

# AN5437K

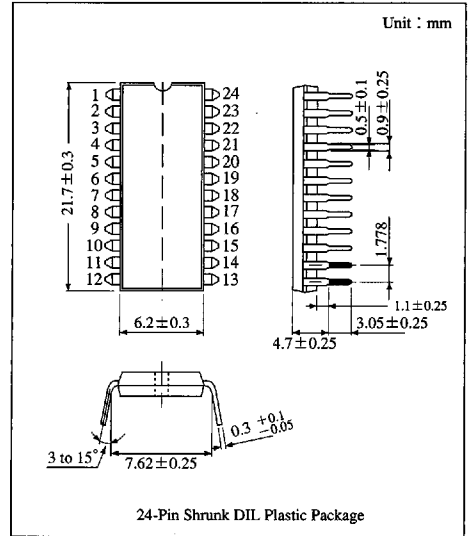
## Color TV Deflection Signal Processing IC

### Overview

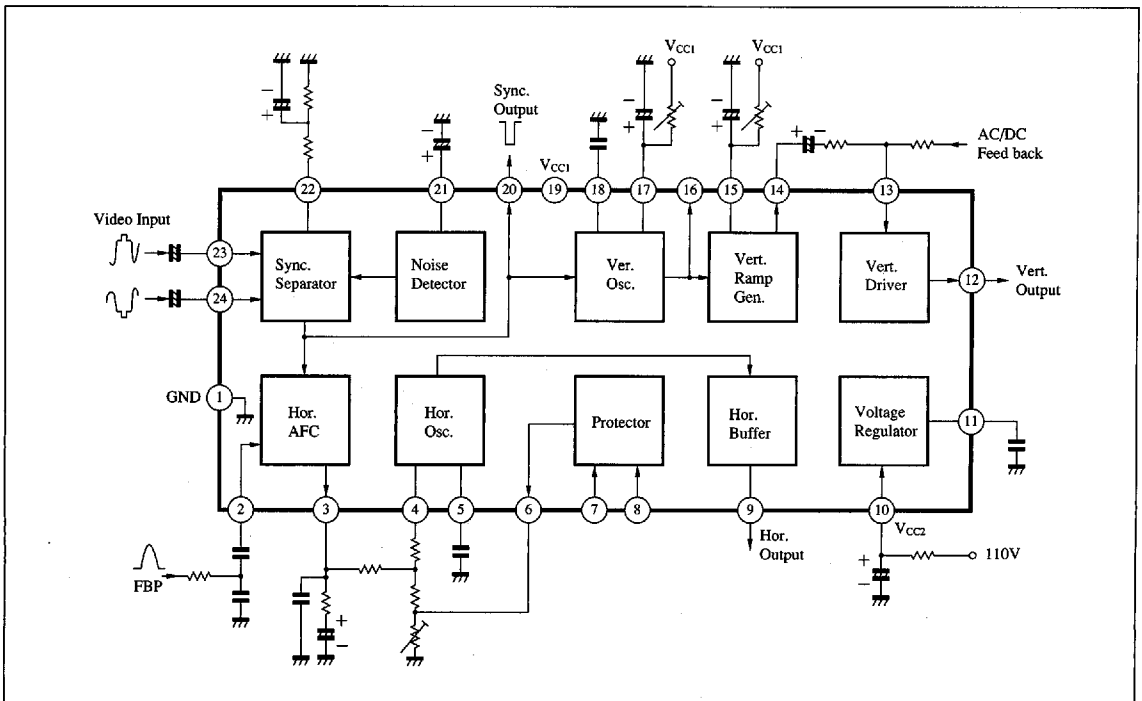
The AN5437K is an integrated circuit designed for color TV deflection signal processing circuit. It can operate with 12V power supply and is suitable for various types of color TV sets.

### Features

- Built-in high voltage protector circuit by hold-down (X-ray protection)
- Built-in high performance noise canceler circuit with Lock Out prevention.
- Built-in vertical and horizontal oscillator circuit which are highly stable operation against changes in supply voltage and temperature
- 12V supply voltage operation



### Block Diagram



**Pin Descriptions**

Pin No.	Pin name	Pin No.	Pin name
1	GND	13	Vert. saw-tooth input
2	Hor. AFC Ref. signal input	14	Vert. saw-tooth output
3	Hor. AFC output	15	Vert. saw-tooth capacitor
4	Hor. Hold volume	16	Vert. pulse output
5	Hor. Osc. capacitor	17	Vert. hold volume
6	X-Ray protector output	18	Vert. integral capacitor
7	X-Ray protector bias input	19	V <sub>CC1</sub>
8	X-Ray protector input	20	Sync. sep. output
9	Hor. output	21	Noise detecting capacitor
10	V <sub>CC2</sub>	22	Sync. sep. CR
11	Filter capacitor	23	Video signal input (1)
12	Vert. output	24	Video signal input (2)

