

Description

The TAA700 is a silicon monolithic integrated signal processing circuit for television receivers. It combines the following functions:

- video pre-amplifier
- gated AGC detector supplying the AGC voltage for the vision IF amplifier and tuner (delayed)
- Noise gate for gating the AGC and sync separator circuits
- Sync separator
- Automatic horizontal synchronisation
- Vertical sync pulse separator
- Blanking facility for the video amplifier

The circuit is especially designed to be applied in hybrid television receivers with tubes in the deflection stages and (n.p.n.) transistors in the tuner and IF amplifier. The video output stage can be equipped either with a tube or a transistor.

Absolute maximum ratings

Storage temperature	$T_{st}$	-25 - + 125 °C
Dissipation	$P_{tot}$	see Fig. 2 1)

Characteristics

Supply voltage	12 V	+ 10%	2)
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Video amplifier

Input signal $V_{10-16}$	2 V	p-p	3)
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Detector load impedance ( $R_1$ in Fig.1)	2.7 kohm	+ 20%
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Input capacitance

< 1 pF

Output voltage  $V_{12-16}$

6 V

p-p

+ 10%

4)

Output impedance

emitter follower

Load impedance min.

1 kohm

Variation black level at the output due

to spread and temperature variation  $\Delta V_{12-16}$

600 mV

5)

Variation black level at the output with

supply voltage  $\Delta V_{12-16} / \Delta V_S$

0.75

Bandwidth (3 dB)	> 5 MHz	
Video blanking: Input voltage $V_{11-16}$	$1 < V_1 < 5 V_{p-p}$	
Input impedance	1 kohm	
<u>AGC circuit</u>		
Control voltage IF amplifier $V_{4-16}$	0 - + 8 V	6)
Control voltage tuner $V_{6-16}$	0 - + 7 V	6)
Signal expansion for full control of IF amplifier and tuner	< 15 %	6)
Gate pulse $V_{3-16}$	$1 < V_{gate} < 5 V_{p-p}$	7)
Input impedance	1 kohm	
<u>Synchronisation circuit</u>		
Sync separator		8)
Control voltage line oscillator $V_{2-1}$	+ 3 V	9)
Output voltage vertical sync pulse separator $V_{15-16}$	> 10 V <sub>p-p</sub>	
Output impedance	2 kohm	

- 1) During the warming-up period of the set the permissible dissipation may be increased to 700 mW.
- 2) During the warming-up period of the set a supply voltage up to 18V is allowed.
- 3) Negative going video signal (no pre-bias required for the detector).
- 4) Video signal with negative going sync; peak white level about 2V below the positive supply line. The video signal at the output will decrease about 15 mV/°C.
- 5) This figure is valid only for a video signal according to the CCIR standard.
- 6) These figures are obtained with a load impedance of 2 kohm for the IF control point ( $R_{4-16}$ ) and 1 kohm for the tuner control point ( $R_{6-16}$ ).

With these impedances the signal expansion for IF control and tuner control will be about the same. An increase of these impedances will decrease the signal expansion. Lower values of these impedances result in a lower available control voltage and a higher dissipation of the IC. Therefore, the minimum values must be restricted to 1.5 kohm for the IF control voltage and 750ohm for the tuner control voltage.

- 7) Operation of the IC without gating is possible. Then point 3 must be connected to the positive supply line via a resistor of a suitable value (e.g. 10kohm). However, it has the following consequences:
- The decoupling capacitors at the IF and tuner control points have to be increased to avoid ripple voltages due to the vertical sync pulses.  
As a consequence the AGC will not follow fast input signal fluctuations (airplane flutter).
  - The phase detector will not operate as a frequency detector when the horizontal oscillator is out of sync. This results in a considerable decrease of the catching range.
- 8) The sync pulse is sliced about 30% below top sync level.
- 9) Required reference voltage (sawtooth or differentiated line flyback pulse)  $\approx 7 \text{ V}_{\text{p-p}}$ . For an oscillator-reactance stage with a control sensitivity of 400 Hz/V this gives a holding range of about  $\pm 1000 \text{ Hz}$ . By means of the gating circuit in the phase detector a catching range is obtained of  $\pm 700 \text{ Hz}$  without affecting the noise immunity. This latter value can be obtained only with a high-ohmic load (tube-equipped reactance stage).

