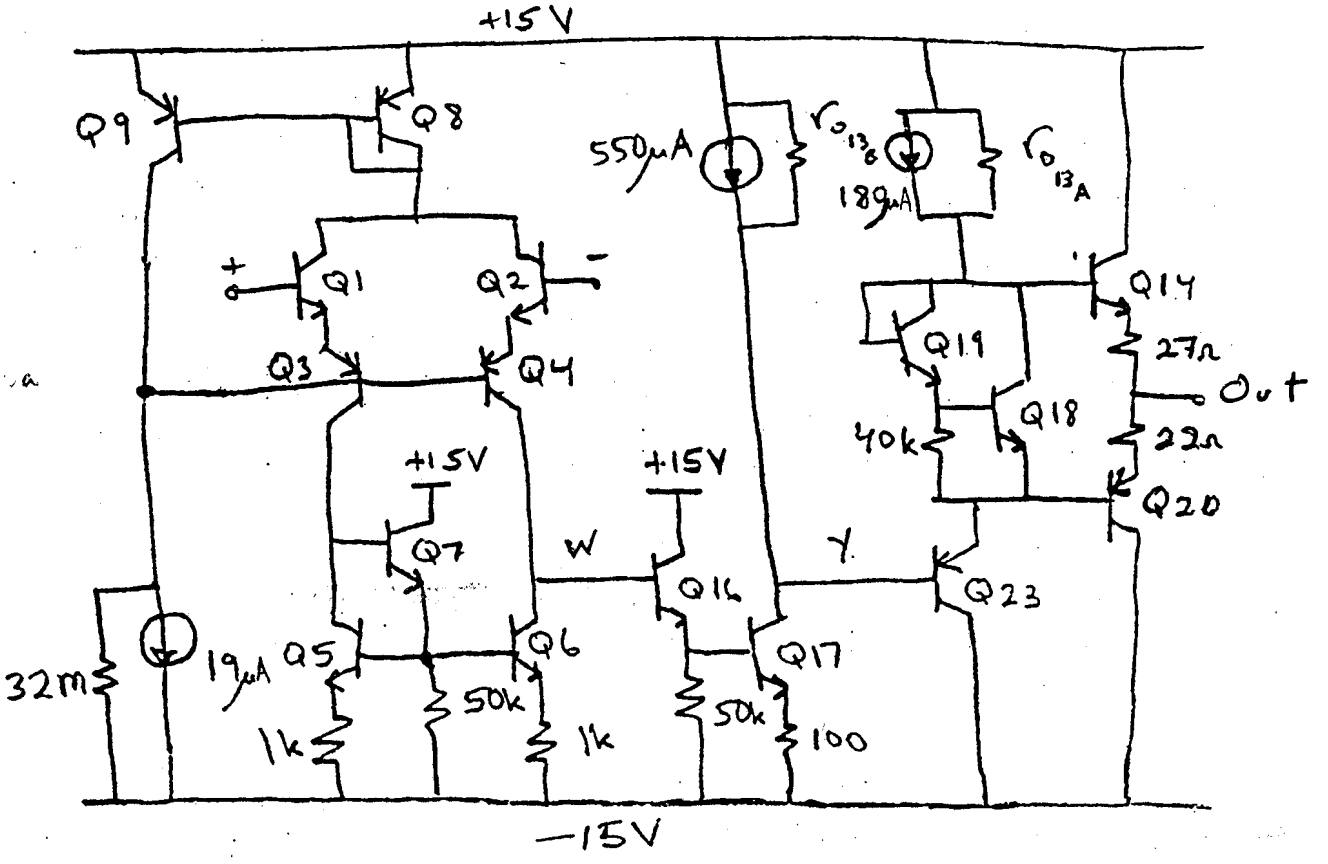
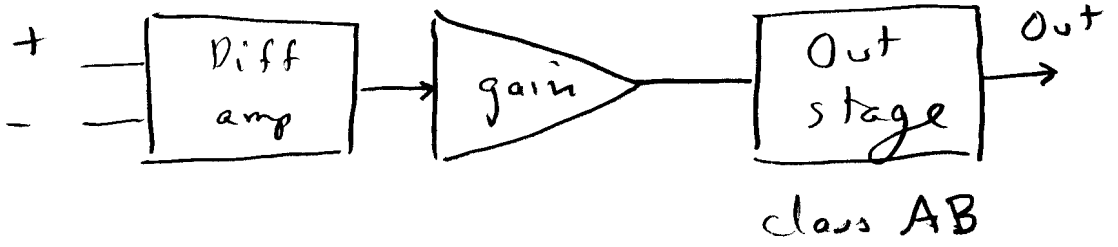
741 Op Amp

