

# AN5250

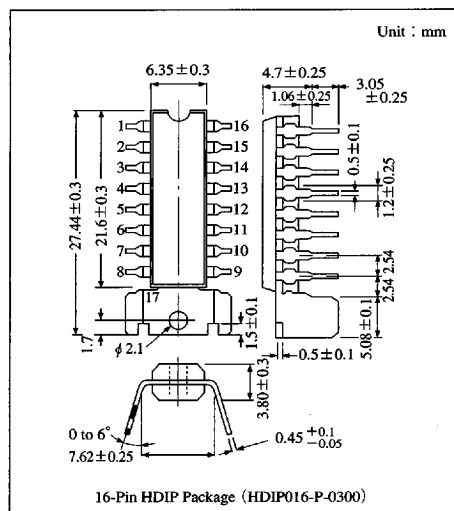
## TV Sound-IF Amplifier, Detector, AF Output IC

### Overview

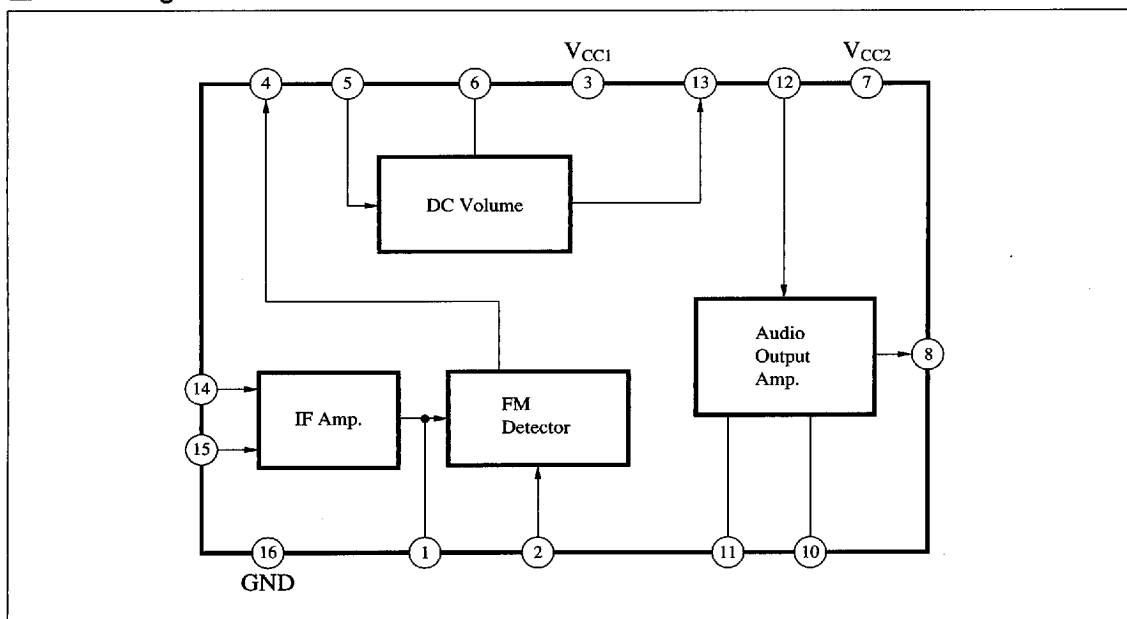
The AN5250 is an integrated circuit designed for TV sound signal processing circuit.

### 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 <sub>CC1</sub>	12	AF input
4	Detector output	13	Variable output
5	AF input	14	SIF input
6	DC volume	15	Input bias
7	V <sub>CC2</sub>	16	GND
8	AF output	17	Fin
9	GND	—	—

### Absolute Maximum Ratings (T<sub>a</sub> = 25°C)

Parameter		Symbol	Rating		Unit
Voltage	Supply voltage	V <sub>CC1</sub>	V <sub>3-16</sub>	13.8	V
		V <sub>CC2</sub>	V <sub>7-16</sub>	26	V
	Circuit voltage	V <sub>6-16</sub>	6	V <sub>3-16</sub>	V
Current	Circuit current	I <sub>8</sub>	-1.2	+1.2	A <sub>Peak</sub>
Power dissipation	Detector, DCVR circuit	P <sub>D1</sub>	0.6		W
	Output circuit	P <sub>D2</sub>	1.6		
Temperature	Operating ambient temperature	T <sub>opr</sub>	-20 to +70		°C
	Storage temperature	T <sub>stg</sub>	-55 to +150		°C

