by the size of nozzle and metering rod. These two parts are matched to achieve a dot size. Lines are formed by dispensing a series of dots close to each other that will stitch together. A wide range of dot sizes can be achieved by doing multiple shots in one location.