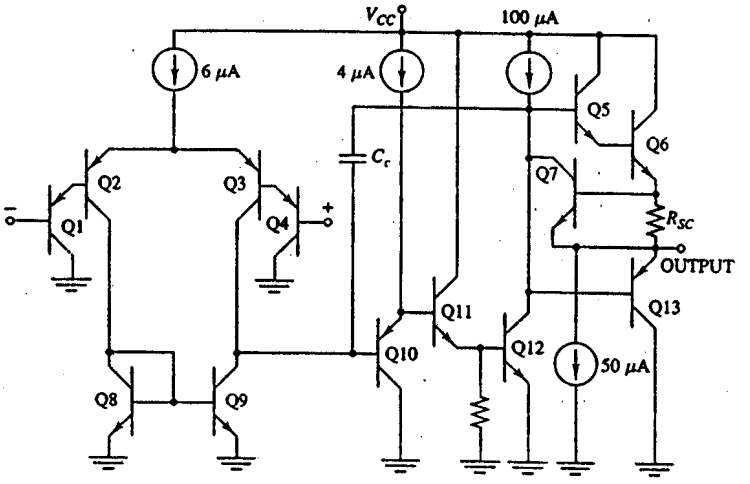
Simplified Schematic



Protection Xtrs not shown



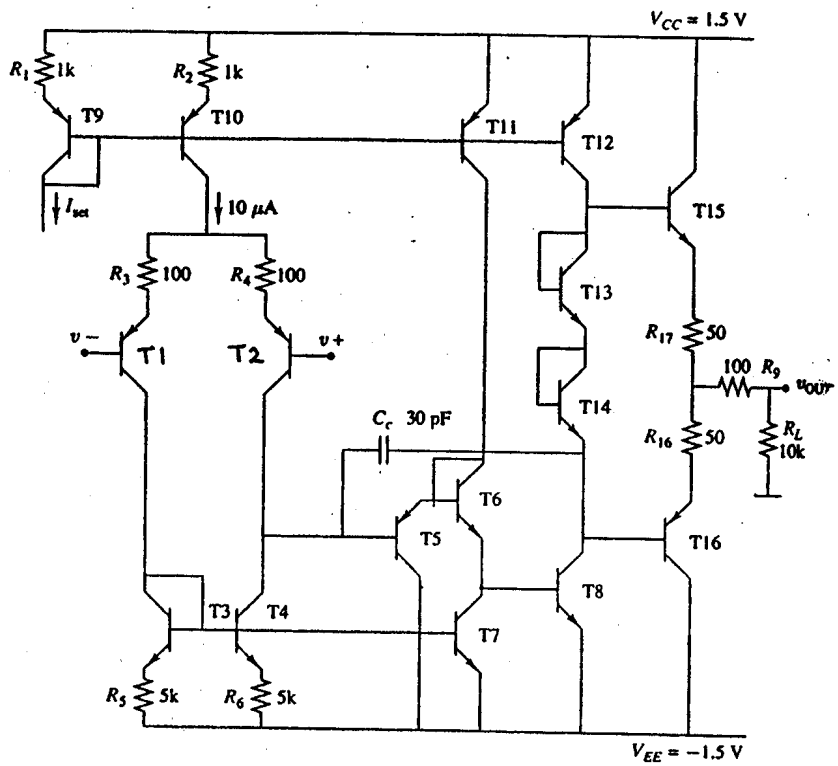
BIPOLAR OP AMP LM-124 (NATIONAL SEMICONDUCTOR)



Specifications		
Parameter	Value (at 3 V)	Unit
GBW	0.5	MHz
SR	0.4	V/μs
R_L	≥ 10	kΩ
C_c	15	pF
A_{vo}	≥ 110	dB
I_ϵ	5	nA
$I_2 + I_3$	6	μA
I_{10}	4	μA
I_{12}	100	μA
I_{tot}	650	μA
$dV^2_{ieq,th}$	68	$nV_{RMS}/\sqrt{Hz}$

