

# SAS560S SAS570S

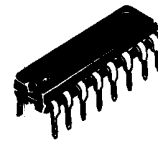
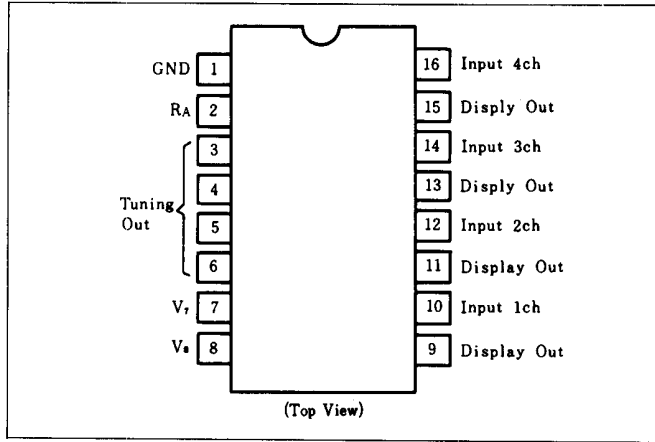
## SENSOR FOR ELECTRONIC TUNING

Hitachi Integrated Circuits SAS560S and SAS570S are especially well suited for application to radio and TV sets to perform touch-controlled switching functions.

### ■ FEATURES

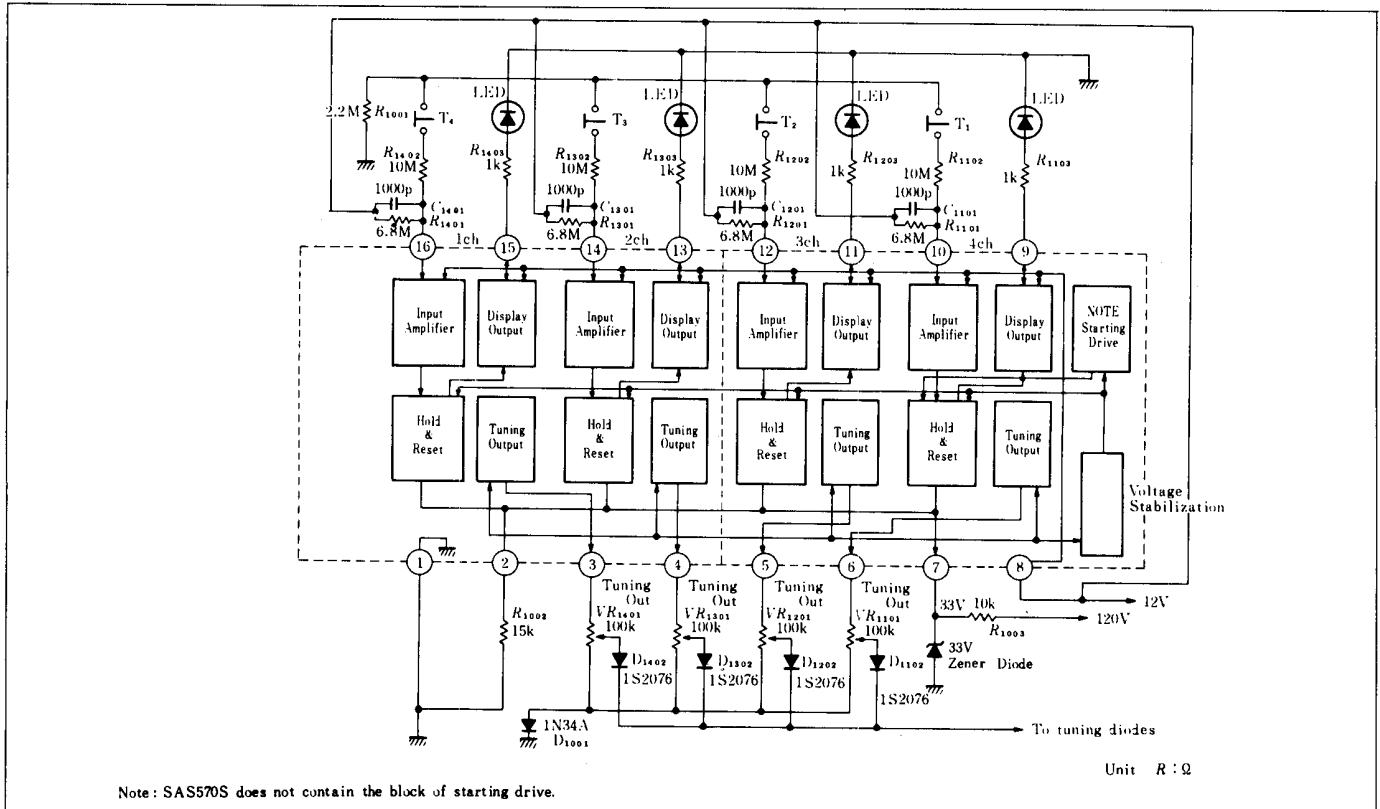
- No limitation concerning polarity of two supply voltages. (pin 7 and 8)
- Low power dissipation: 130mW typical.
- High input sensitivity: 100nA typical.
- Low temperature-drift for the tuning voltage: 0.3V/°C typical.

