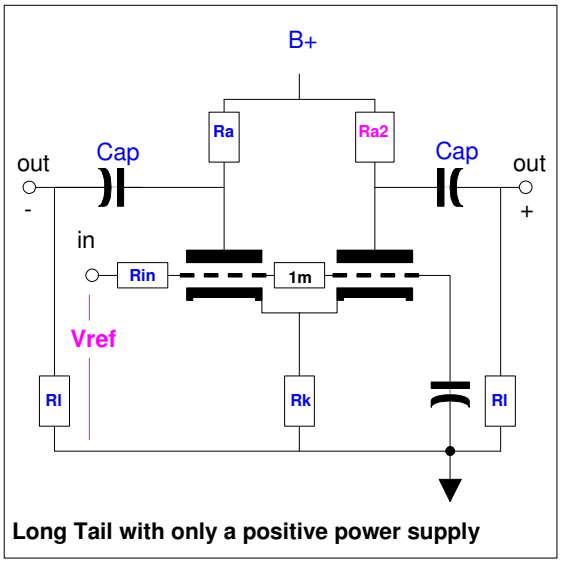

The Single PS Voltage Long Tailed Phase Splitter. This circuit forgoes the use of a negative PS. Instead, it relies on DC coupling at the input to a high voltage to bias up the circuit.

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 = 12 k
Rin = 1 k
RL = 110 k
Ra = 22 k
Cap = 1µf
I = 9ma
V B+ = 400v

AC Results

Gain = 7.39
Phase = both
Z input = 269 k
F -3dB low = 1.38 hz
Balance = 9.36%

Gain dB = 17.4 dB
PSRR = -0.306 dB
Z output = 5.42 k
F -3dB high = > 1 mhz
Gain@T2 = 16.5 dB

DC Results

V tube = 193 v
Vbias = -6.93 v
Vth = 5.86 v
Plate Dis. = 868 mw
Ra Dis. = 445 mw

VRa = 99 v
Vg DC = 101 v
Vmax out = -51/+51.2 v
Total Dis. = 4.46 w
W Rk = 486 mw

Calculated Part Values

Ra2 = 24.9 k

Ra2-Ra = 2.8 k