

# AN7086S

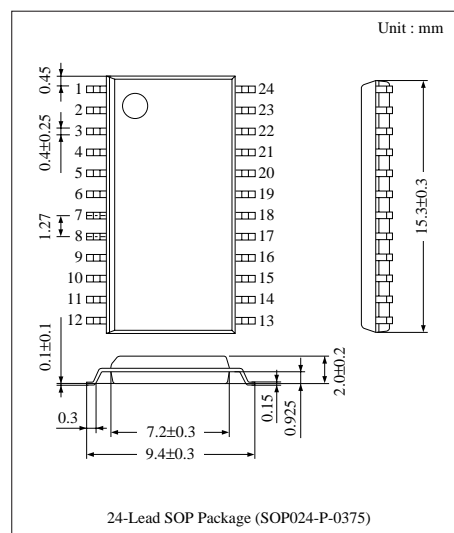
## Recording/Playback Pre-/Power Amplifier IC for 3V Microcassette

### ■ Overview

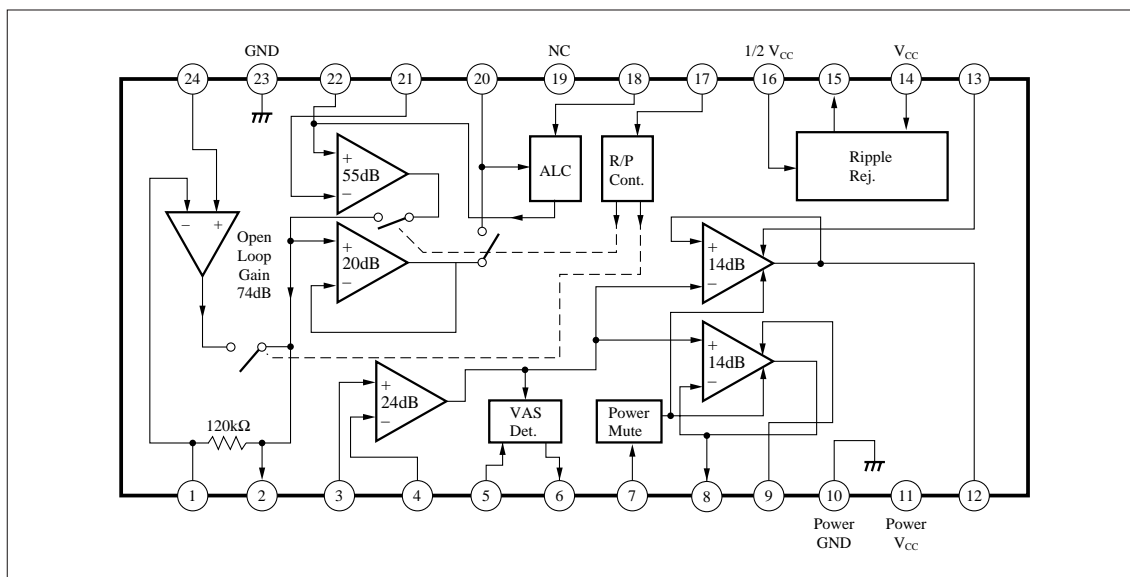
The AN7086S is an integrated circuit developed for recording playback pre-/power amp., built-in VAS (Voice Activated System) function especially.

### ■ Features

- Rec. playback pre-/power amp. IC
- VAS function built-in
- Earphone monitor at recording is possible
- 350mW BTL, OCL power amp. built-in
- Mic. amp built-in
- ALC function built-in
- Rec./Play switching is possible with a single circuit switch



### ■ Block Diagram



### ■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V <sub>CC</sub>	6	V
Supply Current	I <sub>CC</sub>	1000	mA
Power Dissipation	P <sub>D</sub>	520	mW
Operating Ambient Temperature	T <sub>opr</sub>	-20 ~ + 75	°C
Storage Temperature	T <sub>stg</sub>	-55 ~ + 125	°C

