

AN5435

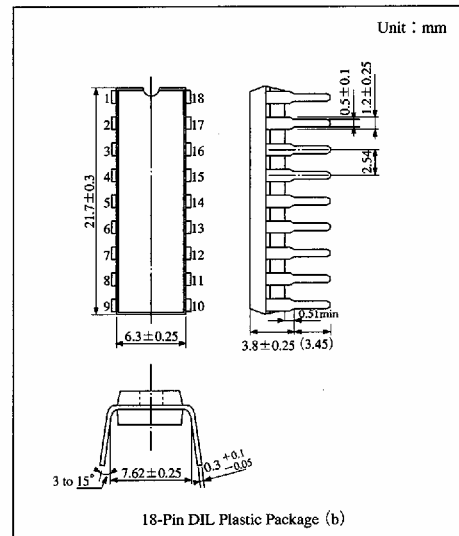
Color TV Deflection-Signal Processing IC

Overview

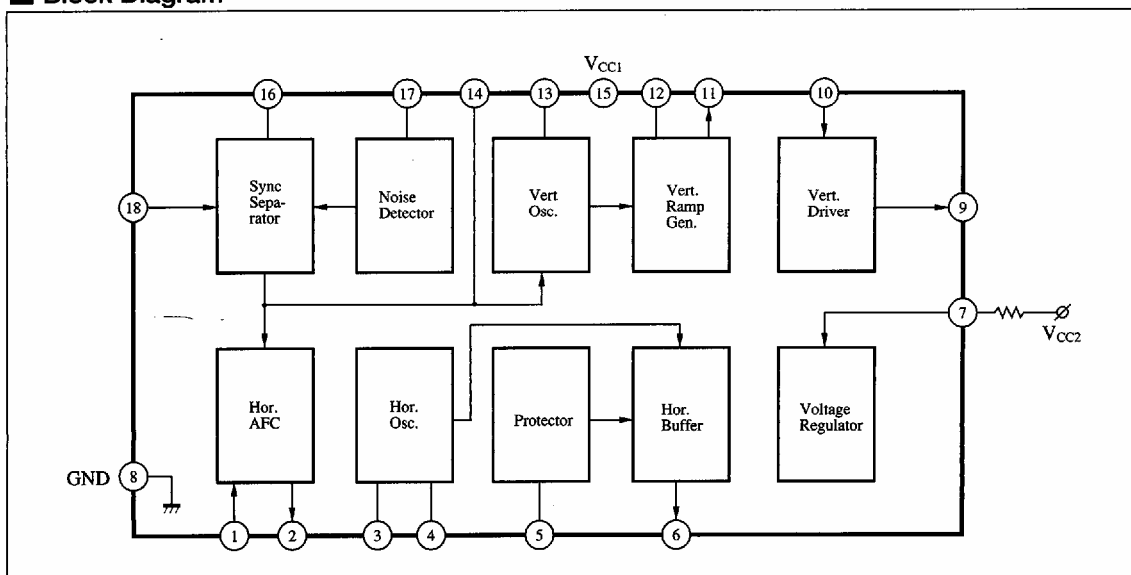
The AN5435 is an integrated circuit designed for color TV deflection-signal processing circuit. It operates with 12V power supply and is suitable for compact and medium-size color TV set.