# TAA 700

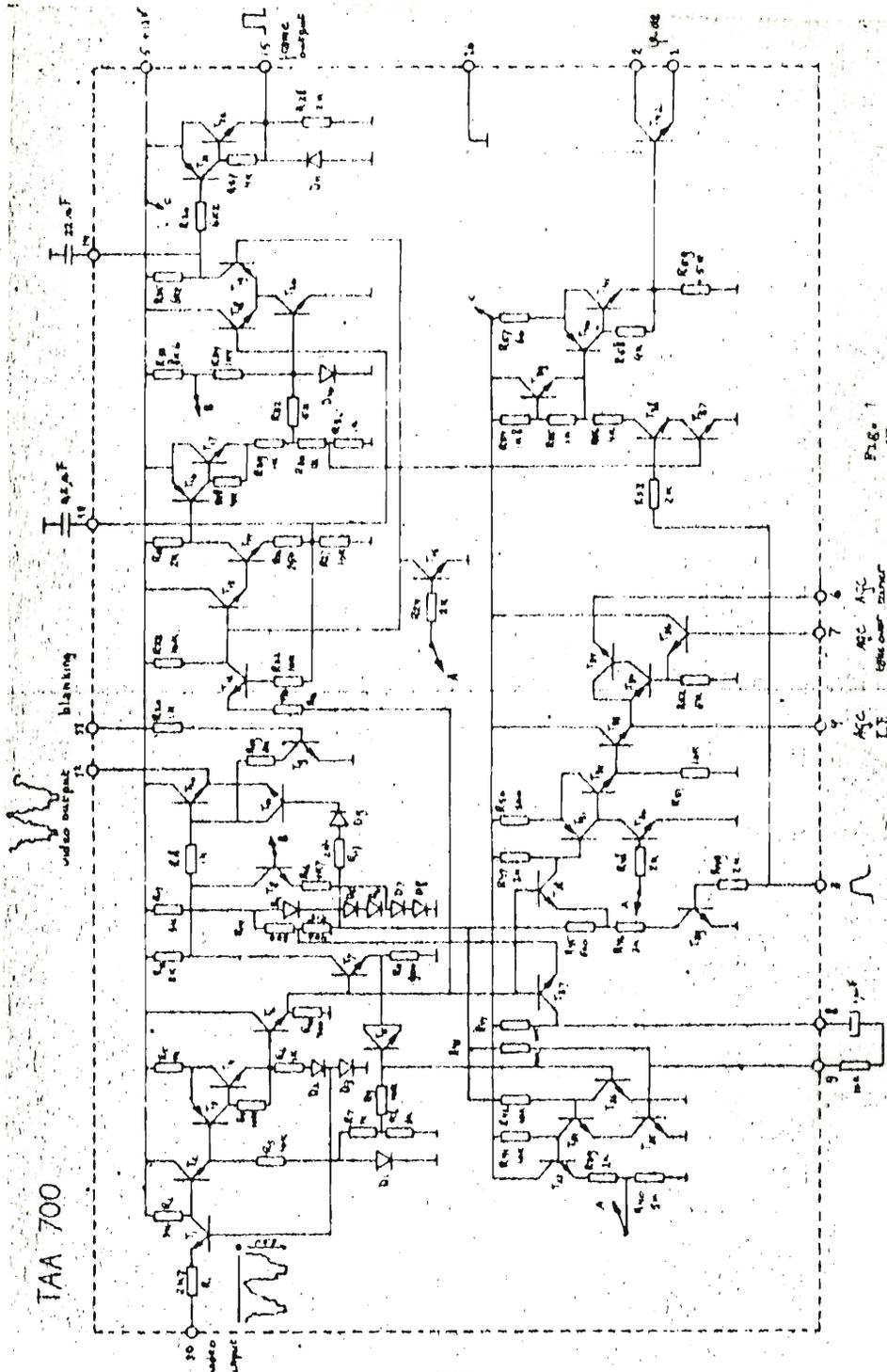


FIG. 7

