DATA SHEET

Part No.	AN18164B
Package Code No.	LQFP048-P-0707A

Contents

AN18164B

Car Radio FM/AM tuner IC built-in PLL synthesizer

■ Overview

AN18164B is Car Radio FM/AM tuner IC built-in PLL synthesizer.

This IC is enable to adjust and change over various function by I^2C-bus, and AM up-conversion system and FM IF detection coil-less system reduce the number of parts.

■ Feature

- I^2C-bus control
- Built-in PLL synthesizer
- AM up-conversion system
- IF detection coil-less

■ Application

- Car radio

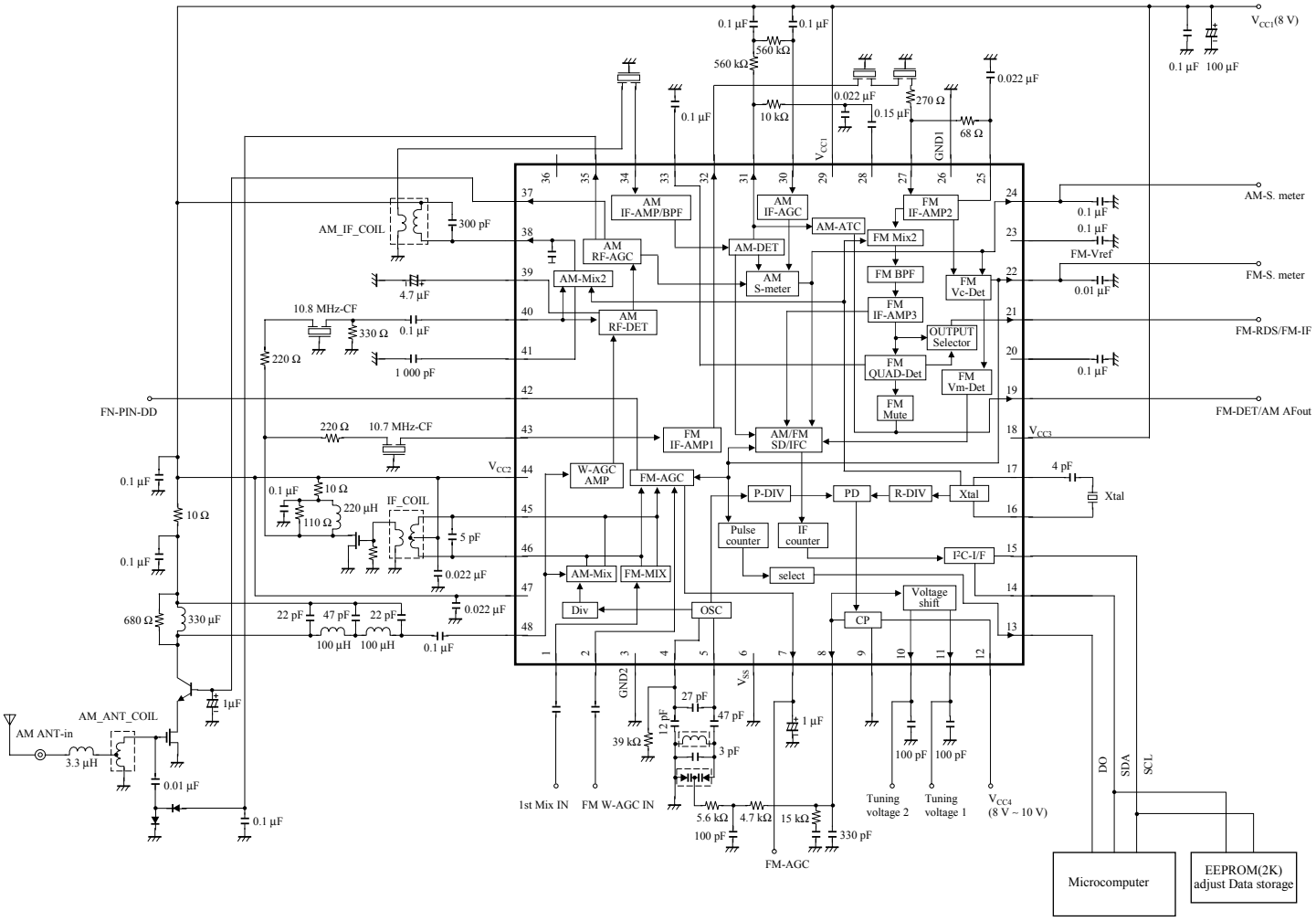
■ Package

- 48pin Plastic Low Profile Quad Flat Package (QFP type)

■ Type

- Bi-CMOS IC

■ Application Circuit Example (Block Diagram)



