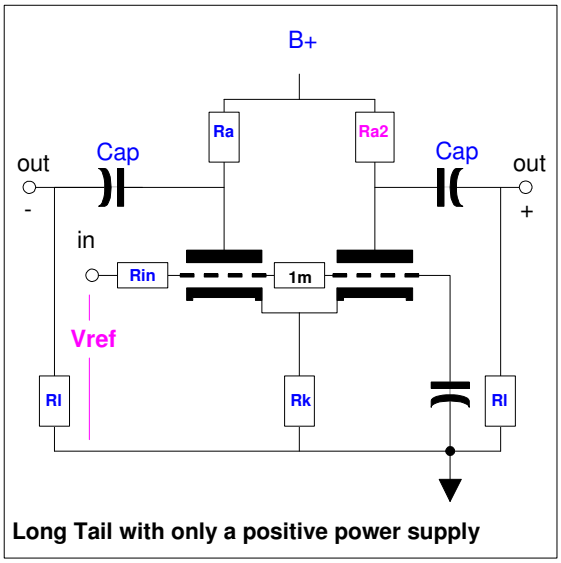
# Tube CAD *Long Tail Phase Splitter*



Long Tail with only a positive power supply

The Single PS Voltage Long Tailed Phase Splitter. This circuit forgoes the use of a negative PS. Instead, it relies on DC coupling at the input to a high voltage to bias up the circuit.

## Tube

Tube = 6SN7
Number = 1
mu = 20
gm = 2.6 ma/v
rp = 7700 ohm
Imax = 20 ma
Vmax = 450 v
Wmax = 3.75 w
Cgp = 4 pf

## Circuit Setup

Rk = 15 k
Rin = 200 ohm
RL = 1 m
Ra = 22 k
Cap = 1µf
I = 6ma
V B+ = 310v

## AC Results

Gain = 7.69
Gain dB = 17.7 dB
Phase = both
PSRR = -0.288 dB
Z input = 259 k
Z output = 5.67 k
F -3dB low = 0.16 hz
F -3dB high = > 1 mhz
Balance = 8.49%
Gain@T2 = 17 dB

## DC Results

V tube = 154 v
VRa = 66 v
Vbias = -5.62 v
Vg DC = 84.4 v
Vth = 4.38 v
Vmax out = -43/+43.2 v
Plate Dis. = 462 mw
Total Dis. = 2.34 w
Ra Dis. = 198 mw
W Rk = 270 mw

## Calculated Part Values

Ra2 = 24 k
Ra2-Ra = 2.1 k