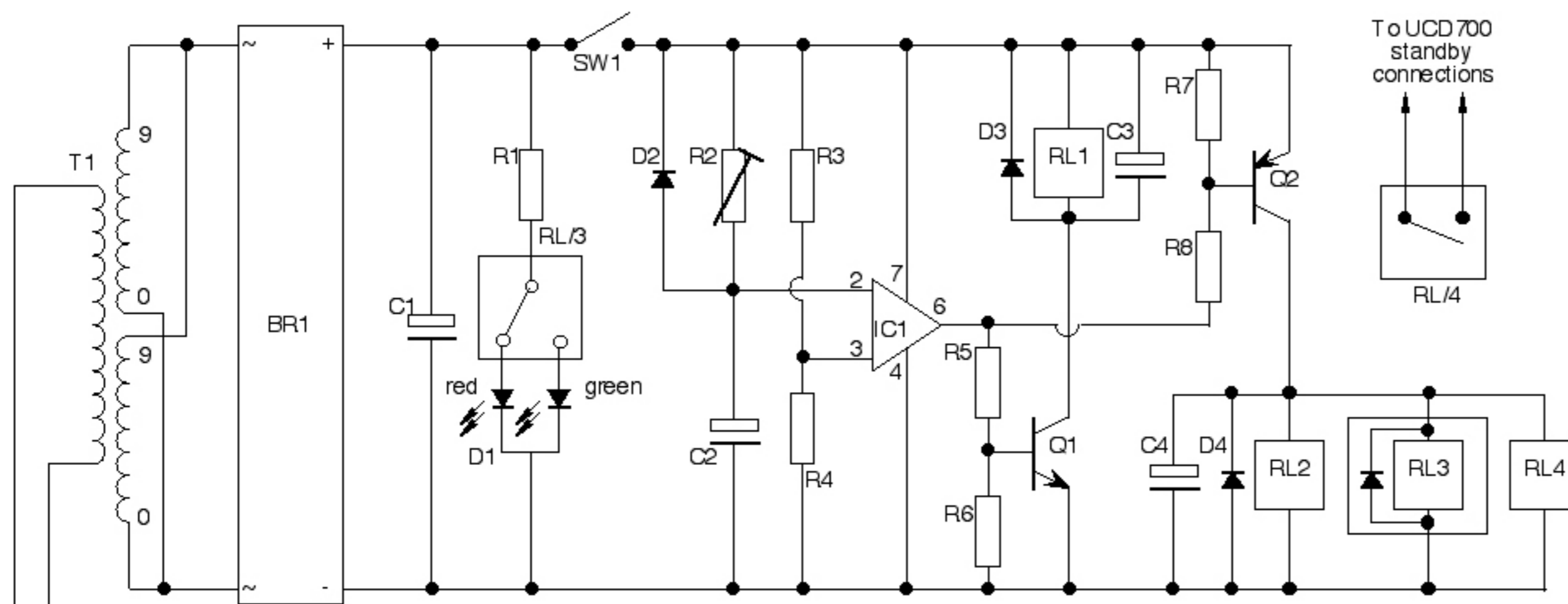


Control circuit



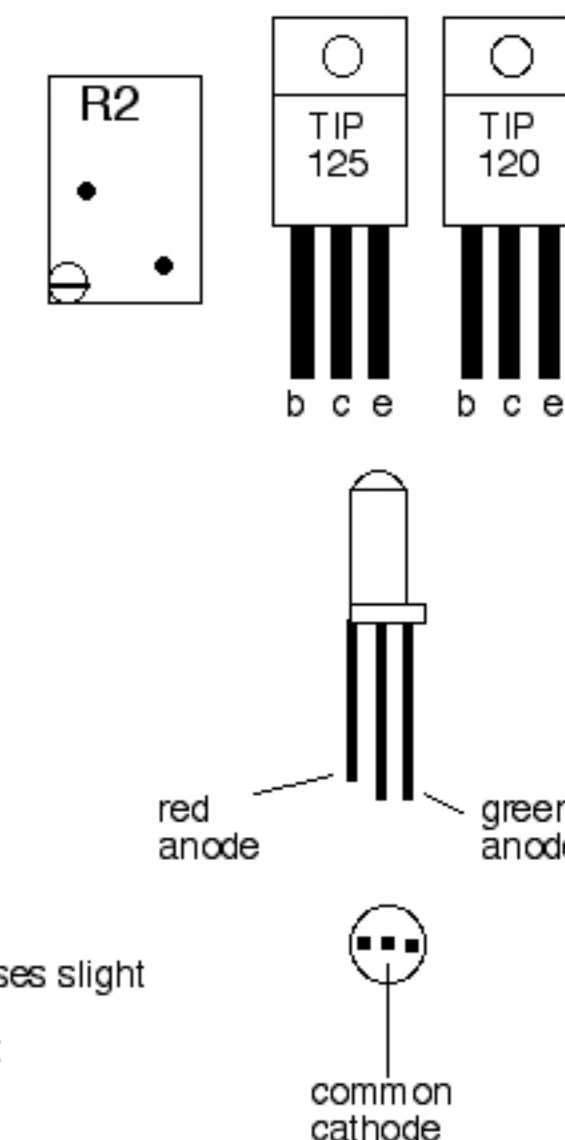
Basic operation:

SW1 open:
 - raw power supply live
 - red led active

SW1 closed:
 - control circuit powered
 - approx 8V applied to pin 3 (+ve) of IC1
 - output of IC1 = high
 - Q1 turned on
 - RL1 activated
 - soft-start resistors in circuit
 - power applied to amplifier

After R2 + C2 = time constant value:
 - >= 8V applied to pin 2 (-ve) of IC1
 - output of IC1 = low
 - Q2 turned on
 - RL2 activated
 - RL3 activated
 - soft-start resistors bypassed
 - green led active

- Q1 turned off
 - RL1 de-activated (discharge via C3 causes slight delay in deactivation)
 - soft-start resistors switched out of circuit



Components:

R1 = 1K2
 R2 = 50K - to suit time constant (with C2), 15K = 1.5 seconds (farnell: 935-2767)
 R3 = 330R (farnell: 946-7327)
 R4 = 680R (farnell: 946-9630)
 R5 = 10K (farnell: 336-180)
 R6/7 = 2K2 (farnell: 946-6711)
 R8 = 4K7 (farnell: 946-8692)
 R9/10 = 68R, 100W (farnell: 117-4295)

C1 = 4700u, 35V, Panasonic (Farnell: 119-8715)
 C2/4 = 100u, 35V (farnell: 812-6658)
 C3 = 3300u, 16V (farnell 876-7181) in parallel with 1000u, 16V (Farnell: 876-7165)

D1 = bi-colour led (Maplin: YH75S) (Farnell: HLMP4000, 100-3244)
 D2 = 1N4148 (farnell: 108-1177)
 D3/4 = 1N4004 (farnell: 956-5027)

