

## IF AMPLIFIER WITH DEMODULATOR AND AFC FOR POSITIVE MODULATION STANDARD

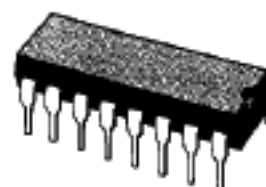
- SUPPLY VOLTAGE : 12 V TYP
- SUPPLY CURRENT : 50 mA TYP
- IF INPUT VOLTAGE SENSITIVITY AT  
 $f = 32.7 \text{ MHz}$  :  $85 \mu\text{V}_{\text{RMS}}$  TYP
- VIDEO OUTPUT VOLTAGE :  $2.5 \text{ V}_{\text{pp}}$  TYP
- IF VOLTAGE GAIN CONTROL RANGE : 64 dB  
TYP
- SIGNAL TO NOISE RATIO AT  $V_i = 10 \text{ mV}$  : 58 dB  
TYP
- A.F.C. OUTPUT VOLTAGE SWING FOR  
 $\Delta f = 100 \text{ kHz}$  : 10 V TYP

### DESCRIPTION

The TDA2542 is an IF amplifier and AM demodulator circuit for colour and black and white television receivers using PNP tuners. It is intended to reception positive modulation for french standard.

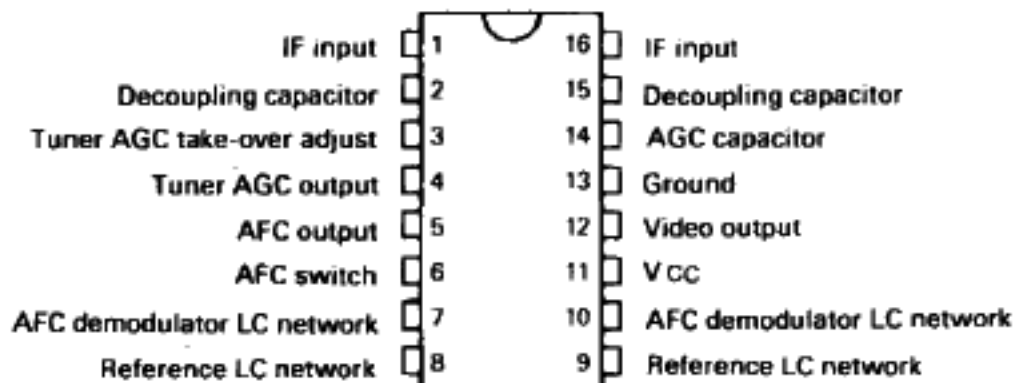
It incorporates the following functions

- Gain controlled amplifier
- Synchronous demodulator
- Video preamplifier
- Switchable AFC
- AGC
- Tuner AGC output (PNP tuner)

