

# AN7017S, AN7017SB

FM/TV Front-end ICs for 1.5V Headphone Stereo, Radio Cassette Recorder

## ■ Overview

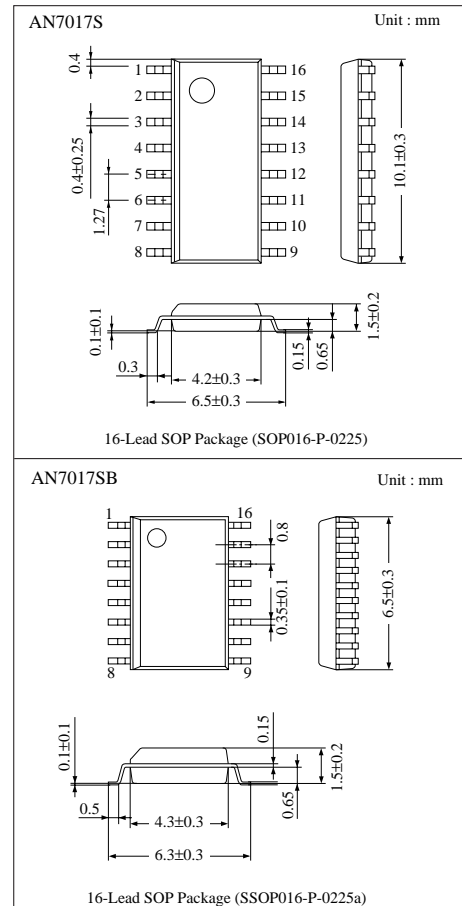
The AN7017S and the AN7017SB are the ICs incorporating FM/TV front-end most suitable for headphone stereo.

Sealed in a 16-pin flat package, the chip operates stably at TV band (170MHz ~ 222MHz) FM band (76MHz ~ 108MHz).

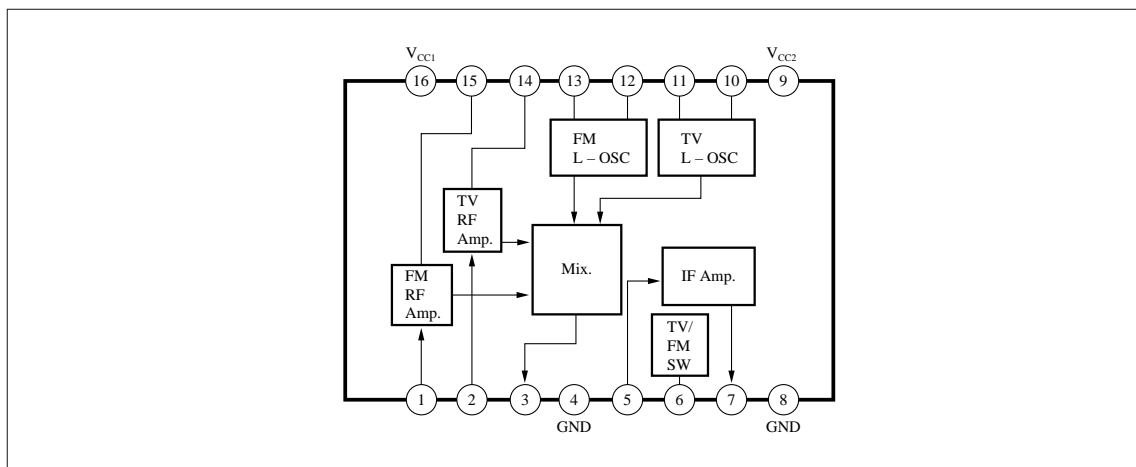
RF amplifiers and oscillations are provided in FM/TV band individually, and are designed most suitably. So both characteristics of FM/TV band are satisfied.

## ■ Features

- Low current consumption
- Band switching circuit built-in
- A single chip integrating FM/TV band
- IF amp. built-in



## ■ Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V <sub>CC</sub>	2.5	V
Supply Current	I <sub>CC</sub>	10	mA
Power Dissipation	P <sub>D</sub>	30	mW
Operating Ambient Temperature	T <sub>opr</sub>	-22 ~ + 75	°C
Storage Temperature	T <sub>stg</sub>	-55 ~ + 125	°C

■ Recommended Operating Range (Ta=25°C)

Parameter	Symbol	Range
Operating Supply Voltage Range	V <sub>CC</sub>	1V ~ 2V

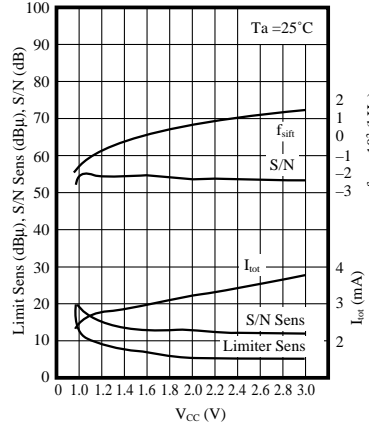
■ Electrical Characteristics (V<sub>CC</sub>=1.2V, Ta = 25°C)

