

SAS560S SAS570S

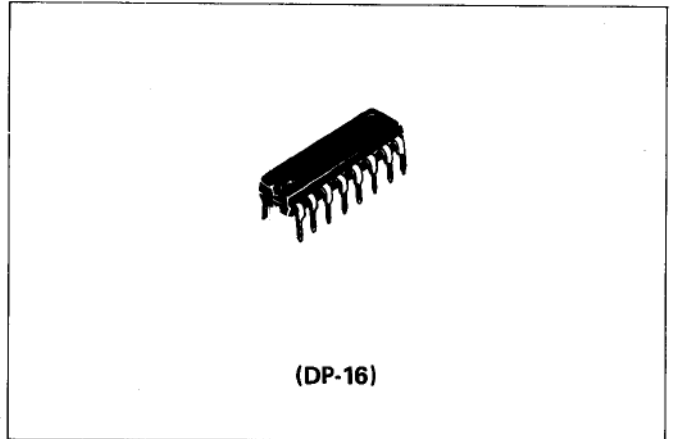
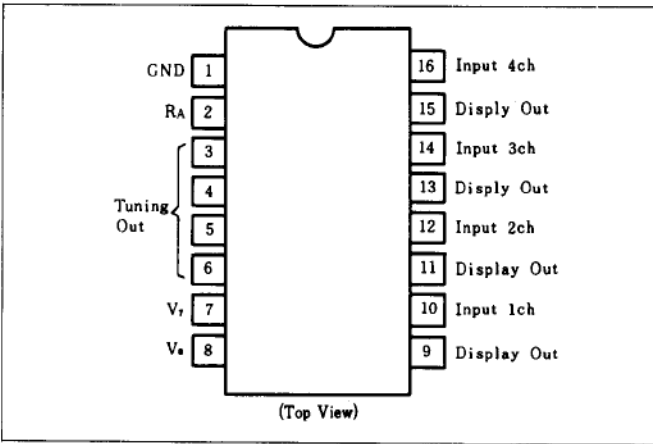
SENSOR FOR ELECTRONIC TUNING

