

AN5255, AN5256

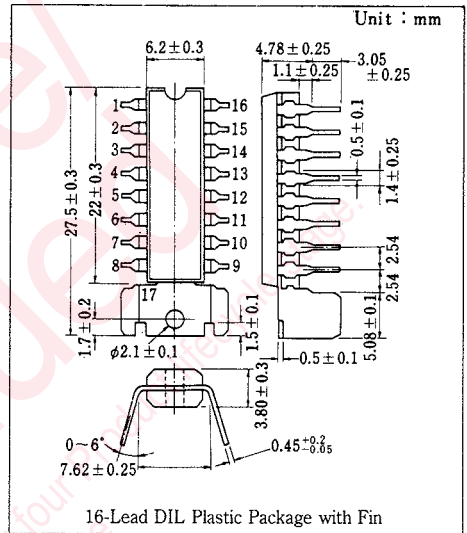
TV Sound IF Amplifier, Detector, AF Output Circuits

■ Outline

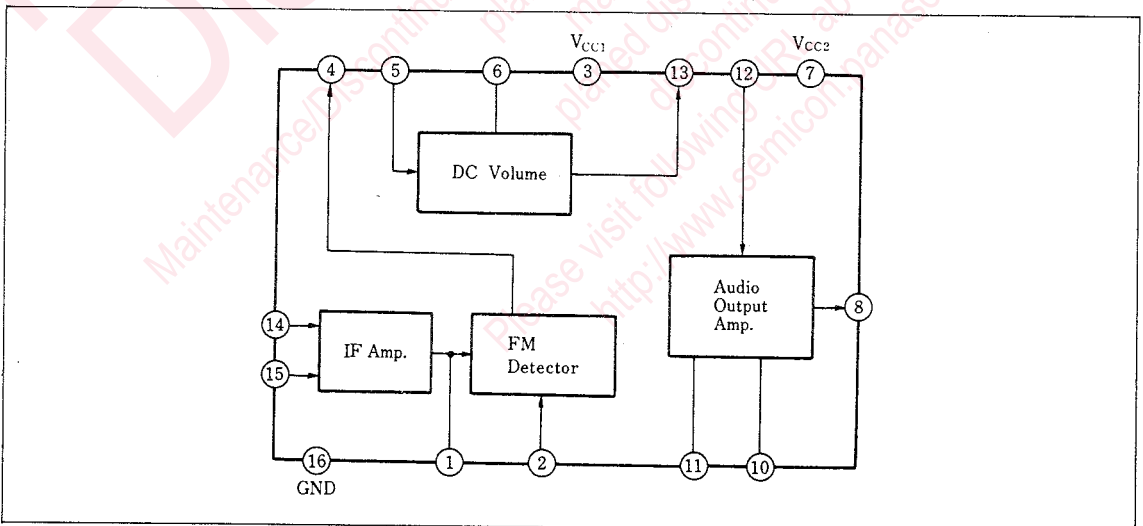
The AN5255 and the AN5256 are integrated circuits designed for TV sound signal processing circuit.

■ Features

- The AN5255 or the AN5256 provides total TV sound signal processing circuitry from IF amplifier through AF output
- High input limiting sensitivity
- DC volume control system: control voltage $0 \sim V_{CC}$ (AN5256: volume control with physiological characteristics)
- Provided with fixed detection output terminal, can also be used for TV sound multiplex applications



■ Block Diagram



■ Pin

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 (T_a=25°C)

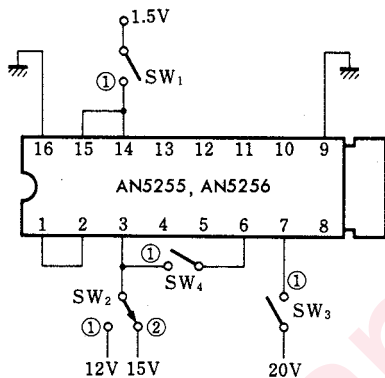
Item	Symbol	Rating	Unit
Voltage	Supply Voltage	V _{CC1}	V ₃₋₁₆ 13.8
		V _{CC2}	V ₇₋₁₆ 26
	Circuit Voltage	V ₆₋₁₆	0 V ₃₋₁₆
Current	Circuit Current	I ₈	- 1.2 1.2 A _{peak}
Power Dissipation	Detector, DCVR Circuit	P _{D1}	0.6
	Output Circuit	P _{D2}	1.6
Temperature	Operating Ambient Temperature	T _{opr}	-20~+70 °C
	Storage Temperature	T _{stg}	-55~+150 °C

Note: ⊕ and ⊖ are flow-in and flow-out currents to/from the circuit, respectively.