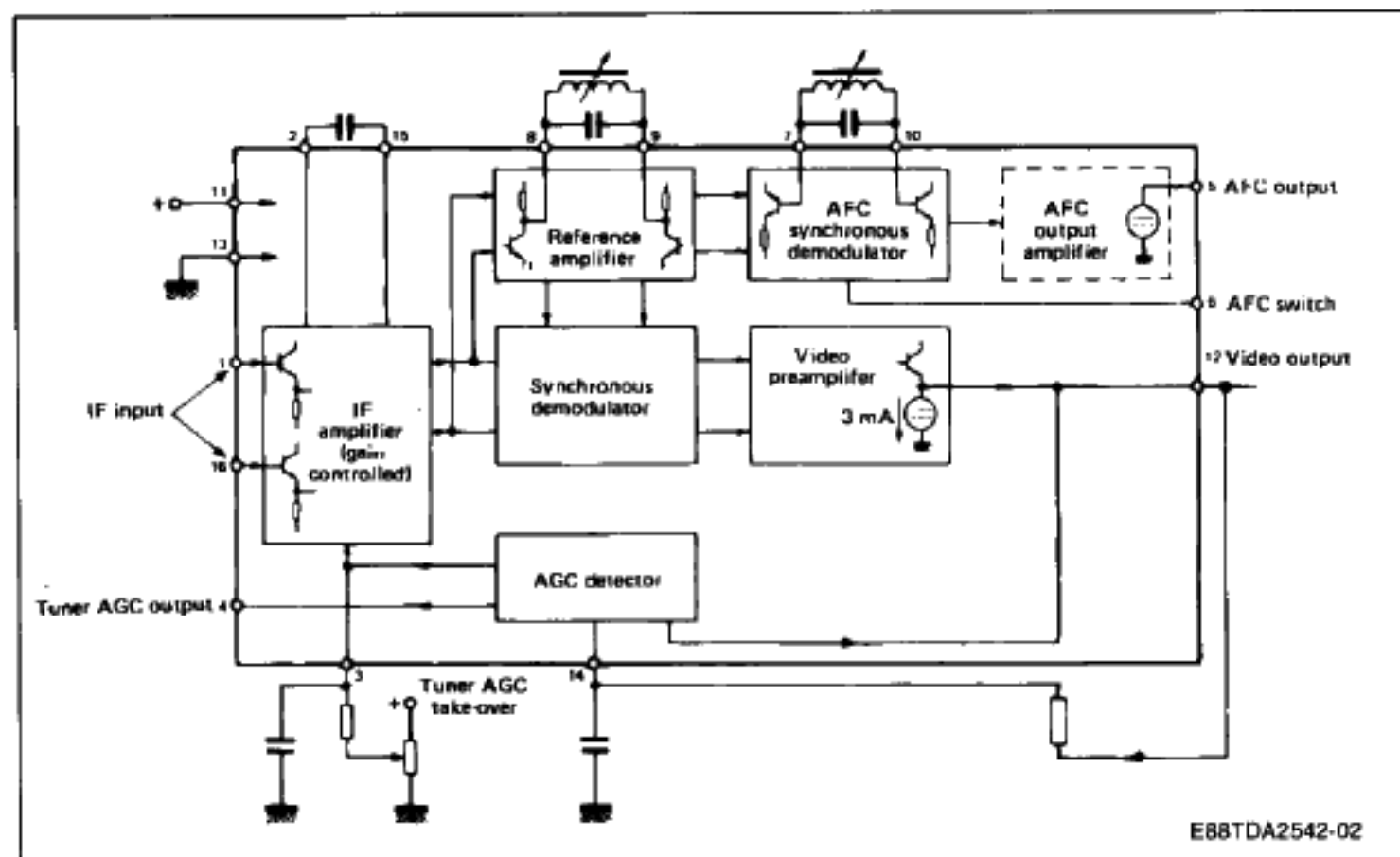


**TDA2542**  
**DIP16**  
(Plastic Package)

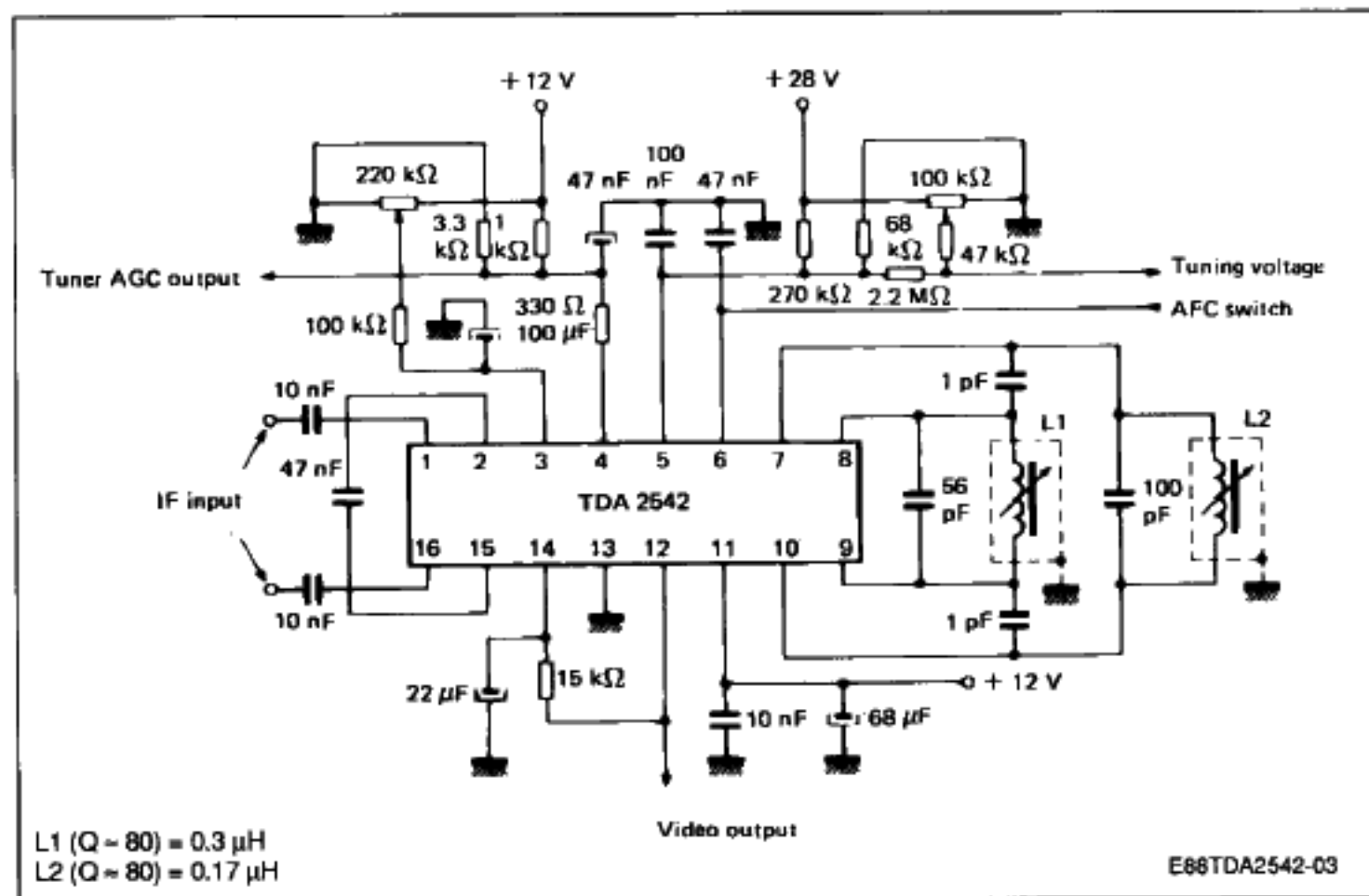
### PIN CONNECTIONS



## BLOCK DIAGRAM



## APPLICATION CIRCUIT



## ABSOLUTE MAXIMUM RATINGS

| Symbol           | Parameter                     | Value         | Unit |
|------------------|-------------------------------|---------------|------|
| V (11-13)        | Supply Voltage                | 13.8          | V    |
| V (4-13)         | Tuner A.G.C. Voltage          | 12            | V    |
| P <sub>tot</sub> | Power Dissipation             | 900           | mW   |
| T <sub>stg</sub> | Storage Temperature           | - 55 to + 125 | °C   |
| T <sub>amb</sub> | Operating Ambient Temperature | 0 to + 70     | °C   |

## THERMAL DATA

|                      |                                       |    |      |
|----------------------|---------------------------------------|----|------|
| R <sub>th(j-a)</sub> | Junction - ambient Thermal Resistance | 70 | °C/W |
|----------------------|---------------------------------------|----|------|

## ELECTRICAL OPERATING CHARACTERISTICS

T<sub>amb</sub> = 25 °C; V(11 - 13) = 12 V; f = 32. 7 MHz (unless otherwise specified)

| Symbol          | Parameter                                                           | Min. | Typ.   | Max. | Unit            |
|-----------------|---------------------------------------------------------------------|------|--------|------|-----------------|
| V(11-13)        | Supply Voltage Range                                                | 10.2 | 12     | 13.8 | V               |
| I <sub>11</sub> | Supply Current                                                      | 40   | 50     | 58   | mA              |
| V(1-16)         | IF Input Voltage Sensitivity                                        |      | 85     | 160  | μVRMS           |
|                 | Max Input Voltage (pins 1-16)                                       |      | 140    |      | mV              |
| V(12-13)        | Video Output Voltage                                                |      | 2.5    |      | V <sub>pp</sub> |
