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.

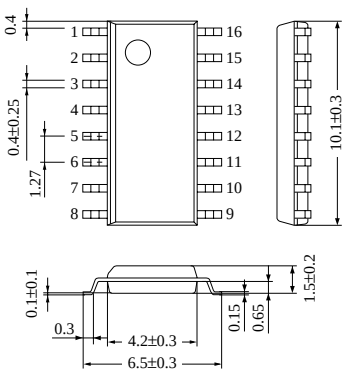
Sealed in a 16-pin flat package, the chip operates stably at TV band (170MHz ~ 222MHz) FM band (76MHz ~ 108MHz).

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

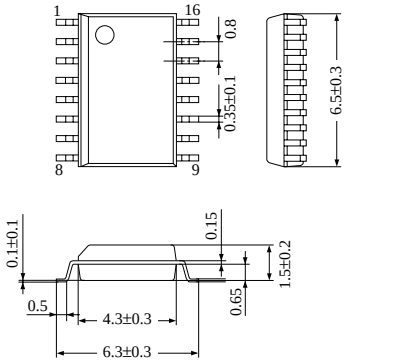
- Low current consumption
- Band switching circuit built-in
- A single chip integrating FM/TV band
- IF amp. built-in

AN7017S Unit : mm



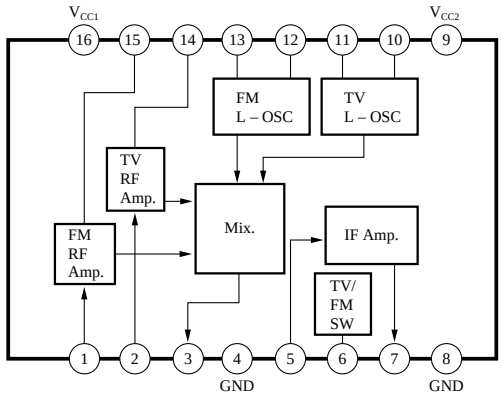
16-Lead SOP Package (SOP016-P-0225)

AN7017SB Unit : mm



16-Lead SOP Package (SSOP016-P-0225a)

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V_{CC}	2.5	V
Supply Current	I_{CC}	10	mA
Power Dissipation	P_D	30	mW
Operating Ambient Temperature	T_{opr}	–22 ~ + 75	˚C
Storage Temperature	T_{stg}	–55 ~ + 125	˚C

■ Recommended Operating Range (Ta=25˚C)

Parameter	Symbol	Range
Operating Supply Voltage Range	V_{CC}	1V ~ 2V

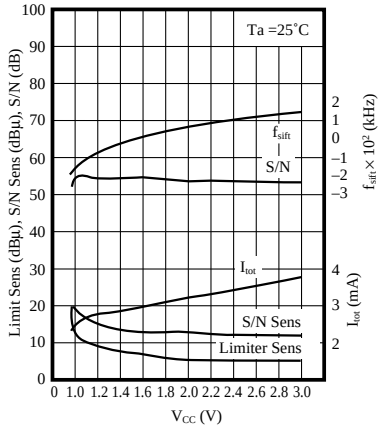
■ Electrical Characteristics (V_{CC} =1.2V, Ta = 25˚C)

Parameter		Symbol	Condition	min.	typ.	max.	Unit
FM	No Signal Current	I_{tot} (FM)	Note) V_{CC}=1V V_{in}= 60dBμ	—	2.5	—	mA
	Conversion Gain	G_{conv} (FM)		—	31	—	dB
	Oscillation Voltage	V_{OSC} (FM)		—	73	—	mV
	S/N	S/N (FM)		—	55	—	dB
TV	No Signal Current	I_{tot} (TV)	Note) V_{CC}=1V V_{in}=60dBμ	—	3.2	—	mA
	Conversion Gain	G_{conv} (TV)		—	27	—	dB
	Oscillation Voltage	V_{OSC} (TV)		—	57	—	mV
	S/N	S/N (TV)		—	53	—	dB

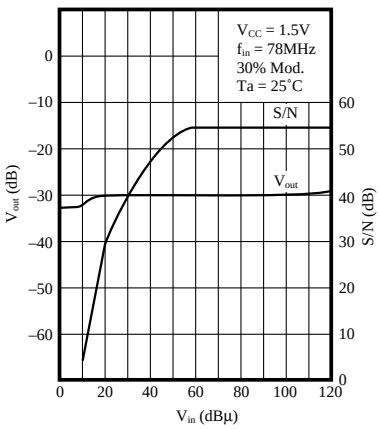
Note) Conversion Gain= 20log ($\Delta V_{(\mu V)} \div 100$)
ΔV is output difference at 40dBμ and 46dBμ.