**Absolute Maximum Ratings (Ta=25°C)**

Parameter		Symbol	Rating		Unit
Voltage	Supply voltage	V <sub>10-1</sub>	10.5		V
		V <sub>19-1</sub>	14.4		V
	Circuit voltage	V <sub>2-1</sub>	0	10	V
		V <sub>5-1</sub>	0	9	V
		V <sub>7-1</sub>	0	V <sub>10-1</sub>	V
		V <sub>8-1</sub>	0	8	V
		V <sub>12-1</sub>	0	V <sub>19-1</sub>	V
		V <sub>13-1</sub>	0	V <sub>19-1</sub>	V
		V <sub>16-1</sub>	0	10	V
		V <sub>17-1</sub>	0	V <sub>19-1</sub>	V
		V <sub>18-1</sub>	0	V <sub>19-1</sub>	V
		V <sub>23-1</sub>	0	10	V
	V <sub>24-1</sub>	0	V <sub>19-1</sub>	V	
Current	Supply current	I <sub>10</sub>	16		mA
		I <sub>19</sub>	23		mA
	Circuit current	I <sub>3</sub>	-3	3	mA
		I <sub>4</sub>	-5	0	mA
		I <sub>5</sub>	-3	3	mA
		I <sub>6</sub>	0	5	mA
		I <sub>7</sub>	-5	5	mA
		I <sub>8</sub>	0	5	mA
		I <sub>9</sub>	-30	0	mA
		I <sub>12</sub>	-15	0	mA
		I <sub>13</sub>	-1	0	mA
		I <sub>14</sub>	-2	2	mA
		I <sub>15</sub>	-1	150	mA
		I <sub>16</sub>	-2	5	mA
		I <sub>17</sub>	0	40	mA
		I <sub>20</sub>	-1	1	mA
I <sub>21</sub>	-1	1	mA		
I <sub>22</sub>	-1	0	mA		

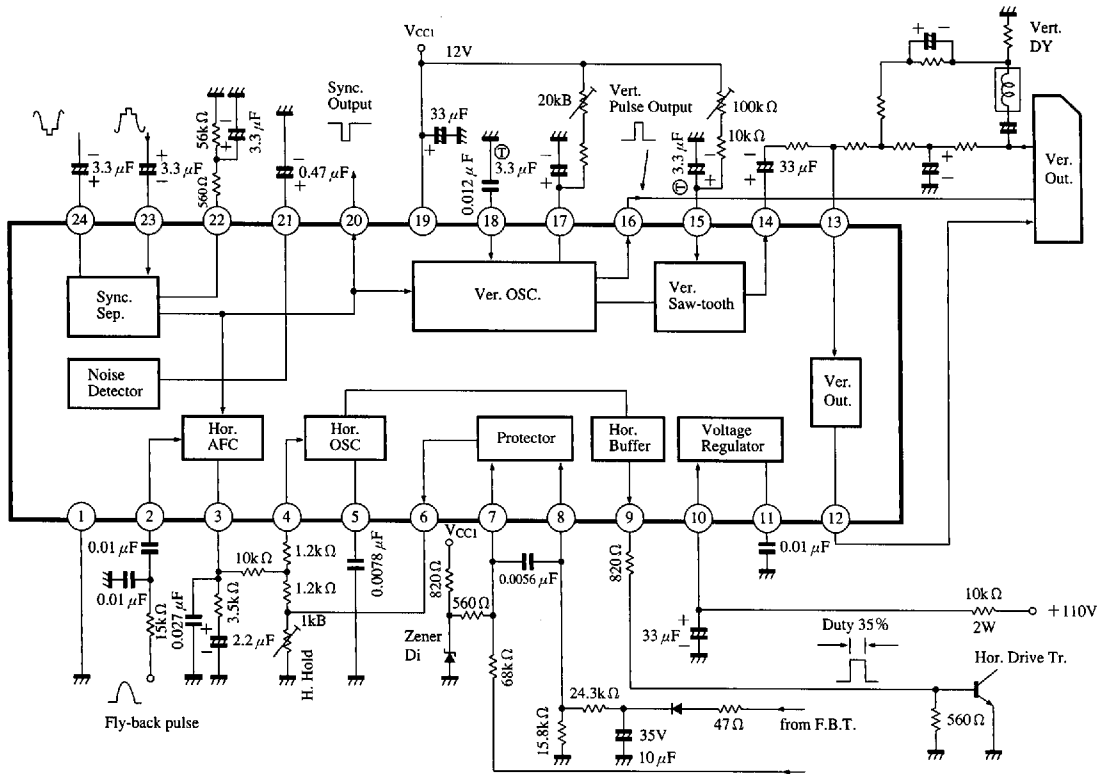
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### ■ Electrical Characteristics (Ta=25°C)


