



Design shown is for 9&45 MHz LSC. See T1200428 for variants.
 Version 7 schematic uses version 3 circuit board

Voltage Regulator Equations

$$LM337 V_o = -1.25(1 + \text{Radj}/120) - (50\mu A \cdot \text{Radj})$$

$$LM317 V_o = 1.25(1 + \text{Radj}/249) + (100\mu A \cdot \text{Radj})$$

Version Summary:

- Version 1 - Initial release
- Version 2 - Added whitening to DC readout
- Version 3 - Added input DC power conditioning and DC reverse polarity protection diodes
- Version 4 - Only a schematic change. Changed R27 from 750 to 909, R29 from 357 to 453. This was done to increase the voltage on the RF pump from +/- 5 volts DC to +/- 5.9 volts DC for greater dynamic range
- Version 5 - Rewrote Bill of Materials to reflect actual parts used
- Version 6 - Removed feedback notches from RF output amplifiers (by removing L6 and L12). The overall effect of these notches was not beneficial. Also, U3 can be substituted for an OP-27 without degradation of noise performance. This is sometimes desirable as the AD8675 is fragile, and fails in a high noise mode that otherwise still works.
- Version 7 - In response to the single supply failure mechanism the following components were changed: U2 from AD8597 to LT1128, U8 & U10 from AD8675 to OP27, C31 removed to aid stability of LT1128. Reverse biased diodes are added across the main filter caps in the + and -5VDC rails.

SPICE File Located: C:\Rich's Files\LT Spice\PhotodiodeAnalysis\lsc_rfpsva\LIGO_LSC_2011_9_45_LSC_v4.asc