### ■ Recommended Operating Range (Ta= 25°C)

Parameter	Symbol	Range
Operating Supply Voltage Range	V <sub>CC</sub>	1.8V ~ 4.5V

### ■ Electrical Characteristics (V<sub>CC</sub>=3V, f=1kHz, Ta=25°C)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Circuit Current	I <sub>tot</sub>	At No Input/Playback	10	20	35	mA

#### <Pre-Amp.>

Open Circuit Gain	G <sub>V1</sub>	V <sub>in</sub> = - 85dBV, R <sub>g</sub> = 1kΩ	65	74	—	dB
Total Harmonic Distortion	THD <sub>I</sub>	V <sub>in</sub> = 3mVrms, R <sub>g</sub> = 1kΩ	—	0.1	1	%
Maximum Output Voltage	V <sub>O1</sub>	THD= 1%, R <sub>g</sub> = 1kΩ	0.3	0.6	—	Vrms
Noise Voltage Referred to Input	V <sub>ni</sub>	R <sub>g</sub> = 1kΩ, DIN/AUDIO Filter	—	1	1.8	μVrms

#### <Recording Amp.>

Close Circuit Gain	G <sub>V2</sub>	V <sub>in</sub> = - 80dBV	69.5	72.5	75.5	dB
Total Harmonic Distortion	THD <sub>R</sub>	V <sub>in</sub> = - 80dBV	—	1.3	3	%
Maximum Output Voltage	V <sub>oR</sub>	THD = 5%	0.8	1.08	—	Vrms
Output Noise Voltage	V <sub>nR</sub>	R <sub>g</sub> = 2.2kΩ, DIN/AUDIO Filter	—	-46	-42	dBV

#### <Power Amp.>

Closed Circuit Gain	G <sub>V</sub> - P <sub>O</sub>	V <sub>in</sub> = 5mVrms, R <sub>L</sub> = 8Ω	38.5	41	43.5	dB
Total Harmonic Distortion	THD - P <sub>O</sub>	V <sub>in</sub> = 5mVrms, R <sub>L</sub> = 8Ω	—	0.11	1	%
Maximum Output Voltage	V <sub>O</sub> - P <sub>O</sub>	THD = 10%, R <sub>L</sub> = 8Ω	300	350	—	mW
Output Noise Voltage	V <sub>n</sub> - P <sub>O</sub>	R <sub>g</sub> = 0Ω, R <sub>L</sub> = 8Ω, DIN/AUDIO Filter	—	-74	-65	dBV
Output Offset Voltage	V <sub>DC</sub>	R <sub>g</sub> = 0Ω, R <sub>L</sub> = 8Ω,	-50	0	50	mV

#### <VAS>

VAS Operation Input Voltage	VAS	Mic. input level at Piny Voltage= 0.2V	8	14	18	μVrms
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#### <ALC>

Effective Voltage	V <sub>ALC</sub>	V <sub>in</sub> = - 60dBV, R <sub>g</sub> = 1.5kΩ	-6.6	-4.5	-2.5	dBV
Effective width	W <sub>ALC</sub>	V <sub>in</sub> = - 30dBV, R <sub>g</sub> = 1.5kΩ	—	1.5	3	%

