

AN6396S

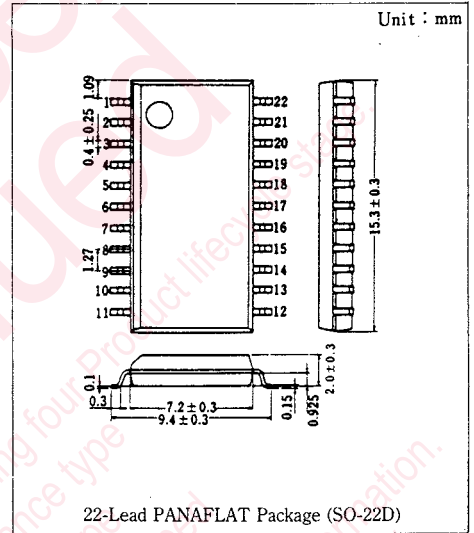
VTR Low Voltage Recording and Playback Circuit

Outline

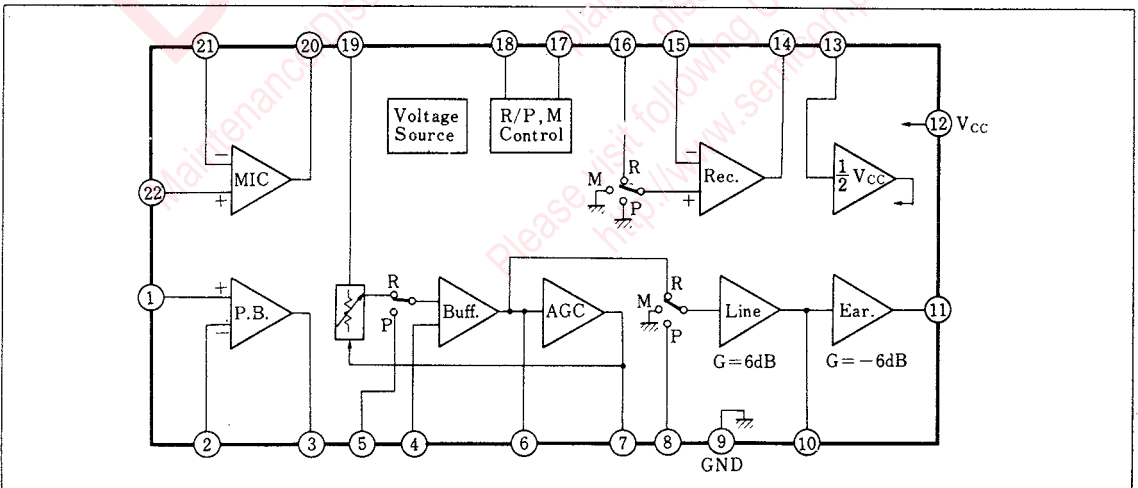
The AN6396S is an integrated circuit designed for VTR recording and playback.

Features

- The AN6396S consists of the following circuits necessary for VTR audio signal processing.
Microphone amplifier, playback amplifier, buffer amplifier, line amplifier, recording amplifier, earphone amplifier, Rec./P.B. switch, muting switch AGC detector
- High maximum output voltage at low supply voltage :
 $V_{0(max)} = 1.4V$ typ. ($V_{cc} = 5V$)



Block Diagram



■ Pin

Pin No.	Pin Name	Pin No.	Pin Name
1	P.B. Amp. V_+	12	V_{CC}
2	P.B. Amp. V_-	13	$\frac{1}{2}V_{CC}$
3	P.B. Amp. Output	14	Rec. Amp. Output
4	Buff. Amp. NF	15	Rec. Amp. V_-
5	Buff. Amp. P.B. Input	16	Rec. Amp. V_+
6	Buff. Amp. Output	17	Mute CTL
7	AGC. Det. Output	18	Rec./P.B. CTL
8	Line Amp. P.B. Input	19	Buff. Amp. Rec. Input
9	GND	20	MIC Amp. Output
10	Line Amp. Output	21	MIC Amp. V_-
11	EA. Amp. Output	22	MIC Amp. V_-

