

IF AMPLIFIER AND AM DETECTOR

The integrated circuit TDA1048 is intended for use in the french sound section of TV receivers (AM); this circuit includes the following functions:

- IF amplifier with automatic gain control
- AM detector with low distortion
- Electronic potentiometer (Audio frequency volume control by variation of DC voltage).

IF AMPLIFIER AND AM DETECTOR

CASE CB-79



DP SUFFIX
PLASTIC PACKAGE

PIN CONFIGURATION

Top view

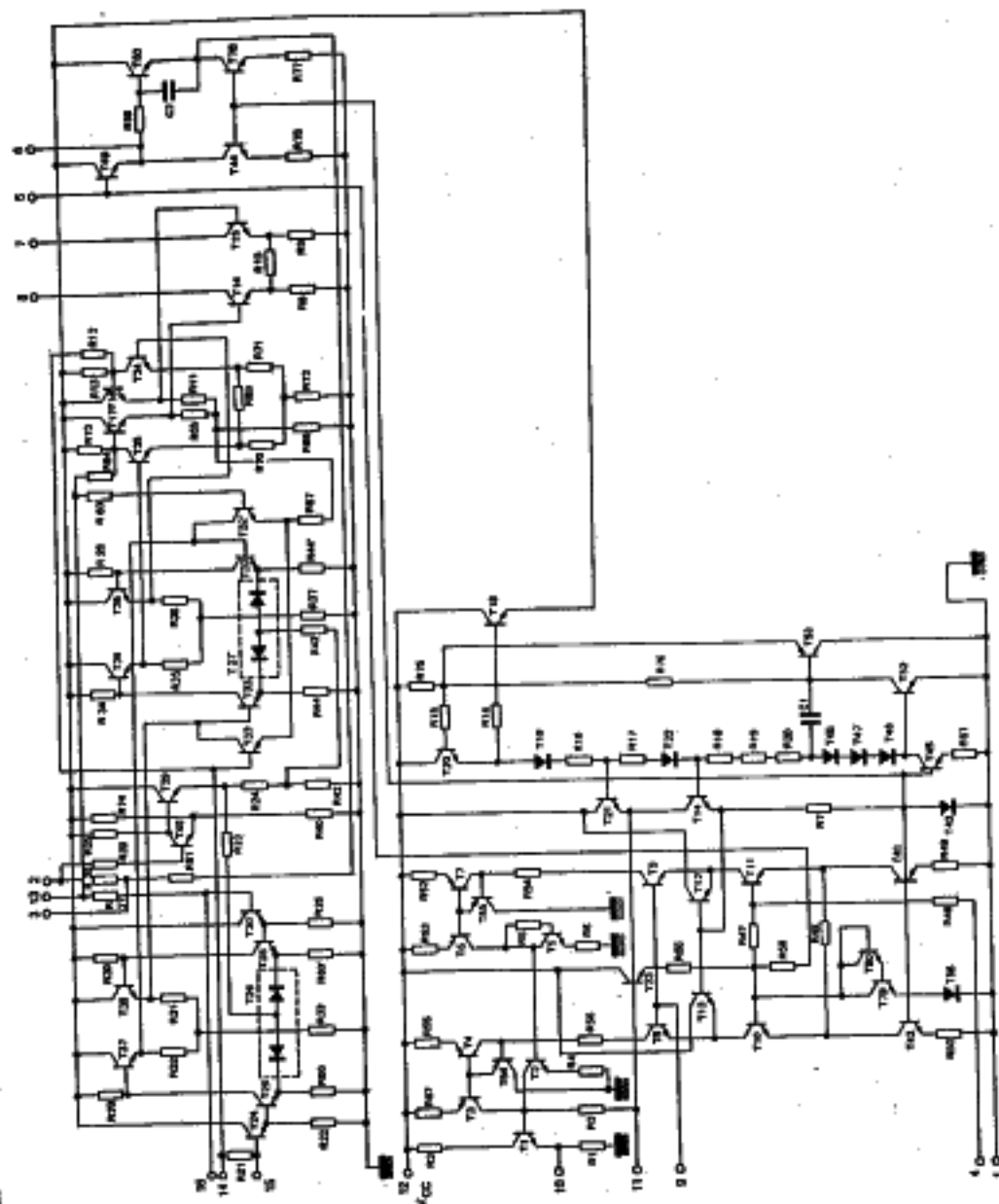


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|---|---|
| 1 Ground | 9 DC control input of AF pre-amplifier |
| 2 Decoupling | 10 AF output after electronic potentiometer |
| 3 AF constant level output | 11 Output regulated voltage |
| 4 AF constant level input | 12 Supply voltage |
| 5 IF input for demodulation | 13 Decoupling |
| 6 Filtering condensator | 14 Decoupling |
| 7 IF output | 15 HF input |
| 8 Supply voltage of IF output amplifier | 16 Decoupling |

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ELECTRIC DIAGRAM



T-77-05-07

MAXIMUM RATINGS (Transformer input 3 : 5)

Rating	Symbol	Value	Unit
Supply voltage	V_{CC}	16.5	V
Power dissipation	P_{tot}	700	mW
Ambient operating temperature	T_{amb}	0 to 80	°C
Storage temperature	T_{stg}	-40 to 125	°C
Maximum junction temperature	T_j	125	°C
Available current at the pin 11 (regulated internal power voltage)		8	mA

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Junction ambient, thermal resistance	$R_{th(j-a)}$	100	°C/W

