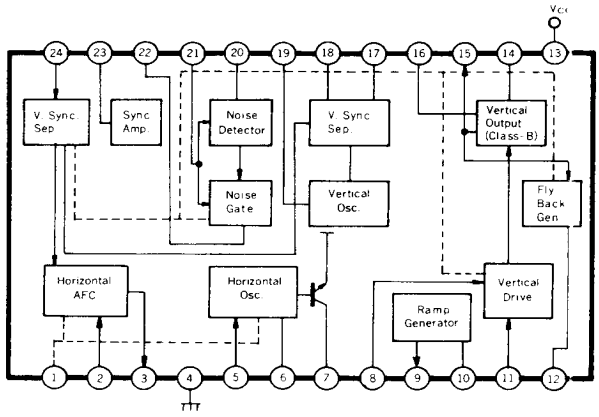
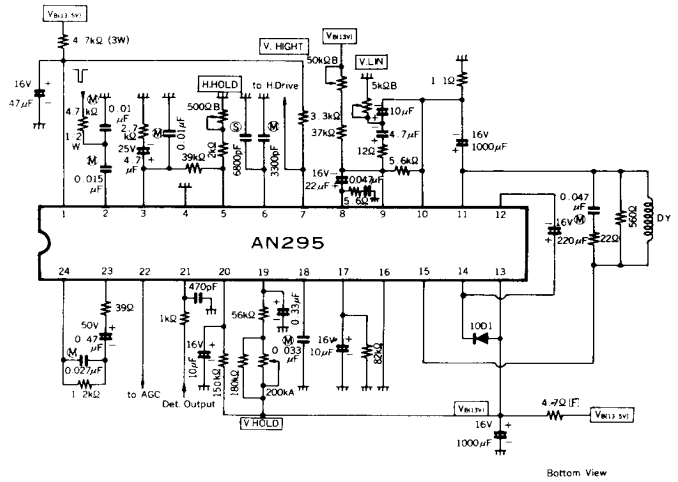
IC's For TV

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	$V_{CC}(V_{1\text{-}4})$=13.8V $V_{CC}(V_{13\text{-}16})$=15.0V I_{13}=170mA P_D=2.1W Topr=−20~+70℃ Tstg=−55~+150℃	Total Circuit Current	I_1	V_{CC1}=13V	33	46	66	mA
			AGC Output Voltage	$V_{O(AGC)}$	V_{CC1}=13V, Pin㉒-④	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
			Verical Pull-in Range	f_{VP}		34.5	38	41.5	Hz
			V-Deflection Output Current	$I_{P\text{-}P}$	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, $R_{OSC(H)}$=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=−100μA)−f(ΔI=+100μA)/200	15.1	17.2	19.3	Hz/μA
			Sync. Separation Start Input Voltage	Vsync·s	τ_H=4.7~5.3μs, $V_O \geq 1V_{P\text{-}P}$			0.18	Vp-p
			Sync. Separation Horizontal Pulse Width	τsync·s	Input H-sync signal 0.6—1.2$V_{P\text{-}P}$	4.7	5	5.3	μs
			Vertical Output Saturation Voltage	$V_{15\text{-}16}$	V_{CC1}=11.5V			0.16	V
			Horizontal Output Saturation Voltage	$V_{7\text{-}4}$				0.21	V
AN5410 AN5411	Deflection Signal Processing Circuit	$V_{CC}(V_{20\text{-}16(4)})$=14.4V $V_{CC}(V_{8\text{-}4(16)})$=15.0V I_{20}=22mA I_8=18mA P_D=600mW Popr=1±0.6kg/cm² Gopr=1000G Sopr=500G Topr=−20~+70℃ Tstg=−55~+150℃	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.)	$\Delta f_{VO}/V_{CC}$	fvo[9.6V]-fvo[14.4V]	0	0.84	1	Hz
			Frequency Drift with Ambient Temperature (V-Osc.)	$\Delta f_{VO}/Ta$	V_{CC}=12V, Ta=−20~+70℃	0		1	Hz
			V-Osc. Pulse Width	τ_{VO}	V_{CC}=12V	500		820	μs
			V-Middle-point Temperature Dependance	V_{MID}/Ta	Ta=−20~+70℃	−0.5		0.5	V
			H-Osc. Start Voltage	$V_{fHO\text{-}S}$	f_{HO}=10kHz~20kHz 3$V_{P\text{-}P}$(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.)	$\Delta f_{HO}/V_{CC}$	f_{HO}[14.4V]-f_{HO}[9.6V]	0		100	Hz
			H-Osc. Pulse Width (Duty)	$\tau_{H\text{-}DUTY}$	V_{CC}=12V AN5410	42		50	%
					V_{CC}=12V 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	$V_{12\text{-}4}$	AN5410	5.7		6.9	V
				$V_{12\text{-}9}$	$V_{9\text{-}4}$≒6V AN5411	−20	80	180	mV
AN5429	Deflection Signal Processing Circuit	$V_{CC}(V_{7\text{-}10})$=10.5V $V_{CC}(V_{15\text{-}10})$=14.4V $I_{CC}(I_7)$=16mA $I_{CC}(I_{15})$=20mA P_D=460mW Topr=−20~+70℃ Tstg=−55~+150℃	Circuit Current	I_7		7.5	12	15.5	mA
				I_{15}		13	20	27	mA
			Sync. Sep. H Pulse Width	τsync	Video input 2.5Vp-p APL=50%	4.8	5.1	5.4	μs
			V Free Osc. Start Supply Voltage	$V_{fVO\cdot S}$	f_{VO} at 40~60Hz Output 3$V_{P\text{-}P}$ 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.)	$\Delta f_{VO}/V_{CC}$	V_{CC1}=14.4V and 9.6V f_{VO} diff.	0	1	1.3	Hz
			fvo Frequency Drift with Ambient Temperature	$\Delta f_{VO}/Ta$	Ta=−20~+70℃		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	$V_{fHO\cdot S}$	f_{HO}=10~20kHz Output 2$V_{P\text{-}P}$ 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.)	$\Delta f_{HO}/V_{CC}$	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	$V_{5\text{-}10}$		0.55		0.75	V

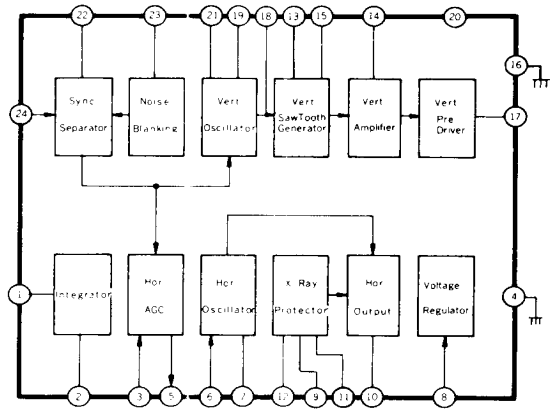
Block Diagram	Application Circuit

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





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)