

AN7203

FM Front-end IC for Radio, Radio Cassette Recorder

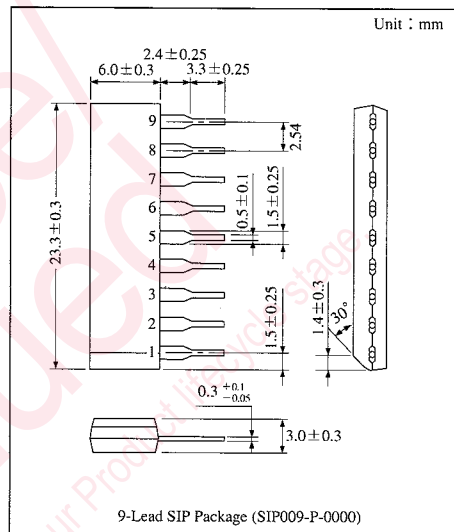
Overview

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).

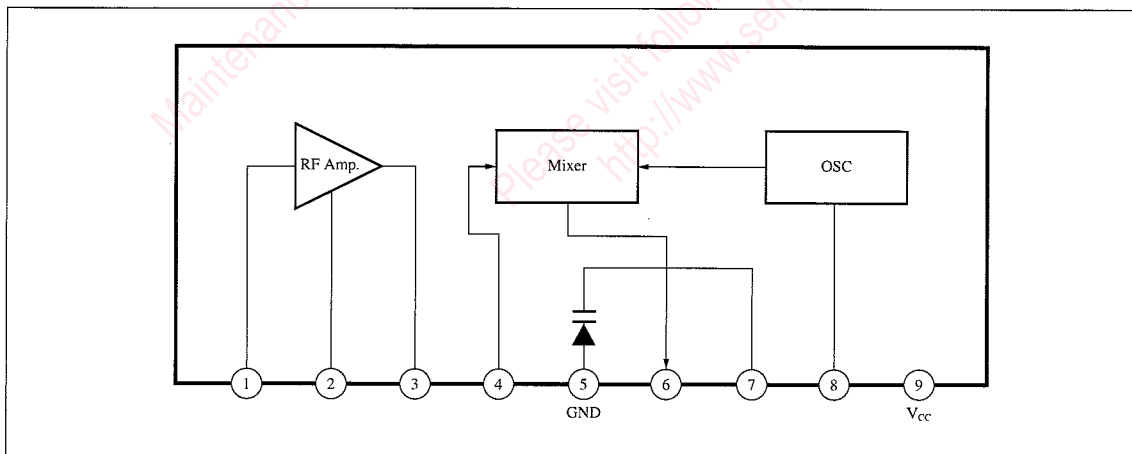
Features

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



ICs for
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Block Diagram



■ Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Supply Voltage	V_{CC}	7	V
Supply Current	I_{CC}	13	mA
Power Dissipation ($T_a = 75^\circ\text{C}$)	P_D	100	mW
Operating Ambient Temperature	T_{opr}	$-20 \sim +75$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

■ Recommended Operating Range ($T_a = 25^\circ\text{C}$)

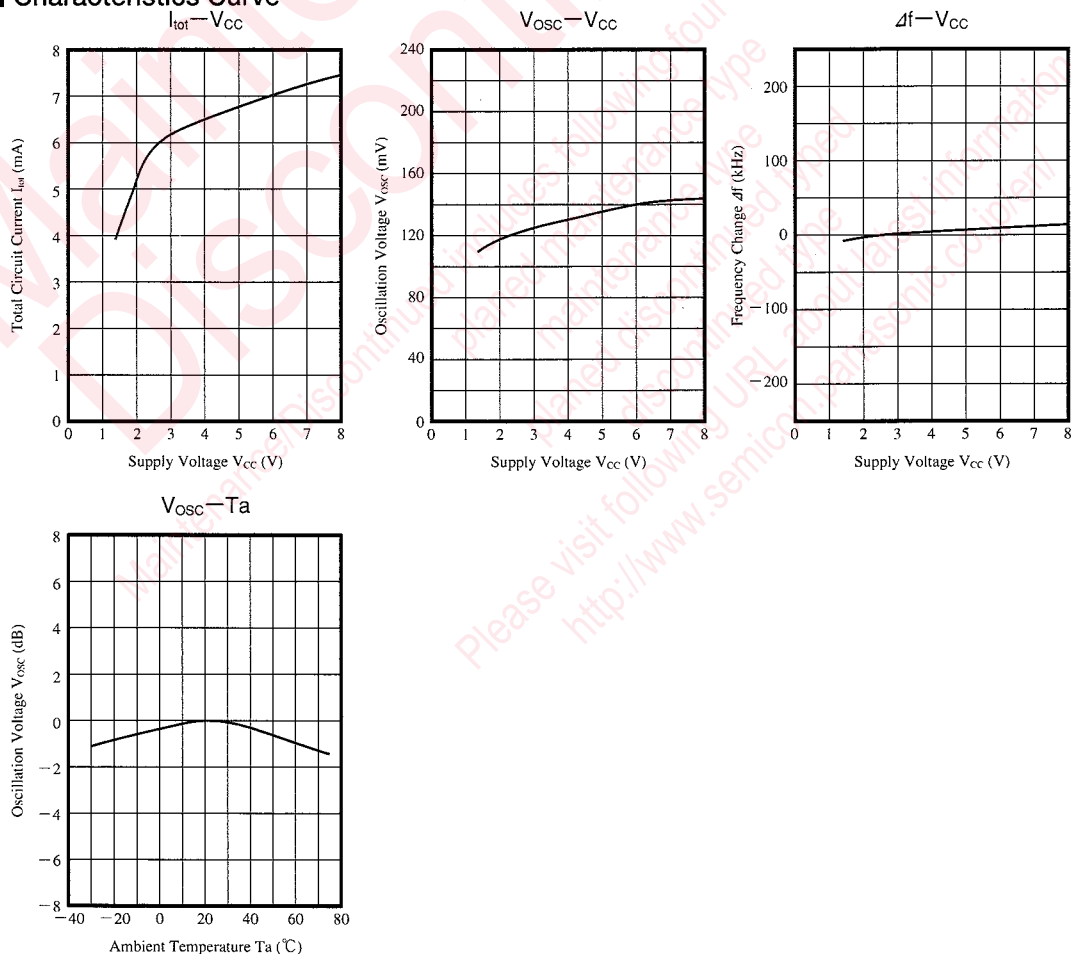
Parameter	Symbol	Range
Operating Supply Voltage Range	V_{CC}	1.8V ~ 7V