■ Characteristics Curve

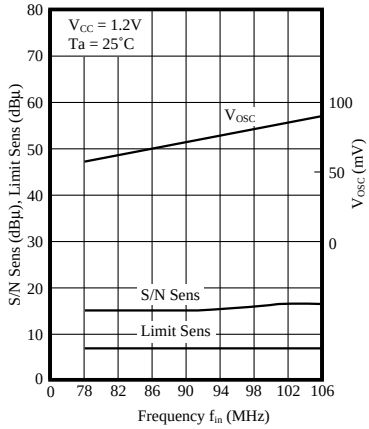
Supply Voltage Characteristics (FM)– Oscillation Frequency Deviation S/N, S/N Sensitivity, Limiter Sensitivity, I_{tot}



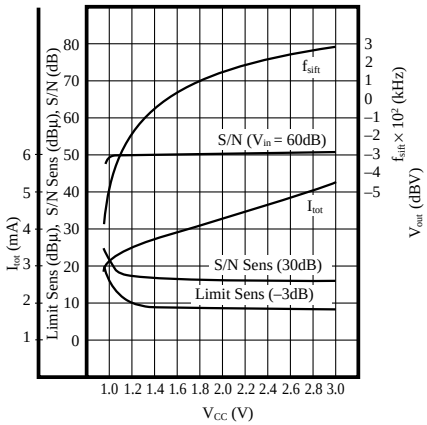
Input/Output Characteristics – S/N, V_{out}



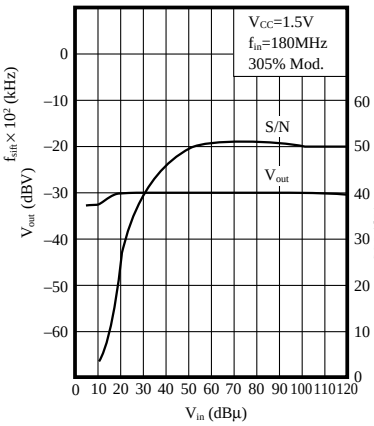
Frequency Characteristics (FM) –V_{OSC}, S/N Sensitivity, Limiter Sensitivity



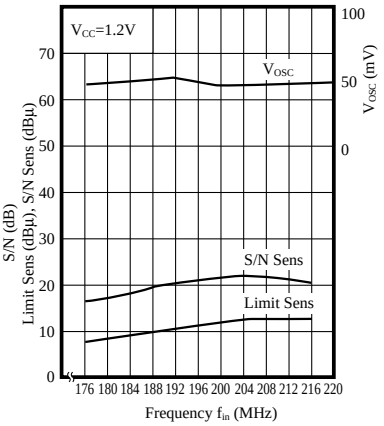
Supply Voltage Characteristics (TV)–
Oscillation Frequency Deviation
S/N, S/N Sensitivity, Limiter Sensitivity, I_{tot}