■ Pin Descriptions

Pin No.	Node Name	Type	Function
1	FM-MIX1IN	Input	FM-1st. Mix IN
2	FM-WAGCIN	Input	FM Wide Band AGC Detection
3	GND2	Ground	RF-GND
4	L-OSC1	—	Local Oscillator Resonance load 1
5	L-OSC2	—	Local Oscillator Resonance load 2
6	VSS	Ground	VSS(Logic-GND)
7	FM-AGCOUT	Output	FM-AGC Output
8	CPOUT	Output	Charge pump Output
9	GND3	Ground	PLL-GND
10	PTCOUT	Output	Tuning Voltage Adjust 2
11	PTBOUT	Output	Tuning Voltage Adjust 1
12	VCC4	Power Supply	PLL-V_{CC}
13	SDOUT	Output	SD/monitor Output
14	SDA	Input	Serial Data Input(SDA)
15	SCL	Input	Serial Clock Signal Input(SCL)
16	X-OSC1	—	Crystal Oscillation 1
17	X-OSC2	—	Crystal Oscillation 2
18	VCC3	Power Supply	Logic-V_{CC}
19	DETOUT	Output	AM/FM Detection Output
20	FM-MUTE-TC	—	FM Mute Time constant setup
21	FM-RDSOUT	Output	FM Detection Output
22	AMFM SMETER	Output	FM Control Voltage/AM Signal Meter
23	FM-VREF	—	FM-Vref
24	FM-BMUTE-TC	Output	FM Band Mute time constant setup/AM Signal Meter
25	FM-IF1-BY-PASS	—	FM 1st IF Bypass capacitor
26	GND1	Ground	IF-GND
27	FM-IF1IN2	Input	FM 1st IF IN
28	AM-ATCIN	Input	AM ATC IN
29	VCC1	Power Supply	V_{CC}
30	AM-IFAGCIN	Input	AM IFAGC Control
31	AM-DETOUT	Output	AM Detection Output
32	FM-IF1OUT	Output	FM 1st IF Output
33	FM-DET-BY-PASS	—	FM Detection Bypass capacitor
34	AM-IFIN	Input	AM IF IN
35	AM-PINDD	Output	AM PIN diode driver

■ Pin Descriptions (continued)

Pin No.	Node Name	Type	Function
36	N.C.	—	Non connected
37	AM-RFGC	—	AM-RF Gain Control
38	AM-MIX2OUT	Output	AM-2nd Mixer Output
39	AM-AGC	—	AM-RFAGC Level Detector
40	AM-MIX2IN	Input	AM-2nd Mix IN
41	AM-MIX2VREF	—	AM 2nd Mix Reference Voltage
42	FM-PINDD	Output	FM PIN diode driver
43	FM-IF1IN	Input	FM 1st IF IN
44	VCC2	Power Supply	RF-V_{CC}
45	MIXOUT1	Output	AM/FM-1st Mix Out 1
46	MIXOUT2	Output	AM/FM-1st Mix Out 2
47	VCC2	Power Supply	L-OSC V_{CC}
48	AM-MIX1IN	Input	AM-1st Mix IN

■ Absolute Maximum Ratings

A No.	Parameter	Symbol	Rating	Unit	Note
1	Supply Voltage	V_{CC1}	8.7	V	*1
		V_{CC2}	11.1		
2	Supply Current	I_{CC}	70	mA	—
3	Power dissipation	P_D	293.6	mW	*2
4	Operating ambient temperature	T_{opr}	–40 to +85	°C	*3
5	Storage temperature	T_{stg}	–55 to +150	°C	*3

Note) *1 : Show the case to be used in the situation less than absolute maximum rating and power dissipation.
*2 : Power dissipation is value in simple package and T_a = 85°C.
*3 : Ta = 25°C except storage temperature, operating ambient temperature and power dissipation.

■ Operating supply voltage range

Parameter	Symbol	Rating	Unit	Note
Supply voltage range	V_{CC1}	7.2 to 8.6	V	—
	V_{CC2}	7.2 to 11.0		*

Note) * : Show the case to be used in the situation less than absolute maximum rating and power dissipation.

■ Allowable Voltage Ranges

Pin No.	Pin name	Range	Unit	Notes
12	$V_{CC}4$	0 to 11.0	V	—
13	SDOUT	0 to 5.5	V	—
14	SDA	0 to 5.5	V	—
15	SCL	0 to 5.5	V	—
18	$V_{CC}3$	0 to 8.6	V	—
29	$V_{CC}1$	0 to 8.6	V	—
44	$V_{CC}2$	0 to 8.6	V	—
47	$V_{CC}2$	0 to 8.6	V	—

Note) 1. The ranges on the list are the voltages of respective pins in relation to GND.
The GND represents the voltage of GND1,GND2,GND3, and VSS. And GND1=GND2=GND3=VSS.
2. Do not apply the voltages or the currents from external into the pins which are not on the list.

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