Conductive Adhesive Dispensing for Electronic Manufacturing

Case Study

A global manufacturer of a broad line of electronic interconnect solutions worked with us to dispense conductive adhesive EpoTek H20E-FC. EpoTek H20E-FC is a two-component, electrically conductive, snap curing epoxy for photovoltaic thin film module stringing, semiconductor packaging and PCB circuit assembly. The primary goal was filling a rectangular cavity on a connector. The epoxy needed to fill the connector to the top of the walls in less than three seconds.

Recommended Dispensing Process:

A precision dispensing system, MAX Series was utilized for testing. The MAX automated dispense system was equipped with standard features including automatic vision alignment, contact surface sensor (laser is an alternative), automatic nozzle calibration and nozzle cleaning. The Precision Auger dispensing pump, .105 diameter / 16Pitch auger along with 23G Precision needle (0.13in ID) was chosen for this project.

The line-of-dots method was more appropriate as it allowed the system to have better control over the dispensing process. The fill volume was dispensed slightly above the walls to accommodate shrinking during the curing process resulting in a smoother surface finish.

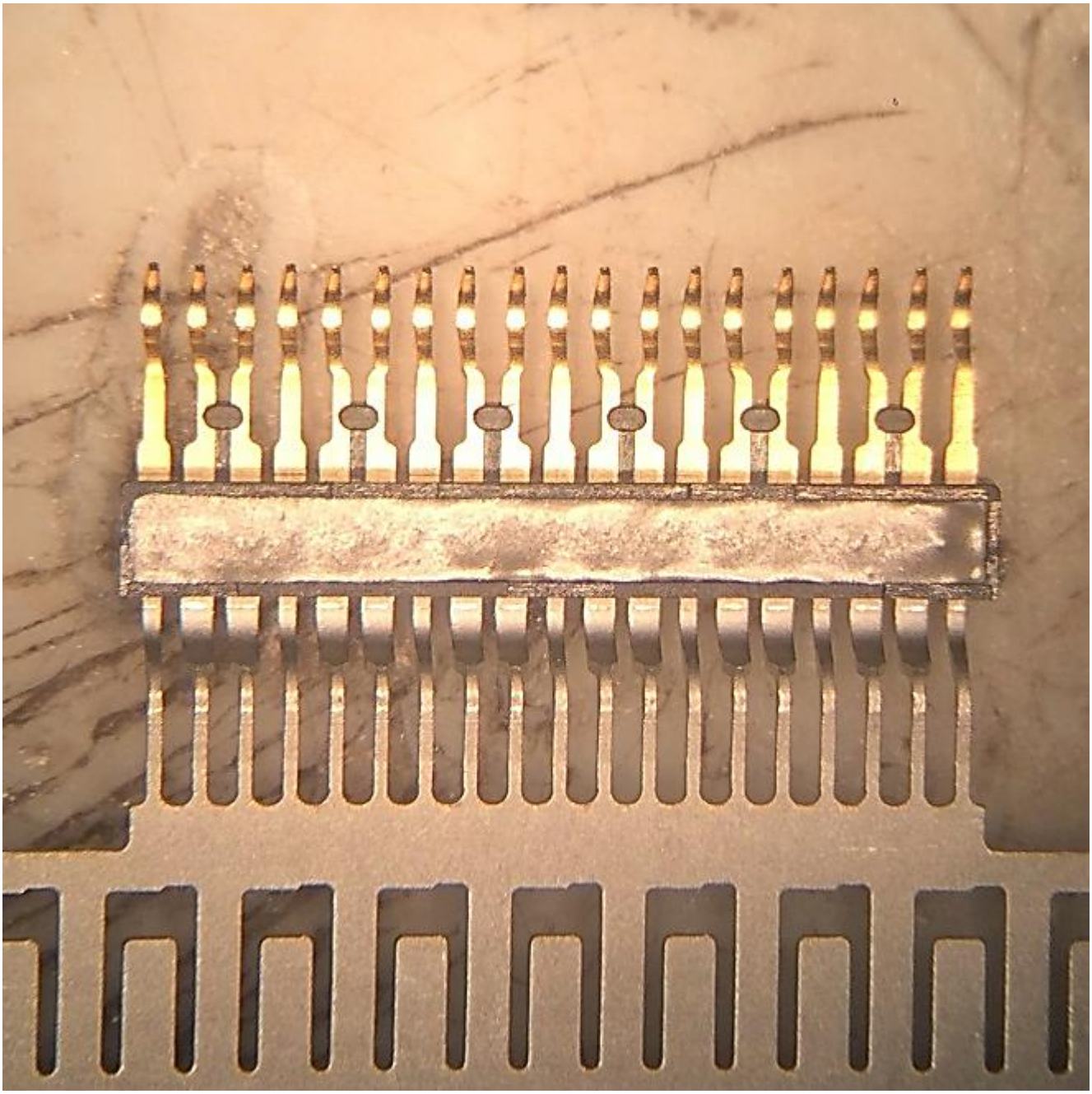
Dispense Parameters:

The information table below displays the key process parameters utilized for capability testing.

