AN5043SC

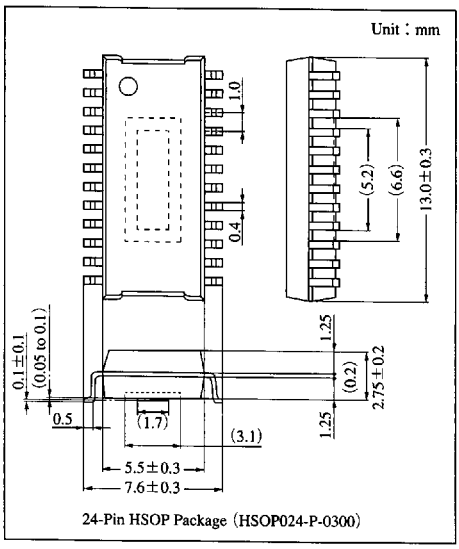
TV-Tuner Band Switch IC (with 31V regulated power supply)

■ Overview

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

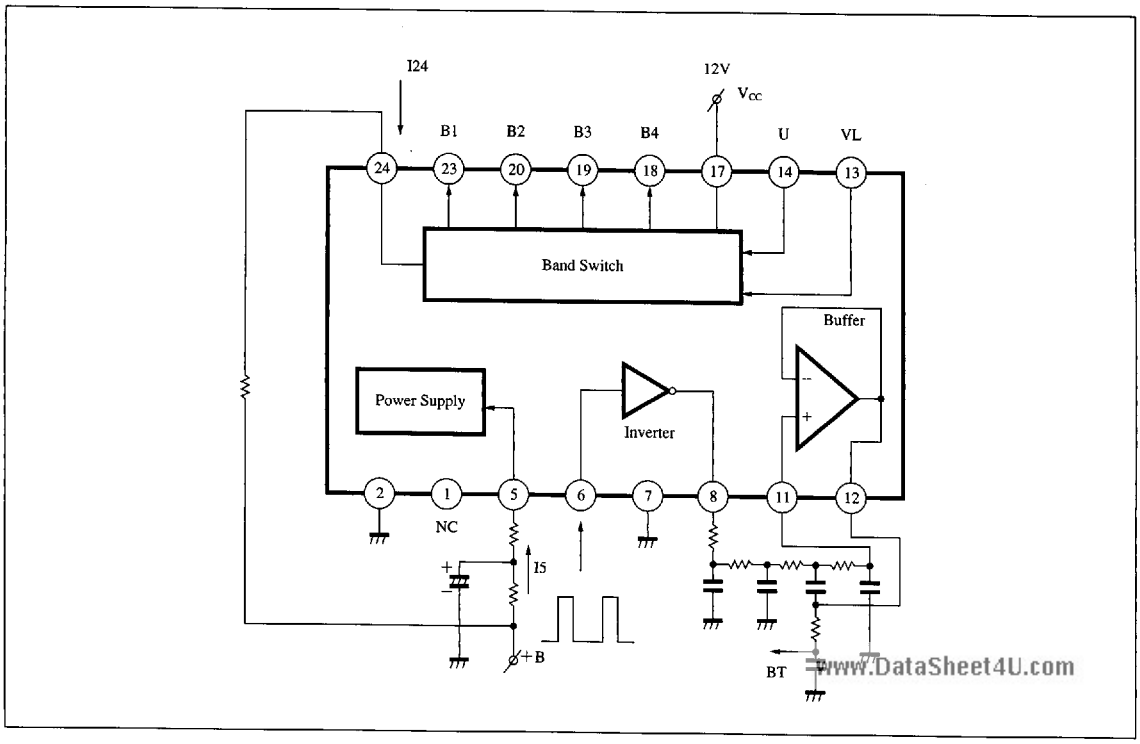
■ Features

- 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)



24-Pin HSOP Package (HSOP024-P-0300)

■ Block Diagram



■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	$V_{CC(V_{17-2})}$	14.4	V
Supply current	$I_{CC(I_5)}$	15.0	mA
Power dissipation Note 2)	P_D	660	mW
Operating ambient temperature Note 1)	T_{opr}	−20 to +70	℃
Storage temperature Note 1)	T_{stg}	−55 to +150	℃

Note 1) Ta= 25℃ except operating ambient temperature and storage temperature.
Note 2) Allowable power dissipation of the package at Ta=70℃.

■ Recommended Operating Range (Ta=25℃)

Parameter	Symbol	Range
Operating supply voltage range	$V_{CC(V_{17-2})}$	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 (Ta=25±2℃)

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

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

■ 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})