ELECTRICAL CHARACTERISTICS

 $T_{amb} = +25^{\circ}\text{C}$; $V_{CC} = 12\text{V}$; $F_{IF} = 40\text{MHz}$

Characteristics	Symbol	Min	Typ	Max	Unit
Supply voltage	Pin 12	V_{CC}	10	15	V
Supply current	Pins 7, 8, 12	29	37	48	mA
IF constant output current (17 = 180)	Pins 7, 8	—	4	—	mA
Input regulation voltage (threshold) ($AF_{nom} - 3\text{dB}$)	Pins 15, 16	V_I to 60 Ω	100	—	μV_{eff}
AF output voltage $m = 80\%$	Pin 10	V_{AF}	0.9	1.4	V_{eff}
$m = 50\%$		—	900	—	mV _{eff}
$m = 30\%$		—	500	—	mV _{eff}
Maximum AF attenuation (11 = 47 μF)	Pin 10	$\frac{V_{AF\ max}}{V_{AF\ min}}$	70	80	dB
AF output impedance constant level (before volume adjustment)	Pin 3	—	200	300	Ω
AF output impedance (after volume adjustment)	Pin 10	—	130	160	Ω
Load impedance	Pin 3	R_L	3.3	—	k Ω
Load impedance	Pin 10	R_L	3.3	—	k Ω
Available regulated output voltage	Pin 11	4.4	5.1	5.6	V
Temperature coefficient of regulated voltage (between $+20^{\circ}$ and $+70^{\circ}$)	Pin 11	-1	—	+1	mV/°K
AF distortion for $m = 30\%$		—	—	1	%
AF distortion for $m = 50\%$		—	—	1.5	%
AF distortion for $m = 80\%$		—	—	2	%
Output AF level variation for 55 dB of IF signal input variation		—	3	—	dB
AF amplification	Pin 4 to 10	6	7	—	dB
Input impedance	Pin 4	6.5	9	11.5	k Ω
AF output level tolerance	Pin 10	-2	—	+2	dB
Input impedance for maximum gain		1.35	1.8	2.25	k Ω
		1.8	2.4	2.9	pF
Input impedance minimum gain		1.05	1.4	1.75	k Ω
		2.3	2.8	3.3	pF
Resistance of volume control potentiometer for 30 dB AF level maximum	R_{pot}	4	—	6	k Ω

