

# AN5043SC

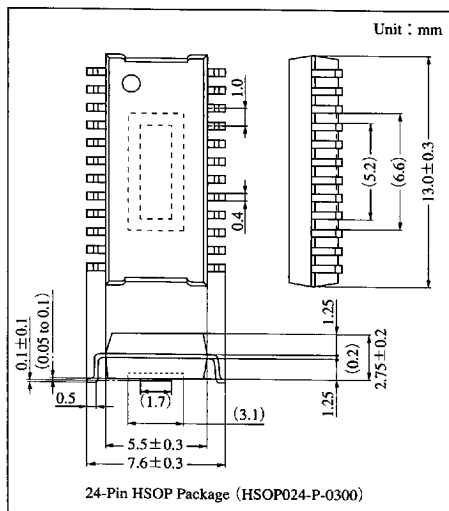
## TV-Tuner Band Switch IC (with 31V regulated power supply)

### Overview

The AN5043SC is a band switching IC for TV tuners, incorporating a 31V regulated power supply circuit.

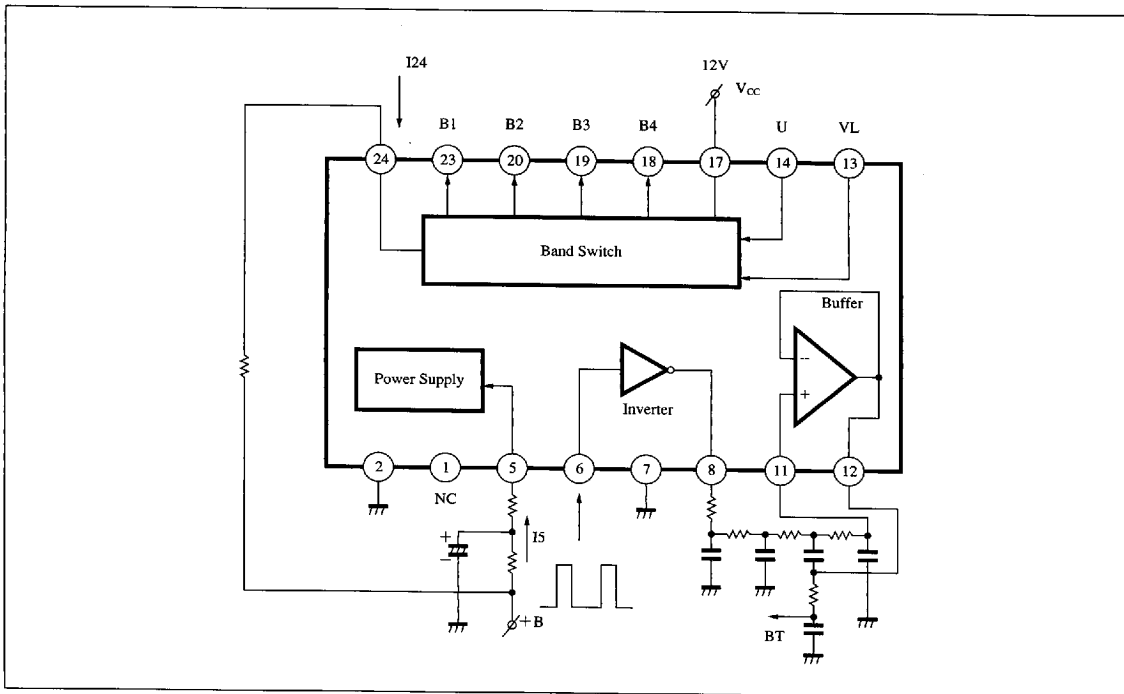
### Features

- Band switches for UHF and VHF (Low, High), and 31V regulated power supply circuit built-in.
- Built-in an operational amplifier and an inverter (for PWM control signals)



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### Block Diagram



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### ■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	$V_{CC(V17-2)}$	14.4	V
Supply current	$I_{CC(I5)}$	15.0	mA
Power dissipation <small>Note 2)</small>	$P_D$	660	mW
Operating ambient temperature <small>Note 1)</small>	$T_{opr}$	-20 to +70	°C
Storage temperature <small>Note 1)</small>	$T_{stg}$	-55 to +150	°C

Note 1)  $T_a = 25^\circ\text{C}$  except operating ambient temperature and storage temperature.

