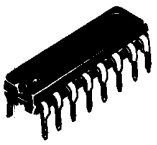
SAS560S SAS570S

SENSER FOR ELECTRONIC TUNING

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

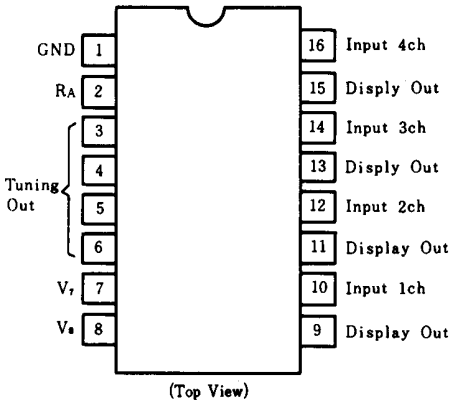


(DP-16)

■ FEATURES

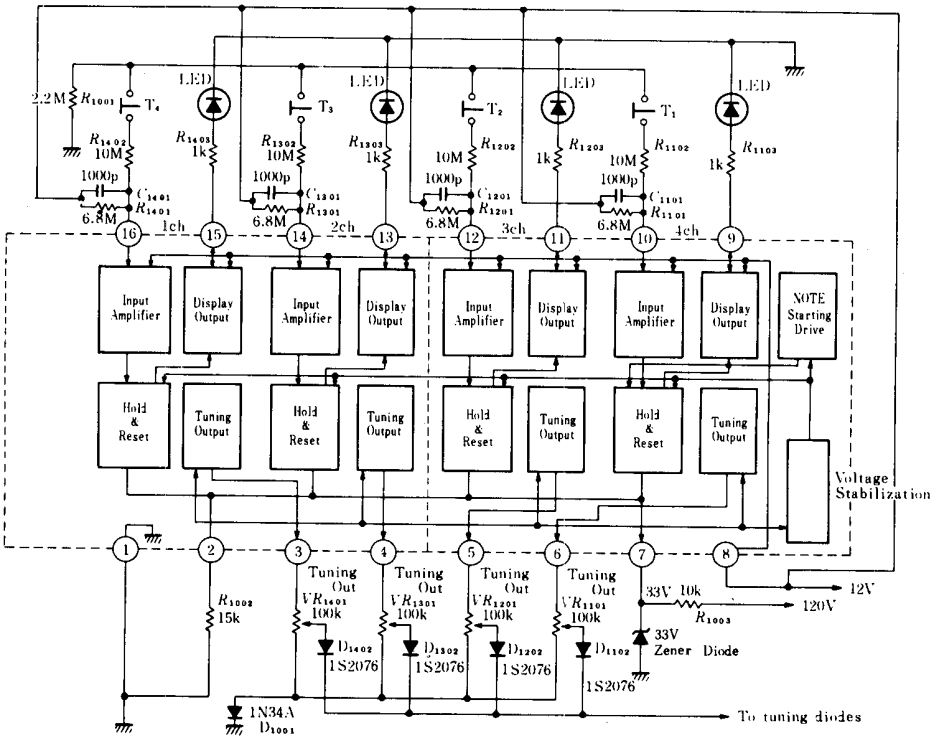
- No limitation concerning polarity of two supply voltages. (pin 7 and 8)
- Low power dissipation: 130mW typical.
- High input sensitivity: 100nA typical.
- Low temperature-drift for the tuning voltage: 0.3V/°C typical.

■ PIN ARRANGEMENT



(Top View)

■ FUNCTIONAL BLOCK DIAGRAM (SAS560S)



Note: SAS570S does not contain the block of starting drive.

