

AN3327K

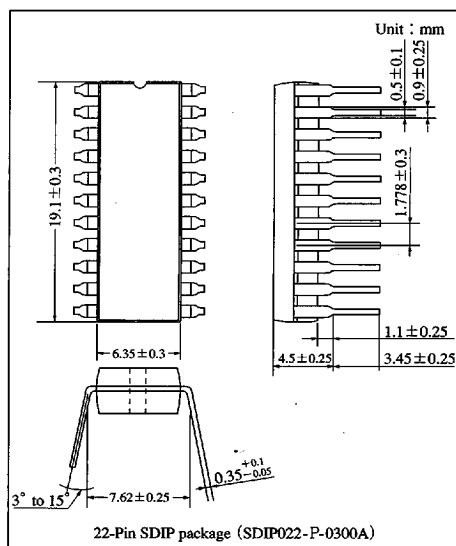
Hi-Fi Audio Recording/Playback Amplifier IC for VCR

Overview

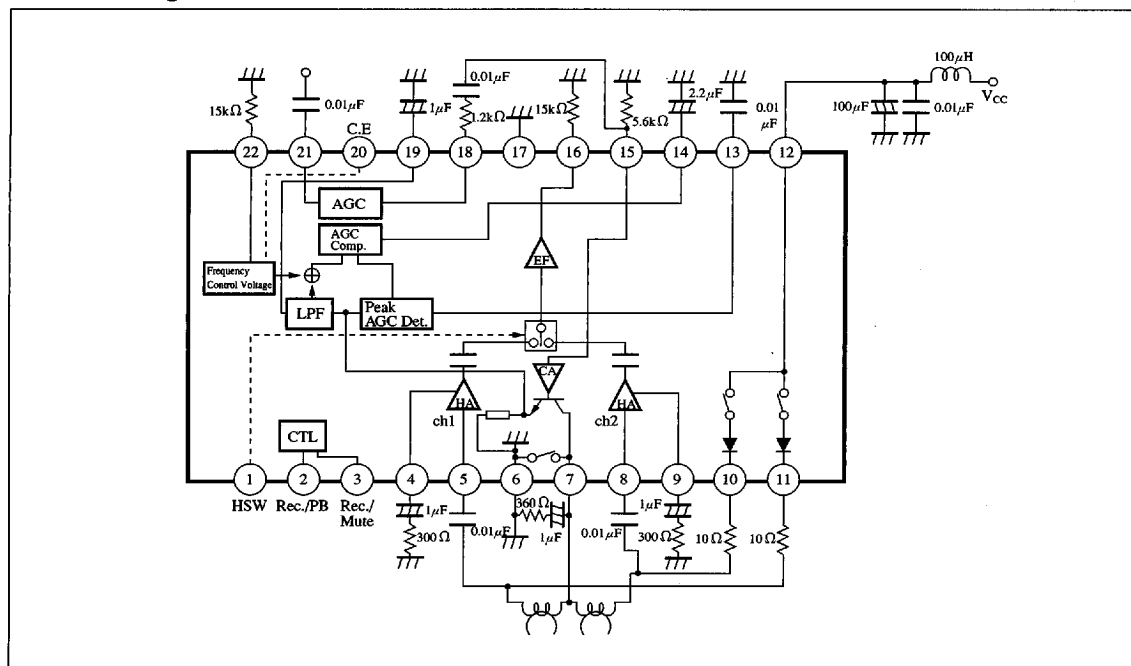
The AN3327K is a Hi-Fi audio recording/playback amplifier IC for VCR. As it includes a recording AGC circuit, external recording current adjustment is needless.

Features

- Low operating voltage : $V_{CC}=5.0V$
- Built-in recording AGC
- Head switch



Block Diagram



■ Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	Head switch	12	Main V _{CC}
2	Record/Playback switch	13	Peak detection
3	Record/mute switch	14	AGC detection
4	CH 1 damping	15	Rec. current amp. input
5	CH 1 Playback input	16	Playback output
6	GND1	17	GND2
7	Recording output	18	Rec AGC output
8	CH 2 playback input	19	Rec output LPF
9	CH 2 damping	20	Current emphasis switch
10	Recording V _{CC1}	21	Recording input
11	Recording V _{CC2}	22	AGC level control

■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage (1)	V _{CC}	6.0	V
Supply current (2)	I _{CC}	—	mA
Power dissipation ^{Note 2)}	P _D	1000	mW
Operating ambient temperature ^{Note 1)}	T _{opr}	−20 to +70	°C
Storage temperature ^{Note 1)}	T _{stg}	−55 to +150	°C

Note 1) Ta=25°C except operating ambient temperature and storage temperatures.
Note 2) Allowable power dissipation of the package at Ta=70°C.

