AN5031

TV Tuning Control Circuit

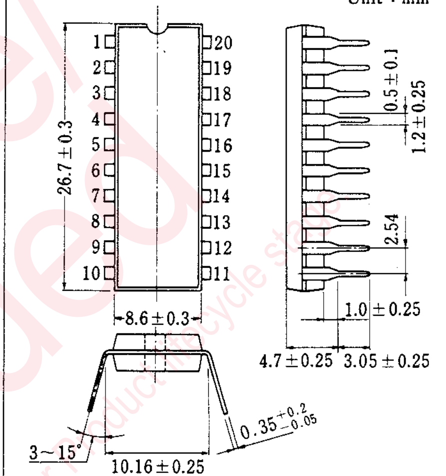
■ Outline

The AN5031 is an integrated circuit designed for tuner control circuit of TV electronic tuning system using a semiconductor memory.

■ Features

- Consists of peripheral part of electronic tuning system with semiconductor memories
- Electronic tuner power supply circuit incorporated
- Reference voltage stabilizer for electronic tuning incorporated

Unit : mm

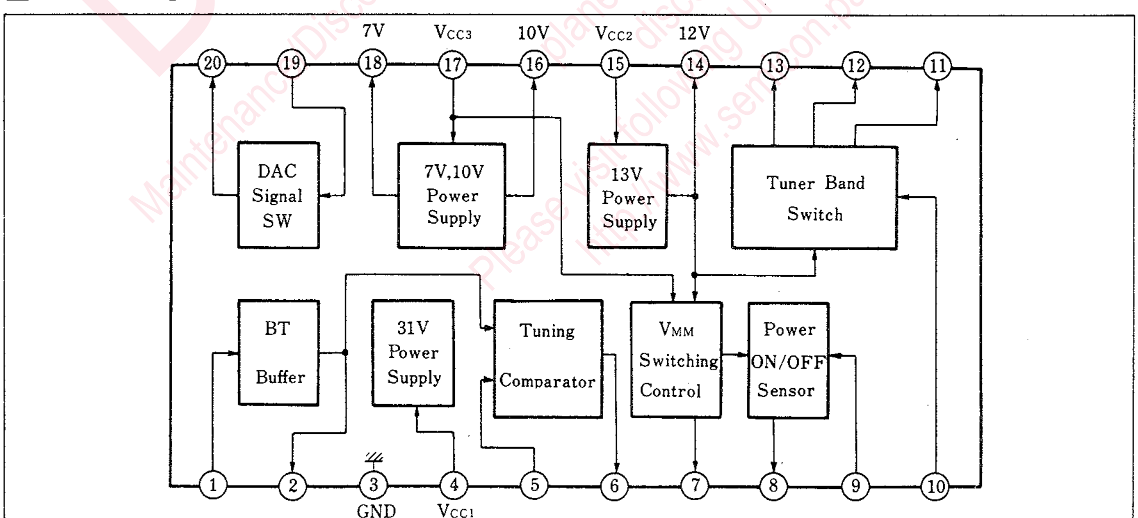


20-Lead DIL Plastic Package

■ Pin

Pin No.	Pin Name	Pin No.	Pin Name
1	BT Voltage Input	11	BU Output
2	BT Voltage Output	12	BV Output
3	GND	13	BS Output
4	31V Regulator (V_{CC1})	14	13V Power Supply Output
5	Pre−set Voltage Input	15	V_{CC2}
6	Tuning Control Output	16	10V Power Supply Output
7	Switching Output	17	V_{CC3}
8	Power CLR Output	18	7V Power Supply Output
9	Power ON−OFF Sensor Input	19	DAC Signal Input
10	Band SW Input	20	DAC Signal Output

■ Block Diagram



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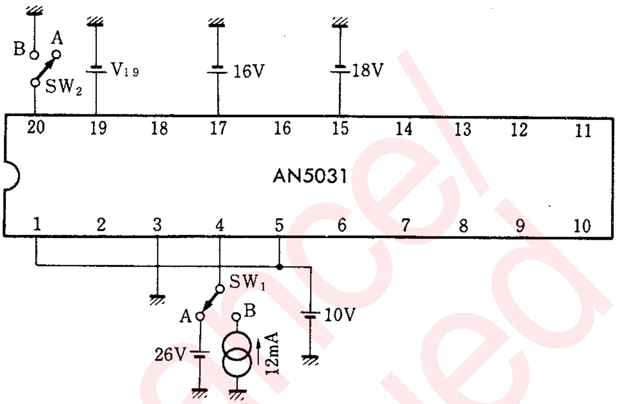
■ Absolute Maximum Ratings (Ta=25℃)

Item			Symbol	Rating		Unit
Voltage	Supply Voltage	V_{CC2}	V_{15-3}	24		V
		V_{CC3}	V_{17-3}	24		V
	Circuit Voltage		V_{13-3}	0	+27	V
			V_{19-3}	0	+ 8	V
Current	Supply Current		I_4	0	+15	mA
	Circuit Current		I_{11}, I_{12}	− 25	0	mA
			I_{13}	0	+22	mA
			I_{14}	−20	+50	mA
			I_{16}	−20	+ 7	mA
			I_{18}	−50	+0.5	mA
Power Dissipation			P_D	1050		mW
Temperature	Operating Ambient Temerature		T_{opr}	−20～+70		℃
	Storage Temperature		T_{stg}	−55～+150		℃

