

N2PK SVNA: Block Diagram - V1

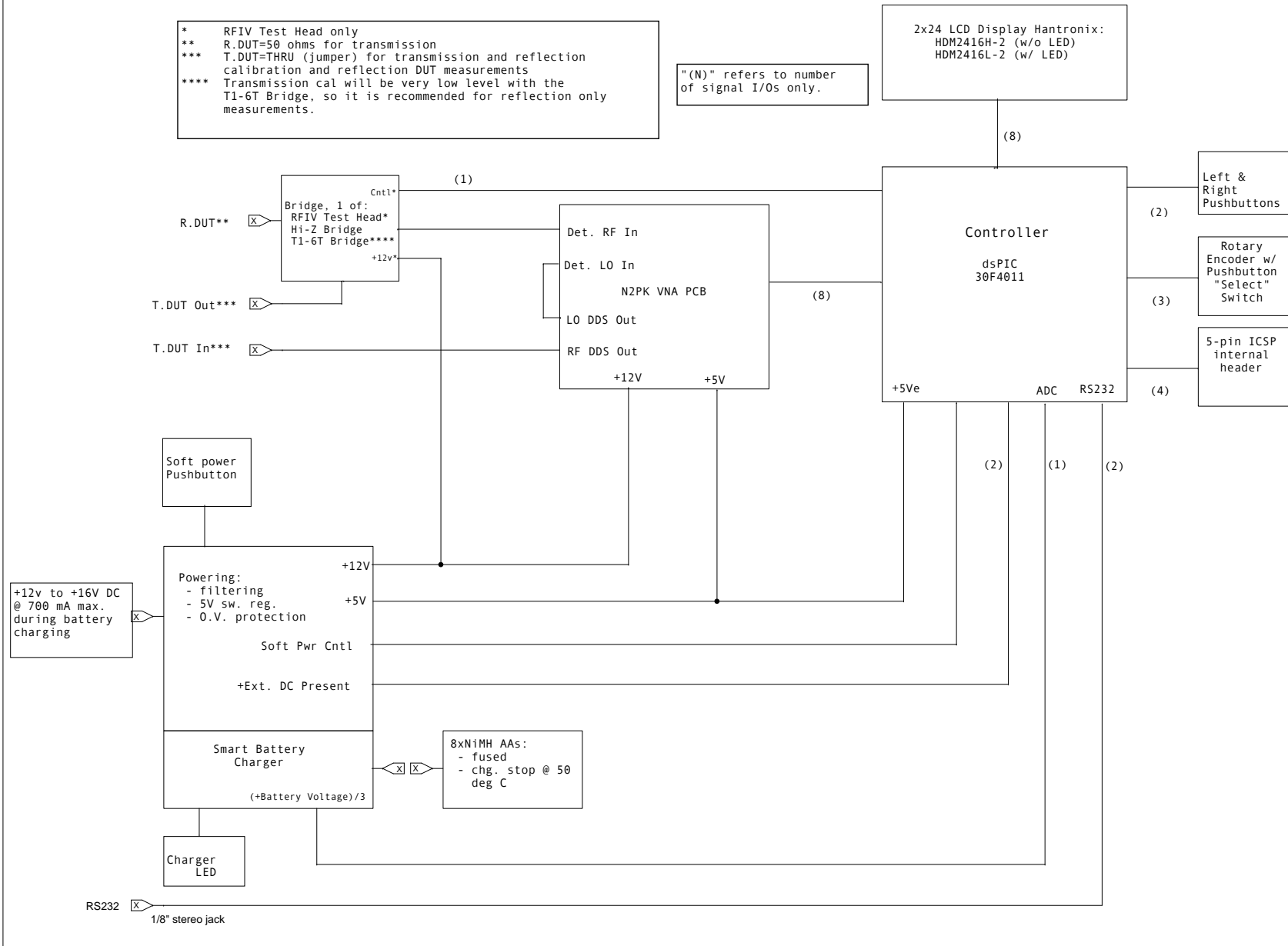
N2PK, 09/20/10

VE7IT SVNA as a Base + N2PK Modifications

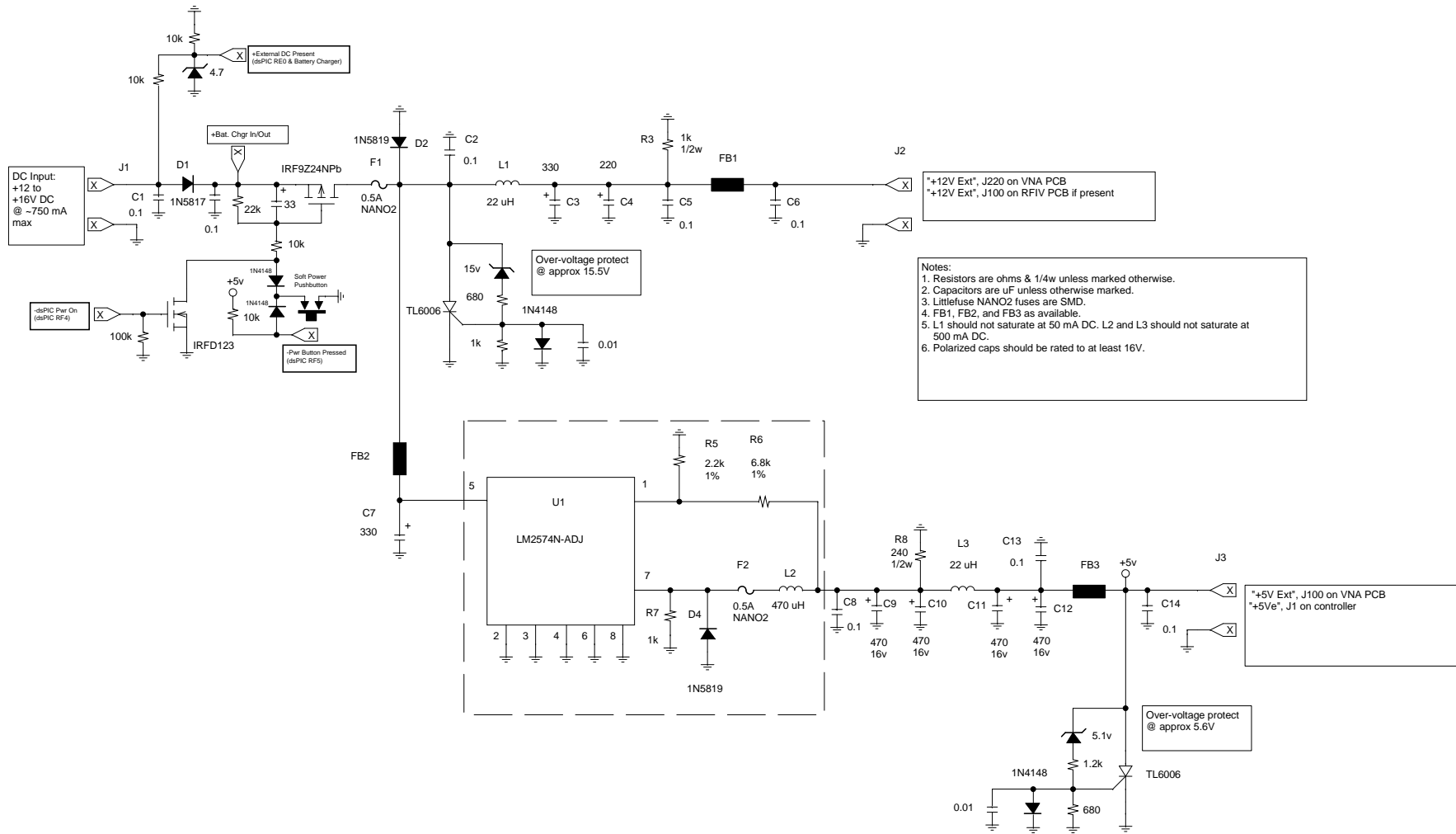
* RFIV Test Head only
 ** R.DUT=50 ohms for transmission
 *** T.DUT=THRU (jumper) for transmission and reflection calibration and reflection DUT measurements
 **** Transmission cal will be very low level with the T1-6T Bridge, so it is recommended for reflection only measurements.

"(N)" refers to number of signal I/Os only.