Parameter		Symbol	Condition	min.	typ.	max.	Unit
FM	No Signal Current	I <sub>tot</sub> (FM)	Note) V <sub>CC</sub> =1V V <sub>in</sub> = 60dBμ	—	2.5	—	mA
	Conversion Gain	G <sub>conv</sub> (FM)		—	31	—	dB
	Oscillation Voltage	V <sub>osc</sub> (FM)		—	73	—	mV
	S/N	S/N (FM)		—	55	—	dB
TV	No Signal Current	I <sub>tot</sub> (TV)	Note) V <sub>CC</sub> =1V V <sub>in</sub> =60dBμ	—	3.2	—	mA
	Conversion Gain	G <sub>conv</sub> (TV)		—	27	—	dB
	Oscillation Voltage	V <sub>osc</sub> (TV)		—	57	—	mV
	S/N	S/N (TV)		—	53	—	dB

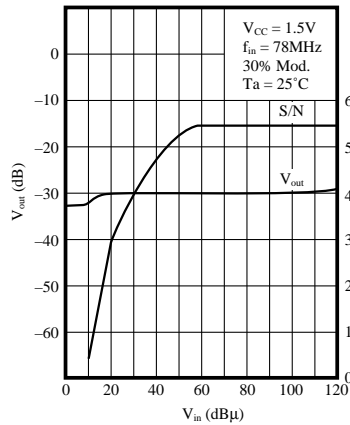
Note) Conversion Gain= 20log (ΔV<sub>(μV)</sub> ÷ 100)  
ΔV is output difference at 40dBμ and 46dBμ.

■ Characteristics Curve

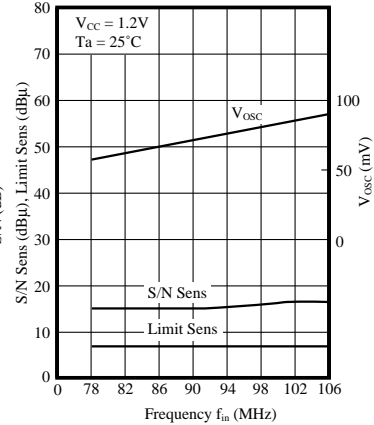
Supply Voltage Characteristics (FM)–  
Oscillation Frequency Deviation  
S/N, S/N Sensitivity, Limiter Sensitivity, I<sub>tot</sub>

