

# AN5033

## TV Tuning Control Circuit

### ■ Outline

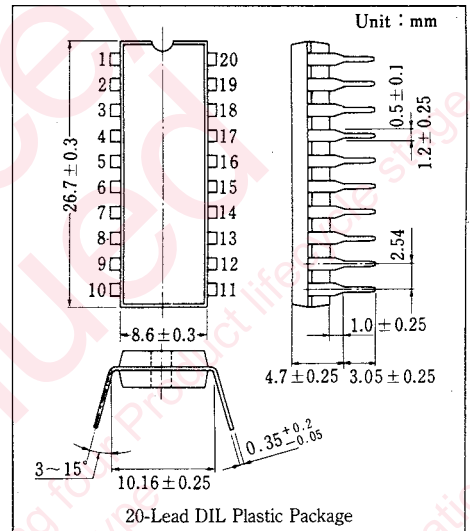
The AN5033 is an integrated circuit designed for tuner control circuit of TV electronic tuning system using a semiconductor memory.

### ■ Features

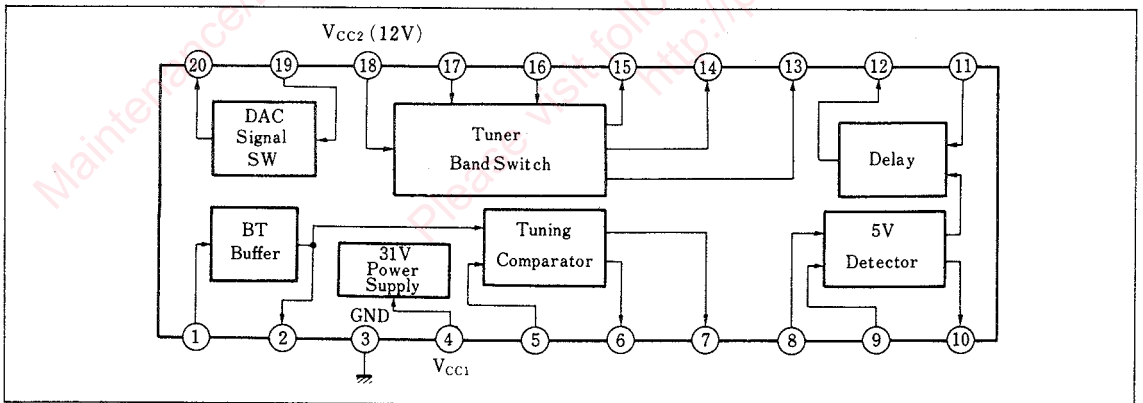
- Consists of peripheral part of electronic tuning system with semiconductor memories
- Reference voltage stabilizer for electronic tuning incorporated
- Power supply voltage rise-up detection circuit incorporated

### ■ Pin

Pin No.	Pin Name	Pin No.	Pin Name
1	BT Voltage Input	11	CR Constant
2	BT Voltage Output	12	Reset Output
3	GND	13	BV Output
4	31V Regulator ( $V_{CC1}$ )	14	BU Output
5	Pre-set Voltage Input	15	BS Output
6	Tuning Control Output	16	Band SW Input(1)
7	Switching Output	17	Band SW Input(2)
8	$V_{CC2}$	18	$V_{CC2}$
9	Ref. Voltage Input	19	DAC Signal Input
10	CE Det. Output	20	DAC Signal Output



### ■ Block Diagram



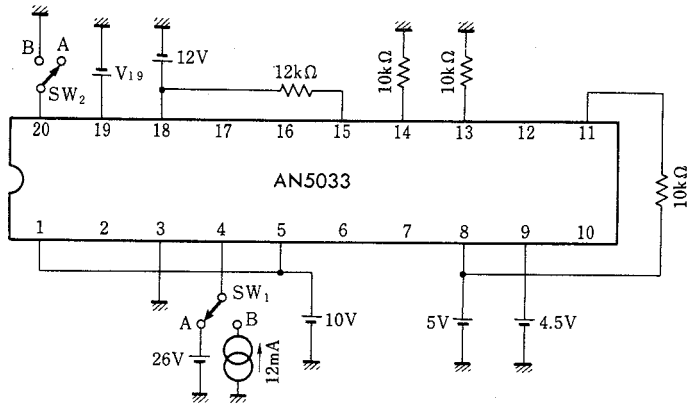
■ Absolute Maximum Ratings (Ta=25°C)

