

## Lightspeed Volume Control - (A) Thread Summary (2/11/08)

Many Thanks to George for making this amazing little device available to us all and the extra info

The thread is now 1500+ posts long and is quite confusing – it wastes a lot of time looking for any particular thing.

### All suggestions most welcome.

George's *Lightspeed Mk II* uses 4 X Silonex NSL-32SR2 LDR in Series & Shunt configuration, controlled by a 100k dual Log Volume Pot and 5v double reg'd supply. Additional 1kR trimmer pots for small imbalance corrections and current limiting resistors completes the parts list!

The thread is divided into **Information, Circuits, Testing, P/Supplies, Buffers** and **Loads**

Post Numbers are - **Red** = Classic LS, **Blue** = CCS, VCCS, Dac control, etc, **Green** = Other

### Information - General Information

#1 George's design & cct, #25 Operating Conditions #36,53,184,1328,1382 Silonex RS2,3 information #48 LS photo #82 Amp Zin #90 LDR white dot #99 5volt supply #103 **Tips to build** #112 Led pot values #117 **How it works** #151 Arne's Neat project #183 100k Linear Pot #196,203 VTL5C3 info link #198 **Use heatsink clips when soldering LDRs legs** #222 Stereo Pots? #249 RS2, RS3 discussion #295 Passive preamp forum request #322 Allied source for LDRs #358 LDR limiting resistors #401 QED input selector box #445 Melos VTL3A47 info #571 MikeM 'balance pot' cct #574 P'head chokes between regs (supply) #581,90 Caps across L D R s #585 link to LED noise papers #595 P'head switched vol pot #597 Peufeu's CCS idea (#989 Richidoo, #1001 Pietjers) #672 Vactrol on ESP #685 Tesla LDR #689 Dartzeil info #777,799 "Audiofaidante" project #849,50 distortion diags #867 LDR FFTs #882 range of attenuation #895 Loss of central image – bad matching #905 AndrewT's Resistor bypass of LDR #928 Cap decoupling link #971 Interconnect = <100pF/ft #984 SKA = Mk I version #989 LEDS current drive – maxim paper #994,1013 CCS with 16bit dac #990,1001,17,32,118 Pietjers CCS drive details #1117,8 CCS – seperate Leds #1144,5 Alps Blue sub for Stepper #1046 Gootee spice model #1063 Greyscale pcb (basic unit) #1062,5,72,87,96 Gootee LDR // resistor bypass values #1086 Cap across Volume Pot #1184 VCCR system info #1088 Greyscale pcb of #1001 CCS circuit #1185 VCCS design #1192,7 AndyP current pump #1217,87,1440 Maximus VCCR project #1256,74 Dantimax remote vol control #1324 Clairex link #1325 Vactrol link #1400 George reverts back to double pot #1413 P'head suggestions #1421 Burson buffer link #1428 4 ch for bal use #1438 VCCS revisited #1475 Mkl & II comparison #1510,12,17 Tolu DAC controlled LS #1543 PNS kits

### Circuits - posted Ccts only

#1,758 George's original design #34,86,97,756 layout #66 test/matching ideas #90 **Careful - use h/sink clips when soldering LDRs legs** #91 Pot connections (single pot) #226 Shunt connection? #249 Simpler setup #348 Cct again #416 single 100kR LOG pot #424,5 Blues pot schematics #496 Blues' redrawn original Cct #581,90 Cap Bypass for LDR #782,1248 LDR I/P selector #788 PIC for Pot #799 "Audiofaidante" Cct #829 Loop control? #913 Tolu LM49710 preamp #1001,17,32,118 Pietjers CCS Cct #1060 Pietjers variation? #1153 JLM lineamp (>!) #167 link to DD 5V supply #1311 Urei gain cell #1338 NP - R3 buffer #1361 [corrected cct] #1362 NP - 2 channel version #1363 NP - variation 2 #1366 NP - variation 3 #1387 Maximus VCCR design #1417 Orion Xover #1444 Caps on basic LS

## **Testing** – Matching, Specs, graphs, etc

#67 LED current chart (+5v with 100R) #74 LED Matching 2 values #87 match @ 0.1,0.5,1.5mA #103 P'head Tips on testing # 184 Siliconex Info #198 LDRs are delicate - be careful about connections #232,4 Arne's digital controlled testing? #243 matching @ 0.1, 0.6, 1.8mA #260 simple test #321 Adjust the 3 currents of LDR & measure the LDR - and match #365,1263 multi with 8 pin DIL socket #442 Warm up LDRs #495 SeaSaw matching idea #513 George's active matching (see note) #515 Blues in cct method (see note) #540,1 measuring Zout, etc #719 Can use 2 unequal matched pairs in series and in shunt #1237 Badge LDRs #1262 a simple individual LDR test with dial-up adjustable p/supply.

## **Power Supplies**

#57 double reg to 5volt #99 5volt #148 Battery supply #195 5volt @50mA = 2 ch #516 MikeM supply #523 Gnd connection problem #532 Signal Gnd via resistor #659 AMB supply (plus various mentions of Wallwarts, computer supplies, etc)

## **Buffers**

#333,490 Al Wright valve buffer #367 AD825 Cct #368 BUF634 Cct #601 AD815 Cct #913 Tolu LME49710 preamp #1213 Jfet "stage" #1280 NP buffer link # 1338 NP buffer (R3) #1350 more #1361 NP corrected Cct #1362 NP 2 ch version #1363 NP final Cct #1421 Burson buffer link #1459 Zum LS, Buffered LS, M.Fidelity & B1 comparison #1471 George's valve buffer (not including Aikido Cct, JC buffer, Borbelly and other excellent articles references)

## **Loads** - Zin, Zout, Equipment combinations, etc

#121 Marchant Xover – low Zin #124 Dac valve o/p stage = high Zout 138 # Change Naim Zin #141 Lightspeed Zin & Zout = 7kR #146 as I/V stage for dac? #277 T-Amp combination #332 LS + AtmoSphere #333,4 Al Wright o/p stage #461 added Lundahl trannies #485,940 Gainclone Zin mods #730 Zapfilter II #744 LS + Aikido #929,1400 LS + AudioNote M7 #950 LS + Krell50 #1417 LS + Orion Xover #1457 LS + Zum's M/Fidity, B1, etc