

# AN7203

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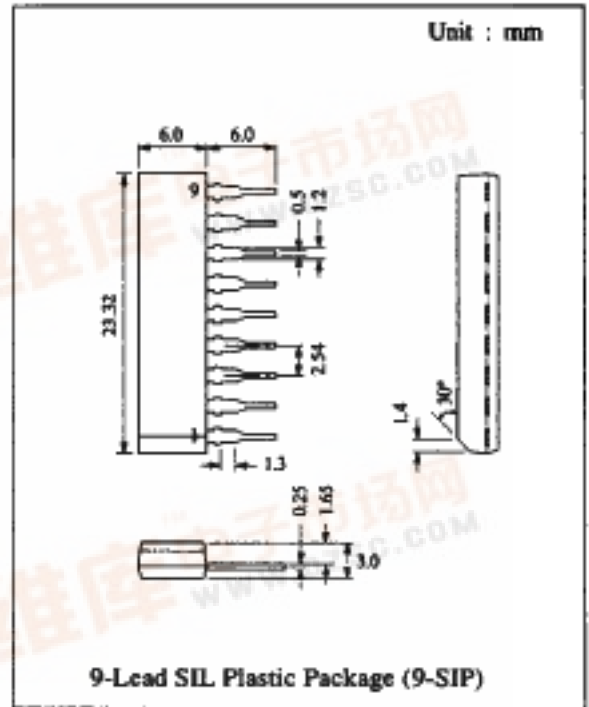
### FM Front-end IC for Radio, Radio Cassette Recorder

#### ■ Description

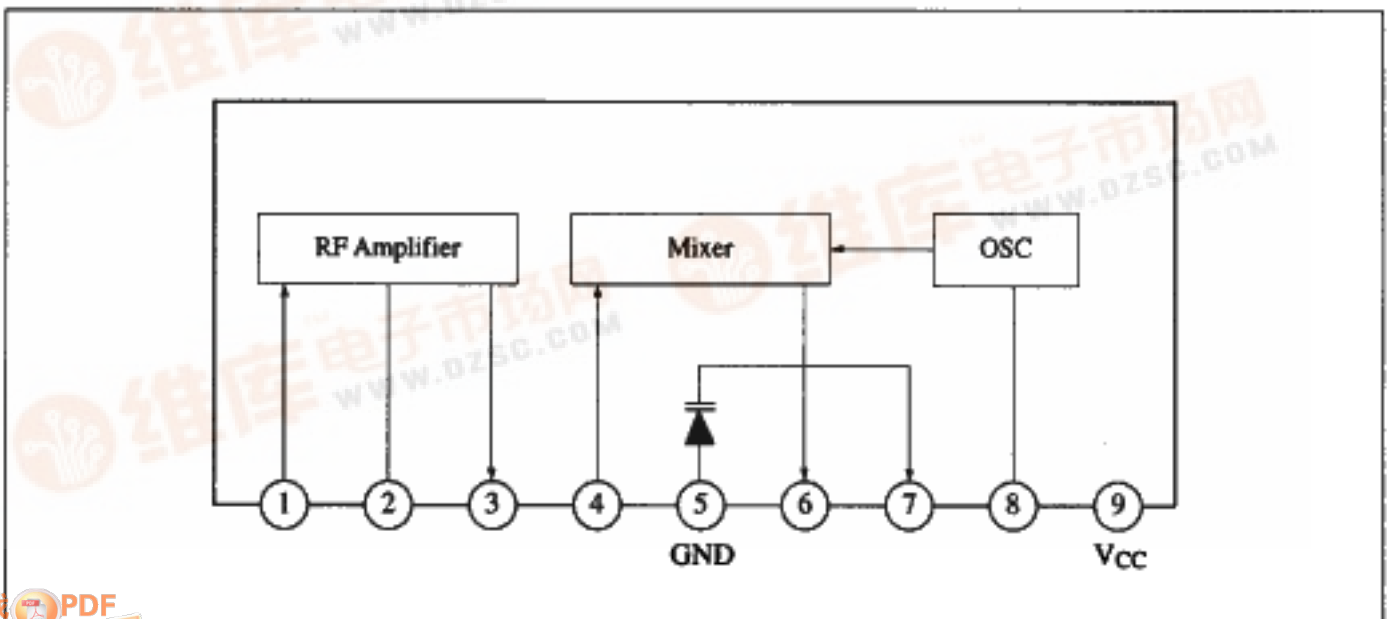
The AN7203 is a monolithic integrated circuit designed for FM front-end which is suitable for 3V ~ 5V operation radio/radio cassette recorder. High sensitivity tuner can be configured in combination with AM-FM, IF + MPX IC (AN7024).

