

AN7204

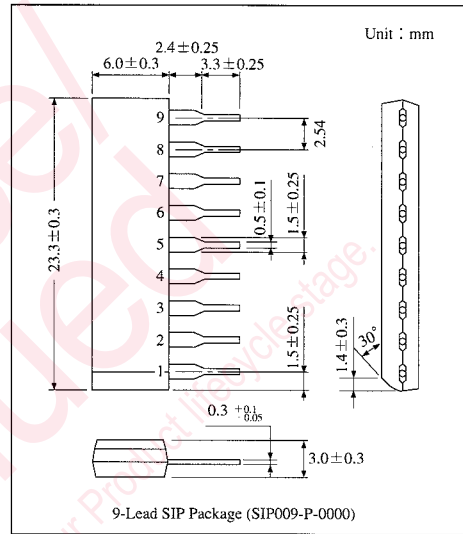
FM Front-end IC for Radio, Radio Cassette Recorder

Overview

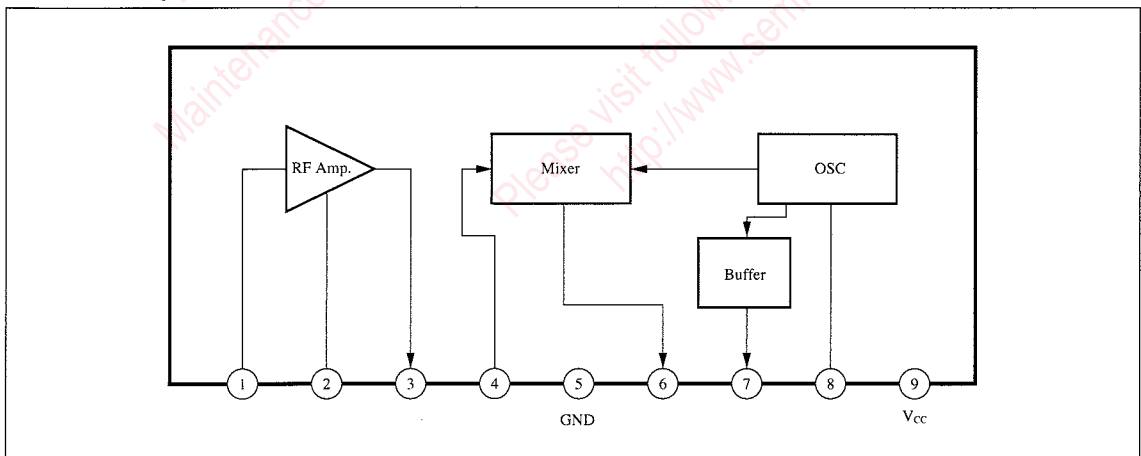
The AN7204 is an FM front-end IC for PLL synthesizer which is most suitable for 5V operation radio/radio cassette recorder. It can configure a high sensitivity synthesizer tuner in combination with AM-FM · IF+MPX IC (AN7238) available for DTS.

Features

- PLL synthesizer OSC buffer built-in
- Good two signal characteristics
- High receiving sensitivity
- TV band receiving 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}	15	mA
Power Dissipation	P _D	150	mW
Operating Ambient Temperature	T _{opr}	-20 ~ +75	°C
Storage Temperature	T _{stg}	-55 ~ +150	°C

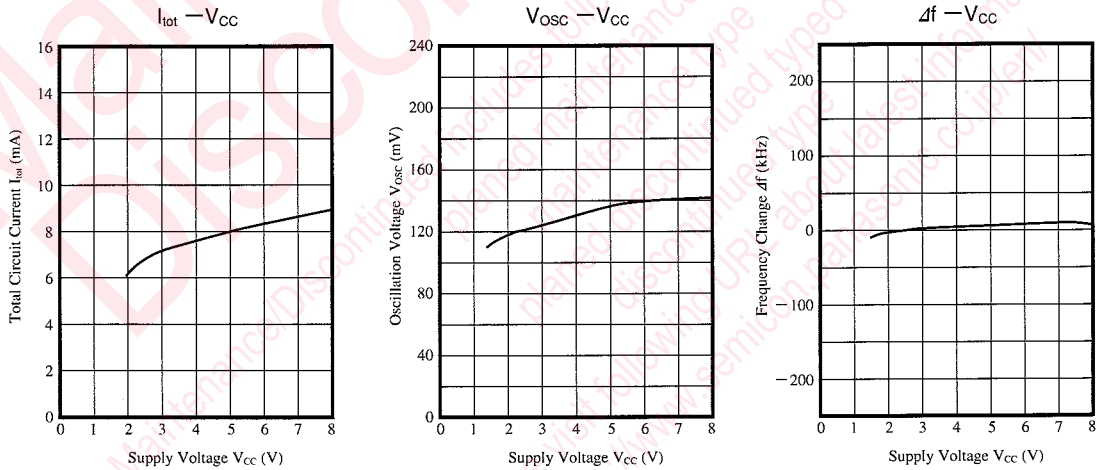
Recommended Operating Range (Ta=25°C)