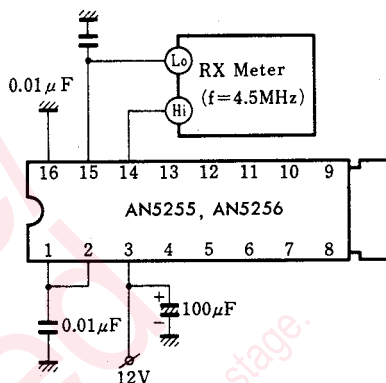
■ Electrical Characteristics (T_a=25°C)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
DC Characteristics							
Total Circuit Current	I _{tot}	1	V ₃₋₁₆ =12V	25	34.5	44	mA
Circuit Voltage	V ₁₋₁₆	1	V ₃₋₁₆ =12V Pin ⑭ and ⑮ are connected.	3.4	4.2	5.0	V
	V ₄₋₁₆	1		2.8	3.7	4.5	V
	V ₈₋₁₆	1		8.8	9.5	10.2	V
	A N 5255 A N 5256	V ₁₃₋₁₆		1	7.0	8.0	9.0
				6.0	6.7	7.4	V
IF Amplification Detector							
Input Limiting Sensitivity	V _{i(lim)}	3	f _o =4.5MHz, f _m =400Hz, Δf=±25kHz		50	140	μV _{rms}
AM Rejection	AMR	3	f=4.5MHz, f _m =400Hz, Mod=30% (AM), V _i =100mV _{rms}	38	45		dB
Input Resistance	R _i	2	f=4.5MHz	5	14	100	kΩ
Input Capacitance	C _i	2	f=4.5MHz	4	8	12	pF
Output Voltage (Det.)	V _o	3	f _o =4.5MHz, f _m =400Hz,	200	300	440	mV _{rms}
Total Harmonic Distortion	THD _(IF)	3	Δf=±25kHz, V _i =100mV _{rms}		0.3	1.0	%
Volume Circuit							
Attenuation (max. Remaining Sound)	A _{att}	3	f=1kHz, V _i =0.5V _{rms} , V ₈ =0V		2	5	mV _{rms}
Amplification	A N 5255	A ₁₃₋₅	f=1kHz, V _i =0.5V _{rms} , V ₆ =12V	-2	0	2	dB
	A N 5256			-1.4	0.6	2.6	
Total Harmonic distortion	THD _(AF)	3	f=1kHz, V _i =0.5V _{rms} , V ₈ =12V	0.35	1.0		%
Output Circuit							
Output Power (max.)	P _o	3	f=1kHz, R _L =16Ω, THD=10%	1.8	2.0		W
Voltage Gain	G _v	3	f=1kHz, V _{i(12)}} =50mV _{rms}	30	32	34	dB
Total Harmonic Distortion	THD _(out)	3	f=1kHz, P _o =1W		0.7	1.2	%
Static Circuit Current	I _{cq}	1	V _{cc} =20V	8	20	50	mA

Test Circuit 1 (I_{tot} , V_{1-16} , V_{4-16} , V_{8-16} , V_{13-16} , I_{CQ})

