

AN5612, AN5613

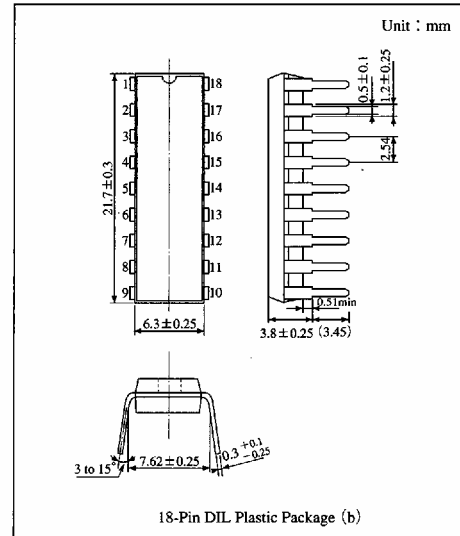
Video Signal, Chrominance Signal Processing ICs for Color TV

Overview

The AN5612 and the AN5613 are integrated circuits designed for color TV video signal and chrominance signal processing circuits.

Features

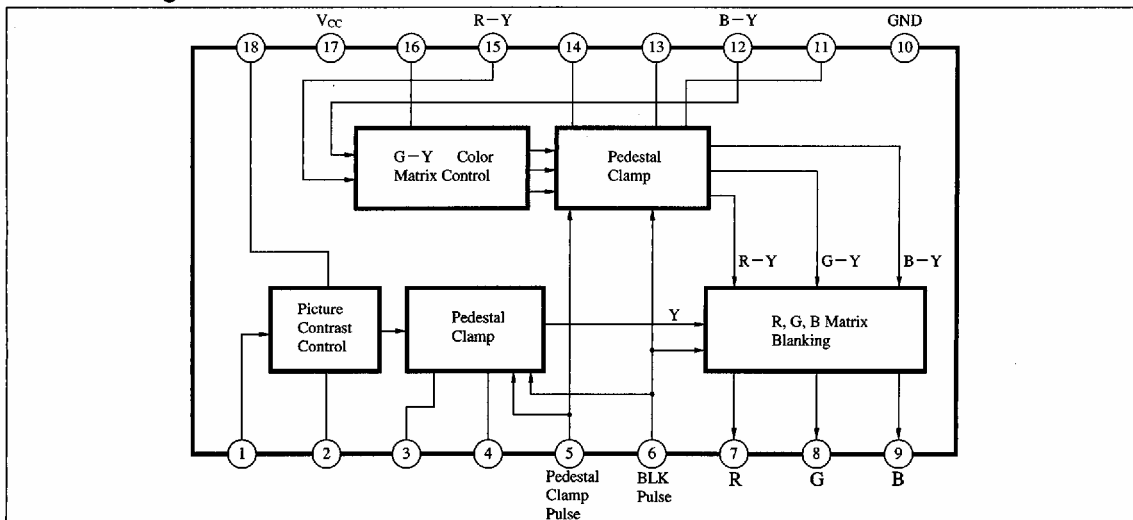
- Chrominance signal processing circuit for either PAL or SECAM system color TV receivers, which can be made by using the AN5612 or the AN5613 in combination with the AN5622 and the AN5630N
PAL system : AN5612/AN5613, AN5622
SECAM system : AN5612/AN5613, AN5622, AN5630N
- Incorporating luminance signal mixer circuit, they provide R.G.B. primary color output
- DC regeneration
AN5612...60% AN5613...100%



Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	Y signal input	10	GND
2	Picture control	11	B-Y clamp capacitor
3	Y clamp capacitor	12	B-Y signal input
4	Brightness control	13	G-Y clamp capacitor
5	Pedestal clamp pulse input	14	R-Y clamp capacitor
6	Blanking pulse input	15	R-Y signal input
7	R output	16	Color control
8	G output	17	V _{cc}
9	B output	18	Contrast control

Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating		Unit
Voltage	Supply voltage	V _{CC}	14.4		V
	Circuit voltage	V ₄₋₁₀ , V ₁₆₋₁₀ , V ₁₈₋₁₀	V ₁₇₋₁₀	0	V
		V ₅₋₁₀ , V ₆₋₁₀	+6	-4	V
Current	Circuit current	I ₇ , I ₈ , I ₉	+7	-15	mA
		I ₁₁ , I ₁₃ , I ₁₄	+3	-3	mA
Power dissipation (Ta=70°C)		P _D	800		mW
Temperature	Operating ambient temperature	T _{opr}	-20 to +70		°C
	Storage temperature	T _{sig}	-55 to +155		°C

■ Electrical Characteristics (Ta=25°C)

Parameter		Symbol	Condition	min	typ	max	Unit
Total circuit current	I _{tot}	V _{CC} =12V	AN5612	28	38	48	mA
			AN5613	27	37	47	
Voltage gain (max. Video)	A _V	Sine wave 10kHz, 100mV _{rms} input, contrast max., picture min.		3.1	4.0	4.9	times
Contrast attenuation ratio (min.)	A _{Vmax} /A _{Vmin}			0.15	0.19	0.26	times
Frequency characteristics (Video)	f _c	Sine wave 100mV _{rms} input, frequency when output/input is -3dB, picture min. (10kHz level assumed as 0dB)		6	—	—	MHz
DC transfer quantity	T _{DC}	Video input 1V _{P-P} (stair step), APL10 to 90%, B output	AN5612	46	—	60	%
			AN5613	90	96	100	
Color difference voltage amplification	B-Y	A _{V(B-Y)}	Sine wave 10kHz, 240mV _{P-P} , Pin ^⑨ output voltage gain for Pin ^⑫ input	5.1	6.6	7.9	times
	R-Y	A _{V(R-Y)}	Cosine wave 10kHz, 200mV _{P-P} , Pin ^⑦ for Pin ^⑮ input	5.1	6.6	7.9	times
G-Y color difference ratio	G-Y / B-Y		Sine wave 10kHz, 240mV _{P-P} , Pin ^⑫ input cosine wave 10kHz, 200mV _{P-P} , Pin ^⑧ output ratio to Pin ^⑨ output for Pin ^⑮ input	0.28	0.34	0.40	times
Demodulated color (G-Y)	∠(G-Y)		In G-Y/B-Y, phase difference between Pin ^⑧ output and Pin ^⑨ output	234	236	239	deg.
Color difference output voltage (max.)	e _o		Sine/cosine wave 10kHz, Pin ^⑦ or Pin ^⑨ output voltage at input 1.5V _{P-P}	5.5	6.5	7.6	V _{P-P}
Differential gain (Video Amp.)	DG		Superimpose 3.58MHz components at 10mV _{P-P} on the video part of stair step 1V _{P-P} for measurement with a vector-scope	—	—	6	%
Demodulation output DC voltage	E _{O(DC)}		V ₄ =8V, at non-input signal : RGB each outputs	1.3	1.9	2.4	V
E _{O(DC)} supply voltage dependency	ΔE _{O(DC)} / V _{CC}		V _{CC} =12V±20%, V ₇ =2.0V (V _{CC} =12V) R.G.B outputs	0.16	0.24	0.32	V/V
E _{O(DC)} ambient temperature dependency	ΔE _{O(DC)} / Ta		V ₇ =2.0V (Ta=25°C) Ta=-20 to +70°C, R.G.B outputs	-4	-2	+0.5	mV/°C
DC voltage difference between demodulation outputs	ΔE _{X-Y}		V ₇ =2.0V, output differential voltage for each of R.G.B	—	0	±300	mV
ΔE _{X-Y} supply voltage dependency	ΔE _{X-Y} / V _{CC}		V _{CC} =12V±20%, V ₇ =2.0V (V _{CC} =12V) for V _{CC} =12V	—	0	±100	mV
ΔE _{X-Y} ambient temperature dependency	ΔE _{X-Y} / Ta		V ₇ =2.0V (Ta=25°C), Ta=-20 to +70°C, for Ta=25°C	—	0	±100	mV
Pedestal clamp voltage	V _(clamp)		Pulse voltage for pedestal clamp operation	0.65	0.85	1.05	V
Blanking voltage	V _(BLK)		Pulse voltage for blanking operation	0.65	0.85	1.05	V

ICs for TV

Application Circuit (Combined Use of the AN5612/5613, the AN5622 and the AN5630N)