■ Electrical Characteristics ($T_a = 25^\circ\text{C}$)

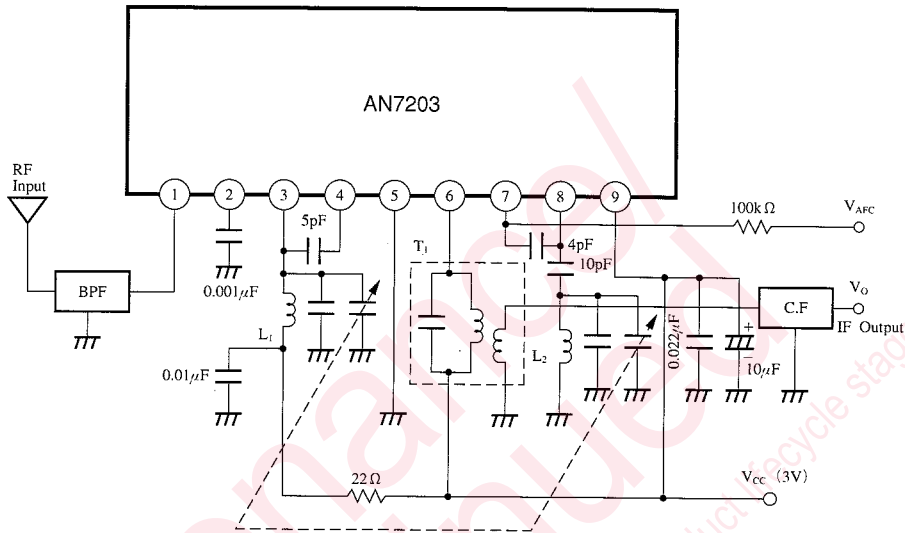
Parameter	Symbol	Condition	min.	typ.	max.	Unit
Total Circuit Current	I_{tot}	$V_{CC} = 3\text{V}$, No signal	3.5	5.5	8.25	mA
Output Voltage	V_O *	$V_{CC} = 3\text{V}$, $V_{in} = 55\text{dB}\mu$, 106MHz	85	89	92	dB μ
Local Oscillation Voltage	V_{OSC}	$V_{CC} = 1.5\text{V}$, $f_{osc} = 116.7\text{MHz}$	72.8	—	—	mV
AFC Diode Capacitance Value	C_{AFC}	$V_{(7-5)} = 1\text{V}$	—	25	—	pF

* Maximum output value should be read by changing input signal frequency by $106\text{MHz} \pm \Delta f$.

■ Characteristics Curve



■ Application Circuit



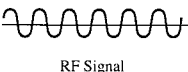
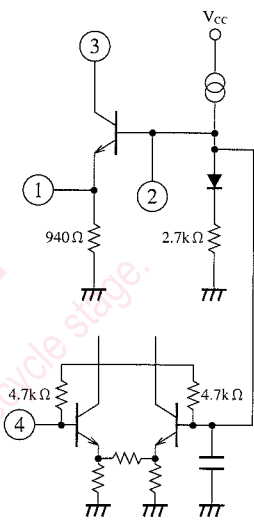

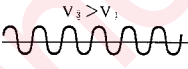


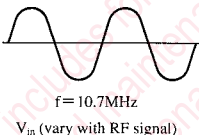
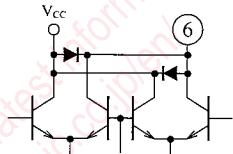
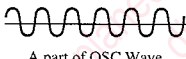

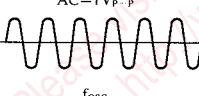
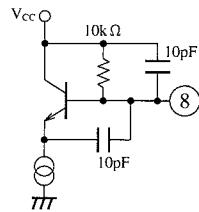

■ Coil Specifications

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

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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 Ω	
3	RF OUT	3V	 RF Signal	High	
4	Mixer IN	1.7V	 RF Signal	→	
5	GND	0V		—	
6	Mixer OUT	3V	 $f=10.7\text{MHz}$ V_{in} (vary with RF signal)	High	
7	AFC Diode	—	 A part of OSC Wave	$C=25\text{pF (typ.)}$ $(V_7=1V)$	
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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