2x24 LCD Display Hantronix:
 HDM2416H-2 (w/o LED)
 HDM2416L-2 (w/ LED)

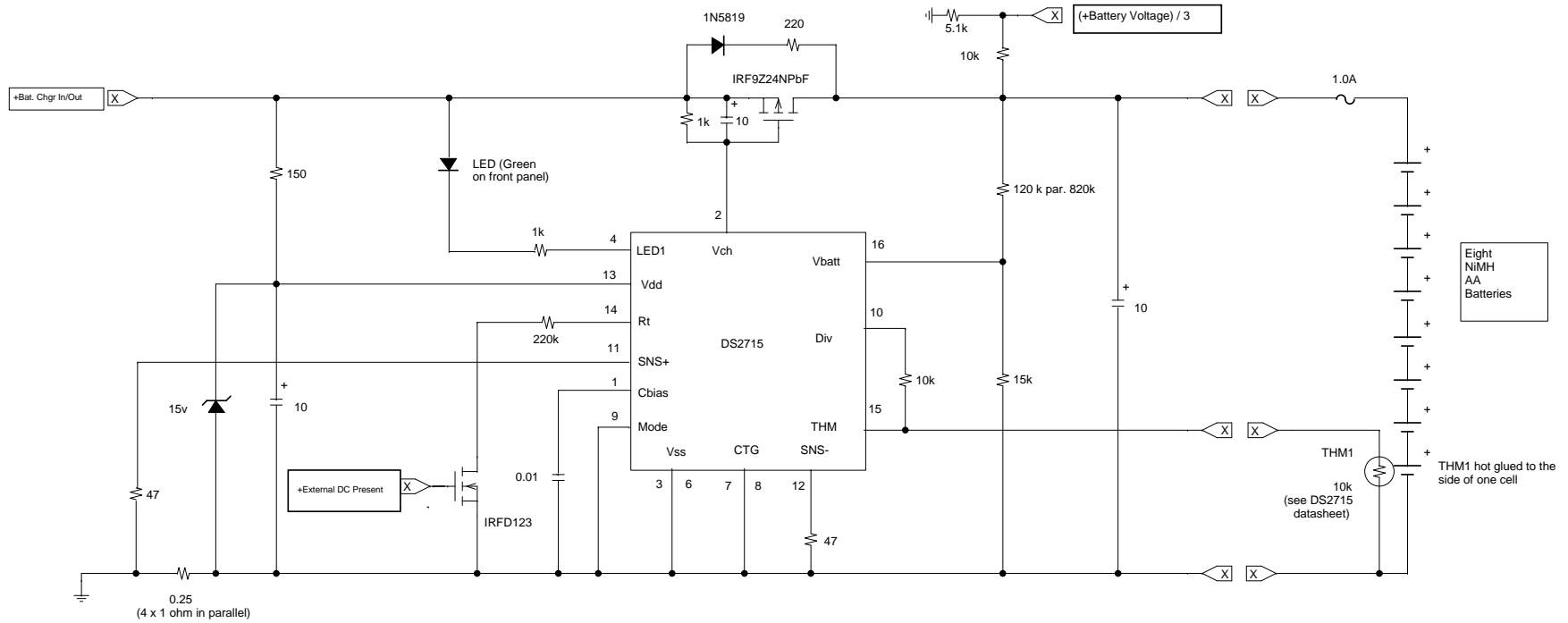


N2PK SVNA: Power Board and Soft Start - V1 N2PK, 09/20/10

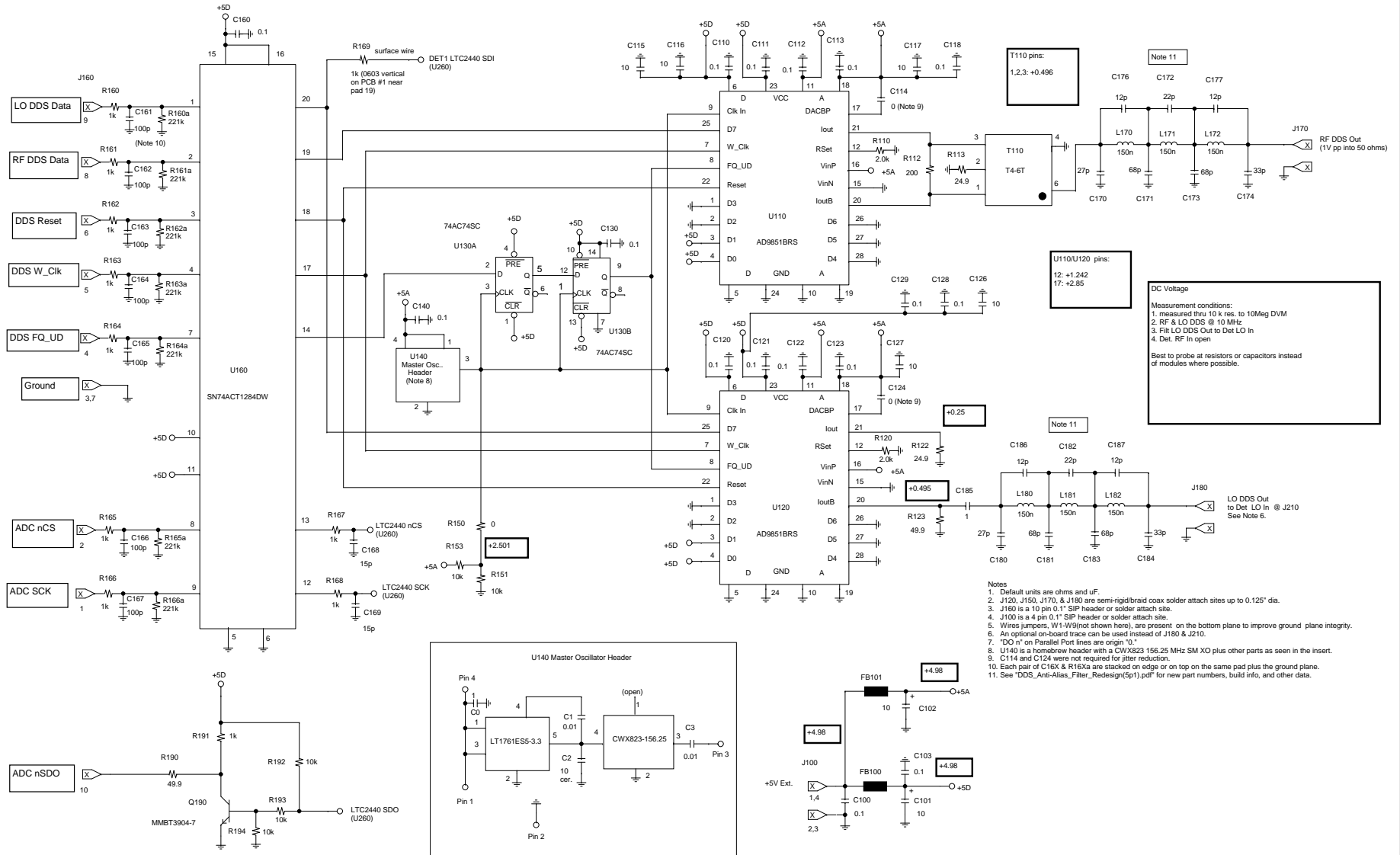


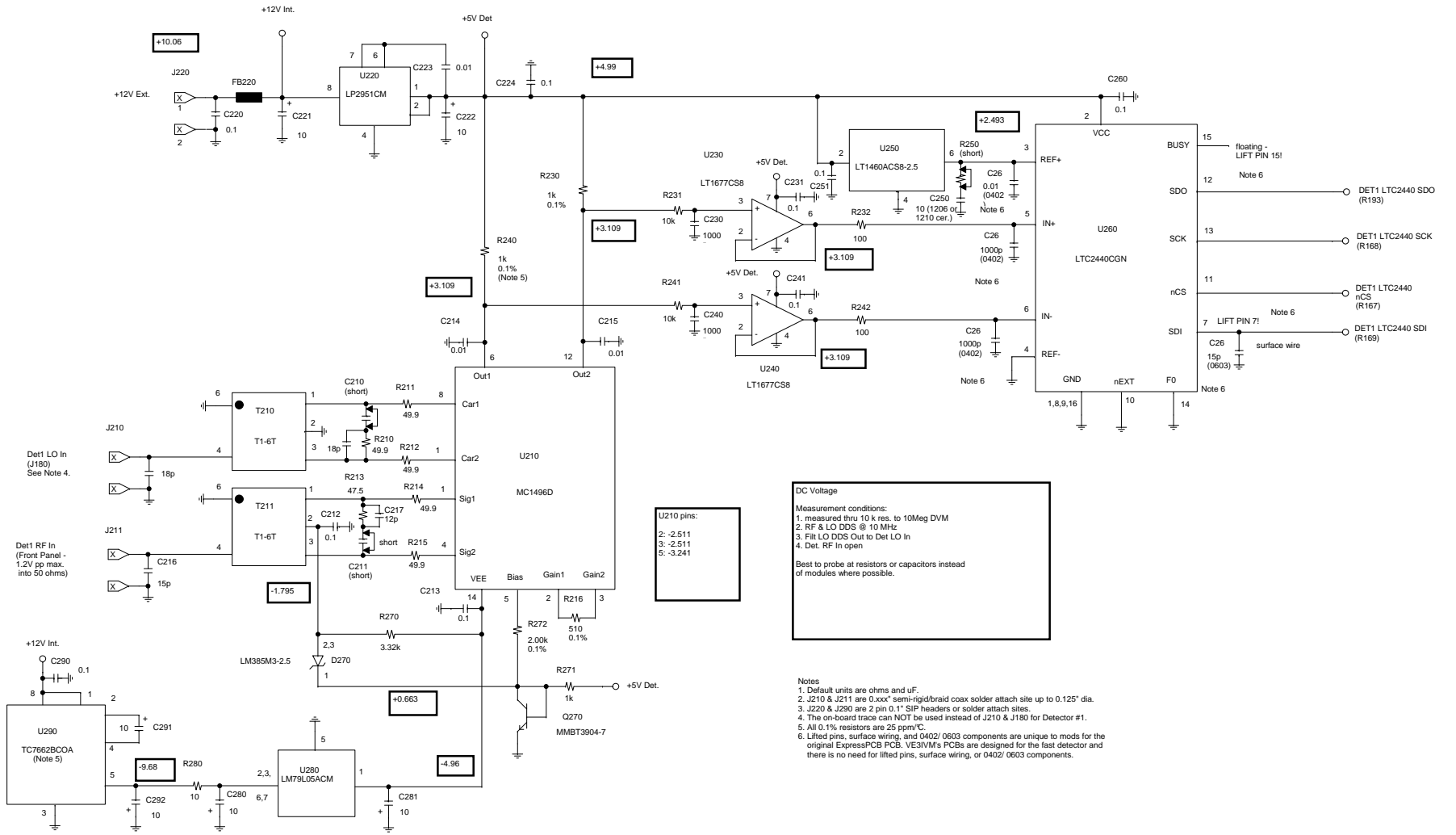
