

AN5216, AN5217

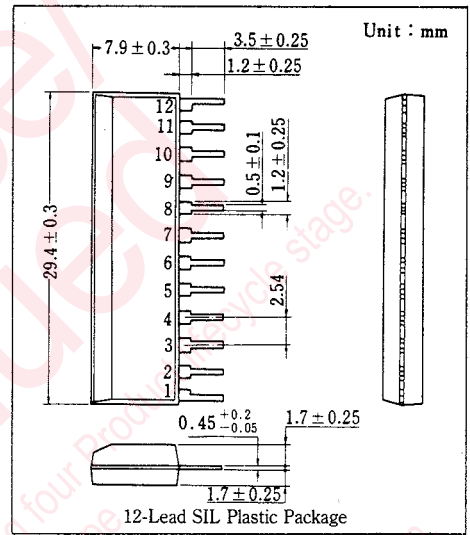
TV Sound IF Amplifier, Detector, AF Output Circuits

Outline

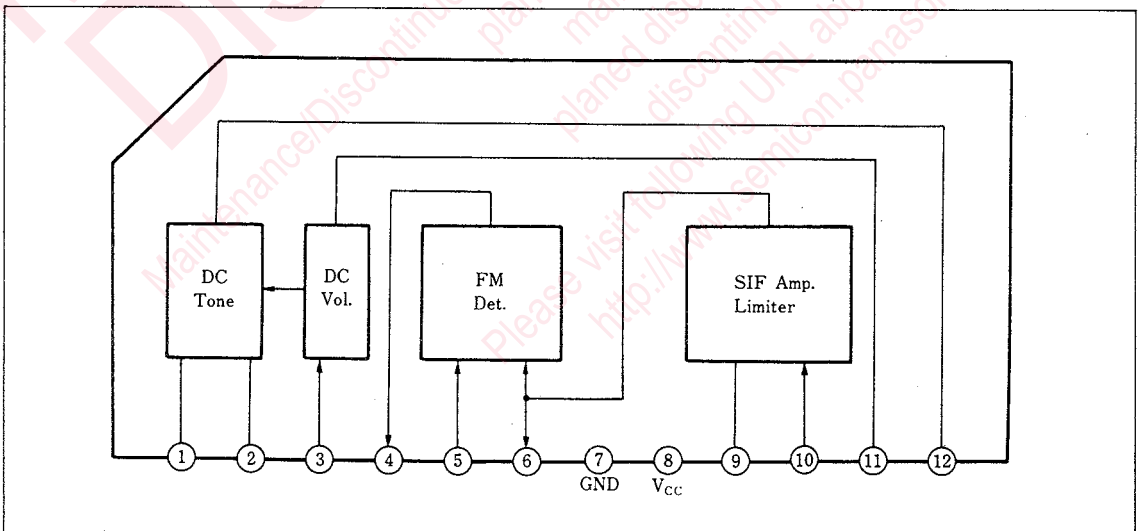
The AN5216 and the AN5217 are integrated circuits designed for TV sound signal processing circuit.

Features

- Built-in DC volume and tone circuit
- High input sensitivity : $V_{i(lim)} = 50 \mu V_{rms}$ typ.
- Low harmonic distortion
- Volume control with physiological characteristics (AN5217)



Block Diagram



■ Pin

Pin No.	Pin Name
1	AF Output
2	Filter
3	AF Input
4	Detector Output
5	Detector Input
6	SIF Output
7	GND
8	V _{cc}
9	Decoupling
10	SIF Input
11	DC Volume
12	Tone Control

