AN3310K, AN3310S

Head Amplifier Circuits for VTR (4-Head Type)

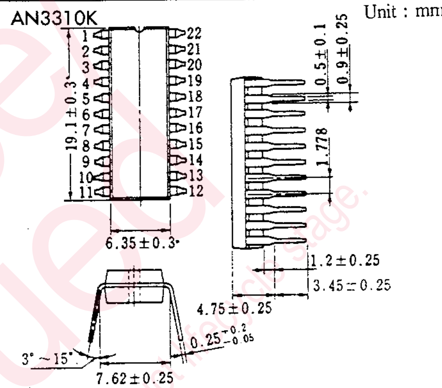
■ Outline

The AN3310K and the AN3310S are integrated circuits designed for head amplifier circuits for VTR (4−head type).

■ Features

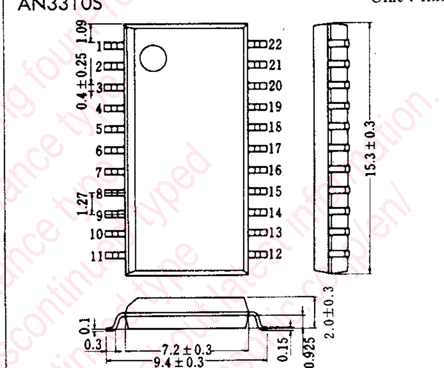
- Built−in enveloped comparing circuit
- Built−in peaking amplifier circuit
- Less noise voltage referred to input : 1μ Vrms)
- Supply voltage : V_{CC}=5V

AN3310K Unit : mm



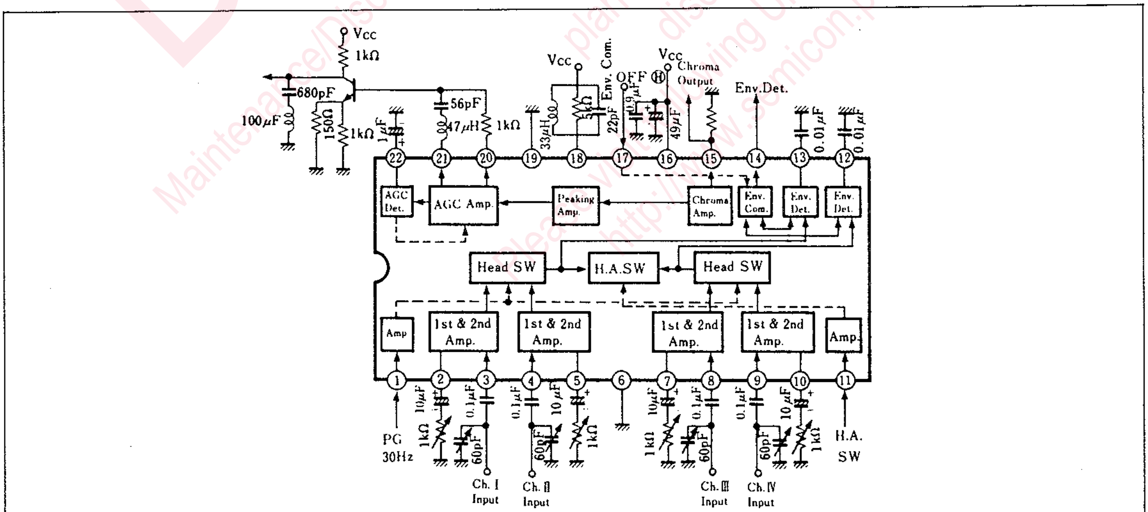
22-Lead Shrunk DIL Plastic Package

AN3310S Unit : mm



22-Lead PANAFLAT Package (SO-22D)