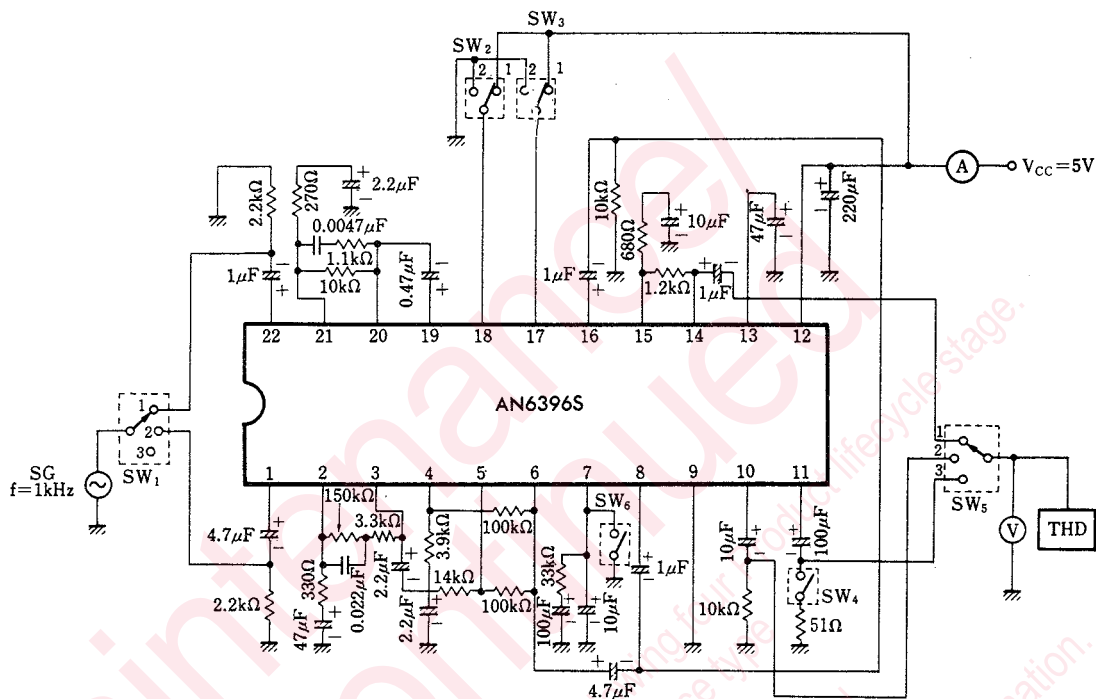
■ Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Item	Symbol	Rating	Unit
Supply voltage	V_{CC}	12	V
Supply current	I_{CC}	50	mA
Power dissipation	P_D	270	mW
Operating ambient temperature	T_{opr}	$-20 \sim +75$	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55 \sim +125$	$^\circ\text{C}$

■ Electrical Characteristics ($V_{CC}=5\text{V}$, $f=1\text{kHz}$, $T_a=25^\circ\text{C}$)