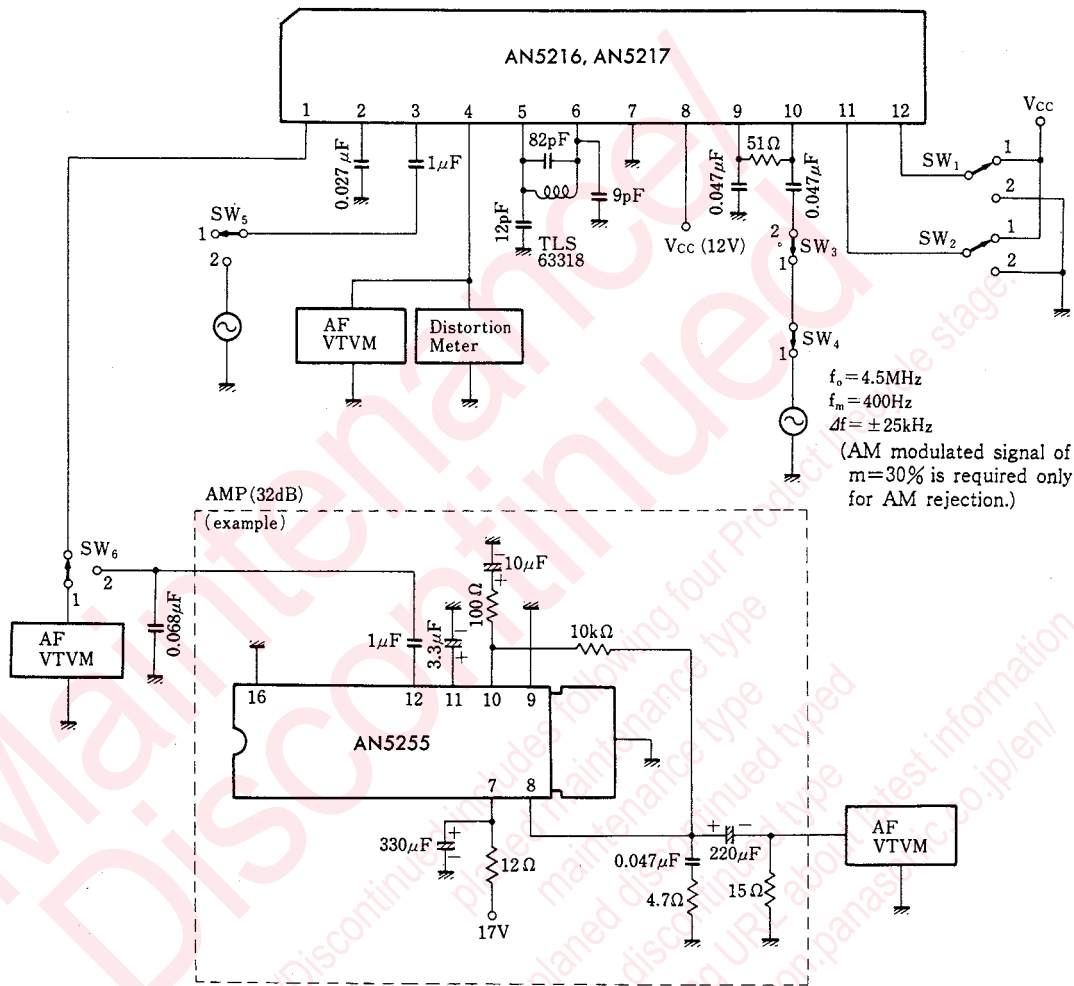
■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V _{cc}	+33.5	V
Circuit Current	I _{cc}	+6.0	mA
Power Dissipation	P _D	250	mW
Temperature	Operating Ambient Temperature	T _{opr}	-20~+70 °C
	Storage Temperature	T _{sig}	-55~+150 °C

■ Electrical Characteristics (Ta=25°C)

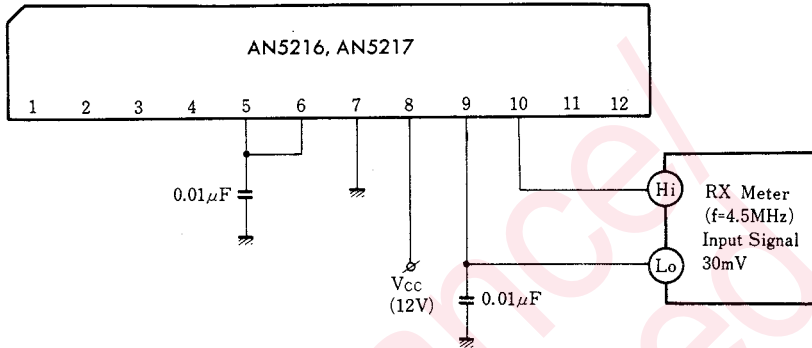
Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit	
Total Circuit Current	I _{tot}		V ₈₋₇ =12V	24	31	41	mA	
IF Amplification Detector								
Input Limiting Sensitivity	V _{i(lim)}	1	f _o =4.5MHz, f _m =400Hz, Δf=±25kHz		50	100	μV _{rms}	
AM Rejection (1)	AMR1	1	f _o =4.5MHz, f _m =400Hz, m=30%(AM) V _i =100mV _{rms}	43	53		dB	
AM Rejection (2)	AMR2	1	f _o =4.5MHz, f _m =400Hz, m=30%(AM) V _i =100 μV _{rms}	27	37		dB	
Total Detection Output	V _o	1	f _o =4.5MHz, f _m =400Hz, Δf=±25kHz, V _i =100mV _{rms}	200	300	440	mV _{rms}	
Detector Signal Distortion	THD	1	f _o =4.5MHz, f _m =400Hz, Δf=±25kHz, V _i =100mV _{rms}		0.6	1.0	%	
Input Resistance	R _{i(IF)}	2	f=4.5MHz	3	10	100	k Ω	
Input Capacitance	C _{i(IF)}	2	f=4.5MHz	6	9	12	pF	
Volume/Tone Circuit								
Max. Attenuation (Remaining Sound)	A _{it}	1	f=1kHz, V _i =0.5V _{rms} , V ₁₁ =0V, V ₁₂ =V _{cc}		2	5	mV _{rms}	
Volume/Tone Circuit Gain	G _{V1-3(1)}	1	f=1kHz, V _i =0.5V _{rms} V ₁₁ =V ₁₂ =V _{cc}	AN5216	-2	0	2	dB
				AN5217	-3	-1	1	dB
Volume/Tone Circuit Distortion	THD	1	f=1kHz, V _i =0.5V _{rms} , V ₁₁ =V _{cc} , V ₁₂ =V _{cc}		0.3	1.0	%	
Volume Control Gain	G _{V1-3(2)}	1	f=1kHz, V _i =0.5V _{rms} V ₁₁ =V _{cc} , V ₁₂ =0V	AN5216	-9	-6	-3.5	dB
				AN5217	-10	-7	-4.5	dB