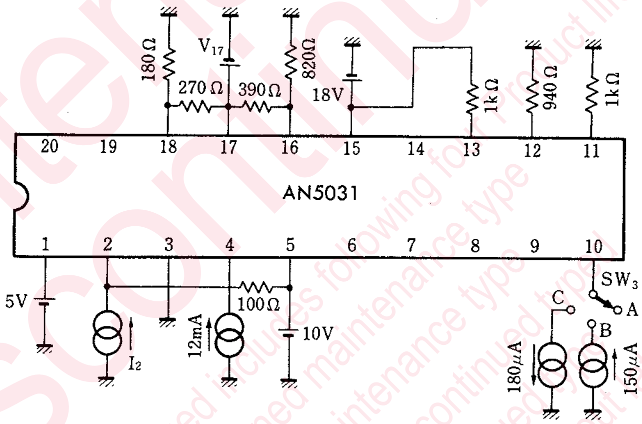
■ Electrical Characteristics (Ta=25℃)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
V_{CC1} Circuit Current	I_4	1	S_1=A, V_{19}=0, S_2=A	3.9	5.1	6.3	mA
V_{CC2} Circuit Current	I_{15}	1	S_1=B, V_{19}=0, S_2=A	8.0	11.5	14.5	mA
V_{CC3} Circuit Current	I_{17}	1	S_1=B, V_{19}=0, S_2=A	5.9	8.4	10.9	mA
DAI Input Current	I_{19}	1	S_1=B, V_{19}=4V, S_2=A	1.4	2.1	2.8	mA
LFO Output Current	$-I_{20}$	1	S_1=B, V_{19}=0, S_2=B	0.7	1.1	1.8	mA
BTI Input Current	I_1	1	S_1=B, V_{19}=0, S_2=A	-1.0	-0.1	0	μA
BTI−BTO Voltege Difference	V_{1-2}	1	S_1=B, V_{19}=0, S_2=A	0	0.18	0.36	V
VRI Input Current	I_5	1	S_1=B, V_{19}=0, S_2=A	−20	− 5	0	μA
TUD Output Voltage "L"	$V_{6-3(L)}$	2	I_2=150μA, S_3=A, V_{17}=16V	0	0.23	0.5	V
TUD Output Voltage "M"	$V_{6-3(M)}$	2	I_2=−420μA, S_3=A, V_{17}=16V	4.5	5.0	5.5	V
TUD Output Voltage "H"	$V_{6-16(H)}$	2	I_2=−1.1mA, S_3=A, V_{17}=16V	-0.5	-0.2	0	V
BSI Terminal Voltage	V_{10-3}	2	I_2=0, S_3=A, V_{17}=10.7V	4.6	5.2	5.8	V
BUO Output Voltage	V_{11-3}	2	I_2=0, S_3=B, V_{17}=10.7V	11.5	12.3	13.1	V
BVO Output Voltage	V_{12-3}	2	I_2=0, S_3=A, V_{17}=10.7V	11.5	12.3	13.1	V
BSO Output Voltage	V_{13-3}	2	I_2=0, S_3=A, V_{17}=10.7V	0	0.5	1.2	V
BSO Output Current	I_{13}	2	I_2=0, S_3=C, V_{17}=10.7V	0		1	μA
13V Power Output Voltage	V_{14-3}	2	I_2=0, S_3=A, V_{17}=10.7V	12.6	13.5	14.3	V
10V Power Output Voltage	V_{16-3}	2	I_2=0, S_3=A, V_{17}=10.7V	9.1	9.9	10.7	V
7V Power Output Voltage	V_{18-3}	2	I_2=0, S_3=A, V_{17}=16V	6.8	7.4	8.0	V
V_{CC1} Voltage Regulator	V_{4-3}	1	S_1=B, V_{19}=0, S_2=A	29.5	31.5	33.5	V
V_{CC1} Operating Resistance	r_4	1	S_1=B, V_{19}=0, S_2=A		10	25	Ω

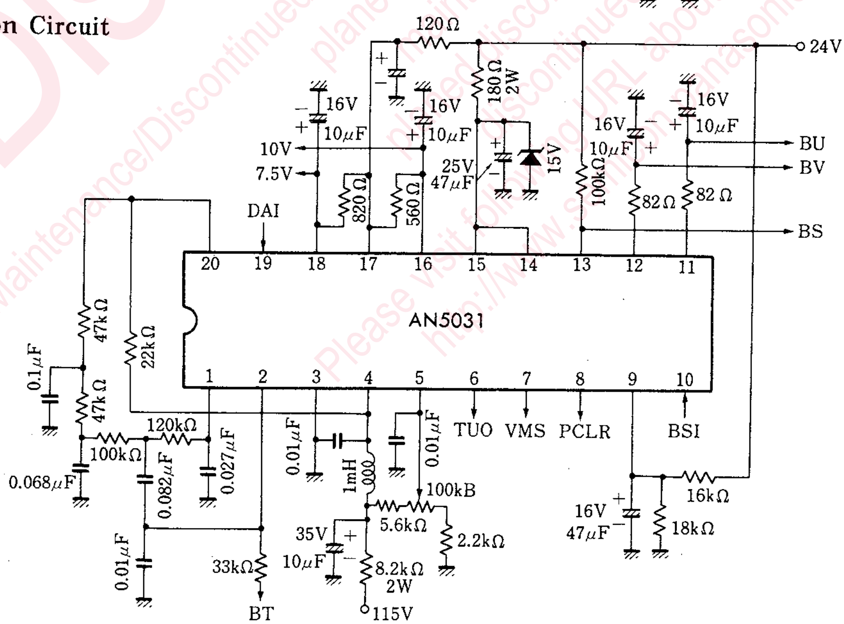
Test Circuit 1 ($I_{1,4,5,15,17,19}$, $-I_{20}$, V_{1-2}, V_{4-3}, r_4)



Test Circuit 2 ($V_{6-3(L)}$, $V_{6-3(M)}$, $V_{6-16(H)}$, $V_{10,11,12,13,14,16,18-3}$, I_{13})



■ Application Circuit



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