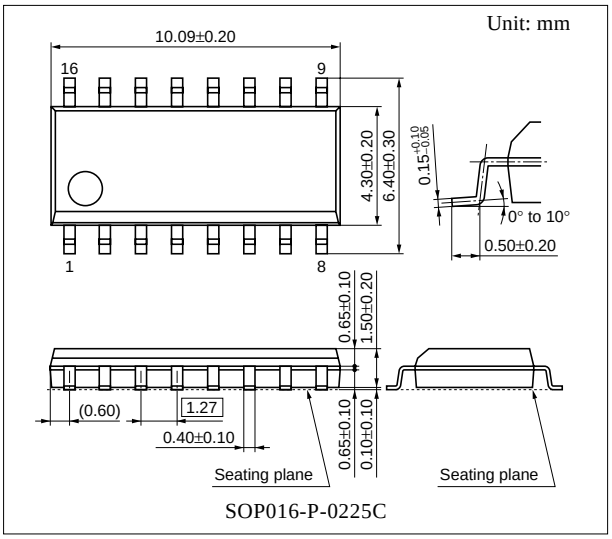
AN3375S

2-head recording/playback amplifier IC (V2) for a stand-alone VHS-VCR



SOP016-P-0225C

■ Overview

The AN3375S is a two-head recording/playback amplifier IC for a VHS-VCR enabling a fewer pin package. The package is 16-pin, 1.27 mm pitch SO type. The power supply is 5 V single source.

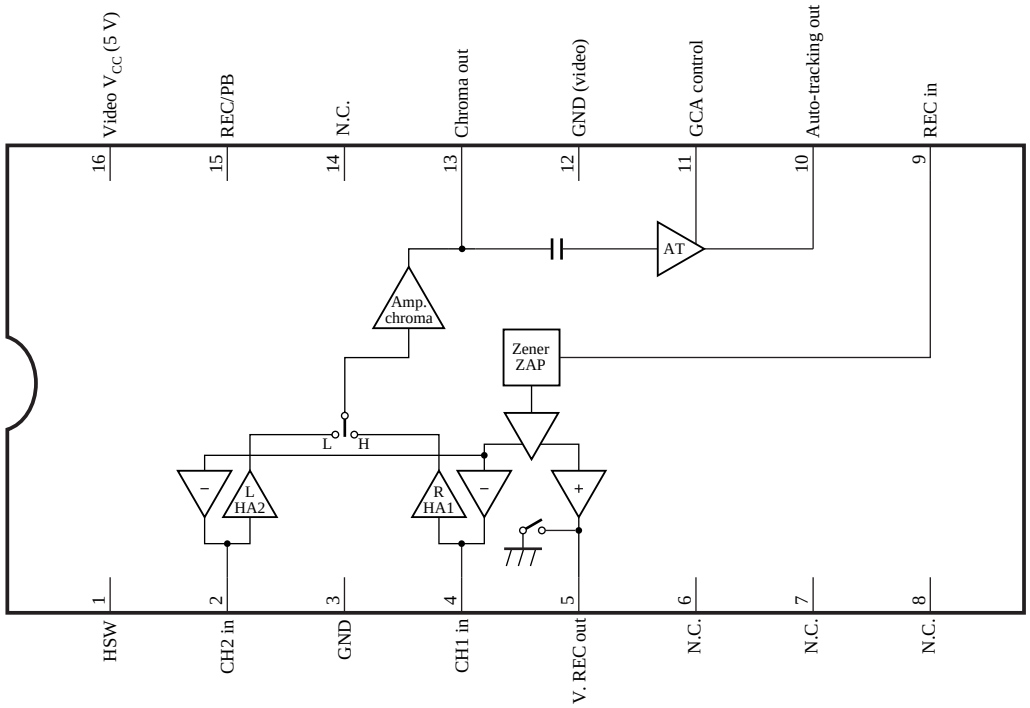
■ Features

- Recording current without adjustment (Zener zap method)
- Damping-less amplifier for playback-system
- Built-in auto tracking circuit

■ Applications

- Stand-alone type VHS-VCR

■ Block Diagram



■ Pin Descriptions

Pin No.	Description	Pin No.	Description
1	Video head SW	9	Video REC input
2	Video head amp. input CH2	10	Auto tracking out
3	GND (video small signal)	11	Auto tracking GCA control
4	Video head amp. input CH1	12	GND
5	Video REC out	13	Video chroma out
6	N.C.	14	N.C.
7	N.C.	15	REC/PB select SW
8	N.C.	16	Video V_{CC}

■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	Video V_{CC}	6	V
Supply current	I_{CC}	—	mA
Power dissipation *2	P_D	300	mW
Operating ambient temperature *1	T_{opr}	−20 to +70	°C
Storage temperature *1	T_{stg}	−55 to +150	°C

Note) ∗1: Except for the operating ambient temperature and storage temperature, all ratings are for T_a = 25°C.
∗2: The power dissipation shown is for the IC package in free air at T_a = 70°C.