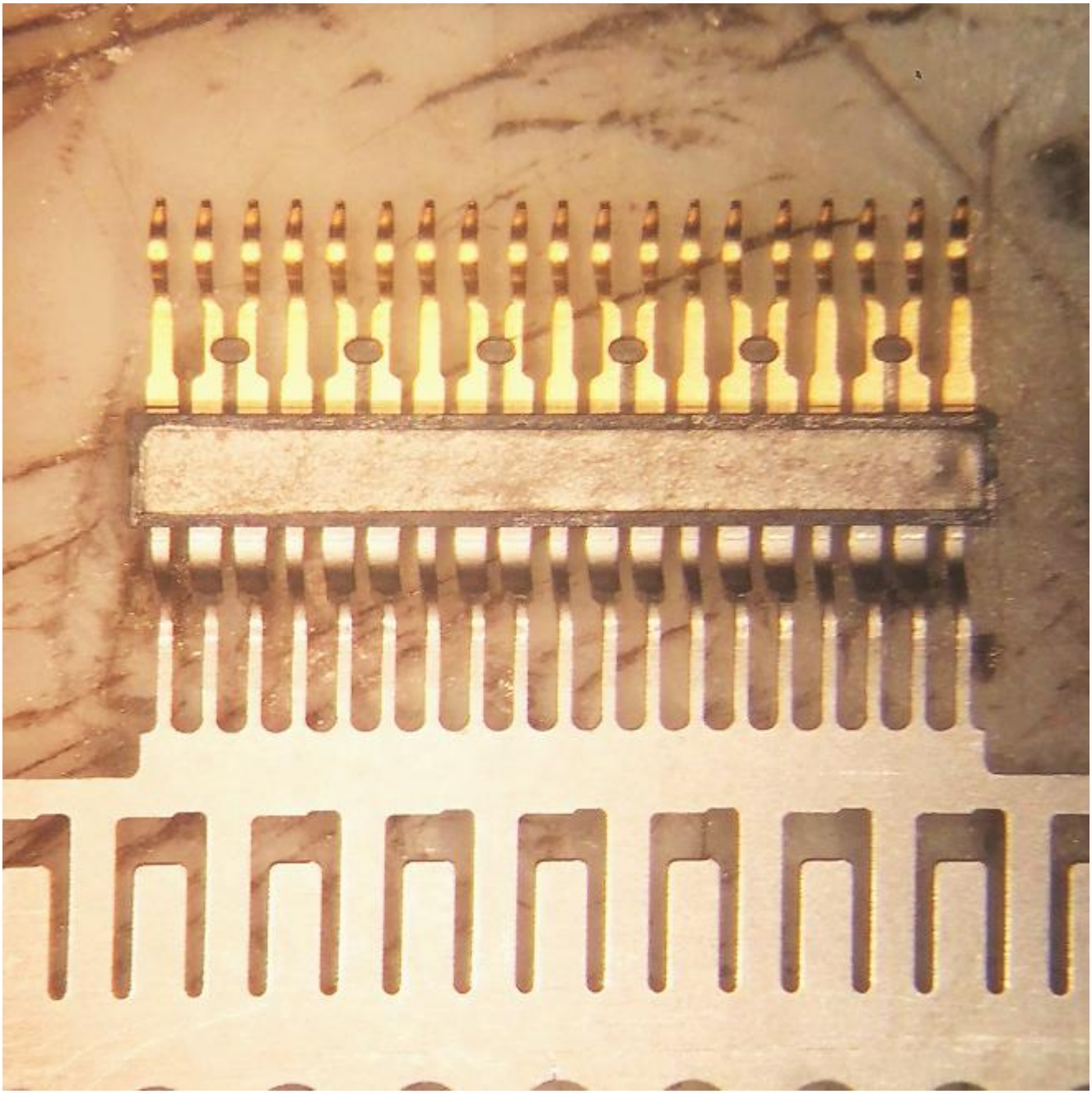
Pump:	Precision Auger
Auger:	.105 Diameter / 16Pitch Auger
Needle:	23G Metal Precision (0.13in ID), 0.25in length
Pump Speed:	123,000cts/sec (784 deg/sec)
First Dot Size:	49,250 cts (188 deg)
Middle Dots Size:	19,700 cts (125 deg)
Last Dot Size:	29,500 cts (188 deg)

Conclusions: Conductive Adhesive Dispensing for Electronic Manufacturing

As shown in the example below, the results were consistent and achieved the desired cycle time.



Wet Epoxy



Cured Part

Final Dispensing Equipment Recommendations:

Dispense System	MAX Series System with auto vision, contact surface sensor, automatic nozzle calibration and automatic nozzle cleaning.
Dispense Pump	Precision Auger
Material	EpoTek H20E-FC
Needle Size and Type	23G Metal Precision (0.13in ID), 0.25in length

GPD Global offers dispensing system customization and in-house application evaluations. Call 1.970.245.0408 or email request@gpd-global.com.

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