■ Block Diagram



■ Pin

Pin No.	Pin Name	Pin No.	Pin Name
1	Head SW Changeover	12	Ch. Ⅰ, Ⅱ Side Envelope Detection
2	Initial Stage Bias(Ch. Ⅰ)	13	Ch. Ⅲ, Ⅳ Side Envelope Detection
3	Initial Stage Input(Ch. Ⅰ)	14	Envelope Comparative Output
4	Initial Stage Input(Ch. Ⅱ)	15	Chroma Output
5	Initial Stage Bias(Ch. Ⅱ)	16	V_{cc}
6	Input Stage GND	17	Envelope Comparative Circuit Stop SW
7	Initial Stage Bias(Ch. Ⅲ)	18	Peaking Circuit Peak Constant
8	Initial Stage Input(Ch. Ⅲ)	19	Output Stage GND
9	Initial Stage Input(Ch. Ⅳ)	20	AGC Output
10	Initial Stage Bias(Ch. Ⅳ)	21	AGC Reverse Phase Output
11	Head Amp. SW Changeover	22	AGC Control Signal Detection

■ Absolute Maximum Ratings (Ta=25℃)

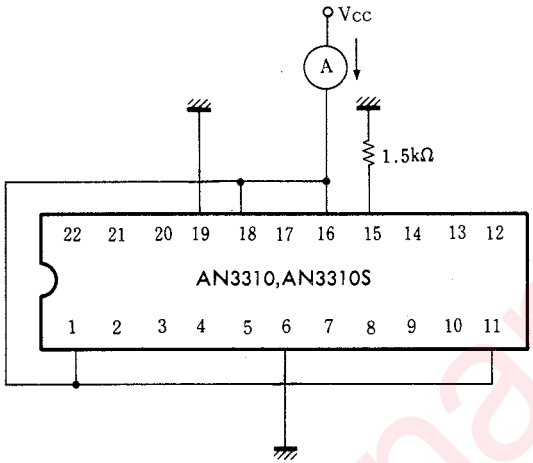
Item	Symbol	Rating	Unit
Supply Voltage	V_C	6.0	V
Power Dissipation(Ta=70℃)	P_D	250	mW
Operating Ambient Temperature	T_{opr}	−20~+70	℃
Storage Temperature	T_{stg}	−55~+150	℃

■ Electrical Characteristics (Ta=25°C)

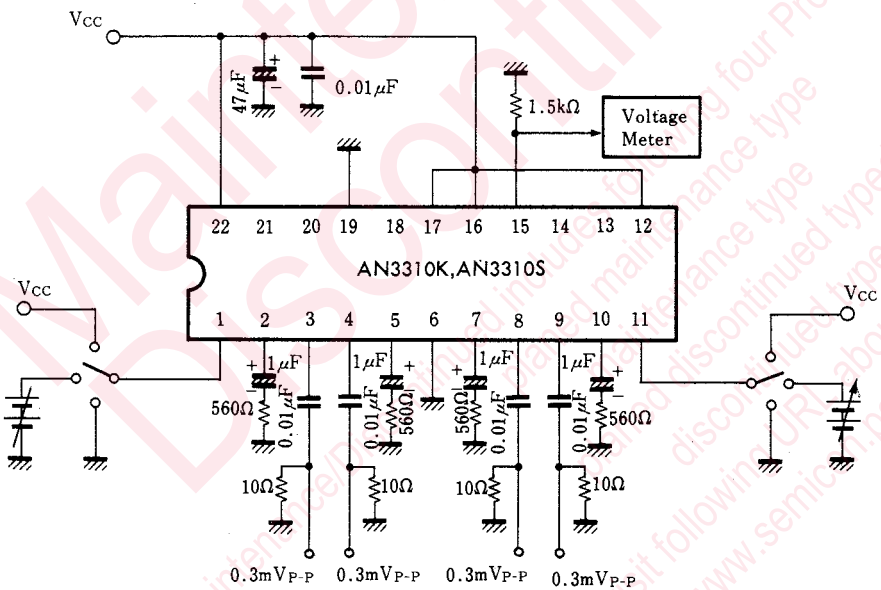
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Circuit Current	I_{16}	1	V_{CC}=5V	16		40	mA
Ch. Ⅰ Gain	$G_{3\text{-}15}$	2	V_{CC}=5V, f=1MHz	50.5		60.5	dB
Ch. Ⅱ Gain	$G_{4\text{-}15}$	2	V_{CC}=5V, f=1MHz	50.5		60.5	dB
Ch. Ⅲ Gain	$G_{8\text{-}15}$	2	V_{CC}=5V, f=1MHz	50.5		60.5	dB
Ch. Ⅳ Gain	$G_{9\text{-}15}$	2	V_{CC}=5V, f=1MHz	50.5		60.5	dB
AGC Output Amplitude	v_{20}	3	V_{CC}=5V, f=4MHz	100		190	mv_{P-P}
AGC Control Sensitivity	v_{20}	3	V_{CC}=5V, f=4MHz			3	dB
H.SW Changeover Sensitivity	S_1	2	V_{CC}=5V			1	V
H.A.SW Changeover Sensitivity	S_{11}	2	V_{CC}=5V			1	V
Noise voltage Referred to Input(Ⅰ)	$V_{ni3\text{-}15}$	4	V_{CC}=5V, 1MHz BPF			1	μV_{rms}
Noise voltage Referred to Input(Ⅱ)	$V_{ni4\text{-}15}$	4	V_{CC}=5V, 1MHz BPF			1	μV_{rms}
Noise voltage Referred to Input(Ⅲ)	$V_{ni8\text{-}15}$	4	V_{CC}=5V, 1MHz BPF			1	μV_{rms}
Noise voltage Referred to Input(Ⅳ)	$V_{ni9\text{-}15}$	4	V_{CC}=5V, 1MHz BPF			1	μV_{rms}
Envelope Comparative Output Amplitude	v_{14}	5	V_{CC}=5V	4.3			V_{P-P}
Envelope Comparative Output Stop Sensitivity	S_{17}	5	V_{CC}=5V			1.2	V