N2PK SVNA: Battery Charger - V1

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N2PK SVNA: N2PK VNA PCB, DDS Sources - V1 N2PK, 09/20/10





DC Voltage

Measurement conditions:
 1. measured thru 10 k res. to 10Meg DVM
 2. RF & LO DDS @ 10 MHz
 3. Fix LO DDS Out to Det LO In
 4. Det. RF In open

Best to probe at resistors or capacitors instead of modules where possible.

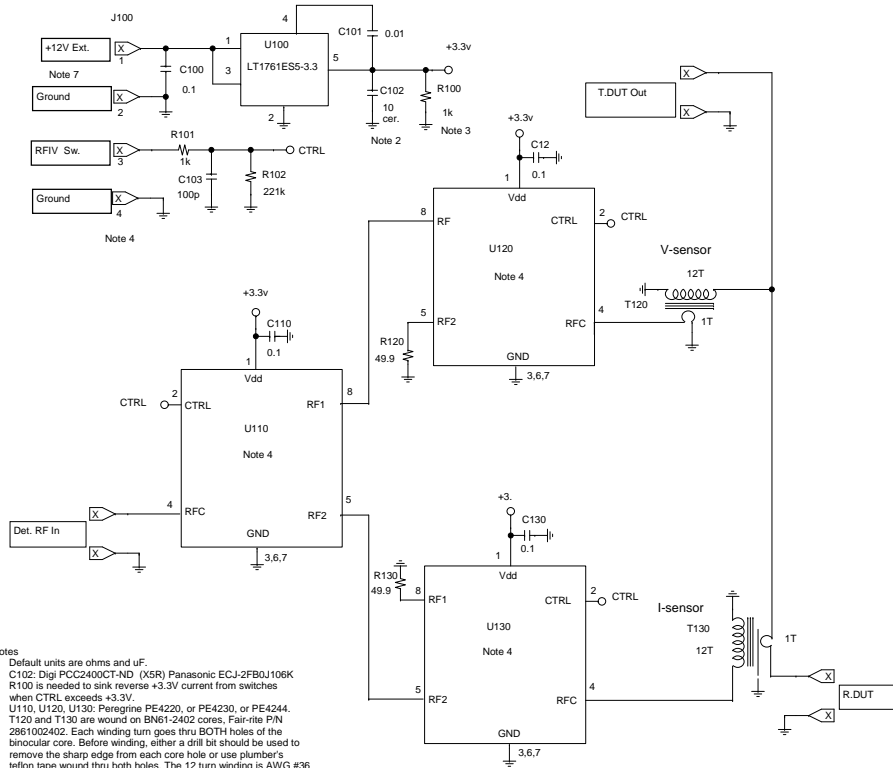
U210 pins:
 2: -2.511
 3: -2.511
 5: -3.241

