Sensor requires -0.4V@160 mA supply. One of those supplies VTX2\_NEG needs to be able to switch to +0.8V 80mA.

Requirements:

Generate -0.4V @ 80 mA

Be able to switch one supply to +0.8V mA

How to generate -0.4V @160 mA Ripple < 1mV RMS (no bandwidth specified... )

- charge pump regulator

- Buck-Boost Voltage Inverter

- Transformer-Coupled Split-Rail Design

- Isolated Fly-buck Converter For Split-Rail Voltages

- High-Current ±Voltages With Power Module

!power\_supply\_consideration.PNG|thumbnail!

A negative-output-voltage charge pump has advantages over an inductor-based solution, such as lower parts

count, lower electromagnetic emissions, smaller total solution size, and lower solution costs primarily due to the

absence of an inductor. On the other hand, the output current and voltages are limited with a charge-pump

solution.

The number of charge pump based ICs on the market which can supply such low voltage is limited (such as MAX883, LM7705, ICL7660 etc.) but they do not provide enough output current.

http://www.electronicdesign.com/power/charge-pump-option-ldo-and-inductor-based-regulators

!screenshot-1.png|thumbnail!

- documentation

http://www.ti.com/lit/ml/szzn001/szzn001.pdf

http://cds.linear.com/docs/en/design-note/dn1021fa.pdf

http://www.vishay.com/docs/76946/creatingnegativeoutputvoltage.pdf

http://www.vishay.com/docs/76946/creatingnegativeoutputvoltage.pdf

- find the chapter from the art of electronics

- Generate -1.5 V with a DC/DC converter using e.g. TPS63710 DC/DC converter. Then use LT3900 to lower the voltage to -0.4V.

This is a viable solution, but it requires a lot of board space which is limitted in this design.