| Z 1-16          | Differential input Impedance (in parallel with 2 pF)                |      | 2      |      | kΩ              |
| V(12-13)        | Zero Signal Output Level                                            |      | 2.9    |      | V               |
| ΔG <sub>v</sub> | IF Voltage Gain Control Range                                       |      | 64     |      | dB              |
| S/N             | Signal to Noise (see note 1) (V <sub>1</sub> = 10 mV)               |      | 58     |      | dB              |
| B               | Bandwidth of Video Amplifier (- 3 dB)                               |      | 6      |      | MHz             |
| dG              | Differential Gain                                                   |      | 4      | 10   | %               |
| dφ              | Differential Phase                                                  |      | 2      | 10   | %               |
| V(12-13)        | Carrier Signal at Video Output                                      |      | 4      | 30   | mVRMS           |
| V(12-13)        | 2nd Harmonic of Carrier at Video Output                             |      | 20     | 30   | mVRMS           |
| V 14            | Reference Voltage of AGC Detector                                   |      | 3.9    |      | V               |
| I 4             | Tuner AGC Output Current Range                                      |      | 0 → 10 |      | mA              |
| V(4-13)         | Tuner AGC Output Voltage (I 4 = 10 mA)                              |      |        | 0.3  | V               |
| I 4             | Tuner AGC Output Leakage Current (V(14-13) = 11 V ; V(4-13) = 12 V) |      |        | 15   | μA              |
| V(5-13)         | AFC Output Voltage Swing (Δf = 100 kHz)                             | 10   | 11     |      | V               |
| Δf              | Change of Frequency at AFC Output (voltage swing of 10 V)           |      | 100    | 200  | kHz             |
| V(6-13)         | AFC Switches ON (AFC = high level) at                               | 3.2  |        |      | V               |
| V(6-13)         | AFC Switches OFF (AFC = low level)at                                |      |        | 1.5  | V               |