■ Recommended Operating Range (Ta=25°C)

Parameter	Symbol	Range
Operating supply voltage range	V _{CC}	4.5V to 5.5V

ICs for
VCR

■ Electrical Characteristics (Ta=25±2℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Rec circuit current	I _{REC}	V _{CC} =5V	49	—	87	mA
Rec AGC level	I _{AGC}	V _{CC} =5V, V _{IN} =300mV _{P-P} , f=2MHz	19.5	—	28.5	mA _{P-P}
Rec AGC control characteristics	ΔI _{AGC}	V _{CC} =5V, f=2MHz V _{IN} =300mV _{P-P} ±3dB	-1	—	1	dB
Rec current 2nd harmonics distortion	D _{R 2f}	V _{CC} =5V, V _{IN} =300mV _{P-P} , f=2MHz	—	—	-35	dB
Rec mode holding voltage	V _{S Rec}	V _{CC} =5V, Pin② voltage measurement	1.7	—	5	V
Rec Mute holding voltage	V _{S Mute}	V _{CC} =5V, Pin③ voltage measurement	0	—	1.8	V
Rec Over Rec holding voltage (1)	V _{S OVER1}	Voltage measurement at Pin②⑩ at V _{CC} =5V, Over-Rec	3.2	—	5	V
Rec Over Rec holding voltage (2)	V _{S OVER2}	Voltage measurement at Pin②⑩ at V _{CC} =5V, not over-Rec	0	—	1.8	V
Rec current emphasis	I _{OVER}	V _{CC} =5V	1.7	—	2.7	dB
PB circuit current	I _{PB}	V _{CC} =5V	18	—	32	mA
PB CH 1 gain	G ₁	V _{CC} =5V, Pin⑤ input : 100μV _{P-P} , f=2MHz	65	—	75	dB
PB CH 2 gain	G ₂	V _{CC} =5V, Pin⑧ input : 100μV _{P-P} , f=2MHz	65	—	75	dB
PB input conversion noise CH 1	N ₁	V _{CC} =5V	—	—	1	μVrms
PB input conversion noise CH 2	N ₂	V _{CC} =5V	—	—	1	μVrms
PB mode holding voltage	V _{S PB}	V _{CC} =5V, Pin② voltage measurement	0	—	0.5	V
PB HSW threshold voltage	V _{S HSW}	V _{CC} =5V, Pin① voltage measurement	1.4	—	2.8	V
PB DC unbalance	ΔV _{OFFSET}	V _{CC} =5V	—	—	20	mV _{P-P}
Rec circuit current	I _{REC}	V _{CC} =5V	—	(68)	—	mA
Rec AGC level	I _{AGC}	V _{CC} =5V, V _{IN} =300mV _{P-P} , f=2MHz	—	(24)	—	mA _{P-P}
Rec AGC control characteristics	ΔI _{AGC}	V _{CC} =5V, f=2MHz V _{IN} =300mV _{P-P} ±3dB	—	(0)	—	dB
Rec current 2nd harmonics distortion	D _{R 2f}	V _{CC} =5V, V _{IN} =300mV _{P-P} , f=2MHz	—	(-50)	—	dB
Rec/PB threshold voltage	V _{TH RP}	V _{CC} =5V, Pin② voltage measurement	—	(1)	—	V
Rec/Mute threshold voltage	V _{TH RM}	V _{CC} =5V, Pin③ voltage measurement	—	(2.5)	—	V
Rec/Over Rec threshold voltage	V _{TH OVER}	V _{CC} =5V, Pin②⑩ voltage measurement	—	(2.5)	—	V
Rec current emphasis	I _{OVER}	V _{CC} =5V	—	(2.2)	—	dB
PB circuit current	I _{PB}	V _{CC} =5V	—	(25)	—	mA
PB CH 1 gain	G ₁	V _{CC} =5V, Pin⑤ input : 100μV _{P-P} , f=2MHz	—	(70)	—	dB
PB CH 2 gain	G ₂	V _{CC} =5V, Pin⑧ input : 100μV _{P-P} , f=2MHz	—	(70)	—	dB
PB input conversion noise CH 1	N ₁	V _{CC} =5V	—	(0.65)	—	μVrms
PB input conversion noise CH 2	N ₂	V _{CC} =5V	—	(0.65)	—	μVrms
PB crosstalk CH 1 → CH 2	CT1	V _{CC} =5V, Pin⑤ input : 100μV _{P-P} , f=2MHz	—	(-40)	—	dB
PB crosstalk CH 2 → CH 1	CT2	V _{CC} =5V, Pin⑧ input : 100μV _{P-P} , f=2MHz	—	(-40)	—	dB
PB CH 1 output 2nd harmonics distortion	D _{PB 2f-1}	V _{CC} =5V, Pin⑤ input : 100μV _{P-P} , f=2MHz	—	(-50)	—	dB
PB CH 2 output 2nd harmonics distortion	D _{PB 2f-2}	V _{CC} =5V, Pin⑧ input : 100μV _{P-P} , f=2MHz	—	(-50)	—	dB
PB HSW threshold voltage	V _{TH HSW}	V _{CC} =5V, Pin① voltage measurement	—	(2)	—	V
PB DC unbalance	ΔV _{OFFSET}	V _{CC} =5V	—	(0)	—	V _{P-P}
Cross modulation distortion 0.4MHz component in Rec.	CMD _{0.4}	V _{CC} =5V, Pin② input : 1.7MHz 300mV _{P-P} , 1.3MHz 95mV _{P-P}	—	(-52)	—	dB
Cross modulation distortion 0.9MHz component in Rec.	CMD _{0.9}	V _{CC} =5V, Pin② input : 1.7MHz 300mV _{P-P} , 1.3MHz 95mV _{P-P}	—	(-52)	—	dB

Note) The characteristics value in parentheses is not a guaranteed value, but reference one on design.