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

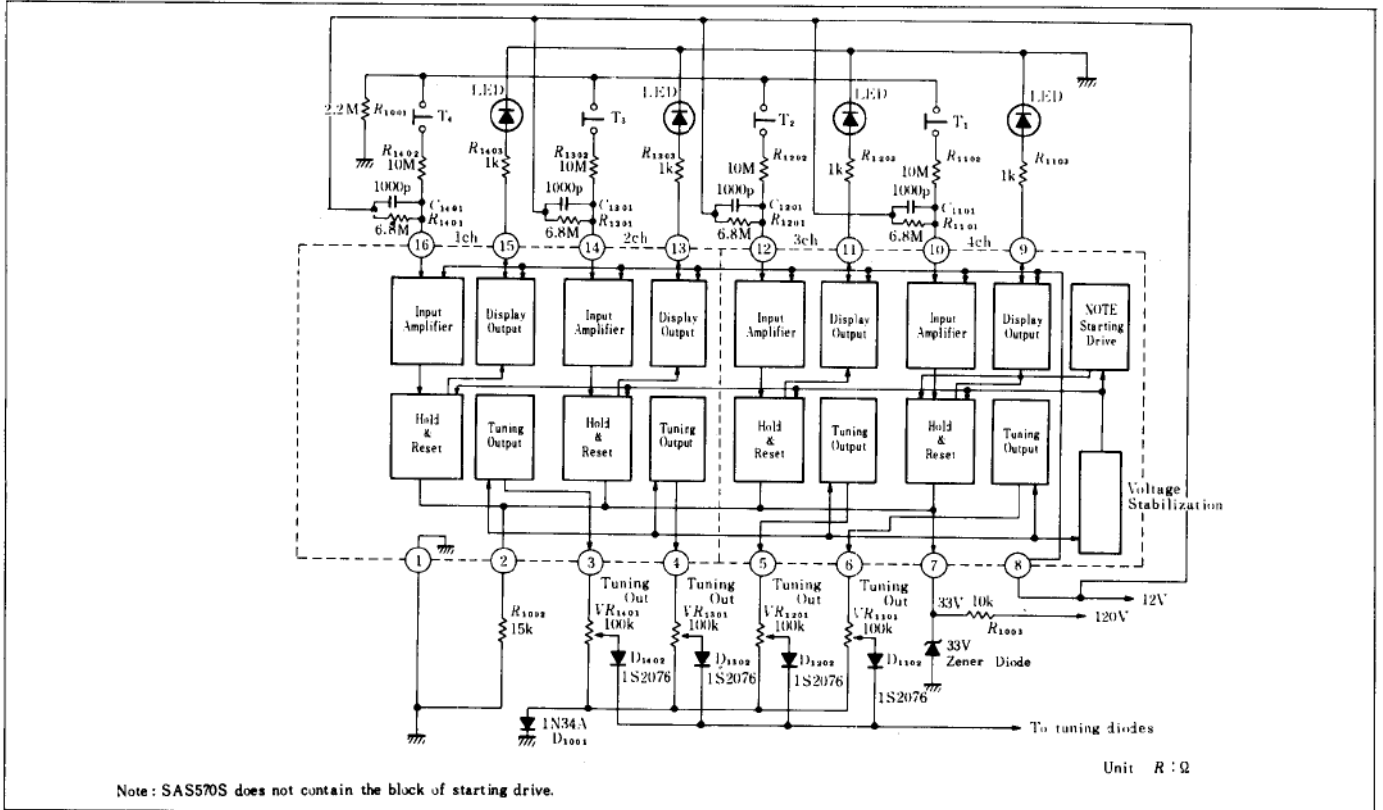
FEATURES

- 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: $0.3V/^{\circ}C$ typical.

PIN ARRANGEMENT



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.

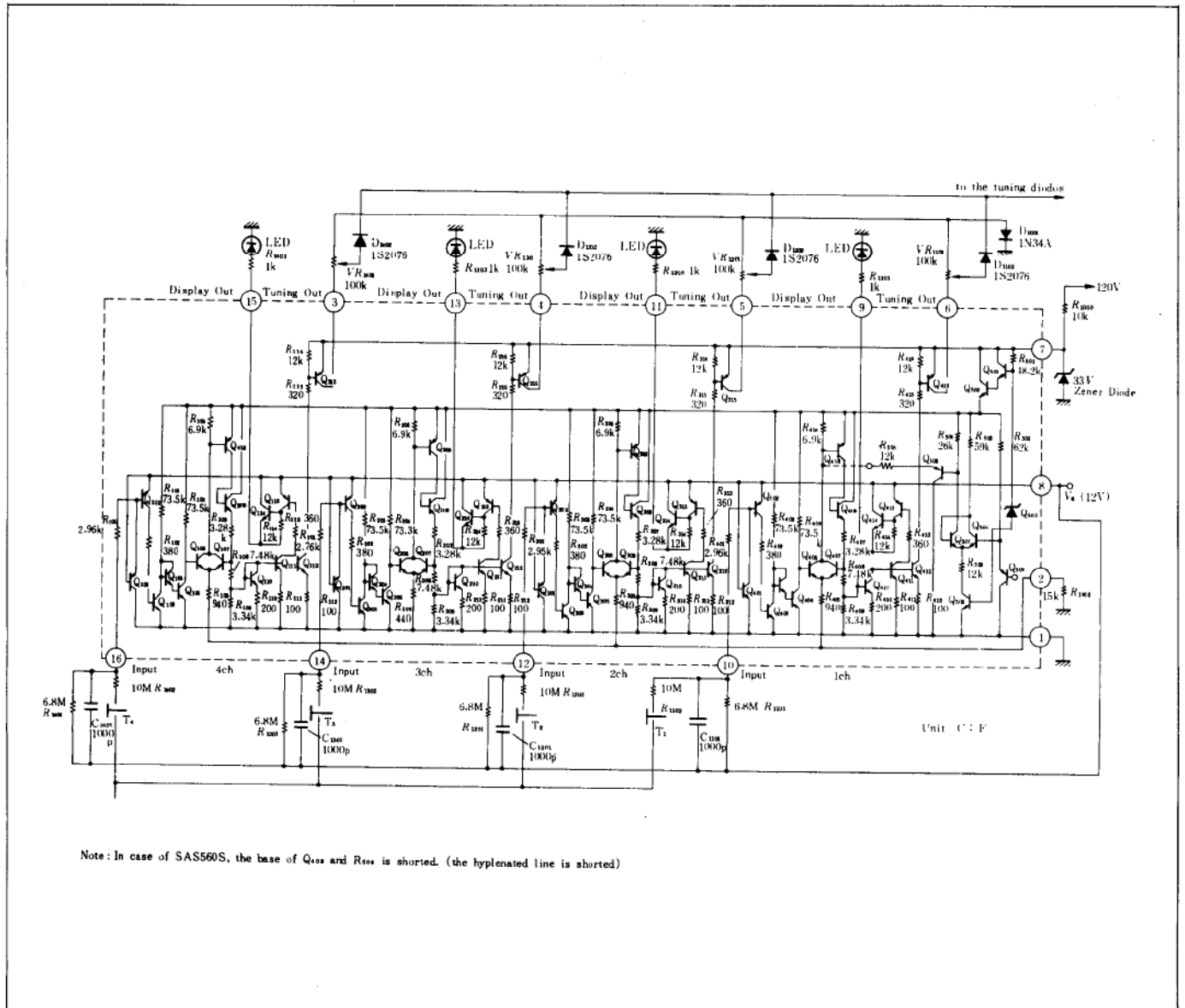
2. Electrical characteristic is improved; i.e.

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°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	μA
Leak current of tuning outputs	$I_3(\text{leak}), I_4(\text{leak})$ $I_5(\text{leak}), I_6(\text{leak})$	—	—	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