Note : 1.  $S/N = \frac{V_o \text{ (black to white)}}{V_n \text{ . (RMS at } B = 5 \text{ MHz)}} \text{ (dB)}$

Figure 1 : AFC Voltage versus Frequency V(5-13).

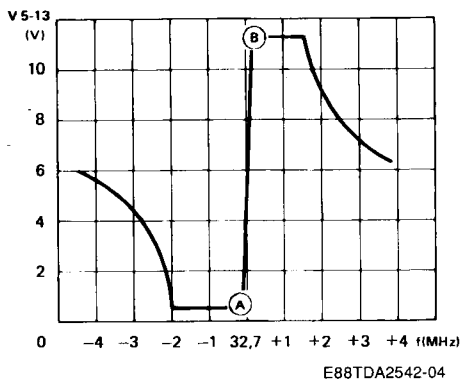


Figure 2 : AFC Voltage versus Frequency V(5-13).

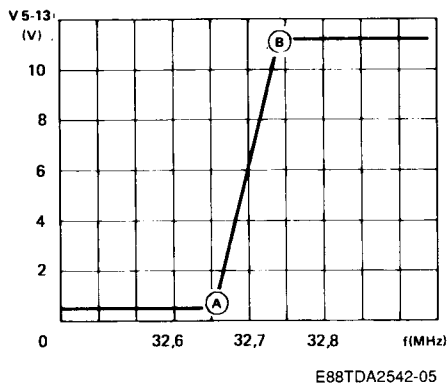


Figure 3 : Signal/Noise Ratio versus Input Voltage V(1-16).

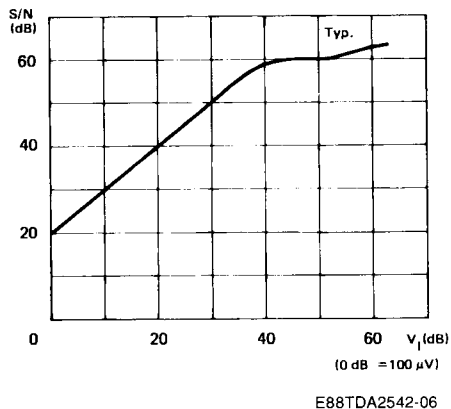
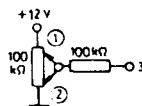
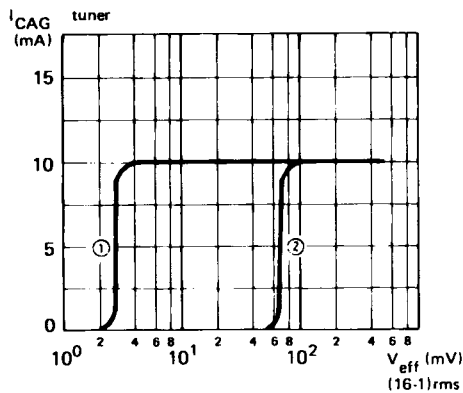


Figure 4 : AGC Tuner Current Curve.



E88TDA2542-07

## PACKAGE MECHANICAL DATA

16 PINS – PLASTIC DIP