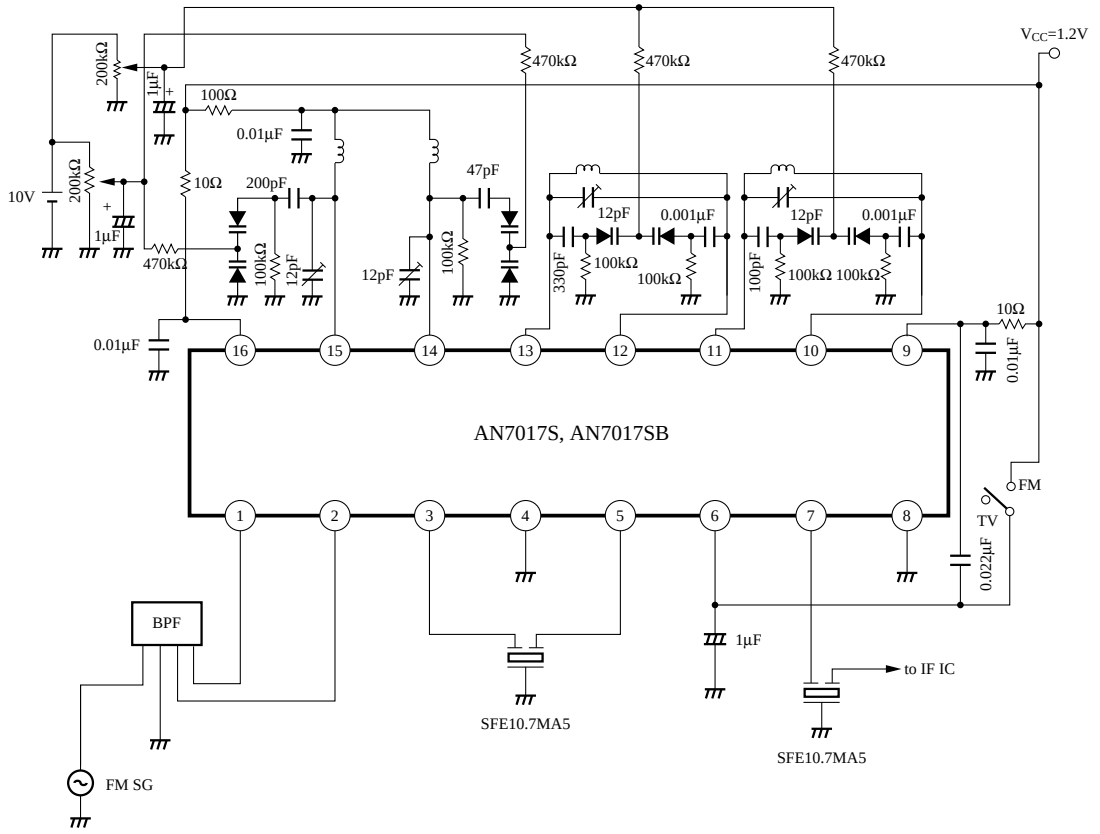
Input/Output Characteristics
(TV) –S/N, V_{out}



Frequency Characteristics
(TV) –V_{OSC}, S/N Sensitivity,
Limiter Sensitivity

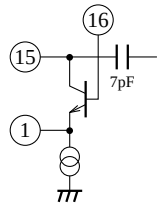
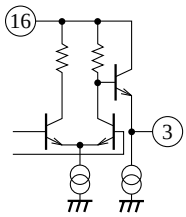
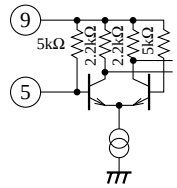
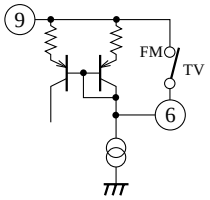
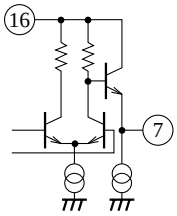


■ Application Circuit

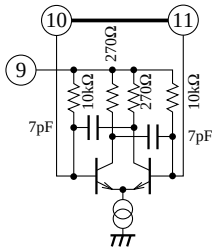
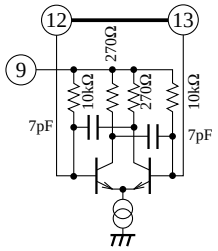
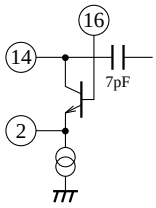


FM Antenna Coil : Internal diameter 2.5mm. Lead diameter 0.35mm 11T Variable Capacitance : SVC203CP (SANYO)
FM Oscillation Coil : Internal diameter 2.5mm. Lead diameter 0.35mm 13T Ceramic Filter : SFE10.7MA5 (MURATA)
TV Antenna Coil : Internal diameter 2.5mm. Lead diameter 0.35mm 3T Band Pass Filter : 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_{CC}, 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_{CC2}	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_{CC1}	DC 1.5V	Supply voltage pin Used for RF amp., mixer	————