Test Circuit 1 ($V_{i(lim)}$, AMR1, AMR2, V_o , THD, $A_{1-3(1),(2)}$)

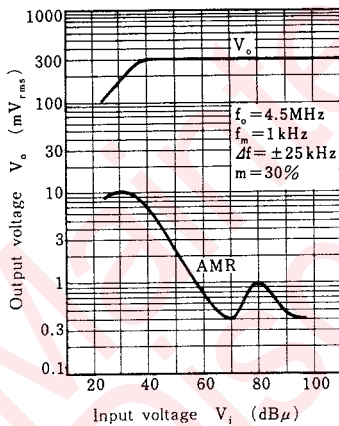


Items to be Measured	SW Operation					
	SW ₁	SW ₂	SW ₃	SW ₄	SW ₅	SW ₆
Input Limiting Voltage	—	—	1	1	1	—
AM Rejection (1)	—	—	1	1	1	—
AM Rejection (2)	—	—	1	1	1	—
Total Detector Output	—	—	1	1	1	—
Detector Signal Distortion	—	—	1	1	1	—
Max. Attenuation	1	2	2	—	2	2
Volume/Tone Circuit Gain	1	1	2	—	2	1
Volume/Tone Circuit Distortion	1	1	2	—	2	1
Volume Control Gain	2	1	2	—	2	1

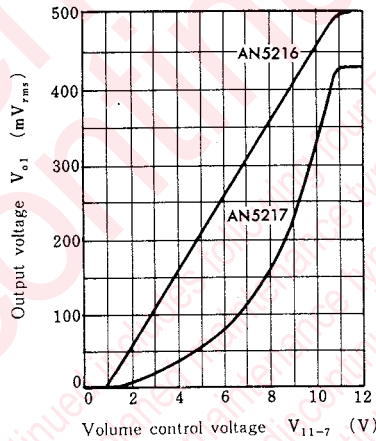
Test Circuit 2



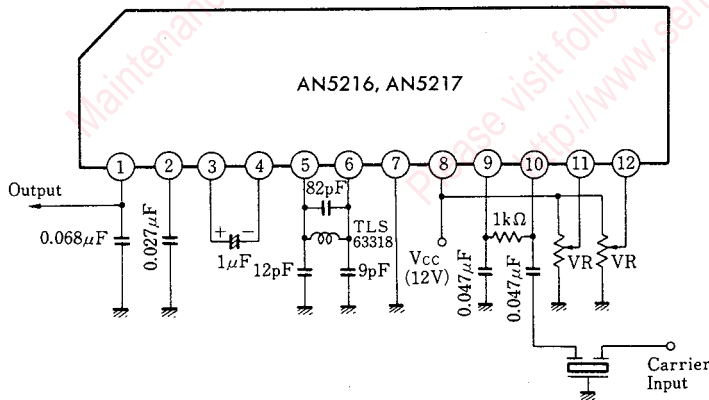
V_o , AMR - V_i



DC Volume Control Curve



Application Circuit



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