



The textbook Totem Pole amplifier. Very popular. This circuit seems to promise it all. Low distortion, low  $Z_o$ , high gain. It works by using a top triode as a current source and a cathode follower at the same time. Resistors R1 and R2 set up the bias voltage for the top triode.

## Tube

Tube = 12AT7  
 Number = 1  
 $\mu = 60$   
 $g_m = 4 \text{ ma/v}$   
 $r_p = 15000 \text{ ohm}$   
 $I_{max} = 25 \text{ ma}$   
 $V_{max} = 300 \text{ v}$   
 $W_{max} = 2.5 \text{ w}$   
 $C_{gp} = 1.5 \text{ pf}$

## Circuit Setup

$R_k = 100 \text{ ohm}$   
 $R_k$  bypassed  
 $R_{in} = 1 \text{ k}$   
 $R_L = 220 \text{ k}$   
 $R_a = 3.3 \text{ k}$   
 $Cap = 0.1 \mu\text{f}$   
 $I = 5 \text{ ma}$   
 $V_{B+} = 220 \text{ v}$

## AC Results

Gain = 54.96	Gain dB = 34.8 dB
Phase = inverts	PSRR = -22.7 dB
$Z_{input} = 96.5 \text{ k}$	$Z_{output} = 1.18 \text{ k}$
F -3dB low = 7.2 hz	F -3dB high = > 1 mhz

## DC Results

$V_{tube} = 102 \text{ v}$	$V_{Ra} = 16.5 \text{ v}$
$V_{bias} = -0.44 \text{ v}$	$V_{g2} = 118 \text{ v}$
$V_{th} = 2.72 \text{ v}$	$V_{max out} = -24/+149 \text{ v}$
Plate Dis. = 508 mw	Total Dis. = 1.1 w
$R_a$ Dis. = 82 mw	$W_{Rk} = 3 \text{ mw}$

## Calculated Part Values

$R_k = 88.7 \text{ ohm}$	Cap $R_k = 111 \mu\text{f}$
$R_1 = 1.02 \text{ m}$	$R_2 = 1.18 \text{ m}$