■ Recommended Operating Range

Parameter	Symbol	Range	Unit
Supply voltage	Video V_{CC}	4.5 to 5.5	V

■ Electrical Characteristics at T_a = 25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Video V_{CC} I total (PB)	$I_{16(PB)}$	Video V_{CC} = 5.0 V REC/PB SW: Low	13	(20)	27	mA
Video HSW Threshold voltage	V_{TH1}	Video V_{CC} = 5.0 V REC/PB SW: Low	1.5	(2.5)	3.5	V
REC/PB SW Threshold voltage	V_{TH15}	Video V_{CC} = 5.0 V	1.5	(2.5)	3.5	V
Video CH1 gain	$G_{4\text{-}13}$	Video V_{CC} = 5.0 V REC/PB SW: Low	55	(59)	63	dB
Video CH2 gain	$G_{2\text{-}13}$	Video V_{CC} = 5.0 V REC/PB SW: Low	55	(59)	63	dB

Note) The standard values in the parenthesis are the typical values and not the guaranteed ones.

■ Electrical Characteristics at T_a = 25°C (continued)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Noise referred to video CH1 input	$N_{4\text{-}13}$	Video V_{CC} = 5.0 V REC/PB SW: Low	—	—	1.0	µV[rms]
Noise referred to video CH2 input	$N_{2\text{-}13}$	Video V_{CC} = 5.0 V REC/PB SW: Low	—	—	1.0	µV[rms]
Video HSW DC unbalance	ΔV_{HSW}	Video V_{CC} = 5.0 V REC/PB SW: Low	—	—	100	mV[p-p]
Output without auto tracking input	V_{10min}	Video V_{CC} = 5.0 V REC/PB SW: Low	0	(0.5)	1.0	V
Auto tracking maximum output	V_{10max}	Video V_{CC} = 5.0 V REC/PB SW: Low	4.0	(4.5)	—	V
Video CH2/CH1 gain ratio	$G_{12\text{-}13}$ / $G_{14\text{-}13}$	Video V_{CC} = 5.0 V REC/PB SW: Low	–2	(0)	2	dB
Video V_{CC} I total (REC)	$I_{16(REC)}$	Video V_{CC} = 5.0 V REC/PB SW: High	24	(37)	50	mA
Video REC current output	I_5	Video V_{CC} = 5.0 V REC/PB SW: High	27.9	30	32.1	mA[p-p]

Note) The typical value in the parenthesis is the typical value and not the guaranteed one.

• Design reference data

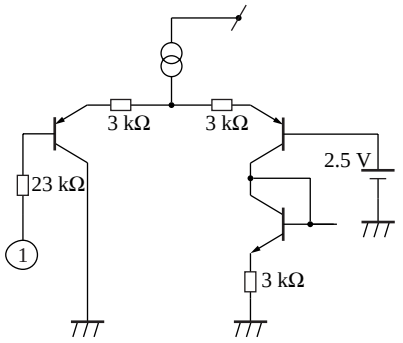
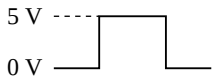
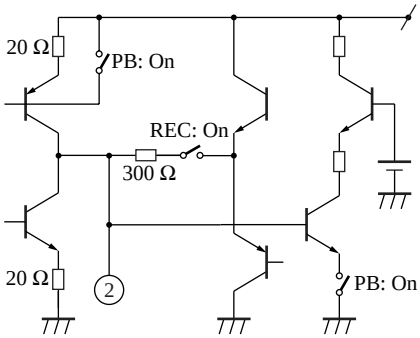
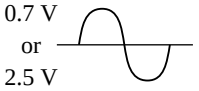
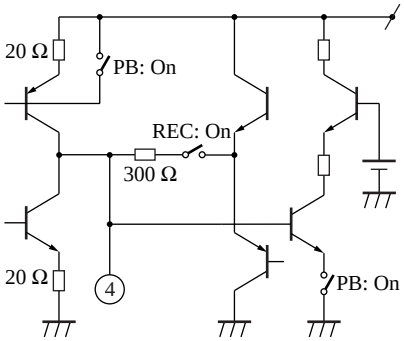
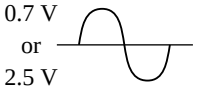
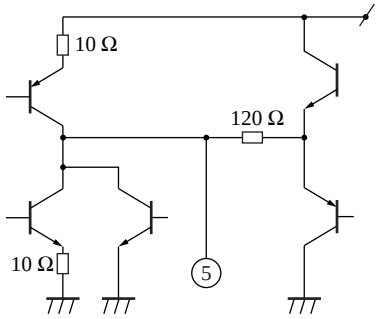
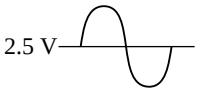
Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Auto tracking output voltage 1	V_{10L}	Video V_{CC} = 5.0 V REC/PB SW: Low	3.4	3.7	4.0	V
Auto tracking output voltage 2	V_{10H}	Video V_{CC} = 5.0 V REC/PB SW: Low	1.5	1.9	2.3	V
Video REC Current secondary distortion	D_5	Video V_{CC} = 5.0 V REC/PB SW: High	¾	-45	-40	dB
Video REC Cross modulation relative level	MD_5	Video V_{CC} = 5.0 V REC/PB SW: High	—	–48	—	dB
Video HSW Crosstalk	CTH_{13}	Video V_{CC} = 5.0 V REC/PB SW: Low	—	—	–40	dB
Video PB Frequency characteristics ratio	V_{13H} / V_{13}	Video V_{CC} = 5.0 V REC/PB SW: Low	–4.5	(–2.5)	—	dB
Video REC 8 MHz frequency characteristics ratio	I_{SH} / I_S	Video V_{CC} = 5.0 V REC/PB SW: High	–4.5	(–2.5)	—	dB
Video REC Current output *1	I_5	Video V_{CC} = 5.0 V REC/PB SW: High	28.5	30	31.5	mA[p-p]