Q7 - normally off (protection device)

BIPOLAR OP AMP LM-4250 (NATIONAL SEMICONDUCTOR)



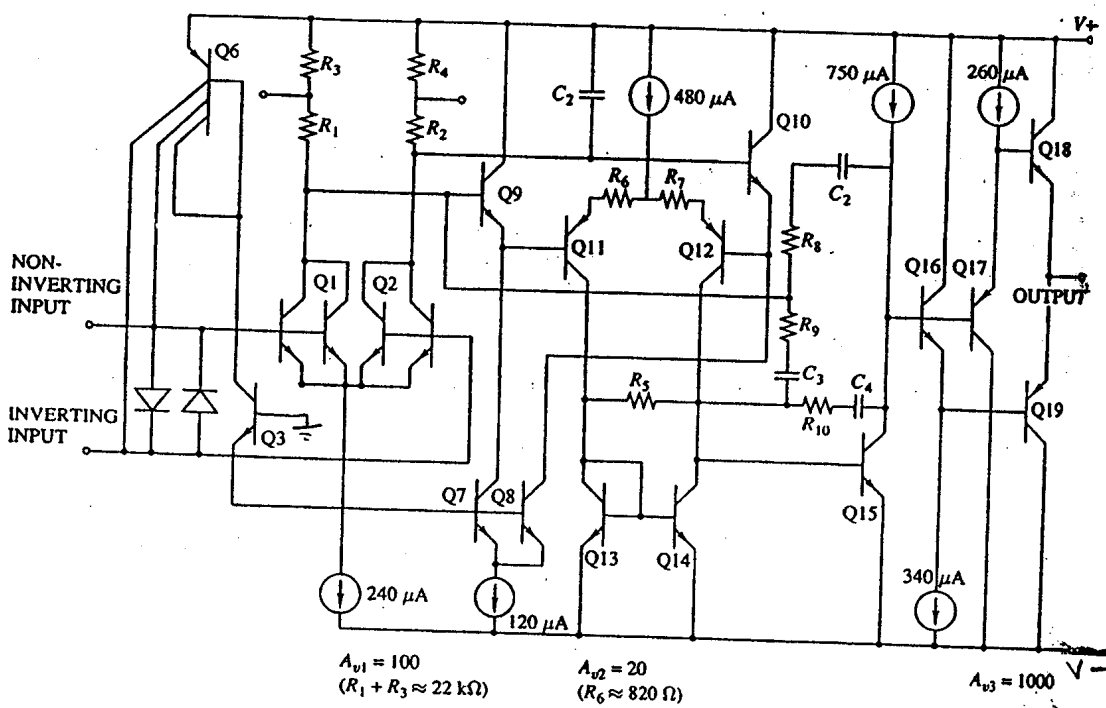
Specifications (at I_{set} = 10 μA):		
Parameter	Value (at ±1.5 V)	Unit
GBW	0.25	MHz
SR	0.2	V/μs
R_L	> 10	kΩ
C_c	30	pF
A_{v0}	≥ 110	dB
I_ϵ	50	nA
$I_{9,10}$	10	μA
$I_{11,12}$	14	μA
I_{15}	50	μA
$dv^2_{ieq.th}$	38	$nV_{RMS}/\sqrt{Hz}$

T10, 11, 12 = current sources

Diff amp → gain → Class AB Out Stage

BIPOLAR OP AMP OP-27 (PRECISION MONOLITHICS INC)

FIGUR



Specifications		
Parameter	Value (at ±15 V)	Unit
GBW	8	MHz
SR	2.8	V/μs
R_L	> 2	kΩ
C_c	?	pF
A_{vo}	≥ 125	dB
I_ϵ	12	nA
$I_1 + I_2$	240	μA
I_{tot}	3000	μA
$dv^2_{ieq,th}$	3	$nV_{RMS}/\sqrt{Hz}$

Q1, Q2 diff pair
Q11, Q12 diff pair } 3 gain stages
Q15 CE

Unusual Class AB out stage