Eddy Current Mitigation for On-Chip Inductors

Abstract of the Disclosure

An electronic device may include a transceiver with a substrate and an inductor on the substrate. A ring of ground traces may surround the inductor. Circuit components may be patterned onto the substrate overlapping the inductor, a region of the substrate surrounded by the inductor, and/or a region of the substrate between the inductor and the ring. The components may be arranged in trees with feed lines extending radially outward from a central axis. The components in each tree may be separated from the capacitors in other trees by gaps, preventing eddy currents on the trees. The components may be used to form bypass capacitors for power supply lines, a low-dropout regulator load, part of the loop filter of a phase-locked loop, or other portions of the transceiver. The components may thereby be used to convey signals while also meeting fill factor requirements associated with fabrication of the substrate.
Figure 1