

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 MHz : 85 μ V_{RMS} TYP
- VIDEO OUTPUT VOLTAGE : 2.5 V_{pp} TYP
- IF VOLTAGE GAIN CONTROL RANGE : 64 dB
TYP
- SIGNAL TO NOISE RATIO AT V_i = 10 mV : 58 dB
TYP
- A.F.C. OUTPUT VOLTAGE SWING FOR
 Δ f = 100 kHz : 10 V TYP

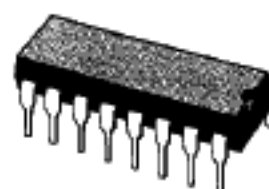
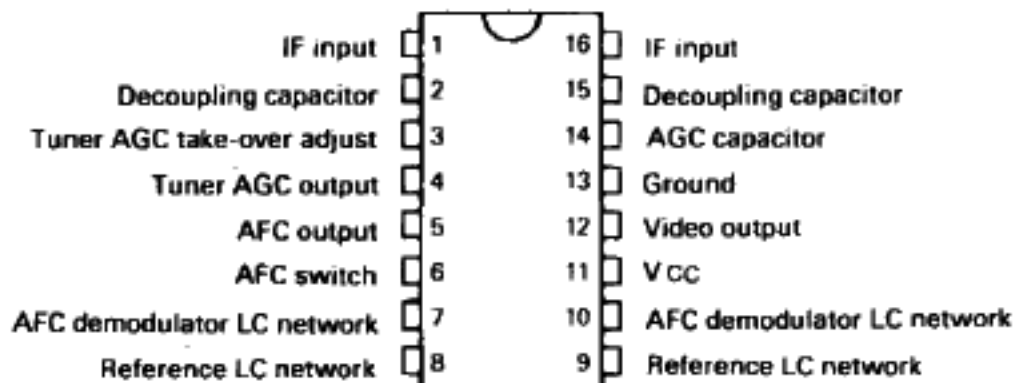
DESCRIPTION

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

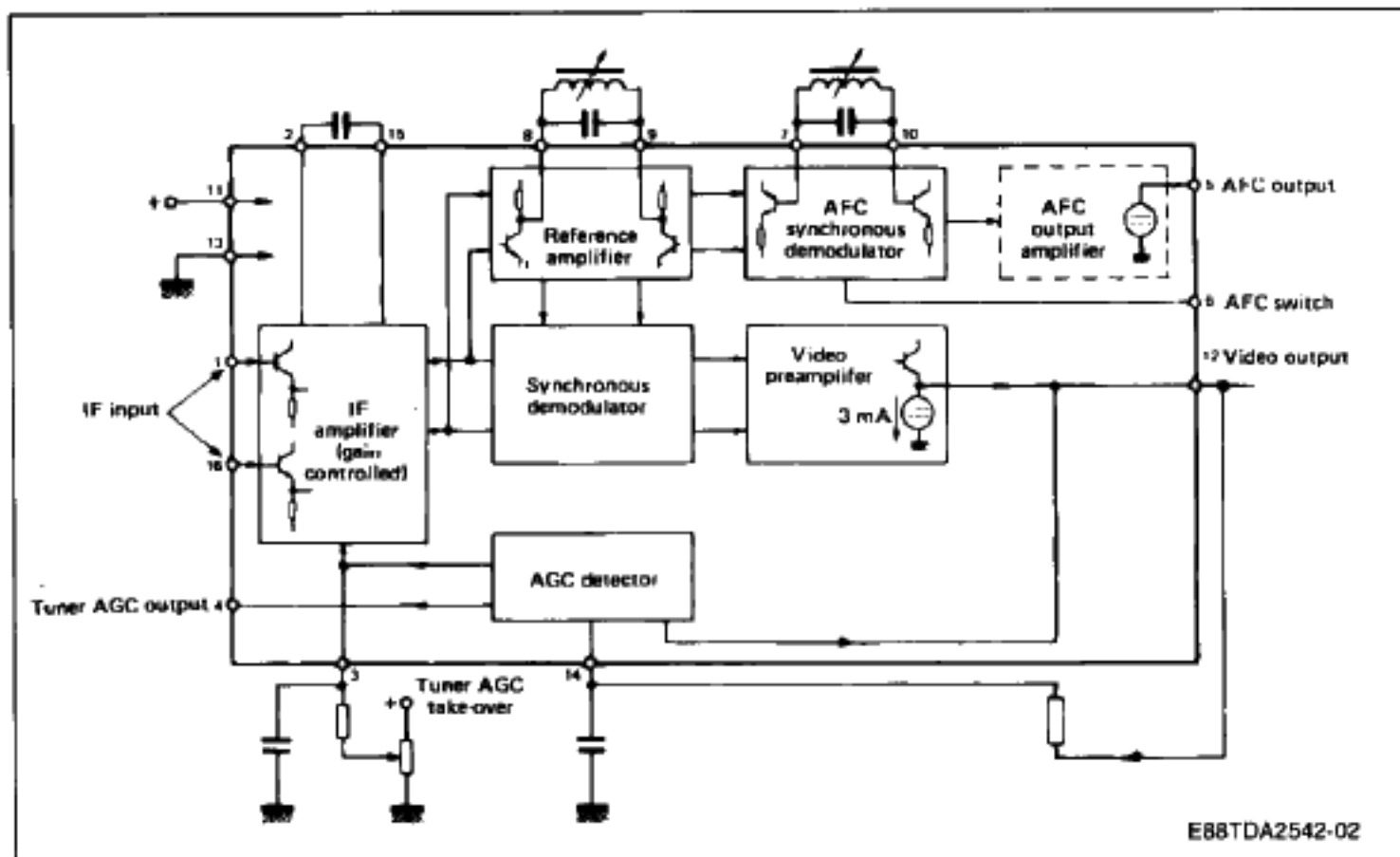
- Gain controlled amplifier
- Synchronous demodulator
- Video preamplifier
- Switchable AFC
- AGC
- Tuner AGC output (PNP tuner)

