

AN5250

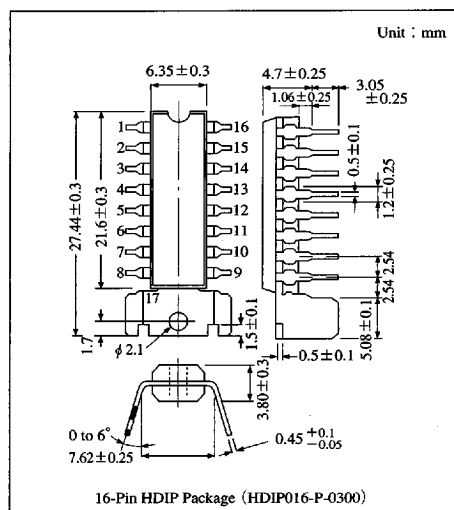
TV Sound-IF Amplifier, Detector, AF Output IC

Overview

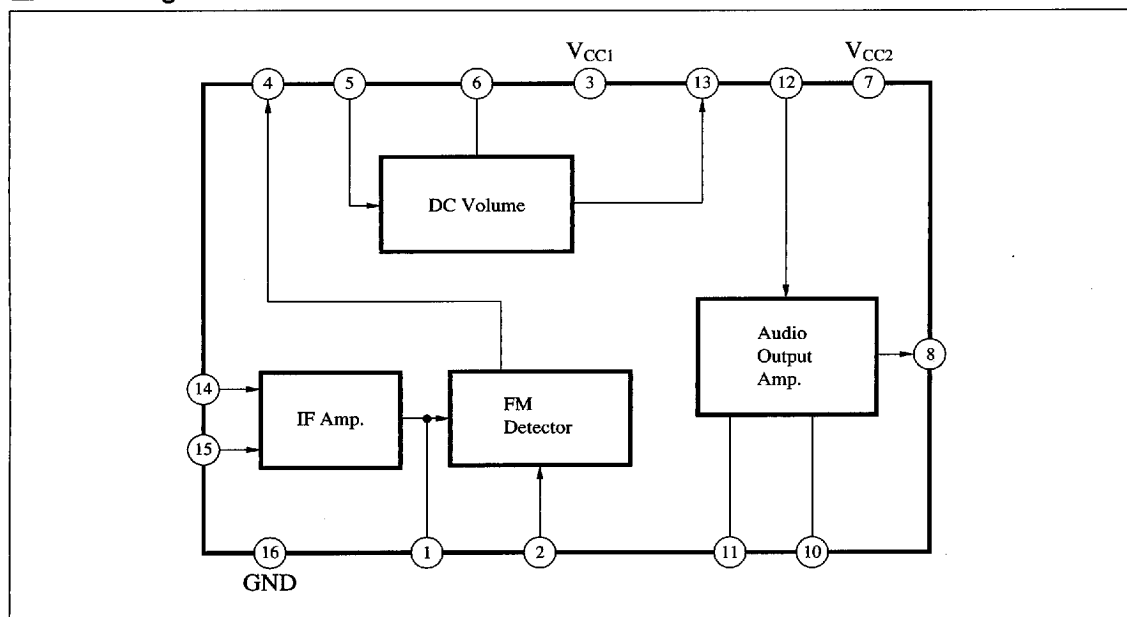
The AN5250 is an integrated circuit designed for TV sound signal processing circuit.

Features

- The AN5250 provides all TV sound signal processing circuit from IF amplifier through AF output.
- DC volume control system : control voltage 0 to V_{CC}
- Provided with fixed detection-output pin, this IC can also be used for TV sound multiplex application.



Block Diagram



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Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	SIF output	10	Feedback
2	Detector input	11	Filter
3	V _{CC1}	12	AF input
4	Detector output	13	Variable output
5	AF input	14	SIF input
6	DC volume	15	Input bias
7	V _{CC2}	16	GND
8	AF output	17	Fin
9	GND	—	—

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating		Unit
Voltage	Supply voltage	V _{CC1}	V ₃₋₁₆	13.8	V
		V _{CC2}	V ₇₋₁₆	26	V
	Circuit voltage	V ₆₋₁₆	6	V ₃₋₁₆	V
Current	Circuit current	I _s	− 1.2	+ 1.2	A _{Peak}
Power dissipation	Detector, DCVR circuit	P _{D1}	0.6		W
	Output circuit	P _{D2}	1.6		
Temperature	Operating ambient temperature	T _{opr}	− 20 to + 70		°C
	Storage temperature	T _{stg}	− 55 to + 150		°C

Note) “+” and “-” are flow-in and flow-out currents to/from the circuit, respectively.

