

AN5436N

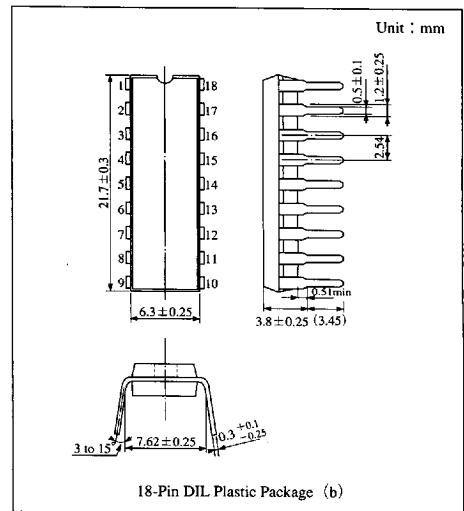
Color TV Deflection-Signal Processing IC

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 mediumsize color TV set.

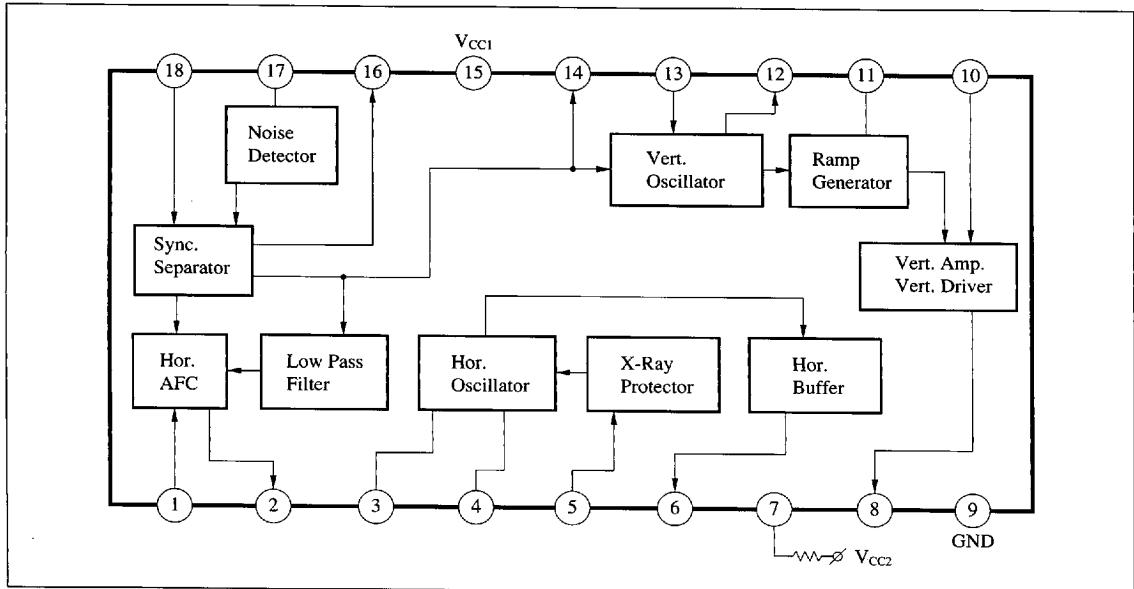
Features

- 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



ICs for TV

Block Diagram



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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 (T_a = 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.

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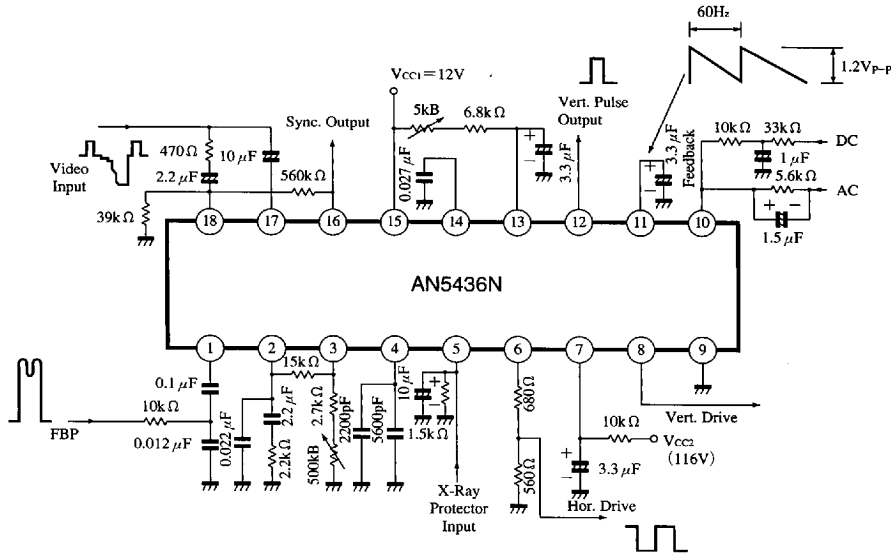
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Electrical Characteristics (Ta=25°C)

| 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 · O _{SC}) | 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)} =9.5kΩ | 47 | 50 | 53 | Hz |
| f _{VO} supply voltage dependency | Δf _V /Ta | f _{VO} 9.6V to f _{VO} 14.4V | 0 | 1.0 | 1.3 | Hz |
| Pulse Width (V · O _{SC}) | τ | V _{CC1} =12V, R _{OSC(V)} =9.5kΩ | 420 | 600 | 780 | μs |
| Vertical pull-in range | f _{VP} | V _{CC1} =12V, R _{OSC(V)} =9.5kΩ | — | 43 | 47 | Hz |
| Vertical saw-tooth wave amplitude | v _(saw) | V _{CC1} =12V, R _{OSC(V)} =9.5kΩ | 0.9 | 1.2 | 1.5 | V _{P-P} |
| f _{VO} ambient temperature dependency * | Δf _V /Ta | Ta=-20 to +70°C | — | 0.8 | — | Hz/°C |
| v _(saw) ambient temperature dependency * | Δv _(saw) /Ta | Ta=-20 to +70°C | — | — | 30 | mV _{P-P} /°C |
| 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)} =2.95kΩ | 15.0 | 15.75 | 16.25 | kHz |
| f _{HO} supply voltage dependency | Δf _{HO} /V _{CC} | f _{HO} 9.6V to f _{HO} 14.4V | 0 | 100 | 200 | Hz |
| Pulse width duty ratio (H · O _{SC}) | τ | V _{CC2} =12V | 31.5 | 35.4 | 38.9 | % |
| f _{HO} control sensitivity | β | I _O =±100μA | 19 | 21 | 23 | Hz/μA |
| f _{HO} ambient temperature dependency * | Δf _{HO} /Ta | Ta=-20 to +70°C | -1.67 | — | 1.67 | Hz/°C |
| AFC loop gain * | f _{AFC} | μ × β | 6 | 8 | 10 | kHz/ra |

* Reference value for design

Application Circuit



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