

LINEAR MONOLITHIC INTEGRATED CIRCUITS

IC's For TV

Type No.	Function	Maximum Ratings (Ta=25°C)	Electrical Characteristics (Ta=25°C)						
			Item	Symbol	Condition	min.	typ.	max.	Unit
AN295	Deflection Signal Processing Circuit	V _{CC} (V ₁₋₄)=13.8V V _{CC} (V ₁₃₋₁₆)=15.0V I ₁₃ =170mA P _D =2.1W T _{opr} =-20~+70°C T _{stg} =-55~+150°C	Total Circuit Current	I ₁	V _{CC1} =13V	33	46	66	mA
			AGC Output Voltage	V _{O(AGC)}	V _{CC1} =13V, P _{in} (22-4)	0.9	1	1.1	V
			V-Osc. Nominal Frequency	f _{VO}	V _{CC1} =12V, R _{OSC(V)} =97kΩ	47.8	50.3	52.8	Hz
			V-Osc. Pulse Width	τ _V	V _{CC1} =12V, R _{OSC(V)} =97kΩ	280	380	480	μs
			Vertical Pull-in Range	f _{VP}		34.5	38	41.5	Hz
			V-Deflection Output Current	I _{P-P}	V _{CC1} =12V, R _{LIN(V)} =820Ω R _{OSC(V)} =97kΩ, R _{HOLD(V)} =51kΩ	0.65	0.75	0.85	Ap-p
			V-Middle-point Voltage	V _{MID}	V _{CC1} =12V, R _{OSC(V)} =97kΩ	5.6	5.9	6.2	V
			Retrace Pulse Width	V _P	R _{HIGHT} =51kΩ	22			V
			Quiescent Circuit Current	I _{CQ}	V _{CC1} =12V	7.5	12.1	25	mA
			H-Osc. Nominal Frequency	f _{HO}	V _{CC1} =12V, R _{OSCH} =2.2kΩ	14.95	15.75	16.55	kHz
			H-Osc. Pulse Width	τ _H	at f _{HO} =15.75kHz	20	22.5	25	μs
			H-Osc. Frequency Control Sensitivity	β _H	f(ΔI ₁ =-100μA)- f(ΔI ₁ =+100μA)/200	15.1	17.2	19.3	Hz/μA
			Sync. Separation Start Input Voltage	V _{sync-s}	τ _H =4.7~5.3μs, V _O ≥1V _{P-P}			0.18	V _{P-P}
			Sync. Separation Horizontal Pulse Width	τ _{sync-s}	Input H-sync signal 0.6~1.2V _{P-P}	4.7	5	5.3	μs
			Vertical Output Saturation Voltage	V ₁₅₋₁₆	V _{CC1} =11.5V			0.16	V
Horizontal Output Saturation Voltage	V ₇₋₄			0.21		V			
AN5410 AN5411	Deflection Signal Processing Circuit	V _{CC} (V ₂₀₋₁₆₄)=14.4V V _{CC} (V ₈₋₄₁₆)=15.0V I ₂₀ =22mA I ₈ =18mA P _D =600mW P _{opr} =1±0.6kg/cm ² G _{opr} =1000G S _{opr} =500G T _{opr} =-20~+70°C T _{stg} =-55~+150°C	Circuit Current	I ₈	V _{CC1} =12V	7.7	10	12.3	mA
				I ₂₀	V _{CC2} =12V	20.8	26	31.2	mA
			V-Osc. Frequency	f _{VO}	V _{CC} =12V	53	55.6	58	Hz
			Frequency Drift with Supply Voltage (V-Osc.)	df _{vo} /V _{CC}	f _{vo} [9.6V]-f _{vo} [14.4V]	0	0.84	1	Hz
			Frequency Drift with Ambient Temperature (V-Osc.)	df _{vo} /Ta	V _{CC} =12V, Ta=-20~+70°C	0		1	Hz
			V-Osc. Pulse Width	τ _{vo}	V _{CC} =12V	500		820	μs
			V-Middle-point Temperature Dependence	V _{MID} /Ta	Ta=-20~+70°C	-0.5		0.5	V
			H-Osc. Start Voltage	V _{H0-S}	f _{HO} =10kHz~20kHz 3V _{P-P} (V _{CC} =6.5V)	5		6.5	V
			H-Osc. Frequency	f _{HO}	V _{CC} =12V	15.2		16.5	kHz
			Frequency Drift with Supply Voltage (H-Osc.)	df _{HO} /V _{CC}	f _{HO} [14.4V]-f _{HO} [9.6V]	0		100	Hz
			H-Osc. Pulse Width (Duty)	τ _{H-DUTY}	V _{CC} =12V				
					AN5410	42		50	%
					AN5411	36		41	%
			H-Osc. Frequency Control Sensitivity	β _H	I _O =±100μA	17	18.9	20.8	Hz/μA
			AFC Loop Gain	f _C	μ×β	4500	6050	7600	Hz/rad
Protector Operation Voltage	V ₁₂₋₄		AN5410	5.7		6.9	V		
	V ₁₂₋₉	V ₉₋₄ ÷6V	AN5411	-20	80	180	mV		
AN5429	Deflection Signal Processing Circuit	V _{CC} (V ₇₋₁₀)=10.5V V _{CC} (V ₁₅₋₁₀)=14.4V I _{CC} (I ₇)=16mA I _{CC} (I ₁₅)=20mA P _D =460mW T _{opr} =-20~+70°C T _{stg} =-55~+150°C	Circuit Current	I ₇		7.5	12	15.5	mA
				I ₁₅		13	20	27	mA
			Sync. Sep. H Pulse Width	τ _{sync}	Video input 2.5V _{P-P} APL=50%	4.8	5.1	5.4	μs
			V Free Osc. Start Supply Voltage	V _{VFO-S}	f _{vo} at 40~60Hz Output 3V _{P-P} and over, V _{CC1}			6	V
			V Free Osc. Frequency	f _{VO}	R _{OSC(V)} =9.5kΩ V _{CC1} =12V	47	50	53	Hz
			Frequency Drift with Supply Voltage (V-Osc.)	df _{vo} /V _{CC}	V _{CC1} =14.4V and 9.6V f _{vo} diff.	0	1	1.3	Hz
			f _{vo} Frequency Drift with Ambient Temperature	df _{vo} /Ta	Ta=-20~+70°C		0.8		Hz
			V Free Osc. Pulse Width	τ _{vo}	R _{OSC(V)} =9.5kΩ V _{CC1} =12V	420	600	780	μs
			H Free Osc. Start Supply Voltage	V _{HFO-S}	f _{HO} =10~20kHz Output 2V _{P-P} and over, V _{CC2}	7.5			V
			H Free Osc. Frequency	f _{HO}	R _{OSC(H)} =2.95kΩ	15	15.75	16.25	kHz
			H Osc. Pulse Duty Ratio	τ _{HO}	V _{CC2} =12V	31.5	35.4	38.9	%
			Frequency Drift with Supply Voltage (H-Osc.)	df _{HO} /V _{CC}	V _{CC2} =14.4V and 9.6V f _{HO} diff.	0	100	200	Hz
			H Osc. Control Sensitivity	β _H	ΔI ₁ ±100μA f _{HO} change	19.8	21.8	23.8	Hz/μA
			AFC Loop Gain	f _C			8.2		kHz/rad
			Protector Operation Voltage	V ₅₋₁₀		0.55		0.75	V