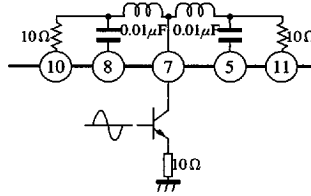
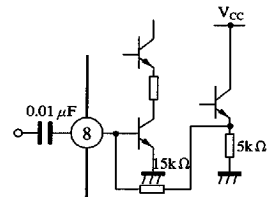
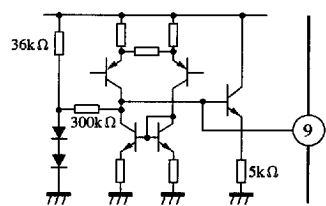
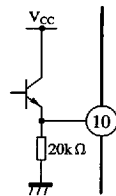
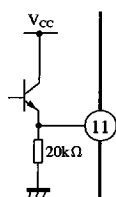
Panasonic

■ Pin Descriptions

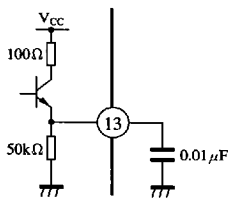
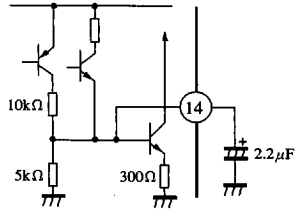
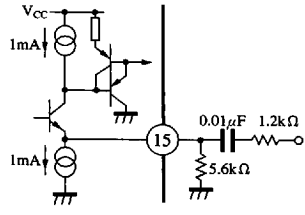
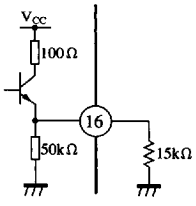
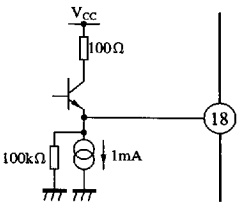
Pin No.	Function	Waveform	Equivalent circuit	Remarks
1	Head switch	When CH1 is output input Pin⑤ 2.7 to 5V When CH2 is output input Pin⑧ 0 to 1.3V		Select the output CH by Pin①. When the pin is left open, ch 1 is output.
2	Record/Playback switching	Recording (and mute) 1.7 to 5V Playback 0 to 0.5V		Voltage at Pin② selects recording or playback. When the pin is left open, record- ing is selected. Switching between recording and mute is done by Pin③.
3	Record/mute switching	Rec 3.2 to 5V Mute 0 to 1.7V		Voltage at Pin③ selects recording or mute. When the pin is left open, recording is selected.
4	Ch 1 damping	Rec ——— 1.2V Mute ——— 1.2V PB ——— 1.6V		—————
5	Ch 1 Playback input	Rec ——— 0.4V Mute ——— 0.4V PB ——— 0.7V		—————
6	GND1	—————	—————	—————

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■ Pin Descriptions (cont.)

Pin No.	Function	Waveform	Equivalent circuit	Remarks
7	Recording output	Rec  3.7V Mute  3.7V PB  GND		_____
8	Ch 2 playback input	Rec  0.4V Mute  0.4V PB  0.7V		_____
9	Ch 2 damping	Rec  1.2V Mute  1.2V PB  1.6V		_____
10	Recording VCC1	Rec  3.9V Mute  3.9V PB  GND		_____
11	Recording VCC2	Rec  3.9V Mute  3.9V PB  GND		_____
12	Main Vcc	_____	_____	_____

■ Pin Descriptions (cont.)

Pin No.	Function	Waveform	Equivalent circuit	Remarks
13	Peak detection	Rec  2.1V Mute  2.1V PB  GND		
14	AGC detection	Rec Depends on the input at Pin② Mute  0.7V PB  0.7V		
15	Rec. current amp. input	Rec  1.67V Mute  1.67V PB  GND		
16	Playback output	Rec  GND Mute  GND PB  2.4V		
17	GND2			
18	AGC output	Rec  2.9V Mute  2.9V PB  1.6V		

ICs for
VCR

■ Pin Descriptions (cont.)

Pin No.	Function	Waveform	Equivalent circuit	Remarks
19	Rec output LPF capacitor	Rec ——— 2.1V Mute ——— 2.1V PB ——— 1.7V		—————
20	Current emphasis switching	At recording. 0 to 1.8V At over Rec. 3.2 to 5V		Voltage at Pin ²⁰ selects over-recording or normal recording. When the pin is left open, over-recording is selected.
21	Recording input	Rec 3.2V Mute 3.2V PB ——— 3.2V		—————
22	AGC level control	Rec ——— 1.4V Mute ——— 1.4V PB ——— GND		—————