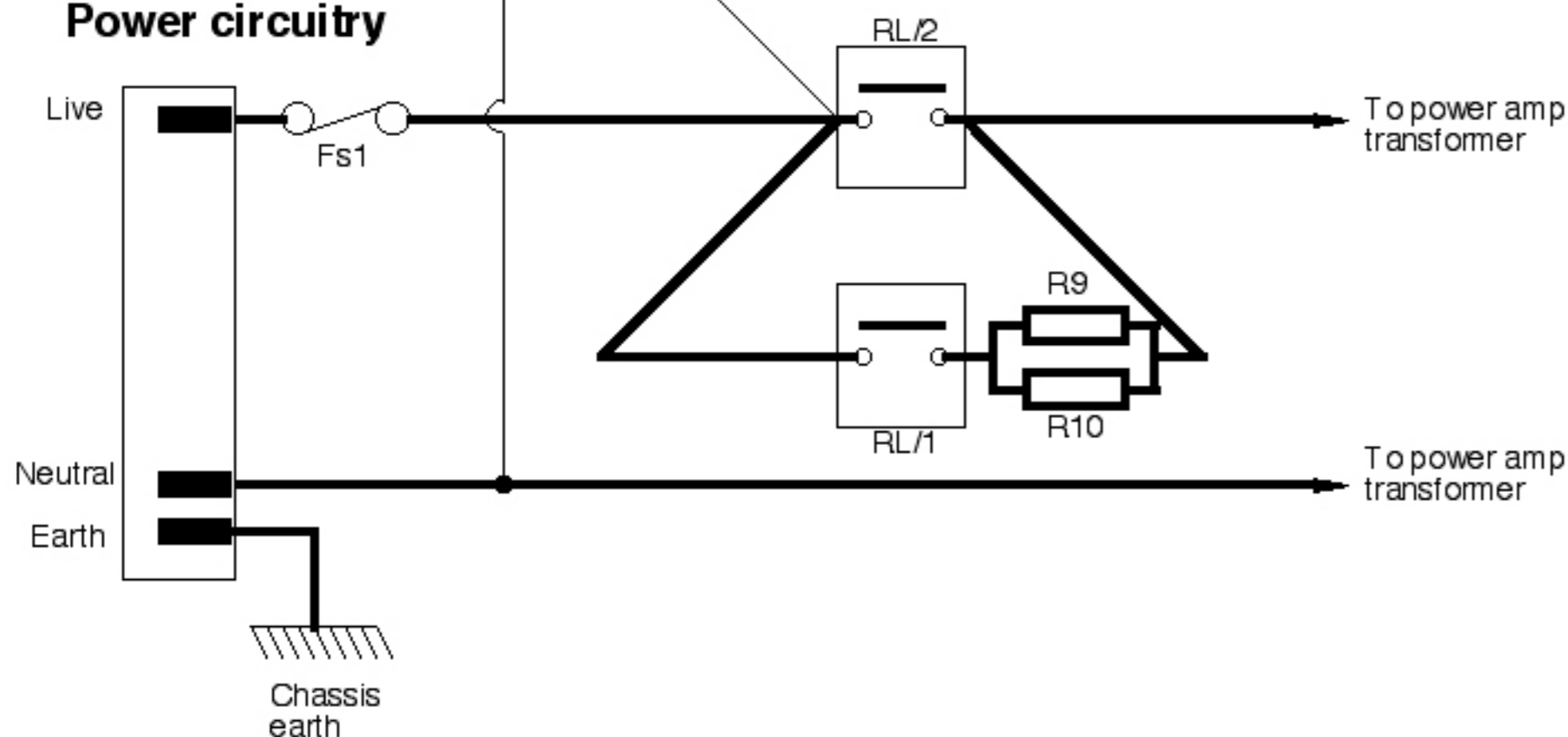
Q1 = TIP120 (farnell: 929-4210)
 Q2 = TIP125 (Maplin: N64AH) (Farnell: 929-4520)
 IC1 = LF351 (farnell: 136-6577)
 BR1 = 6A, 200V, GBU case style, (Farnell: 954-9498)
 IC skt = turned pin (farnell: 107-7303)

SW1 = existing power amp front panel switch
 RL1/2 = 30A, SPST, 12V coil, 110R, Finder 6513-9012-0000, (Farnell: 116-9206)
 RL3 = Reed relay, SPCCO, 12V coil, 500R, (Farnell: 956-1773)
 RL4 = 1A DPDT BT type 47, 12V coil, 720R (Maplin: N04AW)

2-pin PCB header = Maplin RK65V, 2-pin PCB housing = Maplin HB59P
 3-pin PCB header = Maplin BX96E, 3-pin PCB housing = Maplin BX97F
 skt terminals = Maplin YW25C

FS1 = 10A 1 1/4" A/S (119-0683)
 T1 = 0-9, 0-9, 15VA, Multicomp pcb toroidal (Farnell: 433-5715, alt1: 113-1501, alt2: 116-6228)

Power circuitry



Node Corporation ATH - Hypex UCD700 Soft-start

Draft: E December 13th 2007

Heavy duty Soft-start with 'fail-safe' operation