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(54) **PALLADIUM PLATING CATALYST LAYER  
BY LASER INDUCED FORWARD TRANSFER**

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**ABSTRACT**

The present disclosure is directed to a method of forming a conductive trace in a substrate. A pattern of the trace is formed in the substrate by a laser machining technique. The pattern of the trace is covered by palladium colloid. The palladium colloid is transferred to the patterned substrate by a laser-induced forward transfer (LIFT) technique. The palladium colloid is converted to a palladium plating catalyst layer by a palladium acceleration process. The palladium plating catalyst layer provides a sufficient catalyst to grow a metal seeding layer by an electroless copper deposition technique. In addition, the palladium plating catalyst layer includes portions of tin material which increases adhesion of the metal seeding layer into the substrate. After growing the metal seeding layer, the pattern of the trace is filled by a copper layer through an electrochemical deposition technique.