Features

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



Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

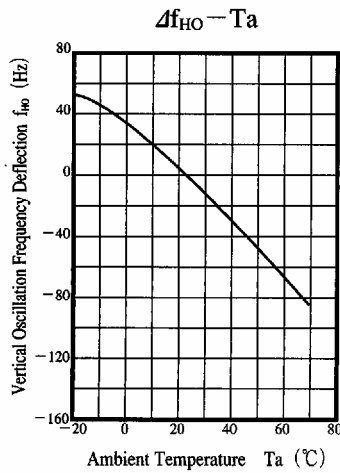
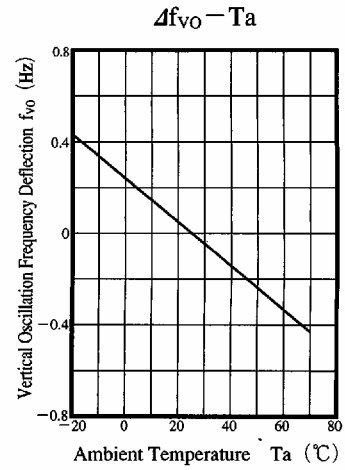
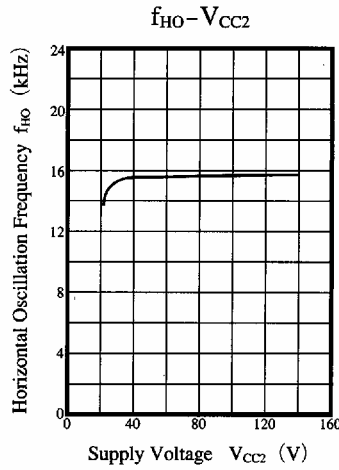
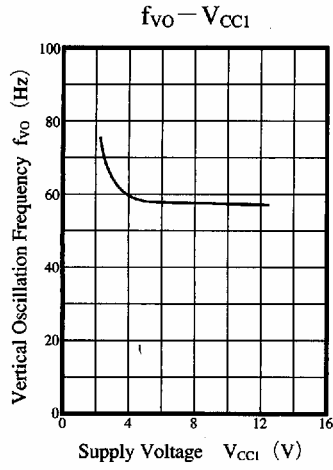
Parameter		Symbol	Rating		Unit
Voltage	Supply voltage	V ₇₋₈	10.5		V
		V ₁₅₋₈	14.4		V
	Circuit voltage	V ₁₋₈	0	10	V
		V ₁₀₋₈	0	V ₁₅₋₈	V
		V ₁₂₋₈	0	V ₁₅₋₈	V
		V ₁₇₋₈	-0.6	6	V
V ₁₈₋₈	-3	2	V		
Current	Supply current	I ₇	15		mA
		I ₁₅	20		mA
	Circuit current	I ₂	-3	3	mA
		I ₃	-5	0	mA
		I ₄	-5	5	mA
		I ₅	-1	1	mA
		I ₆	-20	0	mA
		I ₉	-15	0	mA
		I ₁₂	-1	150	mA
I ₁₃	0	40	mA		
Power dissipation		P _D	450		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°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Circuit current	I ₇	Apply 12V with 240Ω to Pin⑦	7.5	11.2	15.0	mA
Circuit current	I ₁₅	V ₁₅₋₈ =12V	15.5	23.0	32.0	mA
Protector operating voltage	V ₅₋₈	Apply 12V with 240Ω to Pin⑦	0.64	0.7	0.76	V
Oscillation starting voltage (V·O _{SC})	V _{osc-s(1)}	f _{VO} =40 to 70Hz, 1.0V _{P-P} or more	—	—	6.2	V
Vertical oscillation frequency	f _{VO}	V _{CC1} =12V	53	55	58	Hz
f _{VO} supply voltage dependency	Δf _{VO} /V _{CC}	f _{VO} 9.6V to f _{VO} 14.4V	0	0.93	1.3	Hz
Pulse width (V·O _{SC})	τ	V _{CC1} =12V	500	600	820	μs
Vertical pull-in range	f _{VP}	R _{OSC} =10.93kΩ (f _{VO} =48±1.5Hz)	—	—	50	Hz
Vertical saw-tooth wave amplification	v _(saw)	R _{saw} =26.4kΩ	1.8	2.0	2.2	V _{P-P}
f _{VO} ambient temperature dependency *1	Δf _{VO} /Ta	Ta=-20 to +70°C	-220	-170	0	ppm/°C
v _(saw) ambient temperature dependency *1	Δv _(saw) /Ta	Ta=-20 to +70°C	—	—	30	mV _{P-P} /°C
Oscillation starting voltage (H. OSC)	V _{osc-s(2)}	f _{HO} =10 to 20Hz, 1.4V _{P-P} or more (V _{CC2} =6.5V)	—	—	6	V
Horizontal oscillation frequency	f _{HO}	V _{CC2} =12V	15.0	15.6	16.25	kHz
f _{HO} supply voltage dependency	Δf _{HO} /V _{CC}	f _{HO} 13V to f _{HO} 10V	0	25	45	Hz
Pulse width duty ratio (H. OSC)	τ	V _{CC2} =12V	32.0	36.0	39.5	%
f _{HO} control sensitivity	β	I _O =±100mA	19	21	23	Hz/μA
f _{HO} ambient temperature dependency *1	Δf _{HO} /Ta	Ta=-20 to +70°C	-210	-100	0	ppm/°C
AFC loop gain *1	f _{AFC}	μ × β	5800	7700	9600	Hz/rad

*1 Reference value for design



Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	Hor. AFC ref. signal input	10	Vert. saw-tooth 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	GND	17	Noise det. input
9	Vert. output	18	Video signal input

Application Circuit

