

AN7203

FM Front-end IC for Radio, Radio Cassette Recorder

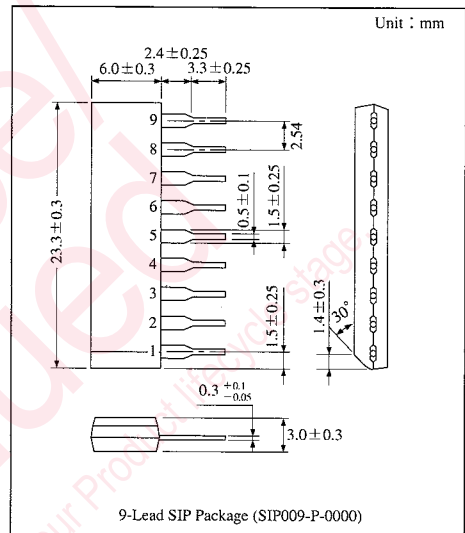
Overview

The AN7203 is an FM front-end IC which is most suitable for 3V to 5V operation radio/radio cassette recorder.

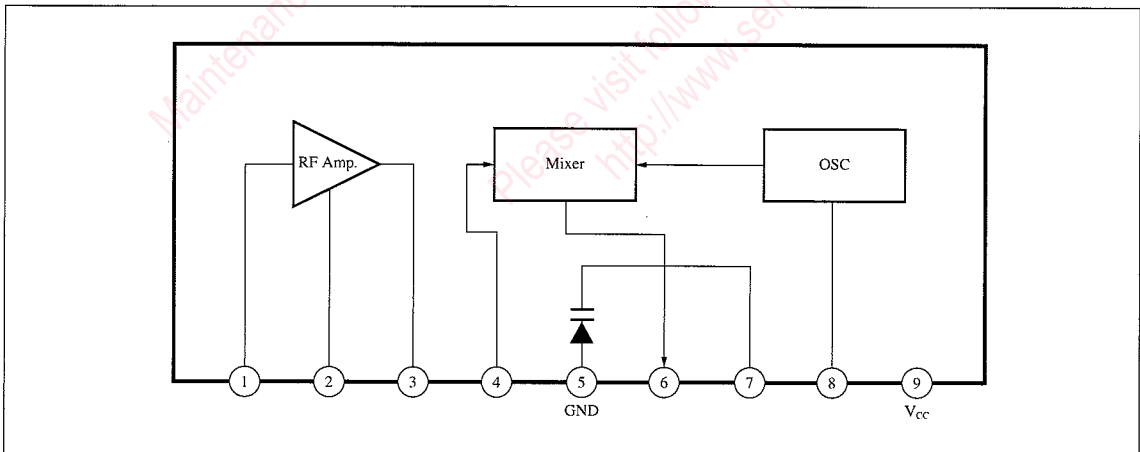
High sensitivity tuner can be composed in combination with AM-FM · IF+MPX IC (AN7024).

Features

- Built-in AFC diode
- Good two signal characteristics
- High receiver sensitivity
- TV band receiver is possible (Max. $f=220\text{MHz}$)



Block Diagram



Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V _{CC}	7	V
Supply Current	I _{CC}	13	mA
Power Dissipation (Ta = 75°C)	P _D	100	mW
Operating Ambient Temperature	T _{opr}	-20 ~ +75	°C
Storage Temperature	T _{stg}	-55 ~ +150	°C

Recommended Operating Range (Ta = 25°C)

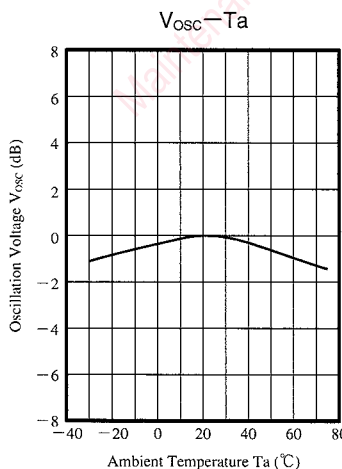
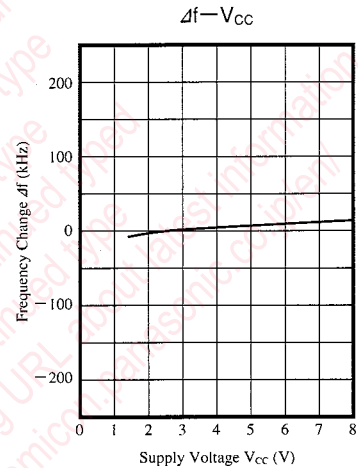
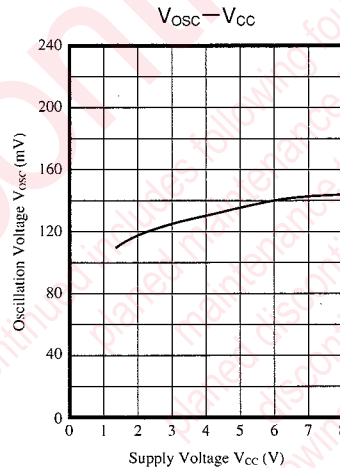
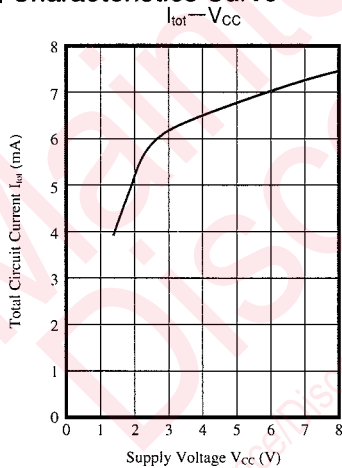
Parameter	Symbol	Range
Operating Supply Voltage Range	V _{CC}	1.8V ~ 7V