Parameter	Symbol	Range
Operating Supply Voltage Range	V _{CC}	2.7V ~ 7V

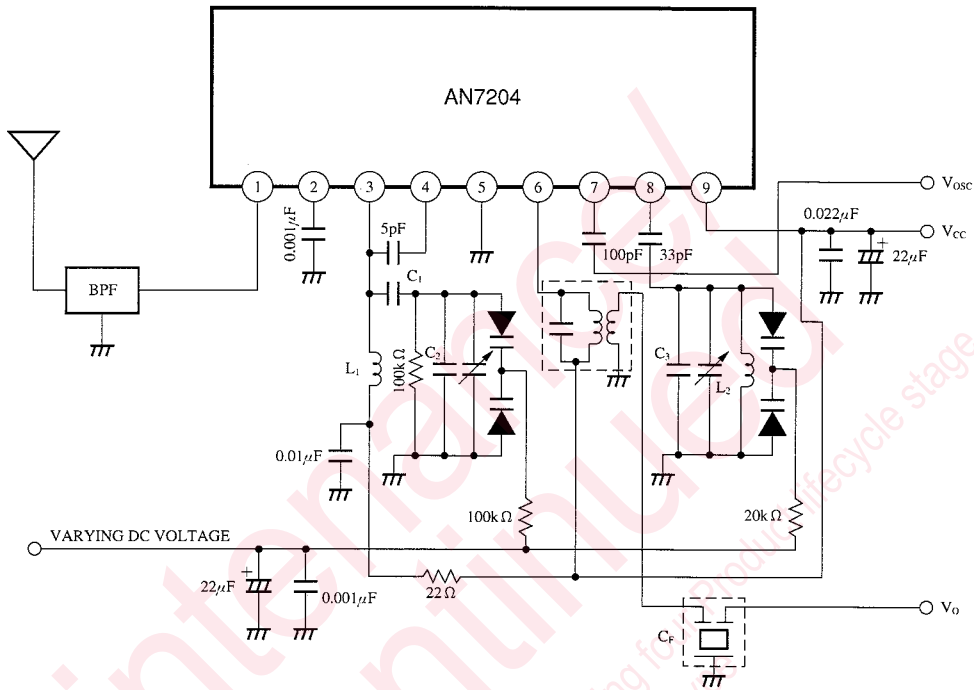
Electrical Characteristics (V_{CC}=5V, Ta=25°C)

Parameter	Symbol	Condition	min.	typ.	max.	Unit
Total Circuit Current	I _{tot}	At no signal	6	8	11	mA
Output Voltage	V _O	V _i = 55dB μ , 90MHz	85	89	92	dB μ
Output Voltage of Local Oscillation	V _{osc}	f _{osc} = 67MHz	—	106	—	dB μ
		f _{osc} = 212MHz	—	100	—	dB μ
Local Oscillation Output Level	V _{Buf}	C _L = 5pF, f _{osc} = 67MHz	95	102	—	dB μ
		C _L = 5pF, f _{osc} = 212MHz	—	95	—	dB μ

Characteristics Curve



Application Circuit



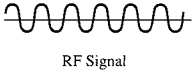
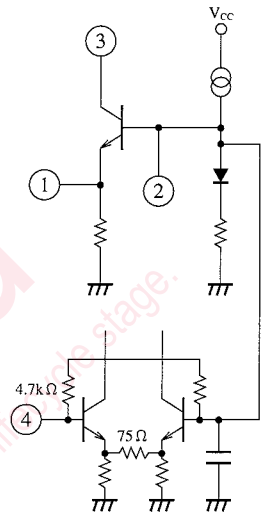
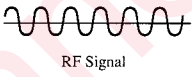

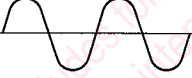
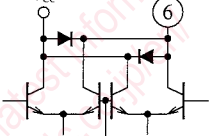
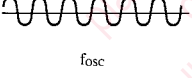
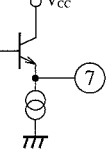
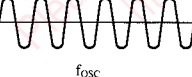
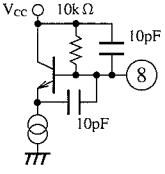
Coil Specifications

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 BPWB5
- Variable capacitor : MITSUMI PVC-2LXT-L



Pin Descriptions ($V_{CC}=5V, T_a=25^{\circ}C$)

Pin No.	Pin Name	DC Voltage	Pin Waveform	I/O Impedance	Equivalent Circuit
1	RF IN	1.1V	 RF Signal	Several 10Ω	
2	RF Pass con.	1.8V	—————	$2.7k\Omega$	
3	RF OUT	1.1V	$V_3 > V_4$  RF Signal	High	
4	Mixer IN	1.8V	$V_4 = V_3$  RF Signal	Several $k\Omega$	
5	GND	0V	—————	—————	—————
6	Mixer OUT	5V	 $f=10.7MHz$ V_m (vary with RF signal)	High	
7	OSC Buffer OUT	3.6V	$AC=0.4V_{p-p}$  f_{osc}	Several 10Ω	
8	OSC	4.9V	$AC=0.6V_{p-p}$  f_{osc}	→	
9	V_{CC}	5V	—————	—————	—————

Signal levels of Pin①, ③, ④, ⑥ are in proportion to size of RF signals which are input to antenna.

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