Note : Operating Supply Voltage Range : $V_{CC(opr)}$=4.5~5.5V

Test Circuit 1 (I_{16})



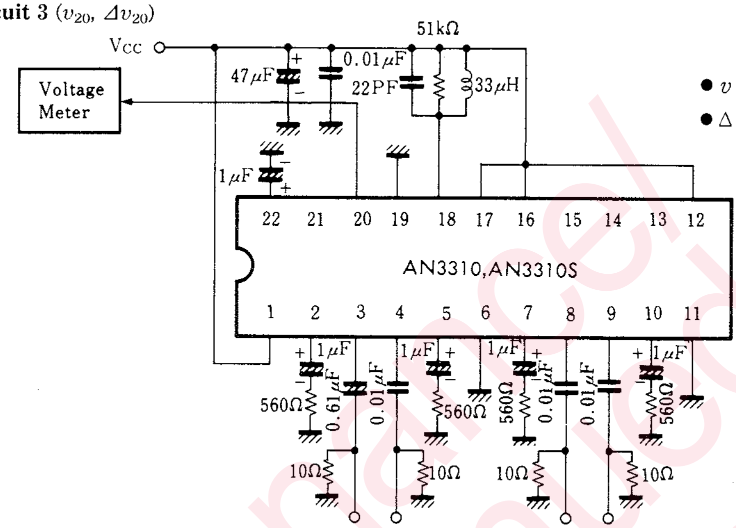
Test Circuit 2 ($G_{3\text{-}15}$, $G_{4\text{-}15}$, $G_{8\text{-}15}$, $G_{9\text{-}15}$, S_1, S_{11})



Item	①Pin	⑪Pin	Input Pin
$G_{3\text{-}15}$	V_{CC}	GND	③
$G_{4\text{-}15}$	GND	GND	④
$G_{8\text{-}15}$	V_{CC}	V_{CC}	⑧
$G_{9\text{-}15}$	GND	V_{CC}	⑨