Item		Symbol	Rating		Unit	
Voltage	Supply Voltage	V <sub>CC2</sub>	V <sub>18-3</sub>		15	V
		V <sub>CC3</sub>	V <sub>8-3</sub>		8	V
	Circuit Voltage	V <sub>8-4</sub> V <sub>7-3</sub>	0	+12	V	
		V <sub>15-3</sub>	0	+29	V	
V <sub>19-3</sub>		0	+ 8	V		
Current	Supply Current	I <sub>4</sub>	0	+15	mA	
	Circuit Current	I <sub>6</sub> , I <sub>7</sub>	0	+10	mA	
		I <sub>10</sub> I <sub>12</sub>	-0.3	+ 5	mA	
		I <sub>13</sub>	-40	0	mA	
		I <sub>14</sub>	-30	0	mA	
		I <sub>15</sub>	0	20	mA	
Power Dissipation	P <sub>D</sub>	850		mW		
Temperature	Operating Ambient Temperature	T <sub>opr</sub>	-20~+70		°C	
	Storage Temperature	T <sub>stg</sub>	-55~+150		°C	

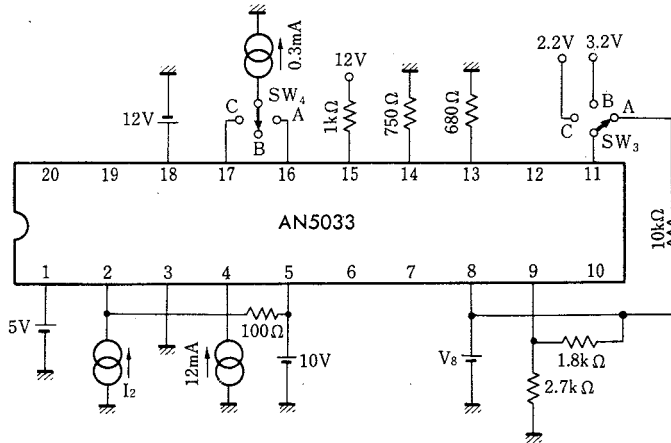
■ Electrical Characteristics (Ta=25°C)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
V <sub>CC1</sub> Circuit Current	I <sub>4</sub>	1	S <sub>1</sub> =A, V <sub>19</sub> =0, S <sub>2</sub> =A	4.7	6.1	7.5	mA
V <sub>CC2</sub> Circuit Current	I <sub>13</sub>	1	S <sub>1</sub> =B, V <sub>19</sub> =0, S <sub>2</sub> =A	5.8	7.5	9.2	mA
V <sub>CC3</sub> Circuit Current	I <sub>8</sub>	1	S <sub>1</sub> =B, V <sub>19</sub> =0, S <sub>2</sub> =A	6.5	8.4	10.3	mA
DAI Input Current	I <sub>19</sub>	1	S <sub>1</sub> =B, V <sub>19</sub> =4V, S <sub>2</sub> =A	1.5	2.2	2.9	mA
LFO Output Current	-I <sub>20</sub>	1	S <sub>1</sub> =B, V <sub>19</sub> =0, S <sub>2</sub> =B	0.7	1.1	1.8	mA
BTI Input Current	I <sub>1</sub>	1	S <sub>1</sub> =B, V <sub>19</sub> =0, S <sub>2</sub> =A	-1.0	-0.1	0	μA
BTI-BTO Voltage Difference	V <sub>1-2</sub>	1	S <sub>1</sub> =B, V <sub>19</sub> =0, S <sub>2</sub> =A	0	0.18	0.36	V
VRI Input Current	I <sub>5</sub>	1	S <sub>1</sub> =B, V <sub>19</sub> =0, S <sub>2</sub> =A	-15	- 5	0	μA
V <sub>CC3</sub> Rise-up Detection	V <sub>12-3(2)</sub>	2	V <sub>8</sub> =4V, S <sub>3</sub> =A, S <sub>4</sub> =B	0	0.1	0.3	V
	V <sub>12-8</sub>	2	V <sub>8</sub> =5V, S <sub>3</sub> =B, S <sub>4</sub> =B	-0.1	0	0.1	V
	V <sub>12-3(3)</sub>	2	V <sub>8</sub> =5V, S <sub>3</sub> =C, S <sub>4</sub> =B	0	0.1	0.3	V
BSI Terminal Voltage	V <sub>16-3</sub>	2	V <sub>8</sub> =5V, S <sub>3</sub> =A, S <sub>4</sub> =B	1.9	2.2	2.5	V
	V <sub>17-3</sub>						
BVO Output Voltage	V <sub>13-3</sub>	2	V <sub>8</sub> =5V, S <sub>3</sub> =A, S <sub>4</sub> =B	11.1	11.5	12.0	V
BUO Output Voltage	V <sub>14-3</sub>	2	V <sub>8</sub> =5V, S <sub>3</sub> =A, S <sub>4</sub> =A	11.1	11.5	12.0	V
BSO Output Voltage	V <sub>16-3</sub>	2	V <sub>8</sub> =5V, S <sub>3</sub> =A, S <sub>4</sub> =B	0	0.3	0.7	V
BSO Output Current	I <sub>15</sub>	2	V <sub>8</sub> =5V, S <sub>3</sub> =A, S <sub>4</sub> =C	0		1	μA
V <sub>CC1</sub> Voltage Regulator	V <sub>4-3</sub>	1	S <sub>1</sub> =B, V <sub>19</sub> =0, S <sub>2</sub> =A	29.5	31.5	33.5	V
V <sub>CC1</sub> Operating Resistance	r <sub>4</sub>	1	S <sub>1</sub> =B, V <sub>19</sub> =0, S <sub>2</sub> =A		10	25	Ω

