

AN5043SC

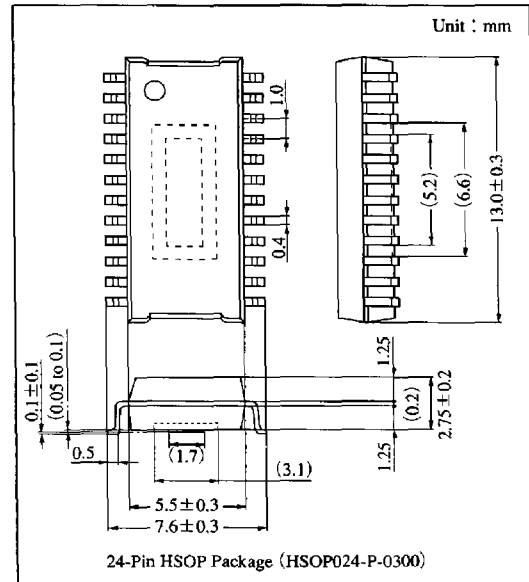
TV-Tuner Band Switch IC (with 31V regulated power supply)

Overview

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

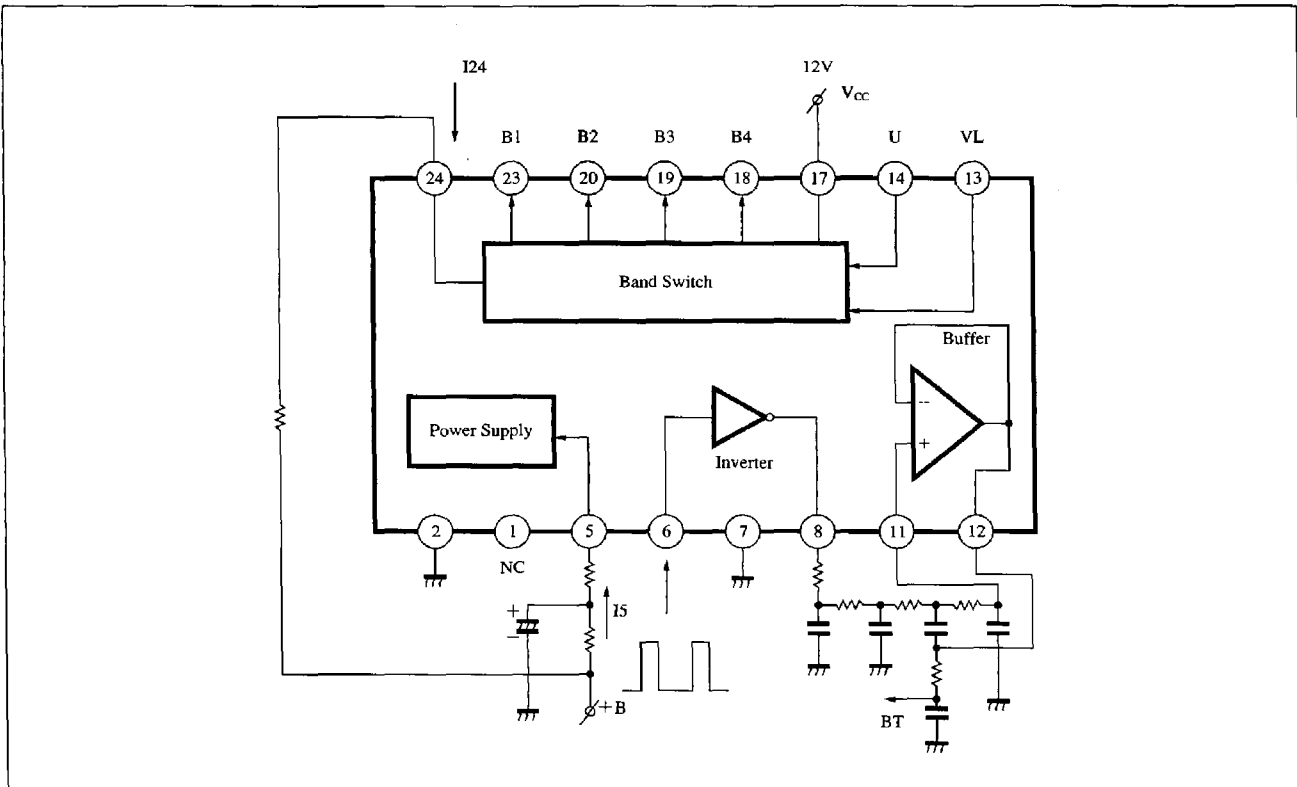
Features

- 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)



ICs for TV

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 ^{Note 2)}	P_D	660	mW
Operating ambient temperature ^{Note 1)}	T_{opr}	-20 to +70	°C
Storage temperature ^{Note 1)}	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_{5-8}	$V_{6-2} = 0.45\text{V}$	—	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	μA
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	μA
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	μA
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	μA
31.5V stabilized voltage	V_{5-2}	$I_5 = 10\text{mA}$	29.5	31.5	33.5	V
31.5V operation resistor	γ 5	$I_5 = 6 \text{ to } 14\text{mA}$	—	10	25	Ω
31.5V stabilized temperature characteristics	$\frac{\Delta V_{5-2}}{\Delta T_a}$	$T_a = -20 \text{ to } +60^\circ\text{C}$	(-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.	—	—	(±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 _L input
2	GND	14	U input
3	NC	15	NC
4	NC	16	NC
5	31.5V stabilized voltage generation (I ₅)	17	Supply voltage (V _{CC})
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 ₂₄)

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