#### ■ Features

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



#### ■ Block Diagram



## ■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V <sub>CC</sub>	7	V
Supply Current	I <sub>CC</sub>	13	mA
Power Dissipation (Ta = 75°C)	P <sub>D</sub>	100	mW
Operating Ambient Temperature	T <sub>opr</sub>	-20 ~ +75	°C
Storage Temperature	T <sub>stg</sub>	-55 ~ +150	°C

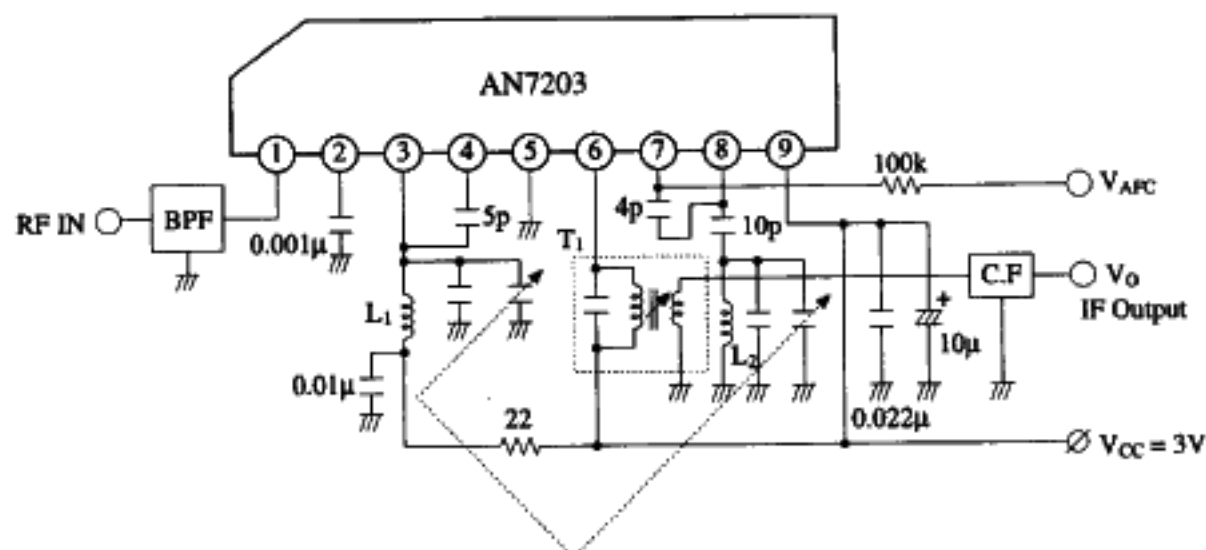
Operating Supply Voltage Range: V<sub>CC</sub> = 1.8V ~ 7.0V

## ■ Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Current	I <sub>CQ</sub>	V <sub>CC</sub> = 3V, without signal	3.5	5.5	8.25	mA
Output Voltage	V <sub>O</sub> *	V <sub>CC</sub> = 3V, V <sub>in</sub> = 55dBμ, 106MHz	85	89	92	dBμ
Local Oscillation Voltage	V <sub>OSC</sub>	V <sub>CC</sub> = 1.5V, f <sub>osc</sub> = 116.7MHz	72.8			mV
AFC Diode Capacitance Value	C <sub>AFC</sub>	V <sub>(7-5)</sub> = 1V		25		pF

\* Max. output voltage value is obtained by changing input signal frequency ±Δf at 106MHz

## ■ Application Circuit



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


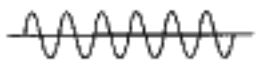
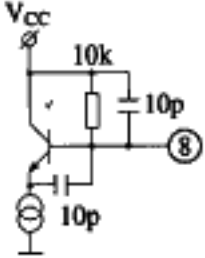
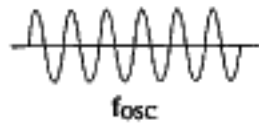
### ■ Coil Specifications

Symbol	Use, Freq.	Type No.	Maker	Connection Diagram	Number of Turns	L Value/ C Value	Unloaded Q
T <sub>1</sub>	FM Quad Coil 10.7MHz	IFT-41K9	MITSUMI		①---② 7T ②---③ 4T ④---⑤ 2T	110pF	100
L <sub>1</sub>	RF Coil	-	ŌE INDUSTRY		4T Space Winding	0.102μH f=25.2MHz	77 f=25.2MHz
L <sub>2</sub>	OSC Coil	-	ŌE INDUSTRY		3T Space Winding	0.086μH f=25.2MHz	73 f=25.2MHz

### ■ Pin Descriptions

Pin No.	Pin Name	DC Voltage	I/O Impedance	Equivalent Circuit	Waveform
1	RF IN	1V	Low		
2	RF Pass-con.	1.7V	2.7kΩ		
3	RF OUT	3V	High		$V_3 > V_1$ 
4	Mixer IN	1.7V	→		$V_4 = V_3$ 
5	GND	0V			
6	Mixer OUT	3V	High		 $f=10.7\text{MHz}$ $V_{in}$ (vary with RF signal)

### Pin Descriptions (Continue)

Pin No.	Pin Name	DC Voltage	I/O Impedance	Equivalent Circuit	Waveform
7	AFC Diode		$C=25\text{pF}$ (typ.) ( $V_T=1\text{V}$ )		 A part of OSC Wave
8	OSC	2.9V	→		 AC = 1V <sub>PP</sub> f <sub>osc</sub>
9	V <sub>CC</sub>	3V			

Signal levels of Pin 1, 3 and 4 are in proportion to size of RF signals which are input to antenna.

### Characteristics Curve