Note 2) Allowable power dissipation of the package at  $T_a = 70^\circ\text{C}$ .

### ■ Recommended Operating Range ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Range
Operating supply voltage range	$V_{CC(V17-2)}$	9.6V to 14.4V
Operating supply current range	$I_{24}$	2.7mA to 5.5mA
	$I_5$	6.0mA to 14.0mA

### ■ Electrical Characteristics ( $T_a = 25 \pm 2^\circ\text{C}$ )

Parameter	Symbol	Condition	min	typ	max	Unit
Circuit current Pin⑤	$I_5$	$V_{5-2} = 26\text{V}$	1.5	2.3	3.1	mA
Circuit current Pin⑰	$I_{17}$	$V_{17-2} = 12\text{V}$	2.6	4.0	5.4	mA
DAC IN input threshold voltage	$V_{TH6}$	$V_{7-2} = 0\text{V}$	0.45	0.7	1.0	V
DAC OUT output voltage	$V_{8-2}$	$V_{6-2} = 1.0\text{V}$	—	0.1	0.4	V
DAC OUT output voltage	$V_{3-8}$	$V_{6-2} = 0.45\text{V}$	—	0.2	0.7	V
DAC OUT output current	$I_8$	$V_{6-2} = 0\text{V}$	-1.8	-1.1	-0.7	mA
BT IN input current	$I_{11}$	$V_{11-2} = 1\text{V to } 26\text{V}$	-0.3	-0.1	0.1	$\mu\text{A}$
BT OUT output voltage L	$V_{12-2L}$	$V_{11-2} = 0\text{V}$	0	0.1	0.4	V
BT OUT output voltage H	$V_{12-5H}$	$V_{11-2} = V_{5-2}$	-1.5	-1.0	-0.5	V
BT IN-OUT difference voltage	$V_{11-12}$	$V_{11-2} = 1\text{V to } 26\text{V}$	0	0.20	0.40	V
Terminal voltage $V_L$	$V_{13-2}$	$V_{17-2} = 12\text{V}$	3.0	3.4	3.8	V
Terminal voltage U	$V_{14-2}$	$V_{17-2} = 12\text{V}$	1.7	2.1	2.5	V
$V_L$ input threshold voltage	$V_{TH13}$	$V_{17-2} = 12\text{V}$	0.5	—	2.0	V
$V_L$ input threshold current	$I_{TH13}$	$V_{17-2} = 12\text{V}$	-500	—	-50	$\mu\text{A}$
U input threshold voltage	$V_{TH14}$	$V_{17-2} = 12\text{V}$	0.5	—	1.5	V
U input threshold current	$I_{TH14}$	$V_{17-2} = 12\text{V}$	-500	—	-50	$\mu\text{A}$
Output saturation voltage	$V_{17-18}$ $V_{17-19}$ $V_{17-20}$ $V_{17-23}$	$I_{OUT} = -60\text{mA}$	0.6	1.0	1.4	V
Output leak current	$I_{18}$ $I_{20}$ $I_{19}$ $I_{23}$		-10	—	0	$\mu\text{A}$
31.5V stabilized voltage	$V_{5-2}$	$I_5 = 10\text{mA}$	29.5	31.5	33.5	V
31.5V operation resistor	$\gamma$ 5	$I_5 = 6$ to $14\text{mA}$	—	10	25	$\Omega$
31.5V stabilized temperature characteristics	$\frac{\Delta V_{5-2}}{\Delta T_a}$	$T_a = -20$ to $+60^\circ\text{C}$	(-1.5)	(0)	(+1.5)	mV/°C
31.5V time drift	$\Delta(V_{5-2})_t$	For a sample to which current has been applied for more than 15 minutes, referring to the voltage of 5 seconds after switch on, measure the voltage until 2 minutes later.	—	—	( $\pm 50$ )	mV

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

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### ■ Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	NC	13	V <sub>L</sub> input
2	GND	14	U input
3	NC	15	NC
4	NC	16	NC
5	31.5V stabilized voltage generation (I <sub>5</sub> )	17	Supply voltage (V <sub>CC</sub> )
6	DAC input	18	B4 output
7	GND for DAC SW	19	B3 output
8	DAC output	20	B2 output
9	NC	21	NC
10	NC	22	NC
11	BT input	23	B1 output
12	BT output	24	Supply current (I <sub>24</sub> )

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