# AN5436N

Color TV Deflection-Signal Processing IC

■ Overview

The AN5436N is an integrated circuit designed for color TV deflection-signal processing circuit. It can operate with 12V power supply and is suitable for compact and medium-size color TV set.

■ Features

- Built-in vertical deflection driver circuit
- Incorporating vertical and horizontal oscillator circuit, it operates with high stability against changes of supply voltage and temperature
- Highly stable synchronous separation circuit against noise
- Built-in high voltage-protection circuit (X-ray protection)
- 12V supply voltage operation

Unit : mm

18-Pin DIL Plastic Package （b）
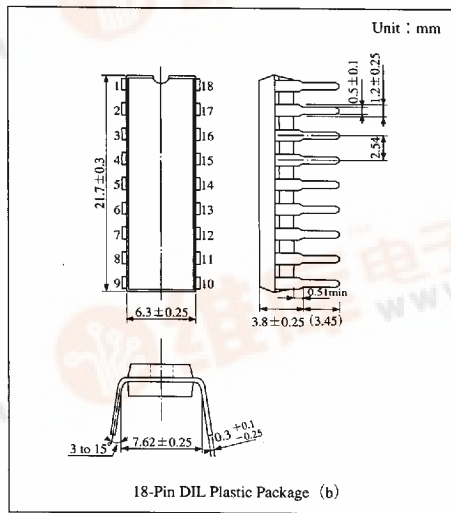
ICs for TV

■ Block Diagram
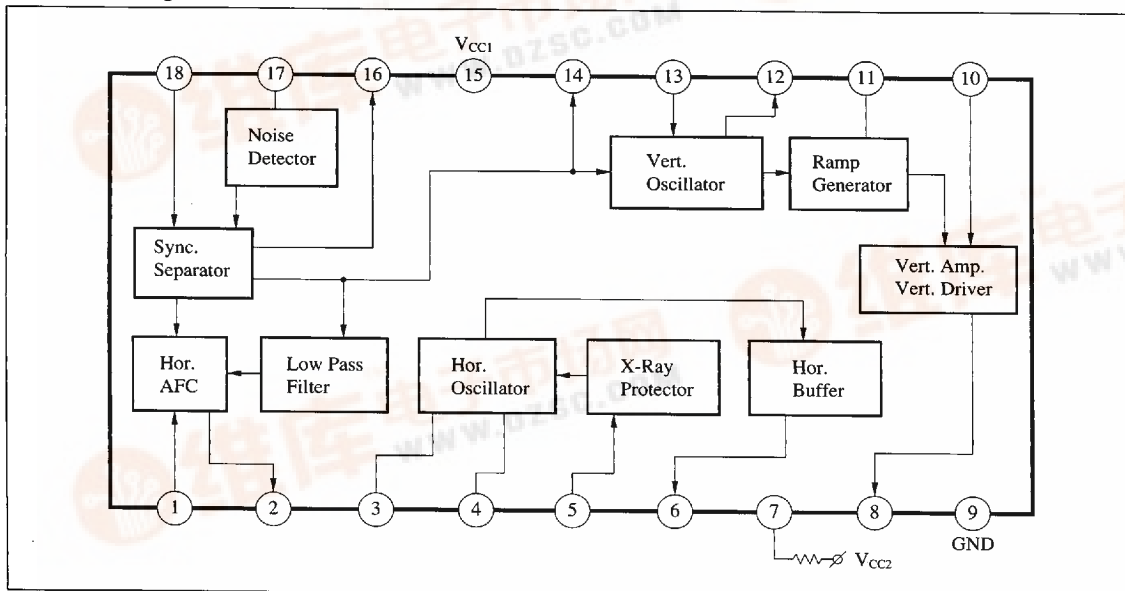
■ Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	AFC ref. signal input	10	DC, AC feedback input
2	Hor. AFC output	11	Vert. saw-tooth capacitor
3	Hor. hold volume	12	Vert. pulse output
4	Hor. osc. capacitor	13	Vert. hold volume
5	X-ray protector input	14	Vert. integral capacitor
6	Hor. output	15	V_{CC1}
7	V_{CC2}	16	Sync. sep. output
8	Vert. output	17	Noise det. input
9	GND	18	Video signal input