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

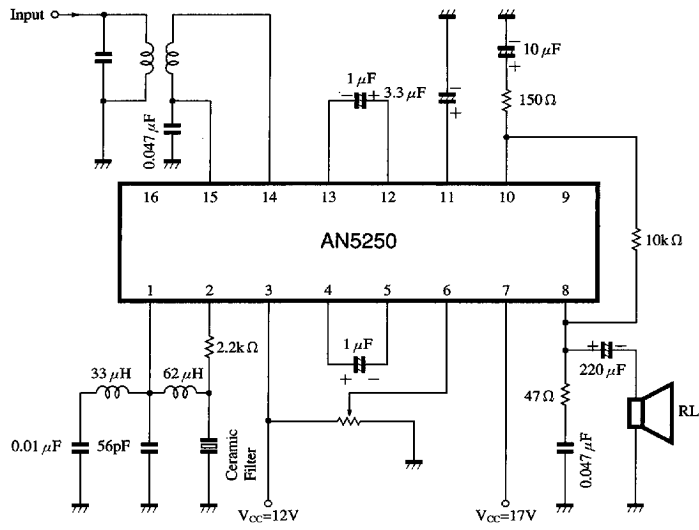
### Electrical Characteristics (T<sub>a</sub> = 25°C)

Parameter	Symbol	Condition	min	typ	max	Unit
<b>DC Characteristics</b>						
Total circuit current	I <sub>tot</sub>	V <sub>3-16</sub> = 12V	23	—	42	mA
Circuit voltage	V <sub>1-16</sub>	V <sub>3-16</sub> = 12V Pin(14) and (15) are connected.	3.2	4.0	4.8	V
	V <sub>4-16</sub>		5.8	6.6	7.7	V
	V <sub>8-16</sub>		8.8	9.5	10.2	V
	V <sub>13-16</sub>		6.6	7.6	8.5	V
<b>IF Amplification Detector</b>						
Input limiting sensitivity	V <sub>i(lim)</sub>	f <sub>o</sub> = 4.5MHz, f <sub>m</sub> = 400Hz, Δf = ±25kHz	—	250	400	μV
AM rejection	AMR	f <sub>o</sub> = 4.5MHz, f <sub>m</sub> = 400Hz, Mod = 30% (AM), V <sub>i</sub> = 100mV <sub>rms</sub>	38	45	—	dB
Input resistance	R <sub>i</sub>	f = 4.5MHz	6	18	100	kΩ
Input capacitance	C <sub>i</sub>		4	8	12	pF
Output voltage (Det.)	V <sub>o</sub>	f <sub>o</sub> = 4.5MHz, f <sub>m</sub> = 400Hz, Δf = ±25kHz, V <sub>i</sub> = 100mV <sub>rms</sub>	200	300	440	mV <sub>rms</sub>
Total harmonics distortion	THD (IF)		—	0.3	1.0	%
<b>Volume Circuit</b>						
Attenuation (max. remaining sound)	A <sub>tt</sub>	f = 1kHz, V <sub>i</sub> = 0.5V <sub>rms</sub> , V <sub>6</sub> = 0V	—	2	5	mV <sub>rms</sub>
Amplification	A <sub>13-5</sub>	f = 1kHz, V <sub>i</sub> = 0.5V <sub>rms</sub> , V <sub>6</sub> = 12V	-2	0	+2	dB
Total harmonics distortion	THD (AF)	f = 1kHz, V <sub>i</sub> = 0.5V <sub>rms</sub> , V <sub>6</sub> = 12V	—	0.15	1.0	%
<b>Output Circuit</b>						
Output power (max.)	P <sub>o</sub>	f = 1kHz, R <sub>L</sub> = 16Ω, THD = 10%	1.8	2.0	—	W
Voltage gain	G <sub>v</sub>	f = 1kHz, V <sub>i(12)}</sub> = 50mV <sub>rms</sub>	30	32	34	dB
Total harmonics distortion	THD (out)	f = 1kHz, P <sub>o</sub> = 1W	—	0.7	1.2	%
Static circuit current	I <sub>CQ</sub>	V <sub>CC</sub> = 20V	8	20	50	mA

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■ Application Circuit



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