PIN CONNECTIONS

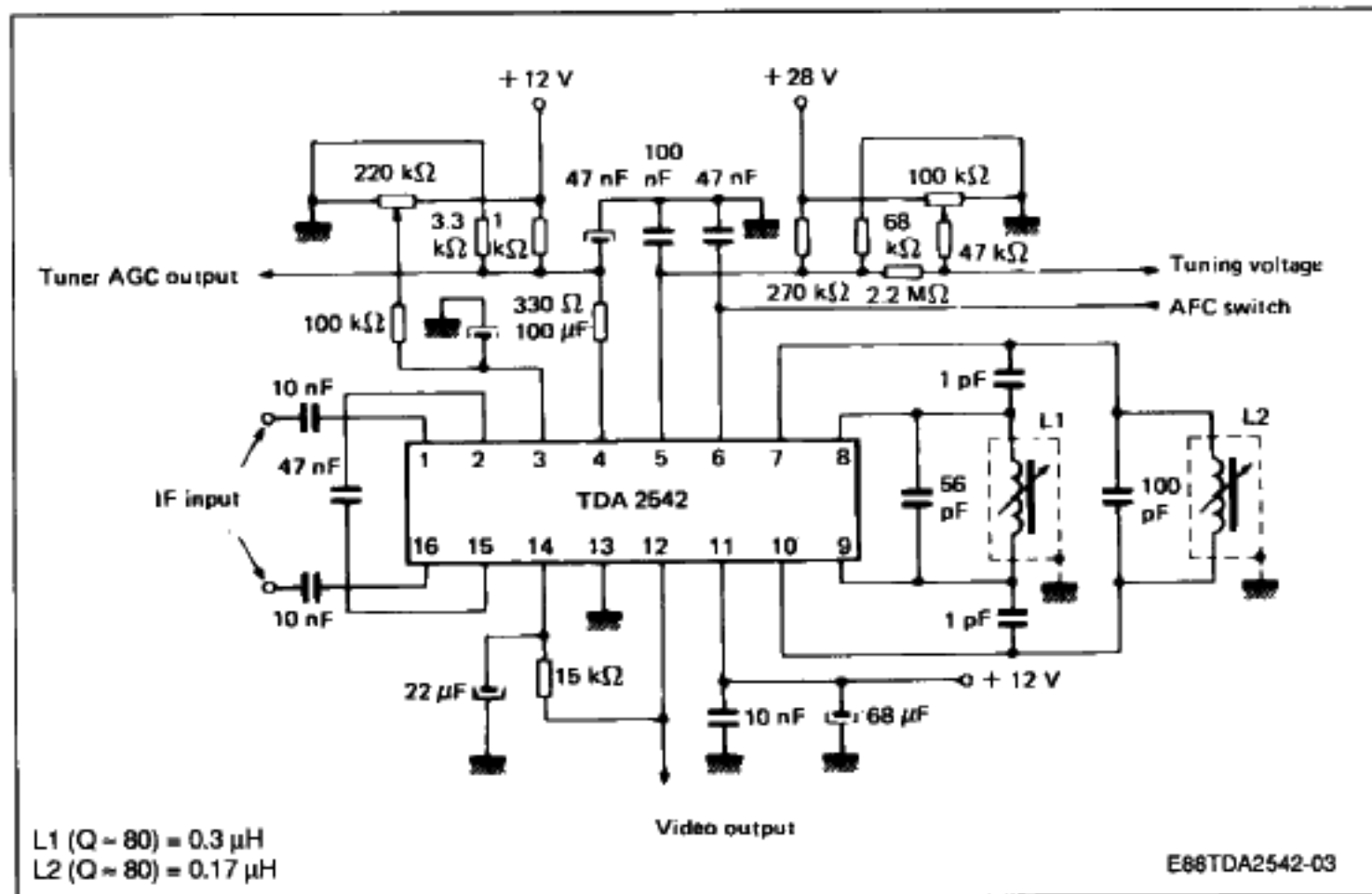


TDA2542
DIP16
 (Plastic Package)

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 _{tot}	Power Dissipation	900	mW
T _{stg}	Storage Temperature	- 55 to + 125	°C
T _{amb}	Operating Ambient Temperature	0 to + 70	°C

THERMAL DATA

R _{th(j-a)}	Junction - ambient Thermal Resistance	70	°C/W
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ELECTRICAL OPERATING CHARACTERISTICS

T_{amb} = 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 ₁₁	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 _{pp}
Z 1-16	Differential input Impedance (in parallel with 2 pF)		2		kΩ
V(12-13)	Zero Signal Output Level		2.9		V
