

AN240P

TV Sound IF Amplifier, FM Detector Circuits

■ Description

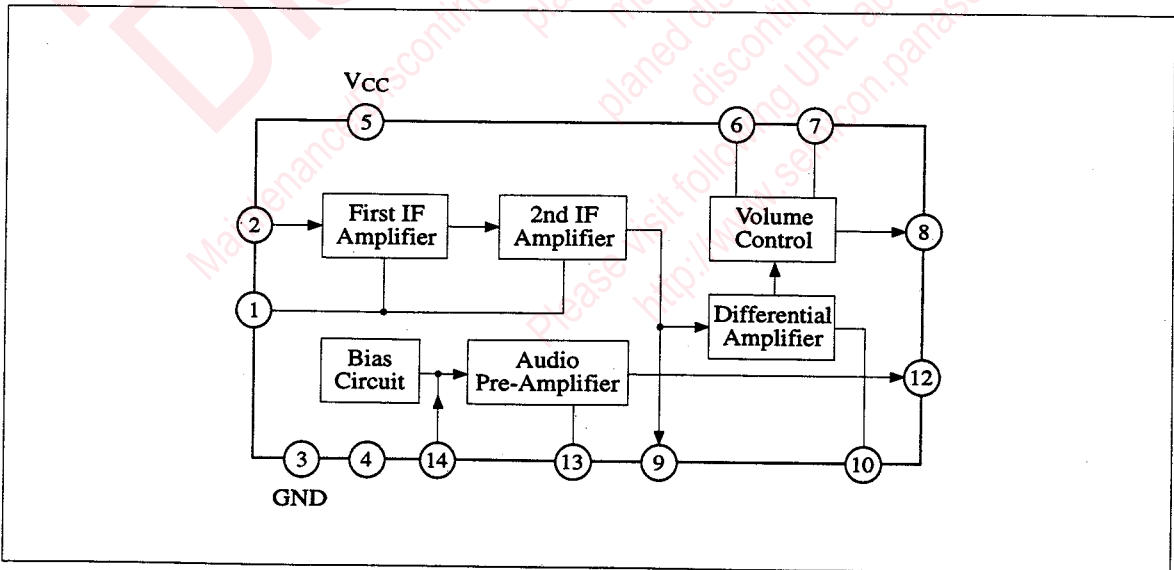
AN240P is an integrated circuit designed for Sound IF Amp and FM Detector in TV receiver sets.

■ Features

- Sound IF Amplifier
- FM Detector
- DC Volume Control Circuit
- Sound Pre-amplifier
- Differential Peak Detector Circuit
- Operates on 12V Supply



■ Block Diagram



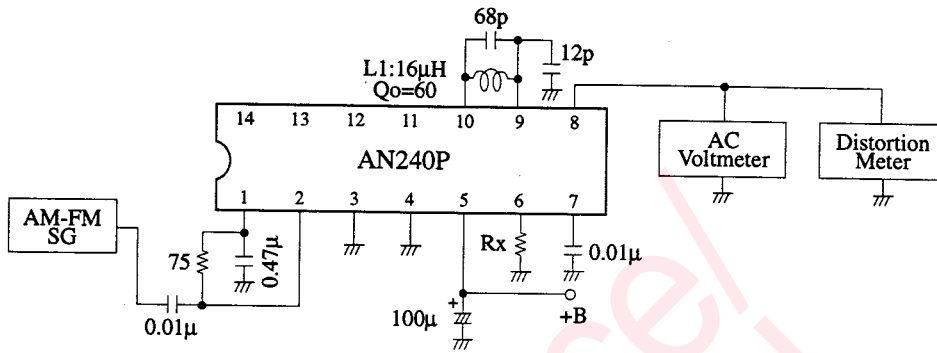
■ Absolute Maximum Ratings (Ta=25°C)

Item		Symbol	Rating		Unit
Supply Voltage		VCC	14.4		V
Voltage		V1-3	5	0	V
		V2-3, 10-3	4	-5	V
		V6-3	V5-3	-5	V
		V7-3	V5-3	0	V
		V9-3	4	0	V
		V14-3	3	-5	V
Current		I1, 2, 14	1	-0.1	mA
		I6, 7, 9	1	-1	mA
		I8	0.5	-6	mA
		I10	1	-0.1	mA
		I12	0.5	-6	mA
		I13	1	-2	mA
Supply Current		ICC	50		mA
Power Dissipation (Ta ≤ 70 °C)		PD	445		mW
Temperature	Operating Ambient Temperature	Topr	-20 ~ +70		°C
	Storage Temperature	Tstg	-40 ~ +150		°C