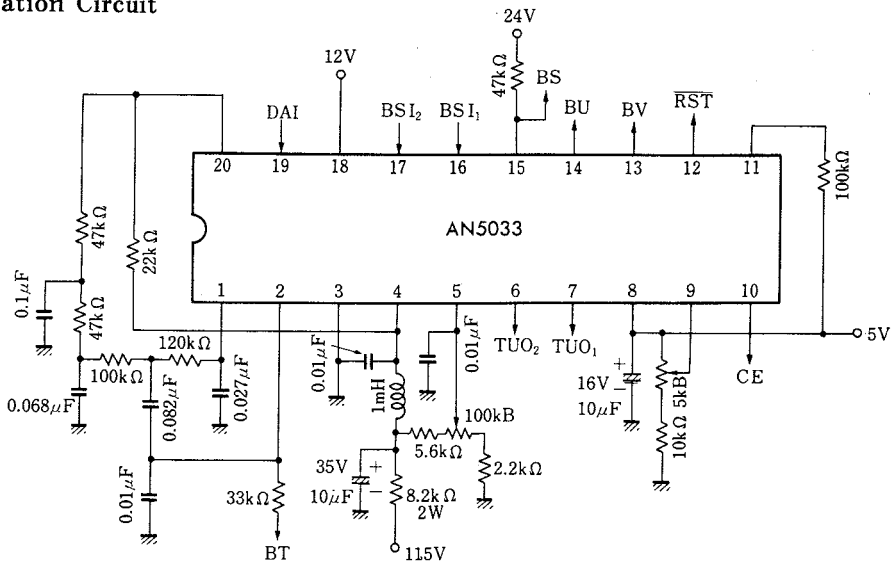
Test Circuit 1 ( $I_1, 4, 5, 8, 18, 19, -I_{20}, V_{1-2}, V_{4-3}, r_4$ )



Test Circuit 2 ( $I_{15}, V_{12-3(2)}, V_{12-3(3)}, V_{12-8}, V_{13, 14, 15, 16, 17-3}$ )



■ Application Circuit



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