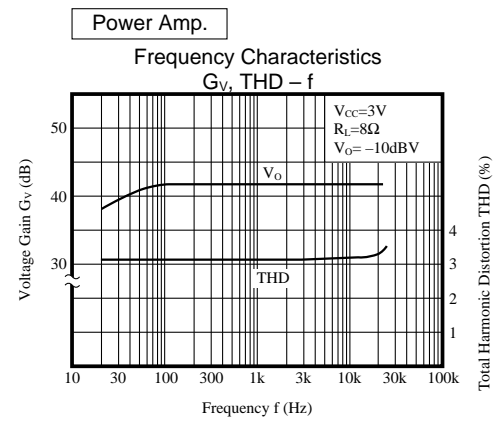
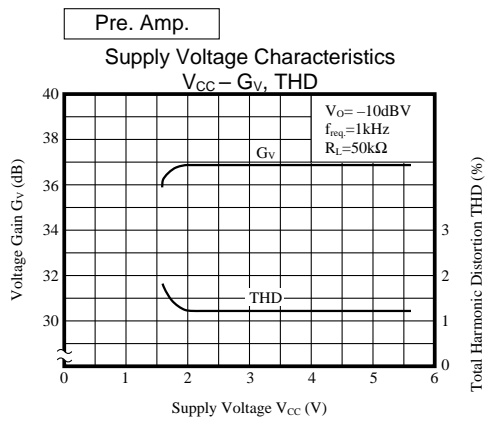
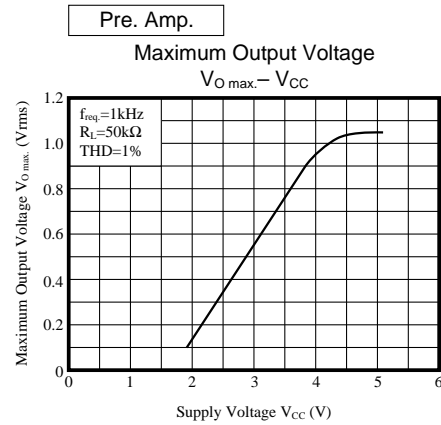
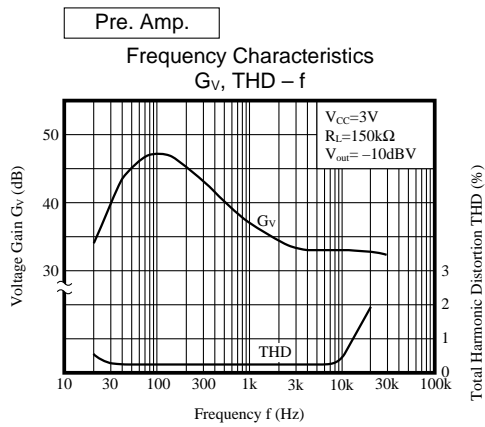
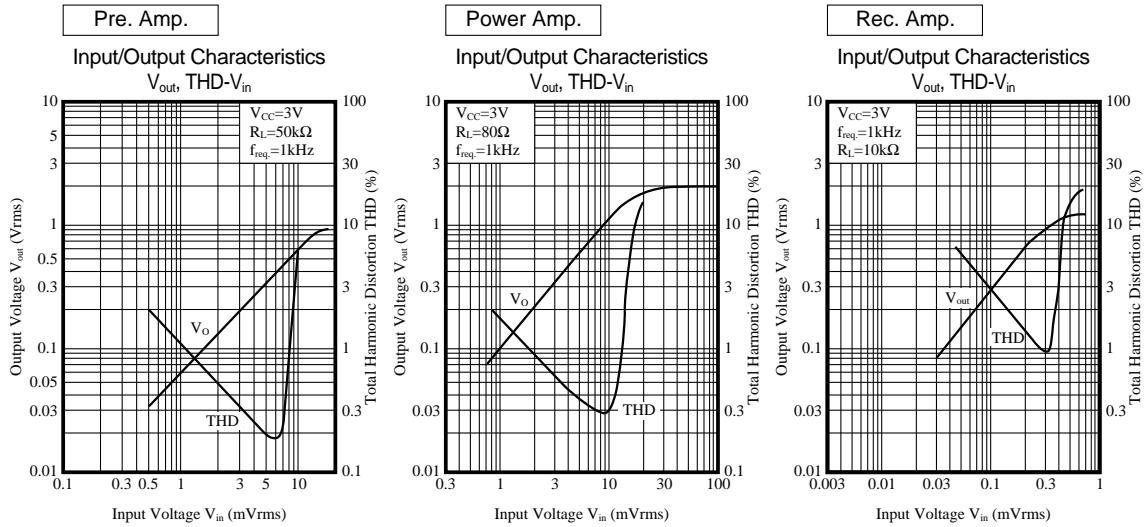
#### <Ripple Rejection>