### ■ PIN ARRANGEMENT



(DP-16)

### ■ FUNCTIONAL BLOCK DIAGRAM (SAS560S)

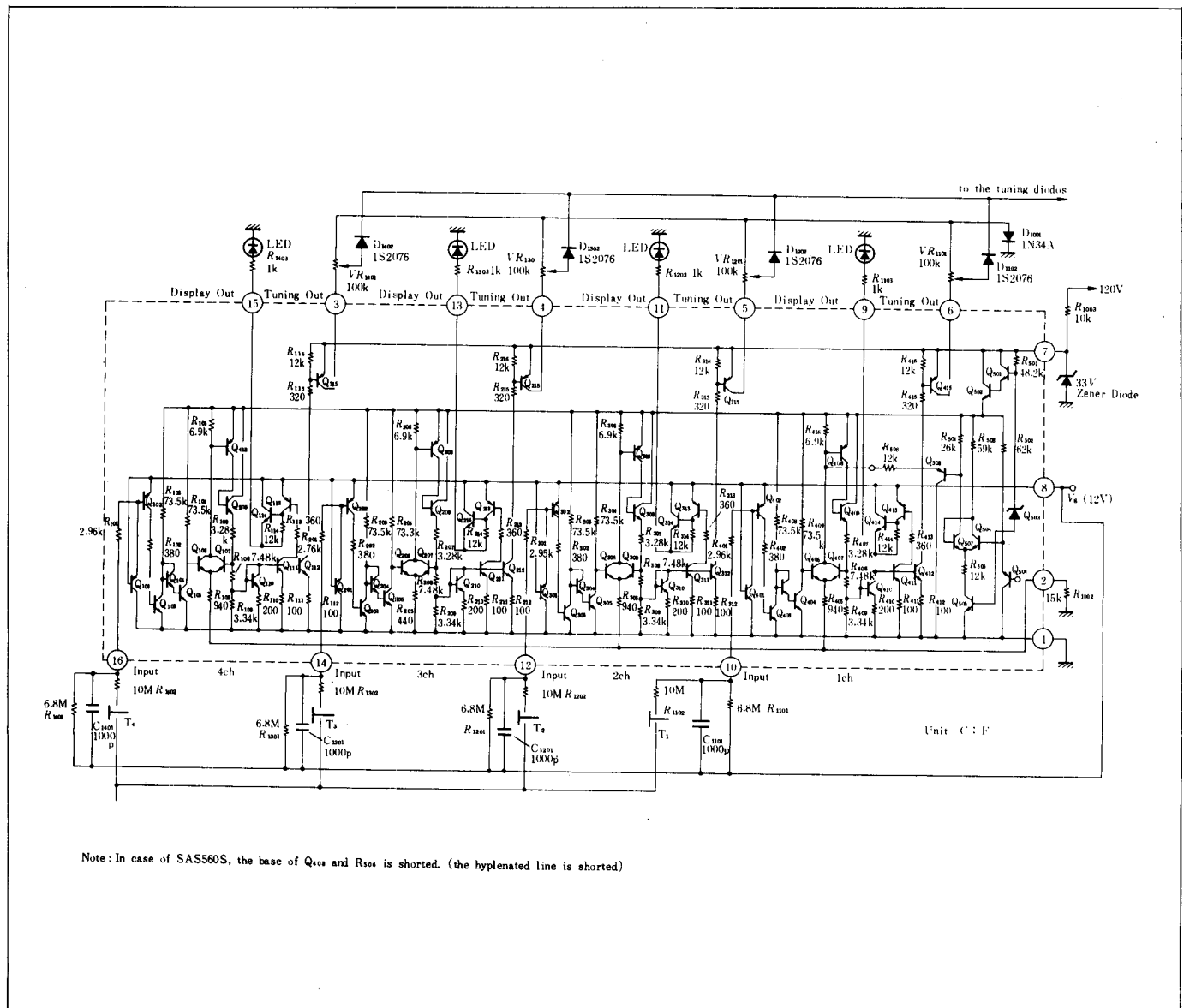


HA1190/HA1194 are also touch-controlled electronic switches. Functions are very similar to those of SAS570S/SAS560S although certain differences exist.