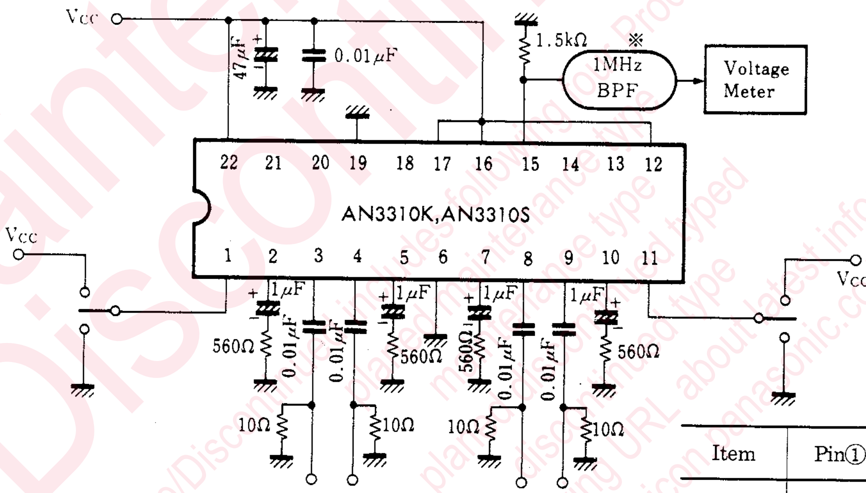
- S_1, S_{11} : Pin ④ $0.3mV_{P-P}$ input (fin=1MHz)
- S_1 : Decreasing the electric potential of Pin ① from Vcc, measure the electric potential of Pin ① when Pin ⑮ output appears.
- S_{11}: Decreasing the electric potential of Pin ⑪ from Vcc, measure the electric potential of Pin ⑪ when Pin ⑮ output appears.

Test Circuit 3 (v_{20}, Δv_{20})



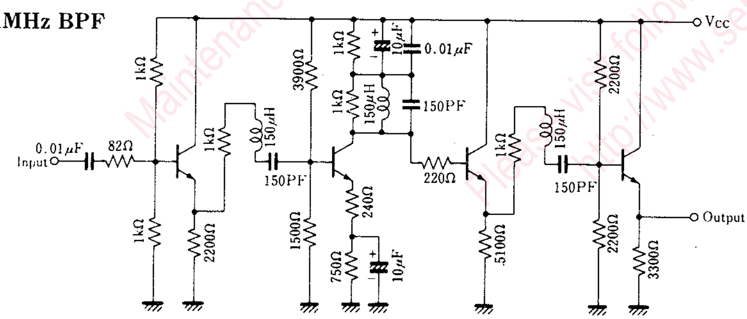
- v_{20} : Pin ③ input 0.3mV_{P-P}
- Δv_{20}: Pin ③ input 0.15～0.6mV_{P-P}

Test Circuit 4 ($V_{ni3\text{-}15}$, $V_{ni4\text{-}15}$, $V_{ni8\text{-}15}$, $V_{ni9\text{-}15}$)



Item	Pin①	Pin⑪
$V_{ni3\text{-}15}$	V_{CC}	GND
$V_{ni4\text{-}15}$	GND	GND
$V_{ni8\text{-}15}$	V_{CC}	V_{CC}
$V_{ni9\text{-}15}$	GND	V_{CC}

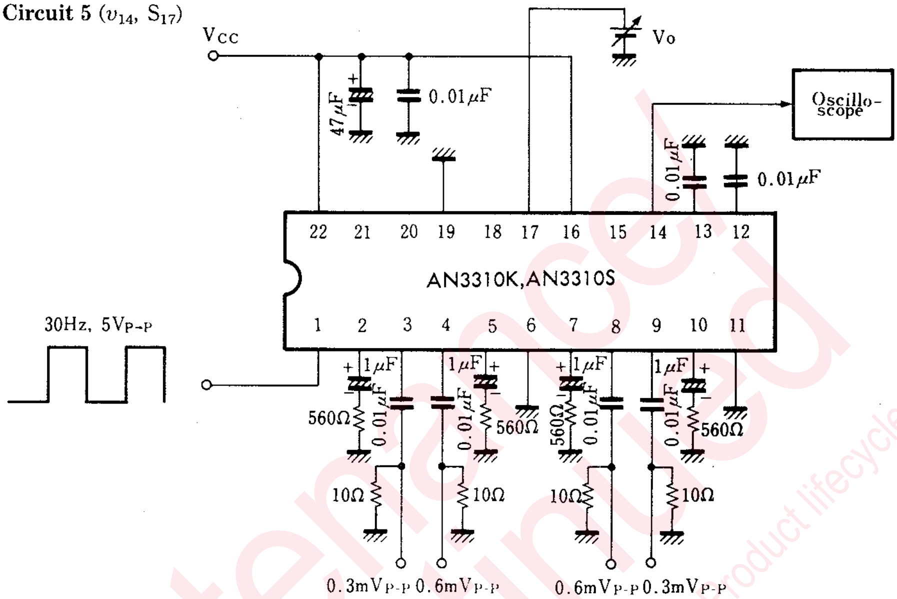
※1MHz BPF



◎ Notes for Handling

Since deterioration or destroy of characteristics may occur due to flow of overcurrent caused by the wrong insertion careful attention should be taken to handling.