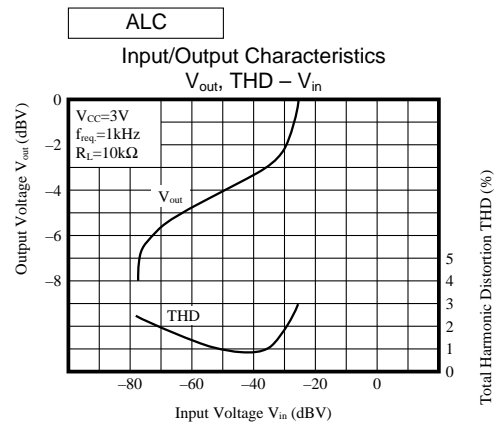
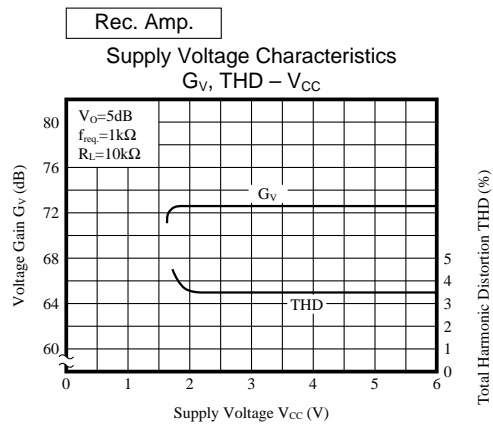
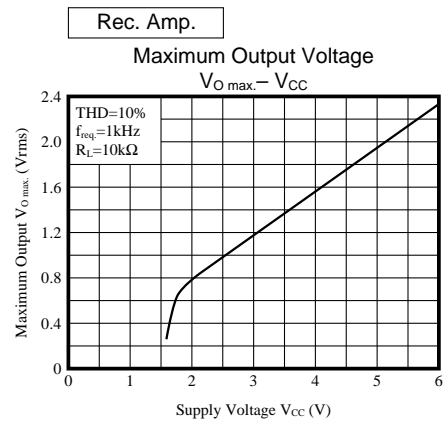
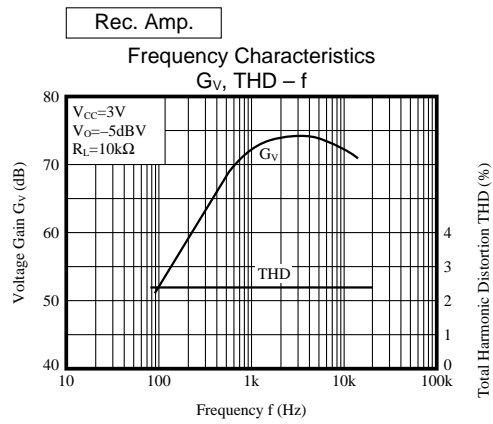
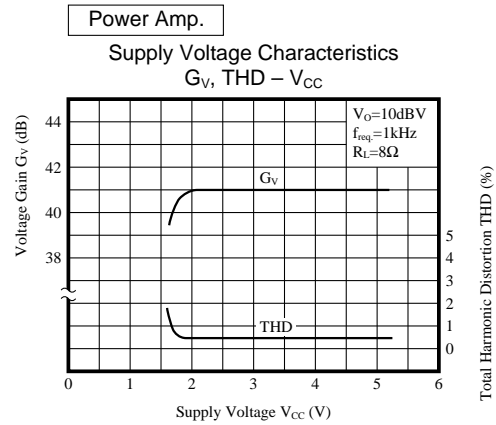
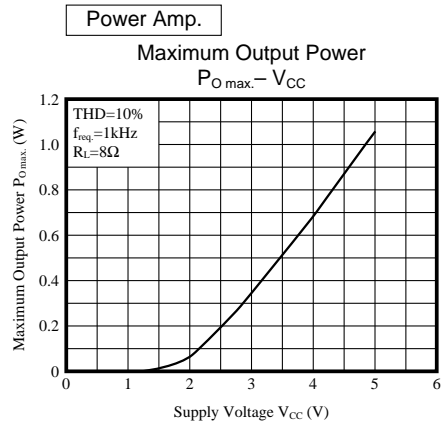
Playback System Ripple Rejection	RR <sub>P</sub>	f <sub>r</sub> = 270Hz, V <sub>r</sub> = 30mVrms, R <sub>g</sub> = 1kΩ	—	-70	-50	dBV
Recording System Ripple Rejection	RR <sub>R</sub>	f <sub>r</sub> = 270Hz, V <sub>r</sub> = 30mVrms, R <sub>g</sub> = 2.2kΩ	—	-40	-30	dBV