Parameter	Symbol	Condition	min	typ	max	Unit
Circuit current	I <sub>I0</sub>	Apply 12V with 200Ω to Pin⑩	7.5	12.0	15.5	mA
	I <sub>I9</sub>	V <sub>I9-1</sub> =12V	8.0	14.0	20.0	mA
Terminal current	V <sub>I0-1</sub>	Apply 12V with 200Ω to Pin⑩	9.0	9.6	10.2	V
Protector input voltage	V <sub>8-1</sub>		6.8	—	9.0	V
Vertical oscillation starting voltage	V <sub>OSC-S(V)</sub> V <sub>fVO,S</sub>	V <sub>CC1</sub> when f <sub>VO</sub> is 40 to 60Hz and output becomes 0.7V <sub>P-P</sub> or more	—	3.9	6.2	V
Vertical oscillation frequency	f <sub>VO</sub>	V <sub>CC1</sub> =12V	53	55	58	Hz
Vertical oscillation pulse width	τ <sub>VO</sub>	f <sub>VO</sub> =55Hz V <sub>CC1</sub> =12V	390	600	820	μs
Vertical oscillation frequency change with supply voltage	Δf <sub>VO</sub>  V <sub>CC</sub>	Oscillation frequency difference when V <sub>CC1</sub> =14.4V and 9.6V	0	0.93	1.3	Hz
Vertical pull-in range	f <sub>PV</sub>	Video input 1.4V <sub>P-P</sub> V <sub>CC1</sub> =12V	—	40	50	Hz
Vertical oscillation saw-tooth wave amplification	v <sub>(saw)</sub>	Video input 1.4V <sub>P-P</sub> V <sub>CC1</sub> =12V	1.8	2.0	2.2	V <sub>P-P</sub>
Horizontal oscillation starting voltage	V <sub>OSC-S(H)</sub>	Pin⑩ when f <sub>HO</sub> is 10 to 20kHz and output becomes 1V <sub>P-P</sub> or more	—	5.2	6	V
Horizontal oscillation frequency	f <sub>HO</sub>	V <sub>CC2</sub> =12V	15.0	15.75	16.25	kHz
Horizontal oscillation pulse width	τ <sub>HO</sub>	Oscillation pulse width ratio when f <sub>HO</sub> =15.75kHz V <sub>CC2</sub> =12V	31.5	35.4	38.9	%
Horizontal oscillation frequency change with supply voltage	Δf <sub>HO</sub>  V <sub>CC</sub>	Oscillation frequency difference when V <sub>CC2</sub> =14.4V and 9.6V	0	71	200	Hz
Protector operating horizontal oscillation frequency	f <sub>HHS</sub>	When the protector circuit operates	17.0	18.0	20.0	kHz
Horizontal oscillation control sensitivity	β	Change rate of oscillation frequency at the flow-in/out of I <sub>O</sub> =100μA	18	20	22	Hz/μA
Separable sync input *	V <sub>in(min)</sub>	Min. amplification of separable sync input signal	—	—	1.0	V <sub>P-P</sub>
Horizontal pull-in range *	f <sub>HP</sub>	f <sub>HO</sub> =15.7kHz	—	±600	—	Hz
f <sub>HO</sub> change with ambient temperature *	Δf <sub>HO</sub>  Ta	Ta=-20°C to +70°C	-1.67	—	1.67	Hz/°C
Dc loop gain *	f <sub>CD</sub>	μ × β	3.5	5.5	7.5	kHz/rad
Temperature change of vertical oscillation frequency *	Δf <sub>VO</sub>  Ta	Ta=-20°C to +70°C	—	0.3	—	Hz
Temperature change of vertical saw-tooth wave amplification *	V <sub>saw</sub>  Ta	Ta=-20°C to +70°C	—	—	30	mV <sub>P-P</sub>


\* Reference value for design.

■ Application Circuit



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Note : Pin 23 is used when Video input signal is negative polarity (  )

Pin 24 is used when Video input signal is positive polarity (  )

Ⓜ : Tantalum Capacitor