Claims

What is Claimed is:

1. Circuitry comprising:

a substrate;

an inductor layered on the substrate, the inductor including conductive traces that laterally surround a first region of the substrate;

a ring of ground traces on the substrate and extending around the inductor and a second region of the substrate, the ring of ground traces being laterally separated from the inductor by the second region of the substrate; and

first capacitors layered on the substrate and overlapping the second region of the substrate, the first capacitors at least partly forming a capacitor tree on the substrate and capacitors of the capacitor tree are non-overlapping with respect to the conductive traces of the inductor.

2. The circuitry of claim 1, further comprising:

second capacitors layered on the substrate and overlapping the first region of the substrate.

3. The circuitry of claim 2, further comprising:

a first feed line on the substrate; and

a second feed line on the substrate, the first capacitors and the second capacitors being coupled in parallel between the first feed line and the second feed line.

4. The circuitry of claim 3, further comprising:

a third feed line on the substrate;

a fourth feed line on the substrate, wherein the first feed line and the second feed line extend at a first angle with respect to a central axis of the inductor and the third feed line and the fourth feed line extend at a second angle with respect to the central axis, the second angle being different from the first angle;

third capacitors layered on the substrate and overlapping the second region; and

fourth capacitors layered on the substrate and overlapping the first region, the third capacitors and the fourth capacitors being coupled in parallel between the third feed line and the fourth feed line.

5. The circuitry of claim 3, further comprising:

third capacitors layered on the substrate and overlapping the inductor, the third capacitors being coupled in parallel with the first capacitors and the second capacitors between the first feed line and the second feed line.

6. The circuitry of claim 3, wherein the first feed line extends from a first terminal to the first capacitors, the second feed line extends from a second terminal to the first capacitors, the first feed line is separated from the second feed line by a first distance at the first and second terminals, and the first feed line is separated from the second feed line by a second distance less than the first distance at the first capacitors.

7. The circuitry of claim 1, further comprising:

a power supply line, wherein the first capacitors comprise a bypass capacitor for the power supply line.

8. The circuitry of claim 1, further comprising:

a low-dropout regulator on the substrate, wherein the low-dropout regulator has a load that includes the first capacitors.

9. The circuitry of claim 1, further comprising:

impedance matching circuitry that includes the first capacitors.

10. The circuitry of claim 1, further comprising:

a phase-locked loop (PLL) on the substrate, wherein the PLL has a loop filter that includes the first capacitors.

11. The circuitry of claim 1, further comprising:

a voltage controlled oscillator (VCO) on the substrate, wherein the VCO has a VCO core coupled to terminals of the inductor.

12. The circuitry of claim 1, further comprising:

a feed line on the substrate and coupled to the first capacitors, wherein the feed line overlaps a virtual ground point of the inductor.

13. A radio-frequency transceiver configured to convey radio-frequency signals, the radio-frequency transceiver comprising:

a substrate;

an inductor on the substrate and laterally extending around a region of the substrate;

a feed line on the substrate and overlapping the inductor and the region of the substrate, the feed line extending radially away from a central axis of the inductor; and

circuit components on the substrate and overlapping the region of the substrate, the circuit components being coupled to the feed line and being arranged in branches extending from opposing sides of the feed line, wherein the feed line overlaps a virtual ground point of the inductor.

14. The radio-frequency transceiver of claim 13, wherein the inductor extends from a first terminal to a second terminal, the second terminal is separated from the first terminal by a gap, and the feed line overlaps the inductor opposite the gap.

15. The radio-frequency transceiver of claim 13, wherein the inductor extends

from a first terminal to a second terminal, the second terminal is separated from the first terminal by a gap, and the feed line overlaps the gap.

16. The radio-frequency transceiver of claim 15, wherein the inductor has multiple turns and the inductor has a crossover point opposite the first and second terminals.

17. An electronic device comprising

a transceiver configured to convey radio-frequency signals and having a substrate;

an inductor on the substrate and laterally extending around a central axis from a first terminal to a second terminal; and

a first tree of circuit components on the substrate and arranged in branches extending from opposing sides of a first feed line, the first feed line extending radially away from the central axis, wherein the second terminal is separated from the first terminal by a gap and the first feed line overlaps the gap.

18. The electronic device of claim 17, further comprising:

a ring of ground traces on the substrate and laterally surrounding the inductor, wherein the inductor surrounds a first region of the substrate, the ring of ground traces is separated from the inductor by a second region of the substrate, at least some of the circuit components in the first tree of circuit components overlap the second region of the substrate, at least some of the circuit components in the first tree of circuit components overlap the first region of the substrate.

19. The electronic device of claim 17, further comprising:

a second tree of circuit components on the substrate and arranged in branches extending from opposing sides of a second feed line, the first feed line extending radially away from the central axis at a first angle and the second feed line extending radially away from the

central axis at a second angle that is different from the first angle, wherein the second feed line overlaps the inductor opposite the gap.