- Notes**
1. Default units are ohms and uF.
 2. J210 & J211 are 0.000" semi-rigid/braid coax solder attach site up to 0.125" dia.
 3. J220 & J290 are 2 pin 0.1" SIP headers or solder attach sites.
 4. The on-board trace can NOT be used instead of J210 & J180 for Detector #1.
 5. All 0.1% resistors are 25 ppm/C.
 6. Lifted pins, surface wiring, and 0402/0603 components are unique to mods for the original ExpressPCB PCB. VE31VM's PCBs are designed for the fast detector and there is no need for lifted pins, surface wiring, or 0402/0603 components.

N2PK SVNA: Bridge Options - V1 N2PK, 09/20/10

RFIV Test Head

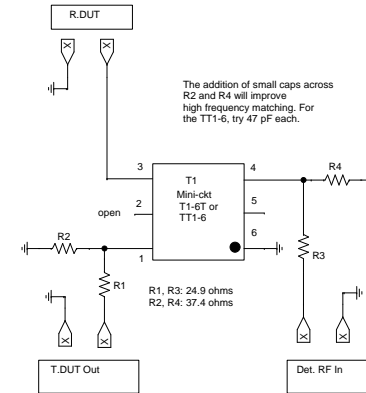
(Best reflection calibration stability, best accuracy for Hi-Z and Lo-Z R.DUTs.)



- Notes
1. Default units are ohms and uF.
 2. C102: Digi PCC2400CT-ND (XSR) Panasonic ECI-2FBU106K
 3. R100 is needed to sink reverse +3.3V current from switches when CTRL exceeds +3.3V.
 4. U110, U120, U130: Peregrine PE4220, or PE4230, or PE4244.
 5. T120 and T130 are wound on BN61-2402 cores, Fair-rite P/N 2861002402. Each winding turn goes thru BOTH holes of the binocular core. Before winding, either a drill bit should be used to remove the sharp edge from each core hole or use plumber's teflon tape wound thru both holes. The 12 turn winding is AWG #36 enamelled wire wound first and tightly against the (taped) core. The one-turn winding is AWG #30 with teflon insulation. A small braid is placed over the one-turn winding on T130 and grounded at one end to serve as the electrostatic shield. Alternatively, use a narrow length of foil separating the 1T from 12T windings and grounded only at one end.
 6. A high logic level on "Test Set Sw" will select the V-sensor and a low logic level selects the I-sensor.
 7. "+12V Ext." can range from +5V to +16V.
 8. For additional info, see the N2PK VNA RFIV Test Head docs.

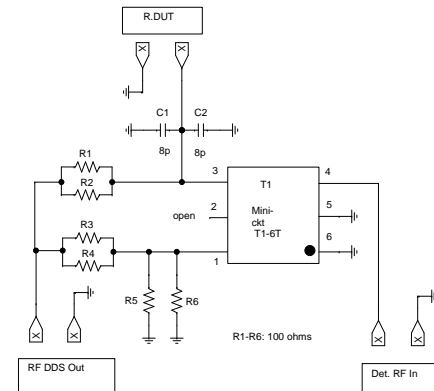
Matched Hi-Z Bridge

(Good accuracy for Hi-Z R.DUTs, better below 1 MHz than RFIV.)



T1-6T Bridge (Reflection Only)

(Good accuracy for R.DUTs near 50 ohms)



N2PK SVNA: Controller - V1 N2PK, 09/20/10

