

## **PREFERENTIAL GROUND AND VIA EXIT STRUCTURES FOR PRINTED CIRCUIT BOARDS**

### **ABSTRACT**

A circuit board (400, 600, 800) design is disclosed that is useful in high-speed differential signal applications uses either a via arrangement or a circuit trace exit structure. A pair of differential signal vias (402,551) in a circuit board are surrounded by an opening (410) that is formed within a ground plane (405, 590) disposed on another layer of the circuit board. The vias are connected to traces (552, 612) on the circuit board by way of an exit structure (550,620) that includes two flag portions (555, 623) and associated angled portions that connect the flag portions to circuit board traces. In an alternate embodiment, the circuit board traces (806) that leave the differential signal vias are disposed in one layer of the circuit board above a wide ground strip (815) disposed on another layer of the circuit board in a triangular pattern when viewed in section.

Figure 13A