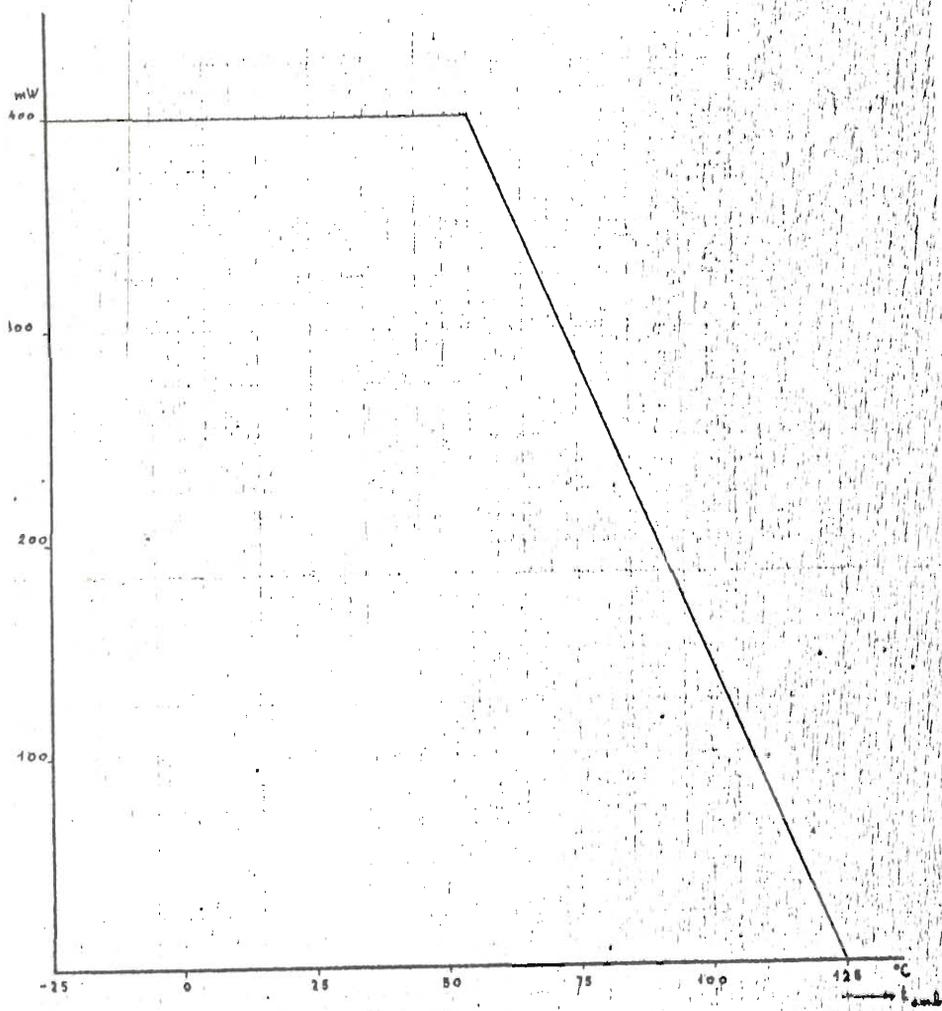


Fig. 2

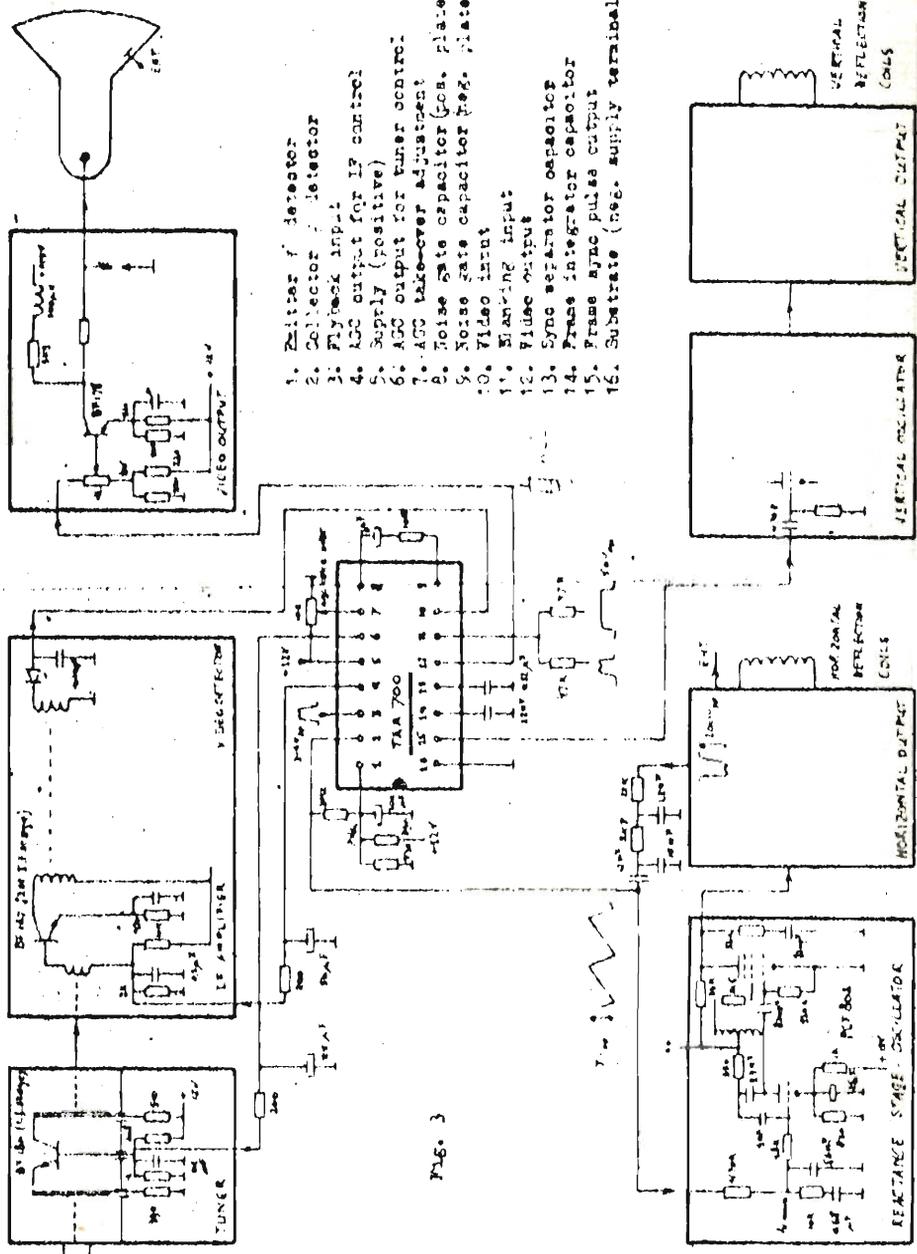


FIG. 3