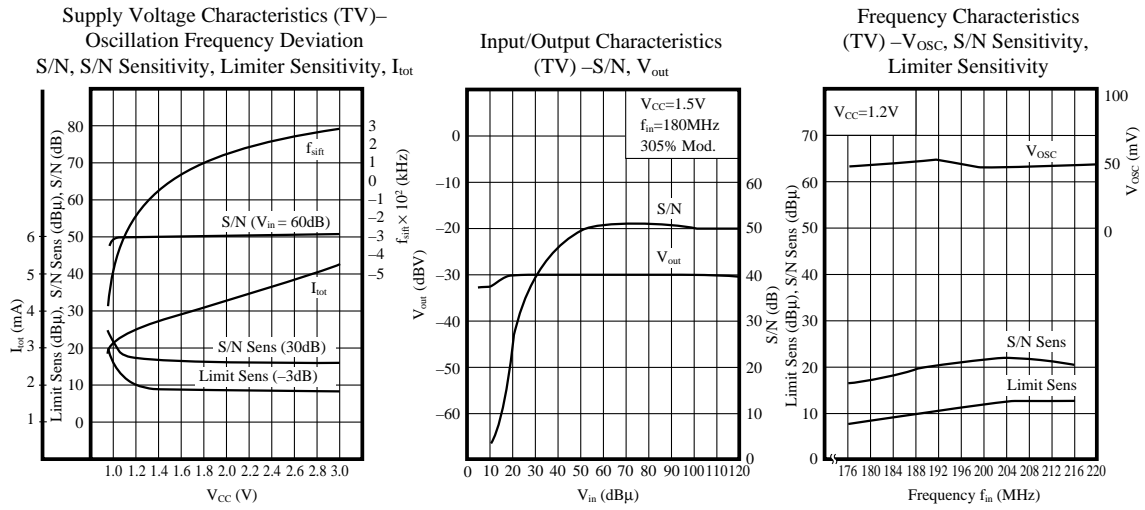


Input/Output Characteristics –  
S/N, V<sub>out</sub>

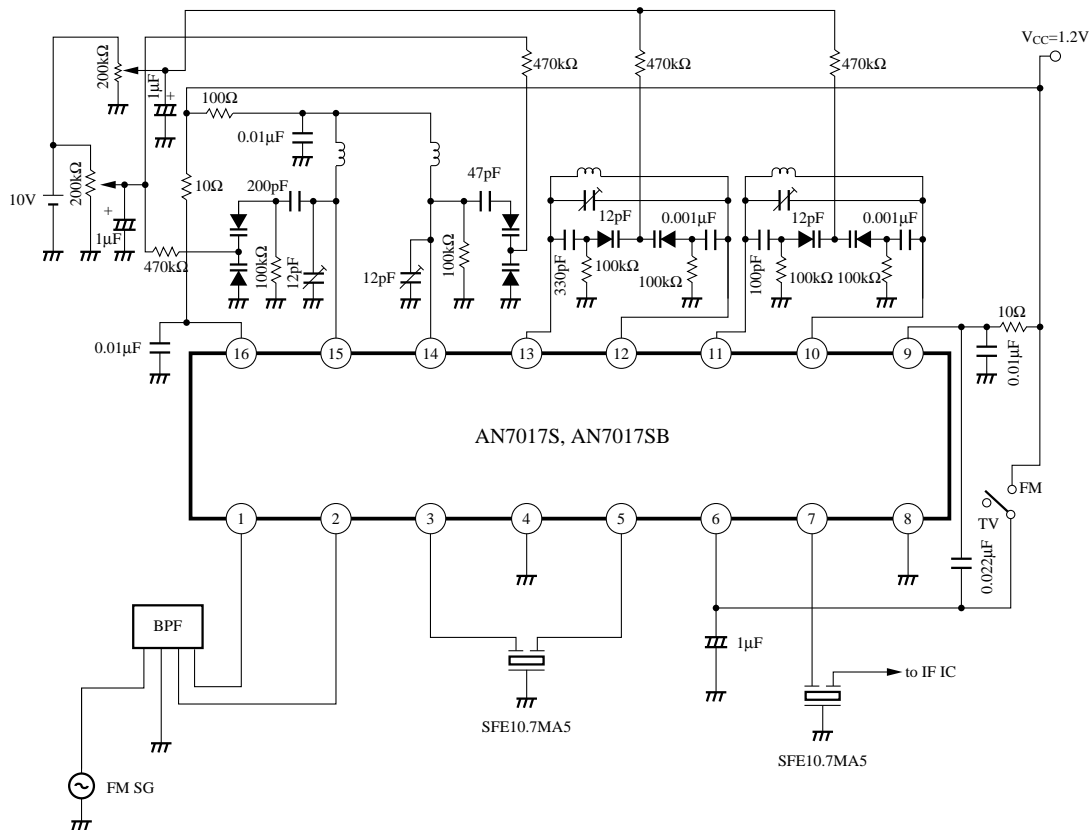


Frequency Characteristics (FM) –V<sub>osc</sub>, S/N Sensitivity,  
Limiter Sensitivity





■ Application Circuit



- FM Antenna Coil : Internal diameter 2.5mm. Lead diameter 0.35mm 11T Variable Capacitance : SVC203CP (SANYO)
- FM Oscillation Coil : Internal diameter 2.5mm. Lead diameter 0.35mm 13T Ceramic Filter : SFE10.7MA5 (MURATA)
- TV Antenna Coil : Internal diameter 2.5mm. Lead diameter 0.35mm 3T Band Pass Filter : TVSB4 (SOUSHIN)
- FM Oscillation Coil : Internal diameter 2.5mm. Lead diameter 0.35mm 4T IF Amp. : AN7236 (Panasonic)

■ Pin Descriptions

Pin No.	Pin Name	Typ.Waveform	Description	Equivalent Circuit
1	FM RF Input	FM signal	FM RF input pin	
15	FM RF Output	FM signal	FM RF output pin	
4	GND	DC 0V	GND pin Used for RF amp. /Mixer.	—
3	Mix. Output	10.7MHz IF signal	Mix. output pin Ceramic Filter connect to output.	
5	IF Input	10.7MHz IF signal	IF input pin	
6	TV/FM switch	—	TV/FM switching At FM, stop the current source of TV circuit by connecting Pin6 to V <sub>CC</sub> , and at TV, stop the current source of FM circuit by opening this.	
7	IF Output	10.7MHz IF signal	IF output pin	
8	GND	—	GND pin Used for IF amp. /oscillation circuit current source	—

■ Pin Descriptions (Cont.)

Pin No.	Pin Name	Typ.Waveform	Description	Equivalent Circuit
9	V <sub>CC2</sub>	DC 1.5V	Supply voltage pin Used for IF amp. /oscillation circuit current source	—————
10 · 11	TV OSC	160MHz ~ 216MHz oscillation	TV OSC pin	
12 · 13	FM OSC	65MHz ~ 96MHz oscillation	FM OSC pin	
2	TV RF Input	TV signal	TV RF input pin	
14	TV RF Output	TV signal	TV RF output pin	
16	V <sub>CC1</sub>	DC 1.5V	Supply voltage pin Used for RF amp., mixer	—————