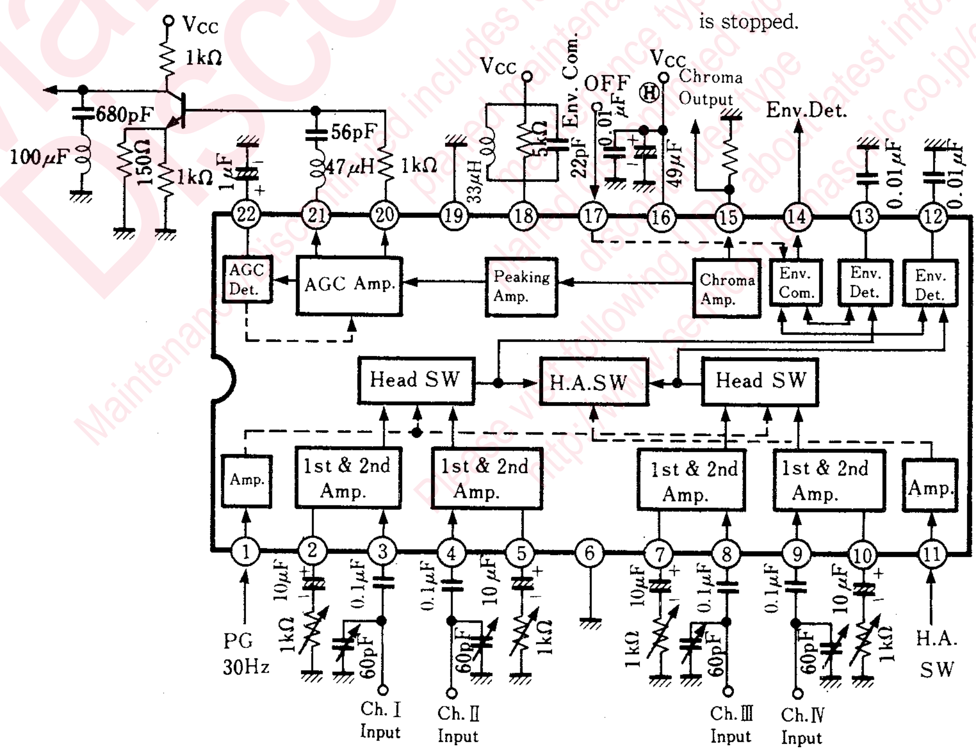
Test Circuit 5 (v_{14}, S_{17})



V_{14} : V_O=0V

S_{17} : Increasing the electric potential of Vo from 0V, measure the electric potential of Vo when Pin ⑭ output is stopped.

■ Application Circuit



Vcc
1kΩ
680pF
100μF
150Ω
1kΩ
1μF
56pF
47μH
1kΩ
Vcc
33μH
5kΩ
22pF
Env. Com.
OFF
Ⓗ
0.01μF
49μF
Vcc
Chroma Output
Env.Det.
0.01μF
0.01μF
22 21 20 19 18 17 16 15 14 13 12
AGC Det.
AGC Amp.
Peaking Amp.
Chroma Amp.
Env. Com.
Env. Det.
Env. Det.
Head SW
H.A.SW
Head SW
Amp.
1st & 2nd Amp.
1st & 2nd Amp.
1st & 2nd Amp.
1st & 2nd Amp.
Amp.
1 2 3 4 5 6 7 8 9 10 11
10μF
0.1μF
1kΩ
60pF
PG 30Hz
Ch. I Input
Ch. II Input
Ch. III Input
Ch. IV Input
H.A. SW

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