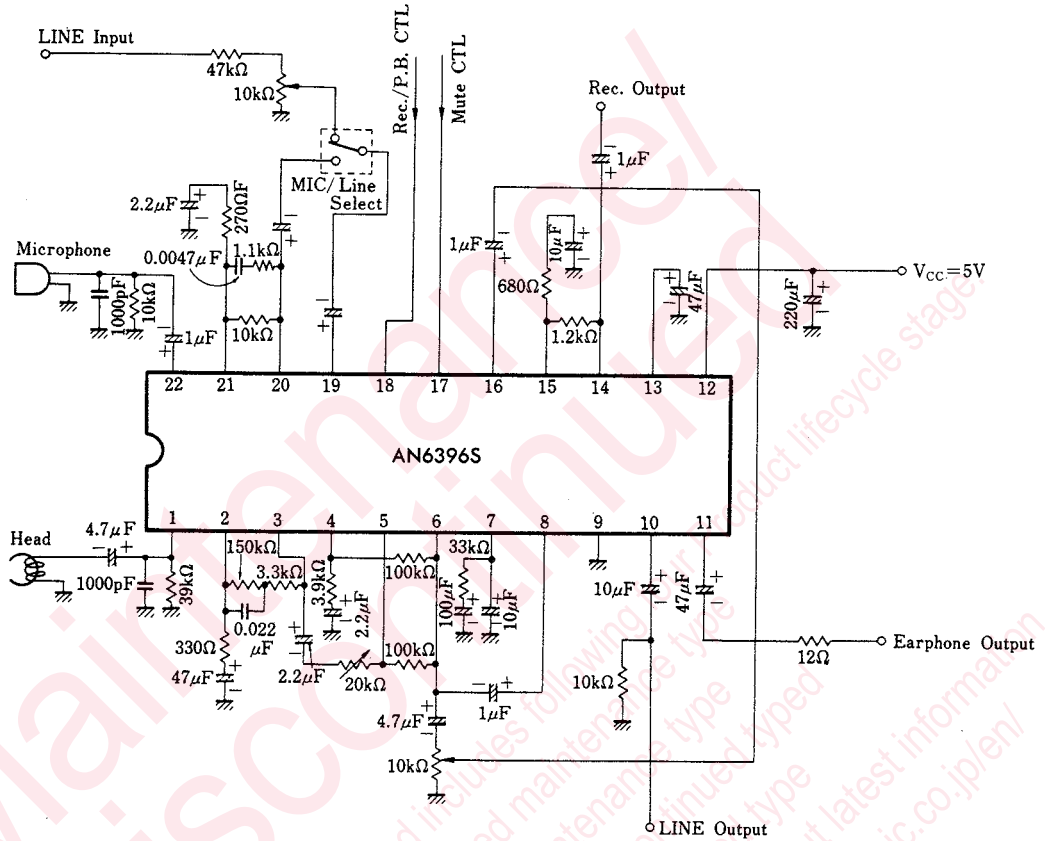
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Static circuit current	I_{CQ}	1	P. B., Muting OFF	7.0	10.5	16.0	mA
Closed circuit output voltage(1)	V_{O-P}	1	P. B., Line Output $V_{in}=1.2\text{mV}$	340	400	460	mV
Closed circuit output voltage(2)	V_{O-R}	1	Rec., Rec. Output, AGC OFF, $V_{in}=0.3\text{mV}$	600	700	800	mV
Distortion	THD	1	P. B., Line Output, $V_{in}=3\text{mV}$			0.1	%
Max. output voltage(1)	$V_{O(max)1}$	1	P. B., Line Output, THD=1%	1.1	1.3		V
Max. output voltage(2)	$V_{O(max)2}$	1	Rec., Rec. Output, AGC OFF, THD=1%	1.1	1.4		V
Earphone amp. output voltage	V_{O-EP}	1	P. B., EA. Output, $R_L=51\Omega$ $V_{in}=1.2\text{mV}$	160	200	240	mV
AGC output voltage(1)	$V_{O(AGC1)}$	1	Rec., Rec. Output, AGC on, $V_{in}=0.3\text{mV}$	430	550	680	mV
AGC output voltage(2)	$V_{O(AGC2)}$	1	Rec., Rec. Output, AGC on, $V_{in}=30\text{mV}$	760	910	1050	mV
AGC distortion	THD(AGC)	1	Rec., Rec. Output, AGC on, $V_{in}=10\text{mV}$		0.17	0.4	%
Output noise voltage(1)	V_{no-1}	1	P. B., $R_g=2.2\text{k}\Omega$, Line Output, DIN Audio		0.4	0.8	mV
Output noise voltage(2)	V_{no-2}	1	Rec., $R_g=2.2\text{k}\Omega$, Rec. Output, DIN Audio		1.2	2.0	mV
Rec.mode holding voltage	$V_{H(Rec.)}$			2.5		5.0	V
PB mode holding voltage	$V_{H(PB)}$			0		0.5	V
Muting holding voltage	$V_{H(Mute)}$			2.5		5.0	V
Muting release voltage	$V_{(L-Mute)}$			0		0.5	V

Test Circuit 1



Symbol	SG	SW ₁	SW ₂	SW ₃	SW ₄	SW ₅	SW ₆	Measuring Equipment
I _{CQ}	—	3	2	2	OFF	—	—	A
V _{O-P}	0.3mV	2	2	2	OFF	2	OFF	V
V _{O-R}	0.3mV	1	1	2	OFF	1	ON	V
THD	3mV	2	2	2	OFF	2	OFF	THD
V _{O(max.)1}	—	2	2	2	OFF	2	OFF	V, THD
V _{O(max.)2}	—	1	1	2	OFF	1	ON	V, THD
V _{O-EP}	1.2mV	2	2	2	ON	3	OFF	V
V _{O(AGC1)}	0.3mV	1	1	2	OFF	1	OFF	V
V _{O(AGC2)}	30mV	1	1	2	OFF	1	OFF	V
THD _(AGC)	10mV	1	1	2	OFF	1	OFF	THD
V _{no-1}	—	3	2	2	OFF	2	OFF	V
V _{no-2}	—	3	1	2	OFF	1	ON	V

■ Application Circuit



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