#### <Switching Pin>

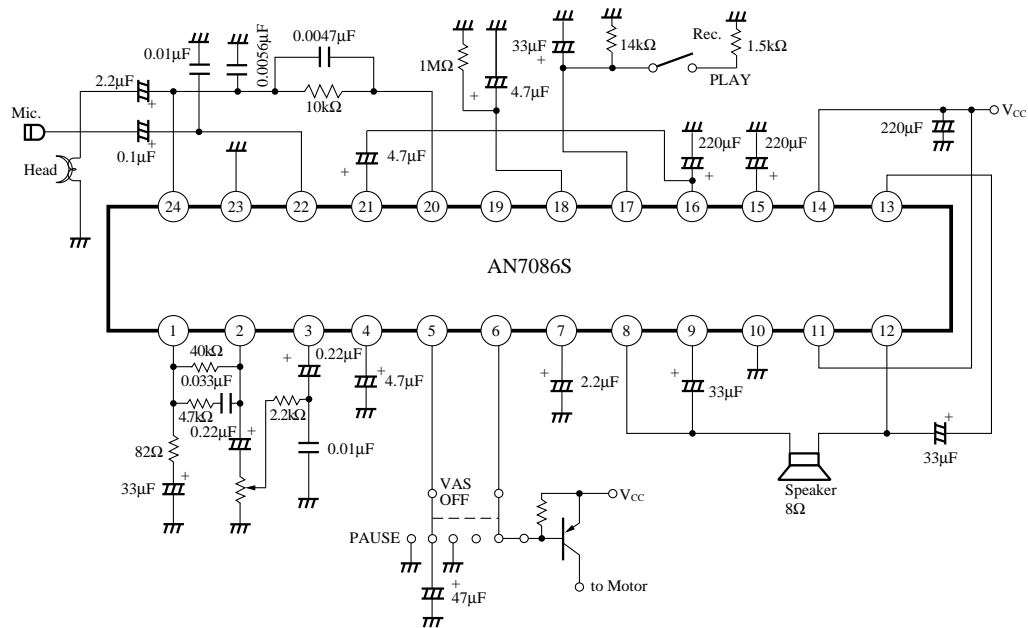
Rec./Playback Switching Pin	V <sub>PB</sub>	Playback mode	0.1	—	0.3	V
Rec./Playback Switching Pin	V <sub>REC</sub>	Recording mode	1.6	—	2.3	V

### ■ Characteristics Curve





## ■ Application Circuit



## ■ Pin Descriptions

Pin No.	Pin Name	Pin No.	Pin Name
1	Pre-Amp. NF Pin	13	B.S.2
2	Pre-Amp. Output Pin	14	V <sub>CC</sub>
3	Power Amp. Input Pin	15	Filter Pin
4	Power Amp. NF Pin	16	Center
5	VAS Detection	17	Rec./Play Switching Pin
6	MOTOR Output Pin	18	ALC Detection
7	Power Mute Pin	19	NC
8	Power Output 1 Pin	20	Rec. Amp. Output Pin
9	B.S.1	21	Mic. Amp. NF Pin
10	Power GND	22	Mic. Amp. Input Pin
11	Power V <sub>CC</sub>	23	Pre. GND
12	Power Output 2-pin	24	Pre. Amp. Input Pin

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