

Greg Brooks
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Sheet: /gps/
File: gps.sch

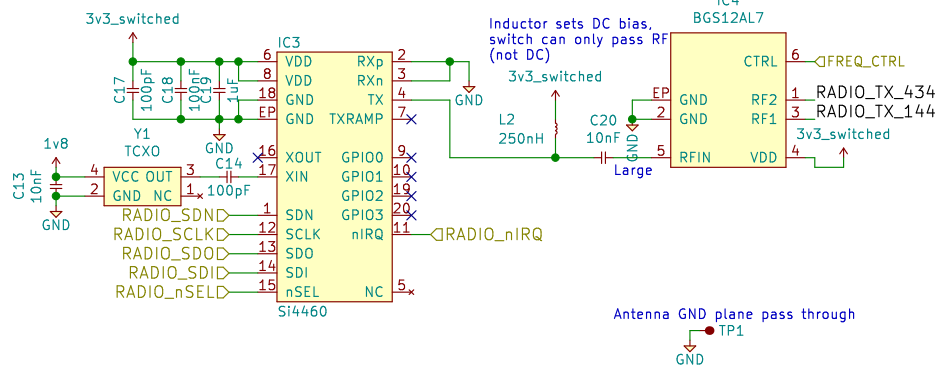
Title: Jerboa GPS Schematic

Size: A4 Date: 2018-06-12

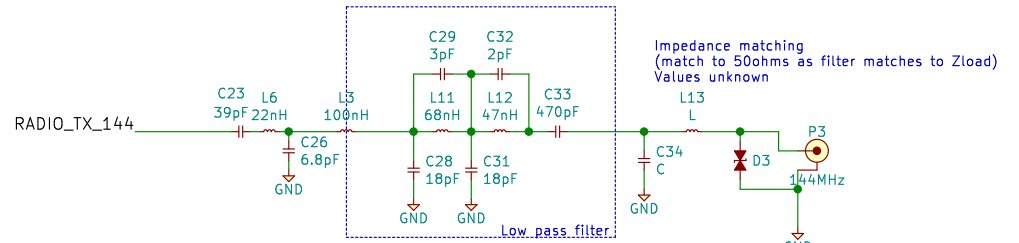
KiCad E.D.A. kicad (5.0.0-rc3-dev)

Rev: 1.0

Id: 3/4



Si4460



$$Z_{load} = (0.2815) / (2 * \pi * 144\text{MHz} * 1.25\text{pF}) * e^{j * 49.0524\text{degrees}}$$

$$Z_{load} = 163.1 + 188.0j \text{ ohm at } 144\text{MHz}$$

$$V_{dd} = \sqrt{0.01 / (2 * \pi^2 * 144\text{MHz} * 1.25\text{pF})} = 1.68\text{V}$$

$$I_{dd} = 2 * \pi^2 * 144\text{MHz} * 1.25\text{pF} * V_{dd} = 0.00596\text{A}$$

$$R_{dc} = (3.3\text{V} - V_{dd}) / I_{dd} = 272.2\text{ohm (set PA_PWR_LVL register appropriately)}$$

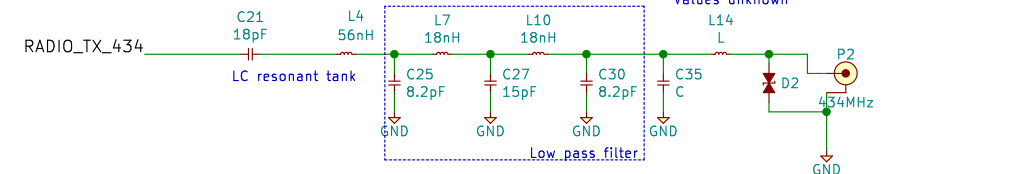
<https://www.silabs.com/documents/public/application-notes/AN627.pdf>
169MHz matching (Direct Tie CLE)

Si4460 Antenna Matching – 169MHz

Si4460 Antenna Matching – 434MHz

See also <http://tt7hab.blogspot.com/2017/05/the-tt7f-v15-revision.html>

<https://www.silabs.com/documents/public/application-notes/AN627.pdf>
434MHz matching (Split Tx CLE)



$$Z_{load} = (0.2815) / (2 * \pi * 434\text{MHz} * 1.25\text{pF}) * e^{j * 49.0524\text{degrees}}$$

$$Z_{load} = 54.12 + 62.38j \text{ ohm at } 434\text{MHz}$$

$$V_{dd} = \sqrt{0.02 / (2 * \pi^2 * 434\text{MHz} * 1.25\text{pF})} = 1.37\text{V}$$

$$I_{dd} = 2 * \pi^2 * 434\text{MHz} * 1.25\text{pF} * V_{dd} = 0.0146\text{A}$$

$$R_{dc} = (3.3\text{V} - V_{dd}) / I_{dd} = 132.1\text{ohm (set PA_PWR_LVL register appropriately)}$$

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Sheet: /radio/
File: radio.sch

Title: Jerboa Radio Schematics

Size: A4 Date: 2018-06-12

KiCad E.D.A. kicad (5.0.0-rc3-dev)

Rev: 1.2

Id: 4/4