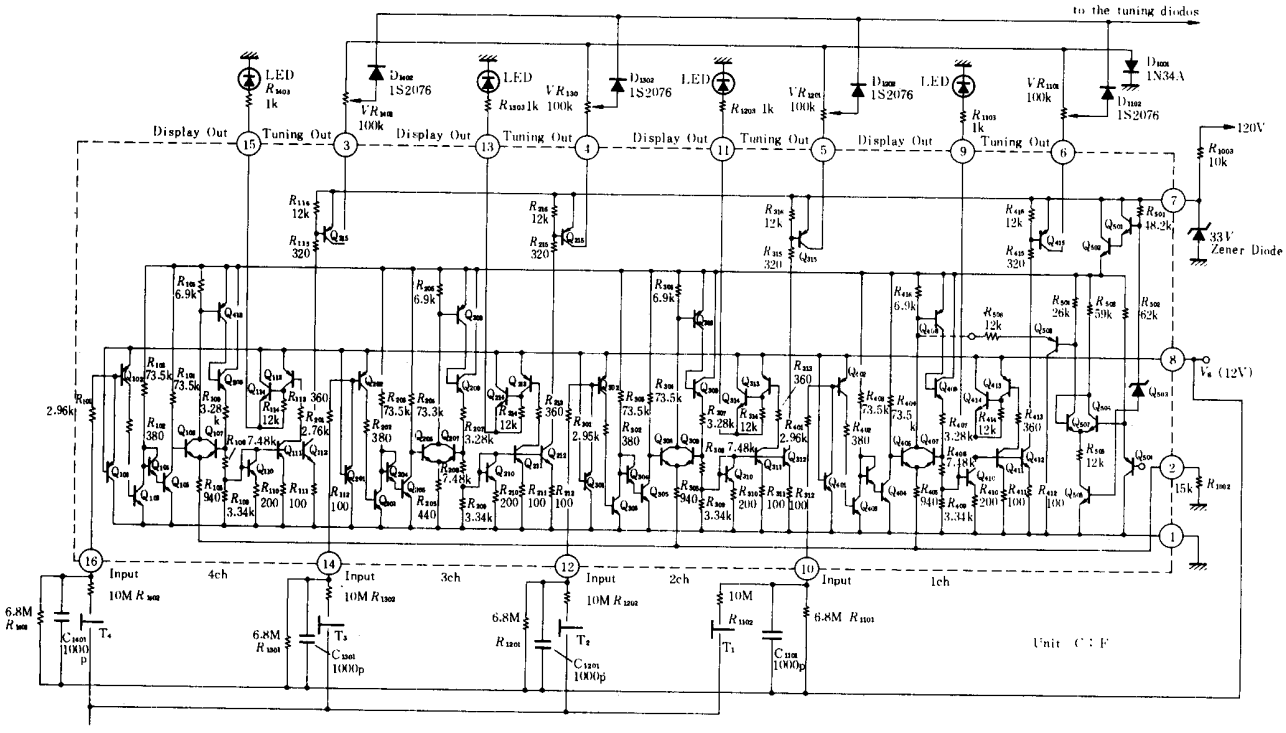
HA1190/HA1194 are also touch-controlled electronic switches. Functions are very similar to those of SAS570S/SAS560S although certain differences exist.

■ Differences

1. Typical external parts are changed; i.e., R_{1002} = 24kΩ.
   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



Note: In case of SAS560S, the base of Q_{408} and R_{508} is shorted. (the hyplenated line is shorted)

■ ABSOLUTE MAXIMUM RATINGS (at Ta=25°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 max, I_{11} max, I_{13} max, I_{15} max	100	mA
Tuning output current		I_3, I_4, I_5, I_6	1.5	mA
Max. tuning output current*		I_3 max, I_4 max, I_5 max, I_6 max	10	mA
Storage temperature		T_{stg}	−40 to +125	°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	°C

*Value at t=2sec max
**Value at Ta=55°C

■ ELECTRICAL CHARACTERISTICS (V_7=33V, V_8=12V, Ta=25°C unless otherwise specified)

Item	Symbol	min	typ	max	Unit
Switching voltage while actuating keys T_1 to T_4	$V_{2(sw)}$	4.3	4.9	5.5	V
Holding voltage after actuating keys T_1 to T_4	$V_{2(hold)}$	—	3.0	—	V
Residual voltage of display outputs	$V_{9-8(sat)}$, $V_{11-8(sat)}$, $V_{13-8(sat)}$, $V_{15-8(sat)}$	—	0.8	1.5	V
Residual voltage of tuning outputs	$V_{3-7(sat)}$, $V_{4-7(sat)}$, $V_{5-7(sat)}$, $V_{6-7(sat)}$	—	0.15	0.5	V
Temperature drift of residual voltage of tuning outputs Ta=25 to 55°C	$V_{3-7(sat)}$, $V_{4-7(sat)}$, $V_{5-7(sat)}$, $V_{6-7(sat)}$	—	0.3	1.0	mV/°C
Current (holding condition)	$I_{7(hold)}$	2.5	4.5	5.0	mA
Current (switching condition)	$I_{7(sw)}$	—	5.0	5.5	mA
Current (no-load condition)	$I_{7(no-load)}$	—	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	$I_{9(leak)}$, $I_{11(leak)}$, $I_{13(leak)}$, $I_{15(leak)}$	—	—	10	μA
Leak current of tuning outputs	$I_{3(leak)}$, $I_{4(leak)}$, $I_{5(leak)}$, $I_{6(leak)}$	—	—	1	μA

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