■ Absolute Maximum Ratings $(Ta=25°C)$

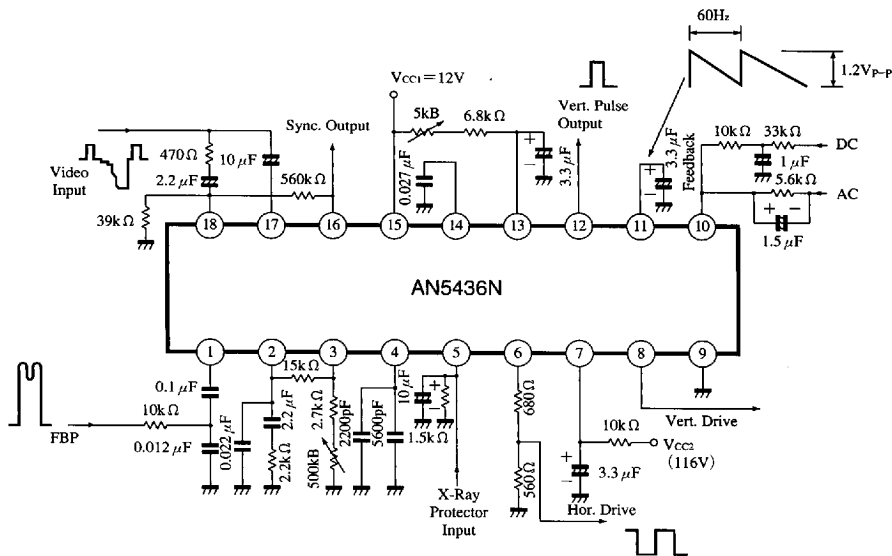| Parameter		Symbol	Rating		Unit
Voltage	Supply voltage	V_{7-9}	10.5		V
		V_{15-9}	14.4		V
	Circuit voltage	V_{1-9}	0	10	V
		V_{10-9}	0	V_{15-9}	V
		V_{12-9}	0	10	V
		V_{17-9}	0	6	V
		V_{18-9}	−3	2	V
Current	Supply current	I_7	16		mA
		I_{15}	23		mA
	Circuit current	I_2	−3	3	mA
		I_3	−5	0	mA
		I_4	−3	3	mA
		I_5	−1	1	mA
		I_6	−30	0	mA
		I_8	−30	0	mA
		I_{12}	−2	1	mA
		I_{13}	0	30	mA
Power dissipation		P_D	500		mW
Temperature	Operating ambient temperature	T_{opr}	−20 to +70		°C
	Storage temperature	T_{stg}	−55 to +150		°C

Note) "+" and "−" are flow-in and flow-out currents to/from the circuit, respectively.

■ Electrical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Circuit current	I_7	Apply 12V with 200 to Pin⑦	7.5	12.0	15.5	mA
Circuit current	I_{15}	$V_{15-9}=12V$	18.0	25.0	33.0	mA
Protector operating voltage	V_{5-9}	Apply 12V with 200 to Pin⑦	0.73	—	0.86	V
Oscillation starting voltage (V · Osc.)	$V_{OSC-S(1)}$	$f_{VO}=40$ to 60Hz, 0.7V_{P-P} or more	—	—	6	V
Vertical oscillation frequency	f_{VO}	$V_{CC1}=12V$, $R_{OSC(V)}=9.5k\Omega$	47	50	53	Hz
f_{VO} supply voltage dependency	$\Delta f_V/Ta$	$f_{VO}\mid 9.6V$ to $f_{VO}\mid 14.4V$	0	1.0	1.3	Hz
Pulse Width (V · Osc.)	τ	$V_{CC1}=12V$, $R_{OSC(V)}=9.5k\Omega$	420	600	780	μs
Vertical pull-in range	f_{VP}	$V_{CC1}=12V$, $R_{OSC(V)}=9.5k\Omega$	—	43	47	Hz
Vertical saw-tooth wave amplitude	$v_{(saw)}$	$V_{CC1}=12V$, $R_{OSC(V)}=9.5k\Omega$	0.9	1.2	1.5	V_{P-P}
f_{VO} ambient temperature dependency *	$\Delta f_V/Ta$	Ta$=-20$ to $+70℃$	—	0.8	—	Hz/℃
$v_{(saw)}$ ambient temperature dependency *	$\Delta v_{(saw)}/Ta$	Ta$=-20$ to $+70℃$	—	—	30	mV$_{P-P}$/℃
Oscillation-starting voltage	$V_{OSC-S(2)}$	$f_{HO}=10$ to 20kHz, 1V_{P-P} or more	—	—	6	V
Horizontal oscillation frequency	f_{HO}	$V_{CC2}=12V$, $R_{OSC(H)}=2.95k\Omega$	15.0	15.75	16.25	kHz
f_{HO} supply voltage dependency	$\Delta f_{HO}/V_{CC}$	$f_{HO}\mid 9.6V$ to $f_{HO}\mid 14.4V$	0	100	200	Hz
Pulse width duty ratio (H · Osc.)	τ	$V_{CC2}=12V$	31.5	35.4	38.9	%
f_{HO} control sensitivity	β	$I_O=\pm 100\mu A$	19	21	23	HzμA
f_{HO} ambient temperature dependency *	$\Delta f_{HO}/Ta$	Ta$=-20$ to $+70℃$	-1.67	—	1.67	Hz/℃
AFC loop gain *	f_{AFC}	$\mu\times\beta$	6	8	10	kHz/ra

* Reference value for design

■ Application Circuit

Panasonic