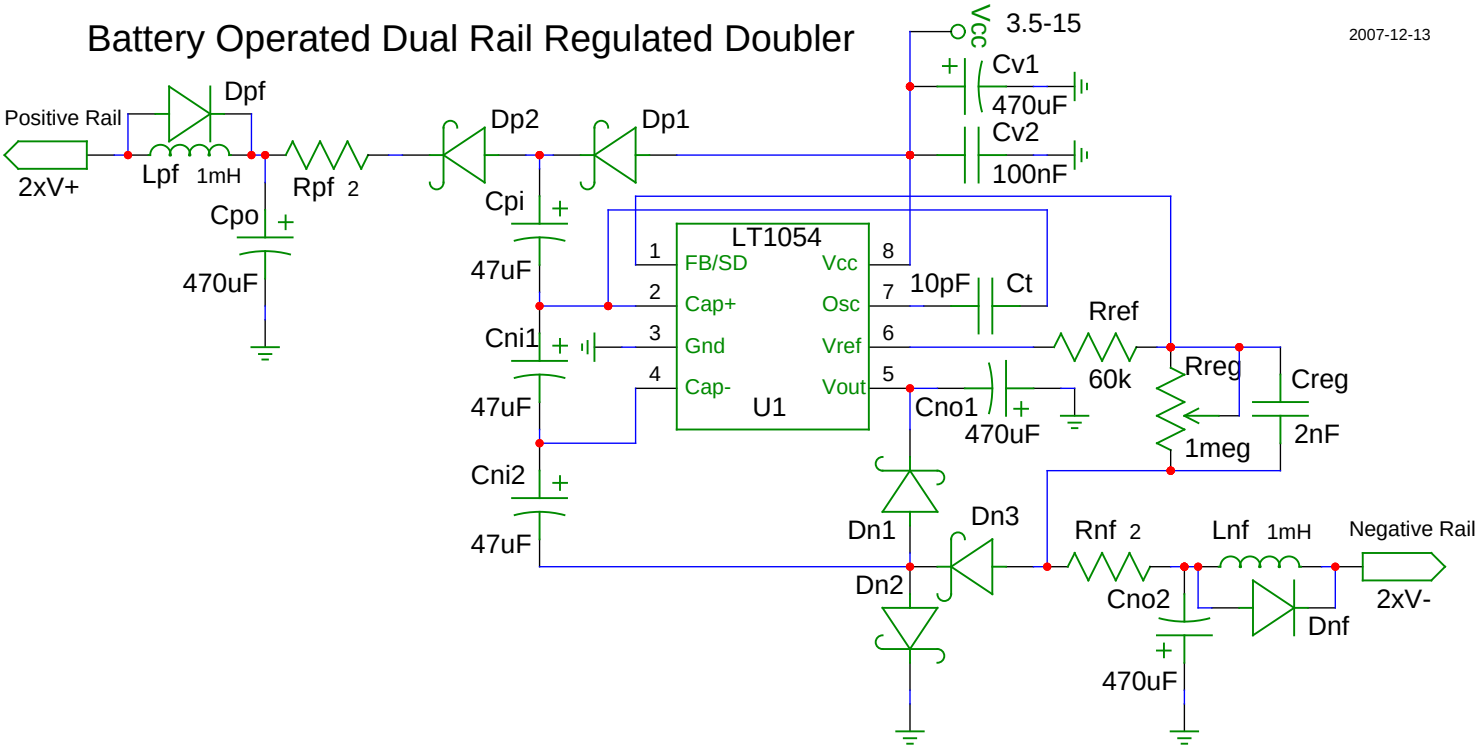

This circuit is for a regulated dual rail power supply operated from a wide battery range.
The LT1054 is rated for 100mA. The doubler part should half that for output. ???Dual rail half that too???
The 7660/1044 variants can be used without the regulator and clock boost, but these usually have less current out and Vcc in.
Charge pumps have a higher output impedance than linear regulators (LT1054 = 15ohms). The 7660/1044 variants can get up to 100ohms.
The impedance will be even higher since the pump capacitor is shared. Get around some problems by paralleling some low ESR capacitors.
Capacitors should have a low ESR regardless of choice to help reduce output impedance. Low ESL is also preferred. Add 100nF ceramic capacitors in parallel with the pump and output capacitors to further help reduce noise and impedances.
Output capacitor voltage rating should be 2x Vcc input voltage.
Output capacitors should be 10x the pump capacitor size. Capacitor sizes have been boosted from the data sheet description by 4.7x.
Only the negative rail is regulated. Feedback should hold the entire doubler reasonably stable, though.
Schottkey diodes (as shown) should be used to minimize the multiple voltage drops.
Equations: Vout = (2 * Vcc) - chip_loss - (2 * diode_loss), Rreg = Rref * ((|Vout| / 1.21) +1)
Variations:
The regulator feedback tap may need to be moved directly to Vout???
Add a SPST switch on Vcc to turn the whole thing easily off and on.
Adding a wall wart connector and diode bridge for Vcc would allow for both mains and battery use.
A 15v zener diode on Vcc would protect against over voltages.
Oscillator increase (shown): add a 5-20pF capacitor between Cap+ and Osc. The LT1054 usually operates at 25kHz. 20pF should get it up to 35kHz.
The higher oscillator can decrease output impedance and ripple but can increase switching losses (check the Impedance vs Frequency graph).
Vripple = Iout / (2 * oscillator * Cno2) + (2 * Iout * Cno2_ESR)
Output Ripple. Larger output capacitors will help smooth out the voltage ripple and present a lower impedance during transients. Lpf and Lnf are optional chokes to help smooth the output. Rpf and Rnf are optional and form a low pass RC filter with the output capacitor. Extra RC filters may be added, but do not needlessly raise the output impedance. A simple transistor floating regulator may also help reduce noise.
If noise from the switches becomes a problem, add a snub across each (pins 8-2, 2-3, 3-2, 5-4).

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