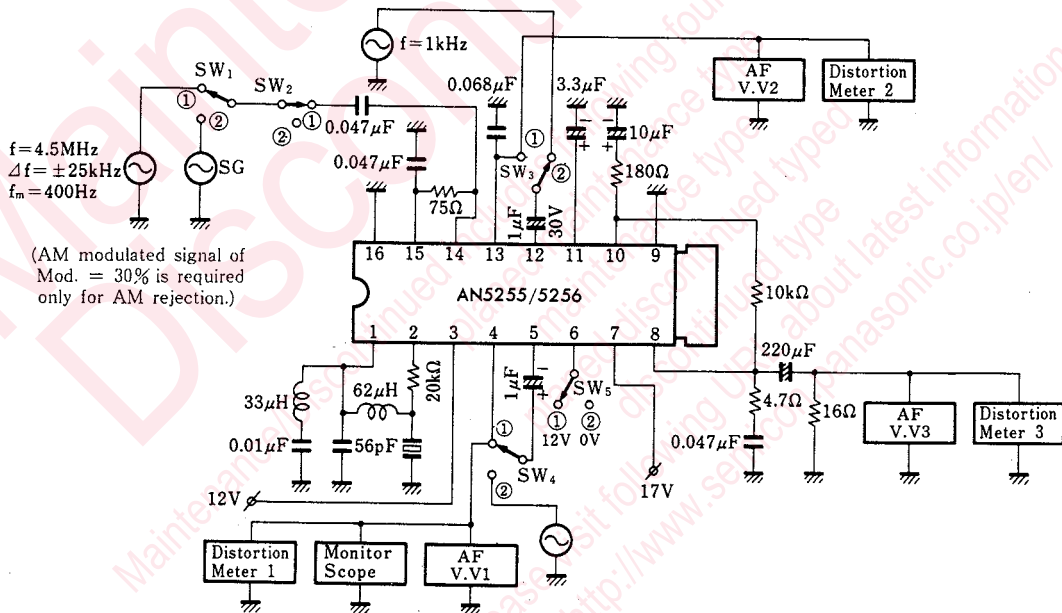


Test Circuit 2 (R_i , C_i)



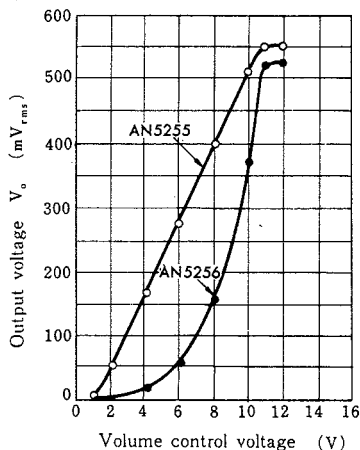
Item	I_{tot}	V_{1-16}	V_{4-16}	V_{8-16}	V_{13-16}	I_{CQ}
SW ₁	—	①	—	—	—	—
SW ₂	①	②	①	—	①	—
SW ₃	—	—	—	①	—	①
SW ₄	①	—	—	—	①	—

Test Circuit 3 ($V_{i(lim)}$, AMR, V_o , THD_(IF), A_{tt} , A_{13-5} , THD_(AF), P_o , G_v , THD_(out))

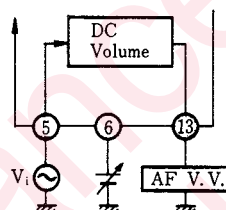


Item	$V_{i(lim)}$	AMR	V_o	THD _(IF)	A_{tt}		A_{13-5}		THD _(AF)	P_o	G_v	THD _(out)
					AN 5255	AN 5256	AN 5255	AN 5256				
SW ₁	①	①	①	①	—	—	—	—	—	—	—	—
SW ₂	①	①	①	①	2	2	2	2	②	②	②	②
SW ₃	—	—	—	—	1	2	1	2	①	②	②	②
SW ₄	②	②	②	②	2	2	2	2	②	—	—	—
SW ₅	—	—	—	—	2	1	1	1	①	—	—	—
Measuring equipment	AF V.V1	AF V.V1	AF V.V1	Dis. Meter 1	AF V.V2		AF V.V2		Dis. Meter 2	AF V.V3	AF V.V3	Dis. Meter 3

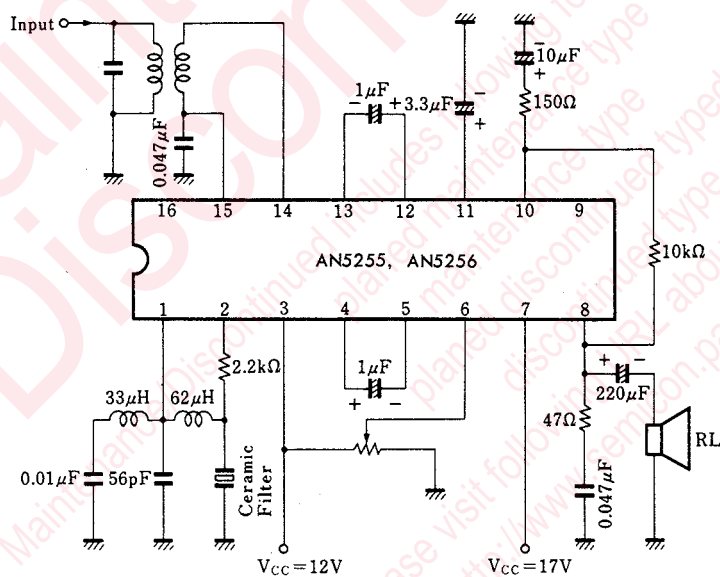
DC Volum Control Curve



● Condition
 $V_{CC} = 12V$, $V_i = 500mV_{rms}$ (1kHz)



■ Application Circuit



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