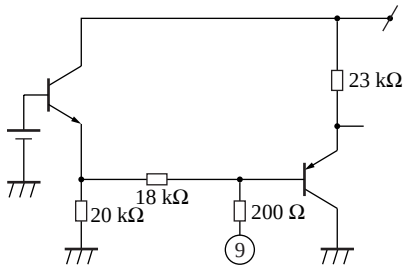
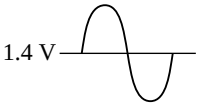
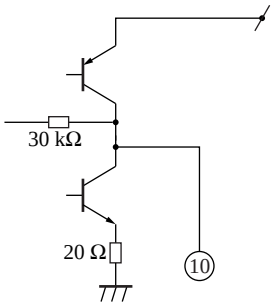
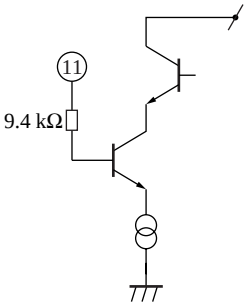
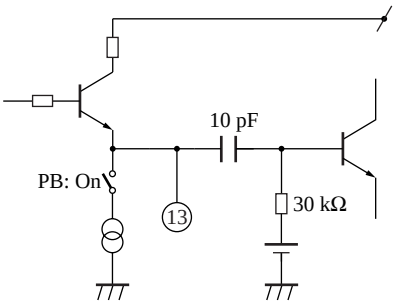
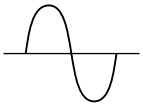
Note) The typical value in the parenthesis is the typical value and not the guaranteed one.

∗1: Video REC current output (I_5) is controlled in the shipping inspection of this IC.
Because it is affected by the PCB or the cylinder, be cautious in handling it.

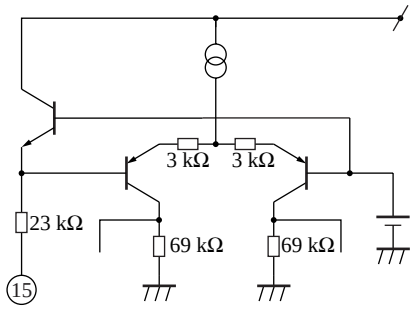
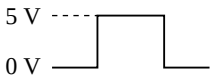
■ Terminal Equivalent Circuits

Pin No.	Equivalent circuit	Description	Voltages/Waveform
1		Head SW	Input sygnal 
2		Video head amp. ch.2 input	
3	—	GND (video small signal)	—
4		Video head amp. ch.1 input	
5		Video REC EP out	

■ Terminal Equivalent Circuits (continued)

Pin No.	Equivalent circuit	Description	Voltages/Waveform
6 7 8	—	N.C.	—
9		Video REC input	
10		Auto tracking out	DC
11		Auto tracking GCA control	DC
12	—	GND (video)	—
13		Video chroma out	

■ Terminal Equivalent Circuits (continued)

Pin No.	Equivalent circuit	Description	Voltages/Waveform
14	—	N.C.	—
15		REC/PB select SW	
16	—	Video V_{CC}	—

■ Application Circuit Example