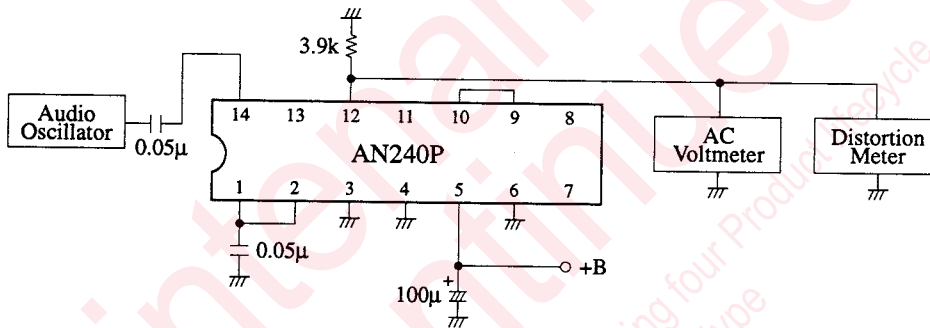
■ Electrical Characteristics (VCC=V5-3=12V, Ta=25°C)

Item	Symbol	Test Cct.	Condition	min.	typ.	max.	Unit	
Total Circuit Current	I _{tot}			17	22.5	27	mA	
IF Input Voltage	V ₁₋₃		Pin 1 - 2 shorted Pin 9 - 10 shorted		2		V	
Volume Control	V ₆₋₃			4.8		V		
De-emphasis	V ₇₋₃			6.1		V		
IF Output	V ₉₋₃			3.7		V		
Audio Output	V ₁₂₋₃			4.3	5.4	6.1	V	
Input Limiting Voltage (-3dB)	V _{i(lim)}	1		f _o =4.5MHz, f _m =400Hz, Δf=±25kHz		250	400	μVrms
AM Rejection	AMR	1	f _o =4.5MHz, f _m =400Hz, Δf=±25kHz AM=400Hz 30%, V _i =100mVrms, R _x =0	40	50		dB	
Input Impedance	R _{i(IF)}		f _o =4.5MHz, Pin 1-2		20		kΩ	
Input Impedance	C _{i(IF)}		f _o =4.5MHz, Pin 1-2		4.7		pF	
Output Impedance	R _{o(IF)}		f _o =4.5MHz, Pin 9-3		3.25		kΩ	
Output Impedance	C _{o(IF)}		f _o =4.5MHz, Pin 9-3		10		pF	
Demodulation Output	V _{o(AF)}	1	f _o =4.5MHz, f _m =400Hz, Δf=±25kHz V _i =100mVrms, R _x =0	0.6	0.8	1.2	Vrms	
THD (Demod.)	THD ₍₁₎	1			0.9	2.0	%	
Output Resistance Pin 7	R _O		f=400Hz		7.5		kΩ	
Output Resistance Pin 8	R _O		f=400Hz		300		Ω	
Attenuation (max.)	Att	1	f _o =4.5MHz, f _m =400Hz, Δf=±25kHz V _i =100mVrms, R _x =∞	60	80		dB	
AF Pre-Amp	Gain	G _{V(AF)}	2	f=400Hz, V _i =100mVrms	17.5	20	23	dB
	THD	THD ₍₂₎	2	f=400Hz, V _i =2Vrms		1.5		%
	Output	V _O	2	f=400Hz, THD=5%	2	2.5		Vrms
	Input Resistance	R _{i(AF)}		f=400Hz		50		kΩ
	Output Resistance	R _{o(AF)}		f=400Hz		270		Ω

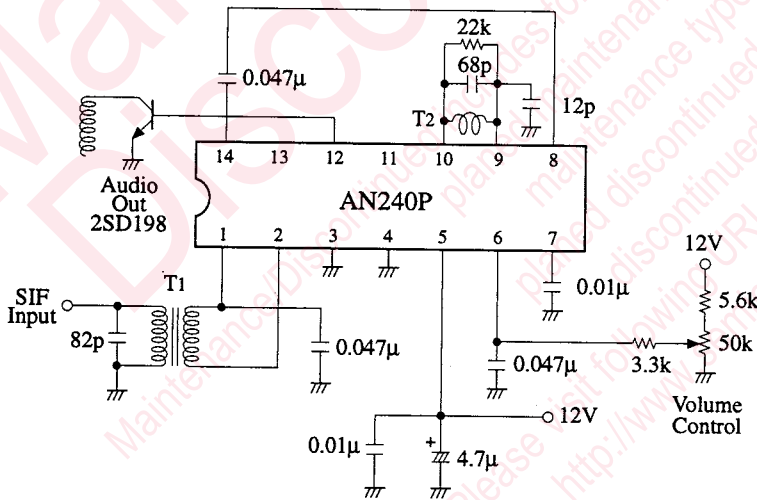
Test Circuit 1 ($V_{i(lim)}$, AMR, $V_{O(AF)}$, $THD_{(1)}$, Att)



Test Circuit 2 ($G_{V(AF)}$, $THD_{(2)}$, V_O)



■ Application Circuit



● Coil Specifications

Symbol	Diagram	Turns of coil	Kind of wire	Core
T1		N1 46T	2UEW 0.08	L(④ - ⑥): 13μH±10%
		N2 6T	2UEW 0.08	
T2		48.5T	2UEW 0.08	L(③ - ④): 13-8μH±10%

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