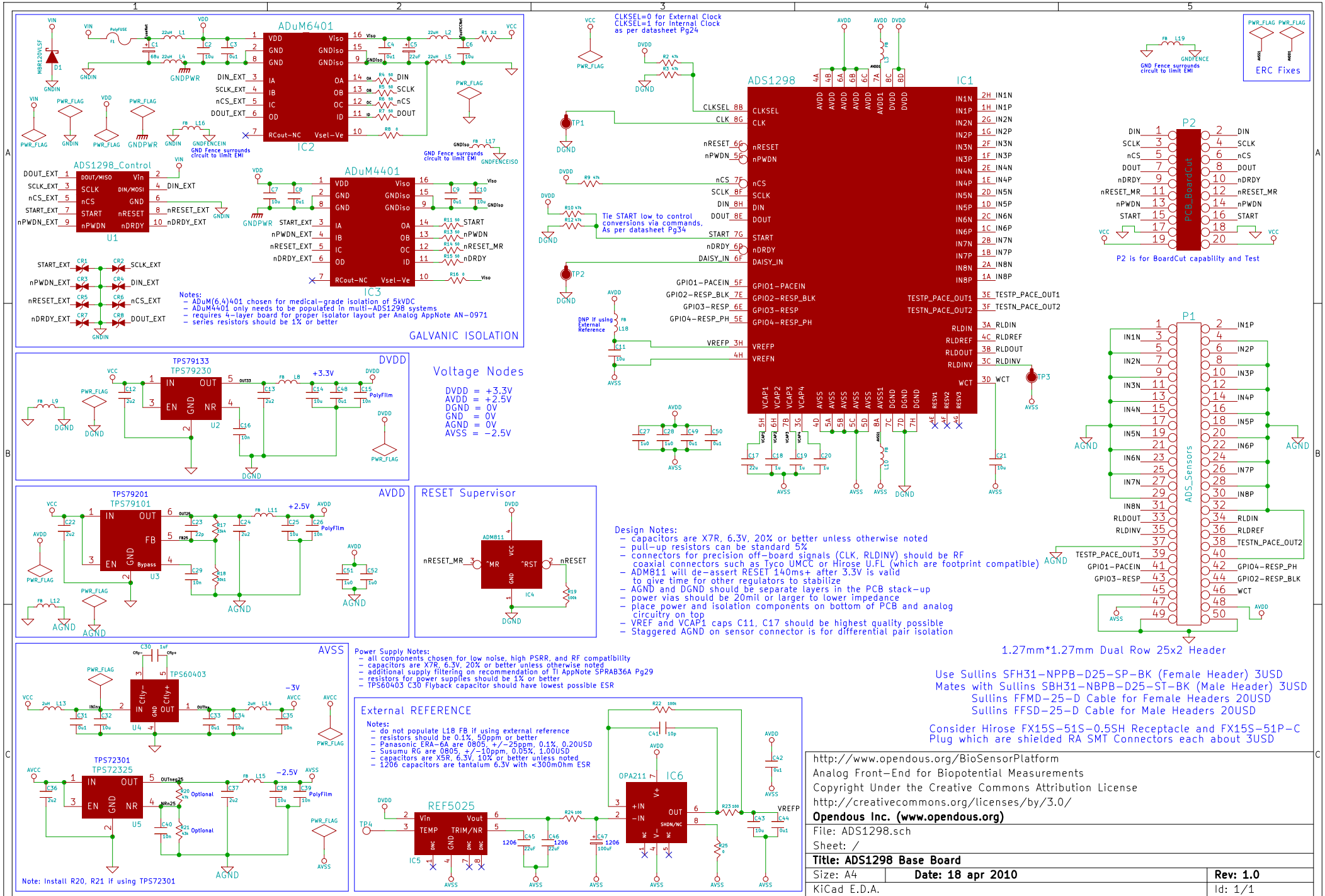

Notes:
- ADuM(6,4)401 chosen for medical-grade isolation of 5kVDC
- ADuM4401 only needs to be populated in multi-ADS1298 systems
- requires 4-layer board for proper isolator layout per Analog AppNote AN-0971
- series resistors should be 1% or better

Power Supply Notes:
- all components chosen for low noise, high PSRR, and RF compatibility
- capacitors are X7R, 6.3V, 20% or better unless otherwise noted
- additional supply filtering on recommendation of TI AppNote SPRAB36A Pg29
- resistors for power supplies should be 1% or better
- TPS60403 C30 Flyback capacitor should have lowest possible ESR

Notes:
- do not populate L18 FB if using external reference
- resistors should be 0.1%, 50ppm or better
- Panasonic ERA-6A are 0805, +/-25ppm, 0.1%, 0.20USD
- Susumu RG are 0805, +/-10ppm, 0.05%, 1.00USD
- capacitors are X5R, 6.3V, 10% or better unless noted
- 1206 capacitors are tantalum 6.3V with <300mOhm ESR

Design Notes:
- capacitors are X7R, 6.3V, 20% or better unless otherwise noted
- pull-up resistors can be standard 5%
- connectors for precision off-board signals (CLK, RLDINV) should be RF coaxial connectors such as Tyco UMCC or Hirose U.FL (which are footprint compatible)
- ADM811 will de-assert RESET 140ms+ after 3.3V is valid to give time for other regulators to stabilize
- AGND and DGND should be separate layers in the PCB stack-up
- power vias should be 20mil or larger to lower impedance
- place power and isolation components on bottom of PCB and analog circuitry on top
- VREF and VCAP1 caps C11, C17 should be highest quality possible
- Staggered AGND on sensor connector is for differential pair isolation

Use Sullins SFH31-NPPB-D25-SP-BK (Female Header) 3USD
Mates with Sullins SBH31-NBPB-D25-ST-BK (Male Header) 3USD
Sullins FFMD-25-D Cable for Female Headers 20USD
Sullins FFSD-25-D Cable for Male Headers 20USD

Consider Hirose FX15S-51S-0.5SH Receptacle and FX15S-51P-C Plug which are shielded RA SMT Connectors each about 3USD

http://www.opendous.org/BioSensorPlatform
Analog Front-End for Biopotential Measurements
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Opendous Inc. (www.opendous.org)

File: ADS1298.sch		
Sheet: /		
Title: ADS1298 Base Board		
Size: A4	**Date: 18 apr 2010**	**Rev: 1.0**
KiCad E.D.A.		Id: 1/1