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# Reliable Fine Interconnection as Forming Trench on Polyimide Film

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As growing of using flexible printed circuit boards (FPCB), there have been two directions to develop them. One direction is to make interconnection density higher through finer patterns. And the other one is to produce FPCBs with less cost. Semi-additive process is developing to realize higher interconnection density, however, this process has the problem of weak adhesion force between metal line and substrate due to smaller contacting area of them. And, even though printable electronics could make direct interconnection with low cost, there is still a problem of using high costing silver pastes. That is why we have been studying to get the solution of simultaneous solving both problems above. We intended to make direct electroplated copper lines. We have developed the process that makes trench on flexible substrate by plasma etching, laser writing, and mechanical scratching. And then seed layer was formed only in trench by dipping in silver ink and sintering of silver lines. Finally, copper is filled in trench by electroplating. By using this process, outstandingly, we could reduce the amount of silver inks and increase the adhesion force.

**Keywords**
Fine Pattern
Trench
Adhesion Force
Flexible Substrate
Interconnection