

AN7203

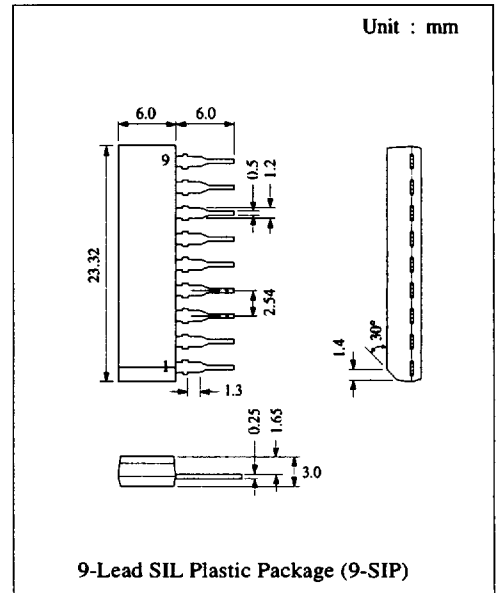
FM Front-end IC for Radio, Radio Cassette Recorder

■ Description

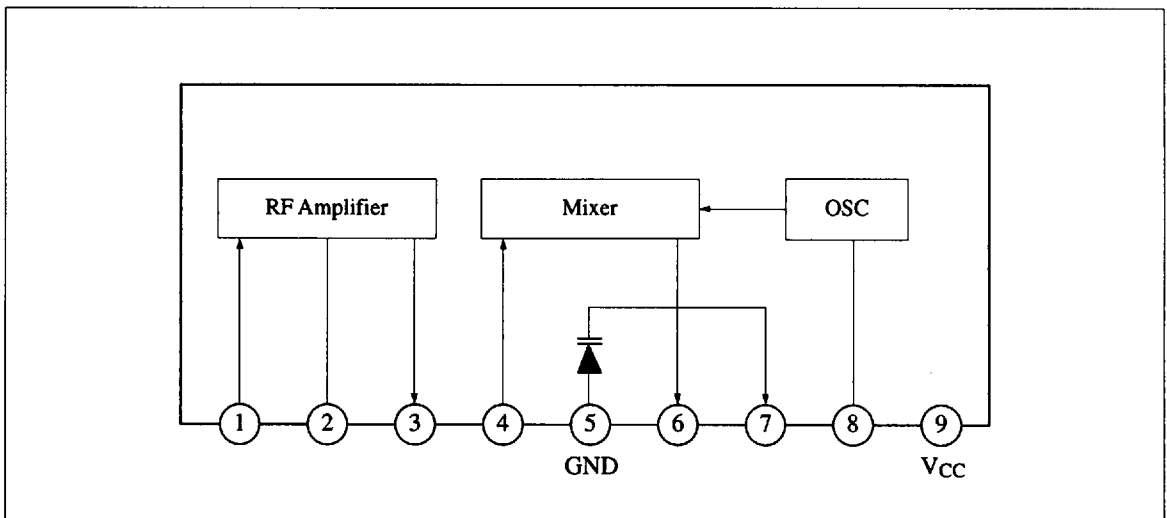
The AN7203 is a monolithic integrated circuit designed for FM front-end which is suitable for 3V ~ 5V operation radio/radio cassette recorder. High sensitivity tuner can be configured in combination with AM-FM, IF + MPX IC (AN7024).

■ 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 _{CC}	7	V
Supply Current	I _{CC}	13	mA
Power Dissipation (Ta = 75°C)	P _D	100	mW
Operating Ambient Temperature	Topr	-20 ~ +75	°C
Storage Temperature	Tstg	-55 ~ +150	°C

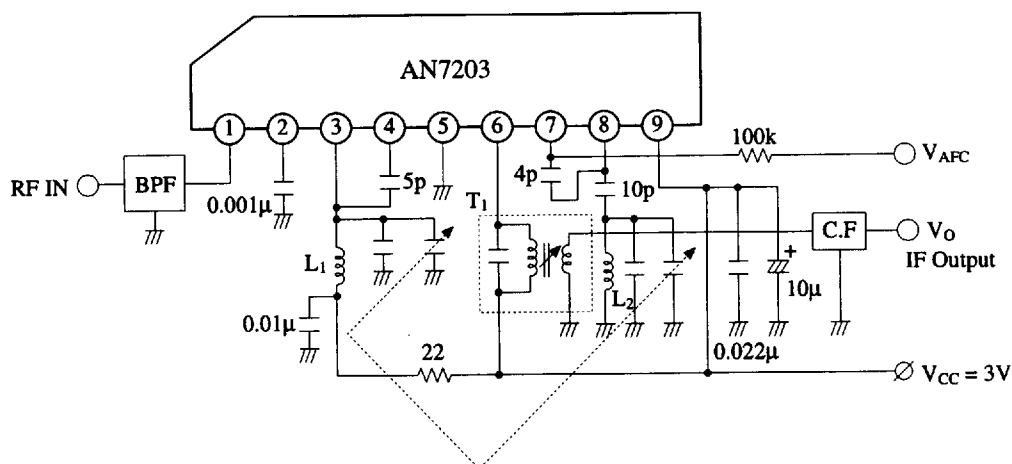
Operating Supply Voltage Range: V_{CC} = 1.8V ~ 7.0V

■ Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Current	I _{CQ}	V _{CC} = 3V, without 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

* 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


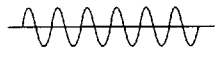
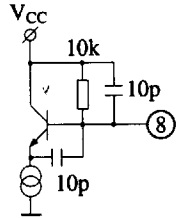
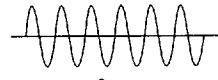
■ Coil Specifications

Symbol	Use, Freq.	Type No.	Maker	Connection Diagram	Number of Turns	L Value/ C Value	Unloaded Q
T ₁	FM Quad Coil 10.7MHz	IFT-41K9	MITSUMI		①...② 7T ②...③ 4T ④...⑤ 2T	110pF	100
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

■ Pin Descriptions

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

■ Pin Descriptions (Continue)

Pin No.	Pin Name	DC Voltage	I/O Impedance	Equivalent Circuit	Waveform
7	AFC Diode		$C=25\text{pF}$ (typ.) ($V_7=1\text{V}$)		 A part of OSC Wave
8	OSC	2.9V	→		 $AC \approx 1V_{p-p}$ f_{osc}
9	Vcc	3V			

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

■ Characteristics Curve