Electrical Characteristics (Ta = 25°C)

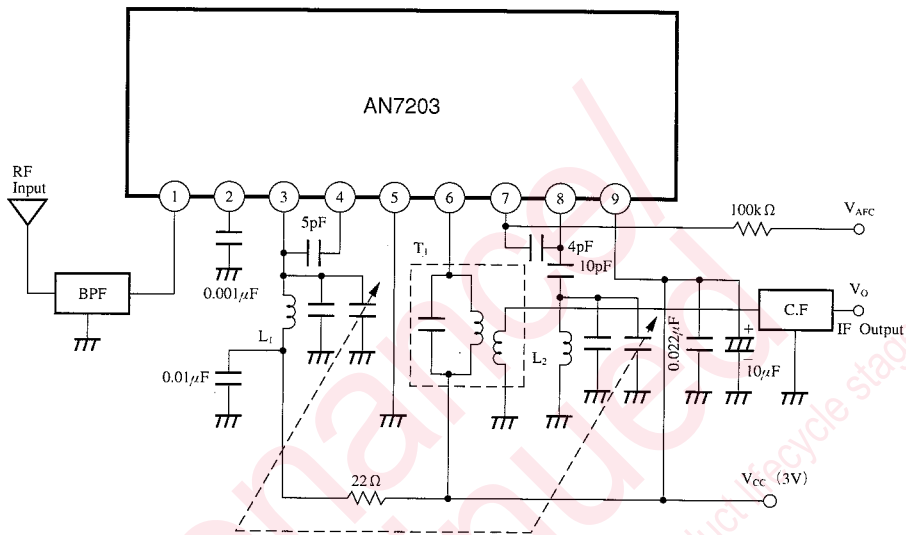
Parameter	Symbol	Condition	min.	typ.	max.	Unit
Total Circuit Current	I _{tot}	V _{CC} = 3V, No signal	3.5	5.5	8.25	mA
Output Voltage	V _O *	V _{CC} = 3V, V _{in} = 55dBμ, 106MHz	85	89	92	dBμ
Local Oscillation Voltage	V _{OSC}	V _{CC} = 1.5V, f _{osc} = 116.7MHz	72.8	—	—	mV
AFC Diode Capacitance Value	C _{AFC}	V ₍₇₋₅₎ = 1V	—	25	—	pF

* Maximum output value should be read by changing input signal frequency by 106MHz ± Δf.

Characteristics Curve



Application Circuit



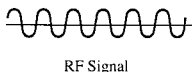
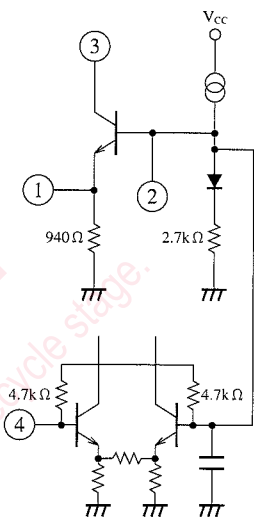

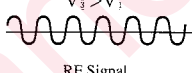
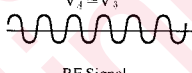


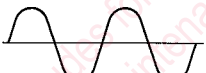
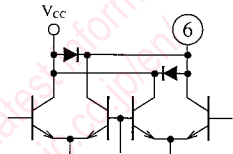


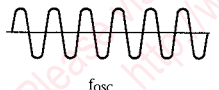
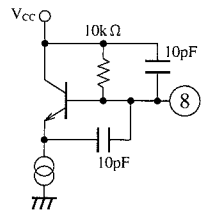

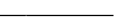
Coil Specifications

Symbol	Use, Freq.	Type No.	Maker	Connection Diagram	Number of Turns	L Value/ C Value	Unloaded Q
L ₁	RF Coil		OE INDUSTRY		4T Space Winding	0.102µH f=25.2MHz	77 f=25.2MHz
L ₂	OSC Coil		OE INDUSTRY		3T Space Winding	0.086µH f=25.2MHz	73 f=25.2MHz
T ₁	FM IFT 10.7MHz	IFT-41K9	MITSUMI		①-②7T ②-③4T ④-⑥2T	110pF	100

- Band pass filter : SOSHIN DENKI BPWB 5
- Variable capacitor : MITSUMI PVC-2LXT-L

ICs for
Tuner

Pin Descriptions ($V_{CC}=3V$, $T_a=25^{\circ}C$)

Pin No.	Pin Name	DC Voltage	Pin Waveform	I/O Impedance	Equivalent Circuit
1	RF IN	1V	 RF Signal	Low	
2	RF Pass—con.	1.7V		$2.7k\ \Omega$	
3	RF OUT	3V	$V_3 > V_1$  RF Signal	High	
4	Mixer IN	1.7V	$V_4 = V_3$  RF Signal	—	
5	GND	0V		—	
6	Mixer OUT	3V	 $f = 10.7MHz$ V_m (vary with RF signal)	High	
7	AFC Diode	—	 A part of OSC Wave	$C = 25pF$ (typ.) ($V_7 = 1V$)	
8	OSC	2.9V	$AC \approx 1V_{p-p}$  f_{osc}	—	
9	V_{CC}	3V		—	

Signal levels of Pin①, ③, ④ are in proportion to size of RF signals which are input to antenna.

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