## Differences

1. Typical external parts are changed; i.e.,  $R_{1002} = 24k\Omega$ .  
Circuit schematic is not changed.
2. Electrical characteristic is improved; i.e.  
After simultaneously actuating several keys, only one channel remains on.  
Other characteristics are not changed.  
Package outline, Pin arrangement, etc. are identical with SAS560S/SAS570S.

## CIRCUIT SCHEMATIC AND TYPICAL EXTERNAL COMPONENTS SAS570S



# SAS560S, SAS570S

## ■ ABSOLUTE MAXIMUM RATINGS (at $T_a=25^\circ\text{C}$ unless otherwise specified)

Item		Symbol	Ratings	Unit
Supply Voltage	Pin 7	$V_7$	36	V
	Pin 8	$V_8$	26.5	V
Display output current		$I_9, I_{11}, I_{13}, I_{15}$	55	mA
Max. display output current*		$I_9 \text{ max}, I_{11} \text{ max},$ $I_{13} \text{ max}, I_{15} \text{ max}$	100	mA
Tuning output current		$I_3, I_4, I_5, I_6$	1.5	mA
Max. tuning output current*		$I_3 \text{ max}, I_4 \text{ max},$ $I_5 \text{ max}, I_6 \text{ max}$	10	mA
Storage temperature		$T_{stg}$	-40 to +125	$^\circ\text{C}$
Power dissipation**		$P_T$	700	mW
Range of operation	Pin 7	$V_{7R}$	8 to 36	V
	Pin 8	$V_{8R}$	5 to 24	V
Operating Temperature		$T_{opr}$	0 to +70	$^\circ\text{C}$

\* Value at  $t=2\text{sec max}$

\*\* Value at  $T_a=55^\circ\text{C}$

## ■ ELECTRICAL CHARACTERISTICS ( $V_7=33\text{V}$ , $V_8=12\text{V}$ , $T_a=25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	min	typ	max	Unit
Switching voltage while actuating keys $T_1$ to $T_4$	$V_2(\text{SW})$	4.3	4.9	5.5	V
Holding voltage after actuating keys $T_1$ to $T_4$	$V_2(\text{hold})$	—	3.0	—	V
Residual voltage of display outputs	$V_{9-8(\text{sat})}, V_{11-8(\text{sat})}$ $V_{13-8(\text{sat})}, V_{15-8(\text{sat})}$	—	0.8	1.5	V
Residual voltage of tuning outputs	$V_{3-7(\text{sat})}, V_{4-7(\text{sat})}$ $V_{5-7(\text{sat})}, V_{6-7(\text{sat})}$	—	0.15	0.5	V
Temperature drift of residual voltage of tuning outputs $T_a=25$ to $55^\circ\text{C}$	$V_{3-7(\text{sat})}, V_{4-7(\text{sat})}$ $V_{5-7(\text{sat})}, V_{6-7(\text{sat})}$	—	0.3	1.0	mV/ $^\circ\text{C}$
Current (holding condition)	$I_7(\text{hold})$	2.5	4.5	5.0	mA
Current (switching condition)	$I_7(\text{SW})$	—	5.0	5.5	mA
Current (no-load condition)	$I_7(\text{no-load})$	—	1.8	2.6	mA
Input current (for switching)	$I_{10}, I_{12}, I_{14}, I_{16}$	—	100	300	nA
Leak current of display outputs	$I_9(\text{leak}), I_{11}(\text{leak})$ $I_{13}(\text{leak}), I_{15}(\text{leak})$	—	—	10	$\mu\text{A}$
Leak current of tuning outputs	$I_3(\text{leak}), I_4(\text{leak})$ $I_5(\text{leak}), I_6(\text{leak})$	—	—	1	$\mu\text{A}$

After turning off  $V_8$ , the channel selected last remains stored as long as  $V_7$  is on. Applies only to SAS570S:  
After turning on supply voltage  $V_7$ , channel 1 switches on automatically. (Output pin 6 and 9)

## ■ TEST CIRCUIT