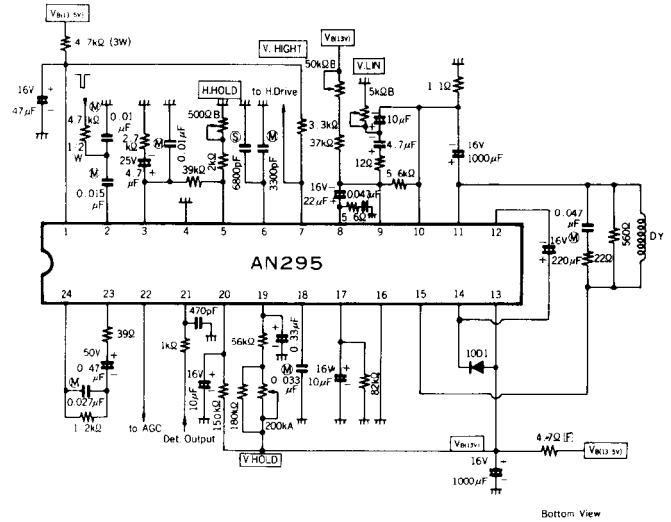
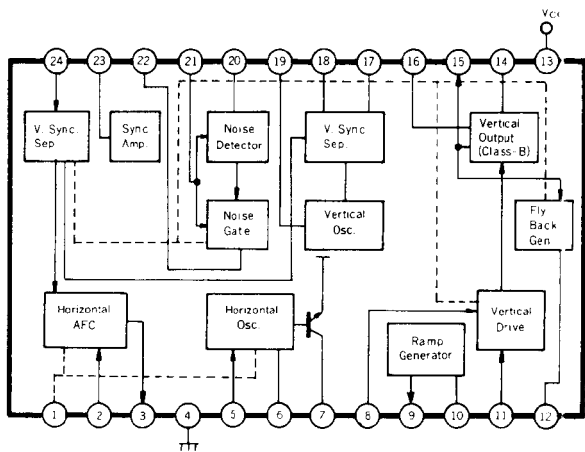
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IC's For TV

Block Diagram

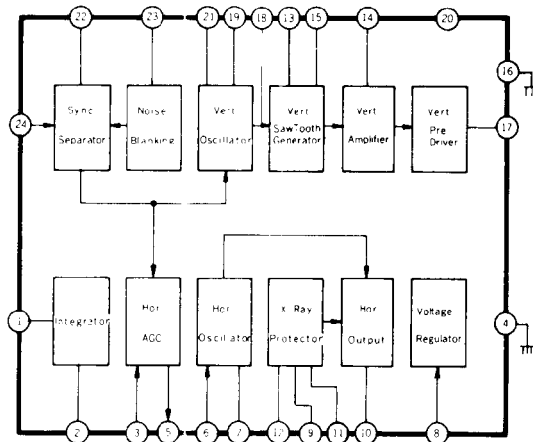
Application Circuit

AN295 (Package I—28,24—Lead Plastic Power DIL)



Bottom View

AN5410/AN5411 (Package I—21,24—Lead Plastic DIL)



Note: Pin 9 is No Connection for AN5410. Application circuit see page 184

AN5429 (Package I—20,18—Lead Plastic DIL)

