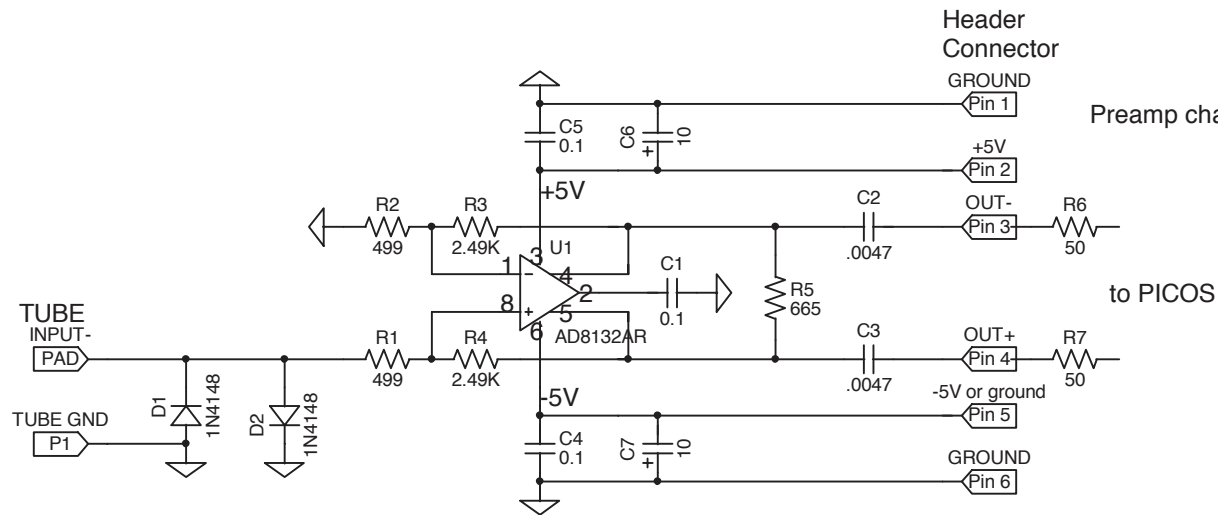


Differential Preamplifier with 5X Voltage Gain



uRad tube characteristics : capacitance 30 pf measured
 inductance 6.7 uH calculated
 impedance 470 ohm calculated

Preamp characteristics : input impedance 890 ohms measured
 rise time 5 ns measured
 gain 5X measured
 current drain 11 ma measured
 noise @ 50 pf input 6 nv/sqrt(Hz) meas.
 noise figure @ 50 pf 23 dB measured
 bandwidth 60 MHz measured
 can drive 50 ohm load? yes checked
 operates from +5 supply? yes checked
 operates from +5V supply? yes checked
 gain relative to PICOS card 7.5X calc.
 tube vs preamp mismatch 0.5dB calc.

PARTS LIST (Available from Digikey) :

- U1 AD8132AR Differential Amplifier, SOIC smt
- R1,R2 499 ohm, 1%, 0603 smt
- R3,R4 2.49 K ohm, 1%, 0603 smt
- R5 665 ohm, 1%, 0603 smt
- C1, C4, C5 0.1 ufd, 16V, 0603 smt
- C2, C3 .0047 ufd, 0603 smt
- C6, C7 10 ufd Ta 0.1" radial
- D1, D2 1N4148 diode, SOD-523 smt

+5V only operation requires -5V grounded at preamp !
 +5V operation - leave power supply ground floating !

Post header connector, receptacle, pins, 0.1" pitch, 0.1" wide, 6 pin
 R6, R7 optional matching 50 ohm 1/8 W 1%, reduces gain by 2X

muRad Preamp, X5 Voltage Gain		
Size: A	No:	Rev: 8
Sheet: 1 of 1		Revised: 15-Mar-2005
Drawn by: PLM	Created: 15-Feb-2005	
File: c:\tmp\preamp2.sch		