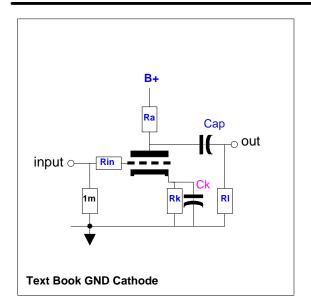
Tube CAD

Grounded Cathode Amplifier



The textbook Grounded Cathode Amplifier. The most common and tube circuits. The triode is cathode biased. The output is phase invergain never exceeds the mu of the triode. Still, a very good line stage made from this circuit.

Tube

Tube = 6SN7 Number = 2mu = 20gm = 5.2 ma/v rp = 3850 ohm Imax = 40 ma

Vmax = 450 v

Wmax = 7.5 w

Cgp = 8 pf

Circuit Setup

Rk = 500 ohm Rk bypassed

Rin = 1 k

RL = 100 k

Ra = 13.5 k

 $Cap = 0.47 \mu f$

I = 10.4ma

V B + = 310v

AC Results

 $\begin{aligned} & \text{Gain} = 15.11 & \text{Gain dB} = 23.6 \text{ dB} \\ & \text{Phase} = \text{inverts} & \text{PSRR} = -13.3 \text{ dB} \\ & \text{Z input} = 61.8 \text{ k} & \text{Z output} = 2.91 \text{ k} \\ & \text{F -3dB low} = 3.29 \text{ hz} & \text{F -3dB high} = > 1 \text{ mhz} \end{aligned}$

DC Results

V tube = 164 v VRa = 140 v Vbias = -5.22 v Vg DC = 0 v

 $Vth = 8.19 \text{ V} \qquad Vmax \text{ out} = -79/+124 \text{ v}$ $Plate \text{ Dis.} = 855 \text{ mw} \qquad Total \text{ Dis.} = 3.22 \text{ w}$ $Ra \text{ Dis.} = 1.46 \text{ w} \qquad W \text{ Rk} = 54 \text{ mw}$

Calculated Part Values

Rk = 499 ohm Cap $Rk = 57 \mu f$