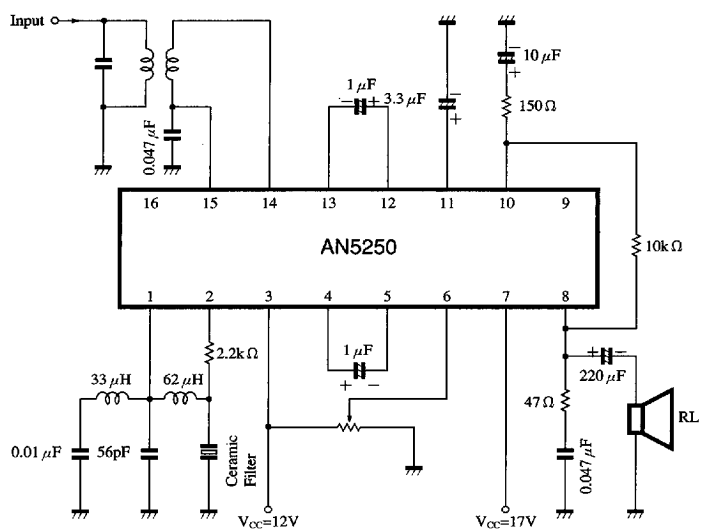
Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	min	typ	max	Unit
DC Characteristics						
Total circuit current	I_{tot}	$V_{3-16} = 12\text{V}$	23	—	42	mA
Circuit voltage	V_{1-16}	$V_{3-16} = 12\text{V}$ Pin ^⑭ and ^⑮ are connected.	3.2	4.0	4.8	V
	V_{4-16}		5.8	6.6	7.7	V
	V_{8-16}		8.8	9.5	10.2	V
	V_{13-16}		6.6	7.6	8.5	V
IF Amplification Detector						
Input limiting sensitivity	$V_{i(\text{lim})}$	$f_o = 4.5\text{MHz}$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$	—	250	400	μV
AM rejection	AMR	$f_o = 4.5\text{MHz}$, $f_m = 400\text{Hz}$, Mod = 30% (AM), $V_i = 100\text{mV}_{\text{rms}}$	38	45	—	dB
Input resistance	R_i	$f = 4.5\text{MHz}$	6	18	100	k Ω
Input capacitance	C_i		4	8	12	pF
Output voltage (Det.)	V_o	$f_o = 4.5\text{MHz}$, $f_m = 400\text{Hz}$, $\Delta f = \pm 25\text{kHz}$, $V_i = 100\text{mV}_{\text{rms}}$	200	300	440	mV_{rms}
Total harmonics distortion	THD _(IF)		—	0.3	1.0	%
Volume Circuit						
Attenuation (max. remaining sound)	A_{it}	$f = 1\text{kHz}$, $V_i = 0.5\text{V}_{\text{rms}}$, $V_6 = 0\text{V}$	—	2	5	mV_{rms}
Amplification	A_{13-5}	$f = 1\text{kHz}$, $V_i = 0.5\text{V}_{\text{rms}}$, $V_6 = 12\text{V}$	-2	0	+2	dB
Total harmonics distortion	THD _(AF)	$f = 1\text{kHz}$, $V_i = 0.5\text{V}_{\text{rms}}$, $V_6 = 12\text{V}$	—	0.15	1.0	%
Output Circuit						
Output power (max.)	P_o	$f = 1\text{kHz}$, $R_L = 16\Omega$, THD = 10%	1.8	2.0	—	W
Voltage gain	G_v	$f = 1\text{kHz}$, $V_{i(12)} = 50\text{mV}_{\text{rms}}$	30	32	34	dB
Total harmonics distortion	THD _(out)	$f = 1\text{kHz}$, $P_o = 1\text{W}$	—	0.7	1.2	%
Static circuit current	I_{CQ}	$V_{\text{CC}} = 20\text{V}$	8	20	50	mA

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Application Circuit



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