ΔG _v	IF Voltage Gain Control Range		64		dB
S/N	Signal to Noise (see note 1) (V ₁ = 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. $S/N = \frac{V_o \text{ (black to white)}}{V_n \text{ . (RMS at B = 5 MHz)}} \text{ (dB)}$

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

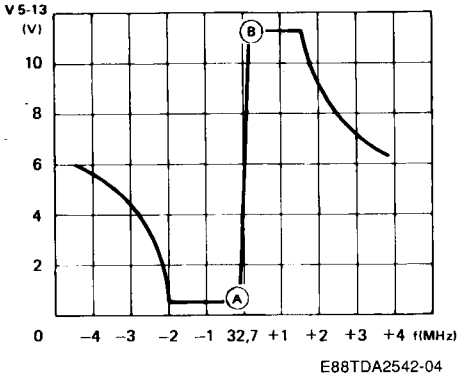


Figure 2 : AFC Voltage versus Frequency V(5-13).

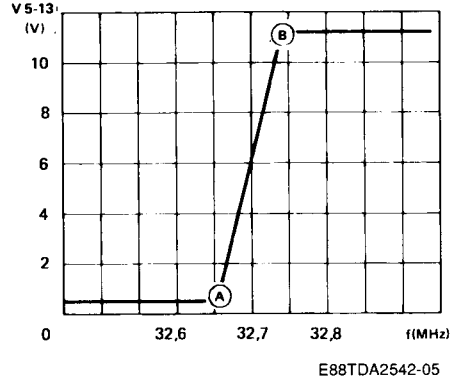


Figure 3 : Signal/Noise Ratio versus Input Voltage V(1-16).

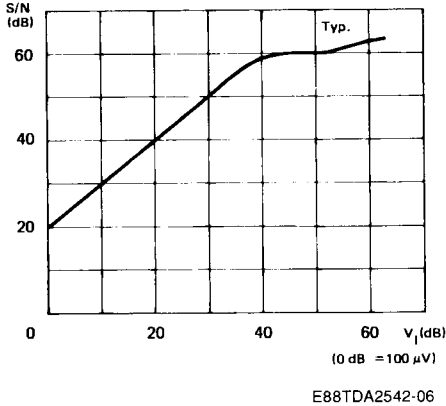
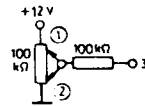
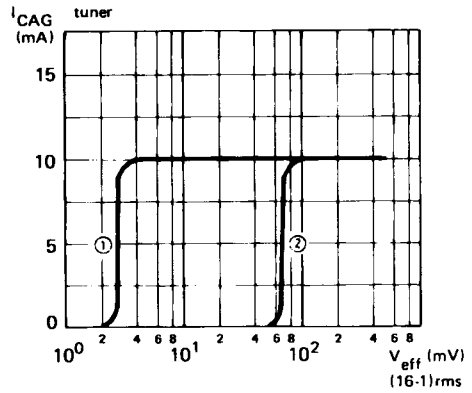


Figure 4 : AGC Tuner Current Curve.



E88TDA2542-07

PACKAGE MECHANICAL DATA

16 PINS – PLASTIC DIP

