AN93C02NSB

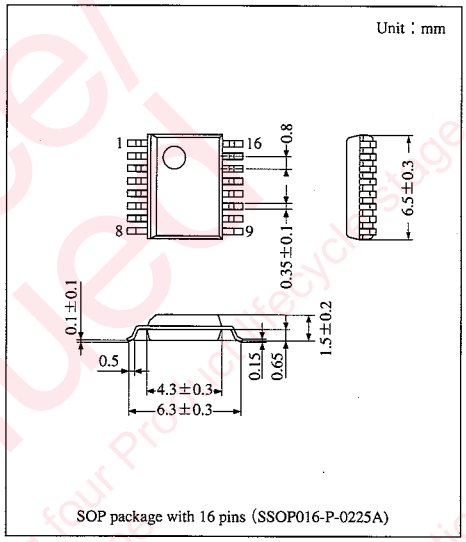
Pager IF IC

■ Overview

The AN93C02NSB is a pager IF IC. It incorporates an RF bipolar process to minimize current consumption.

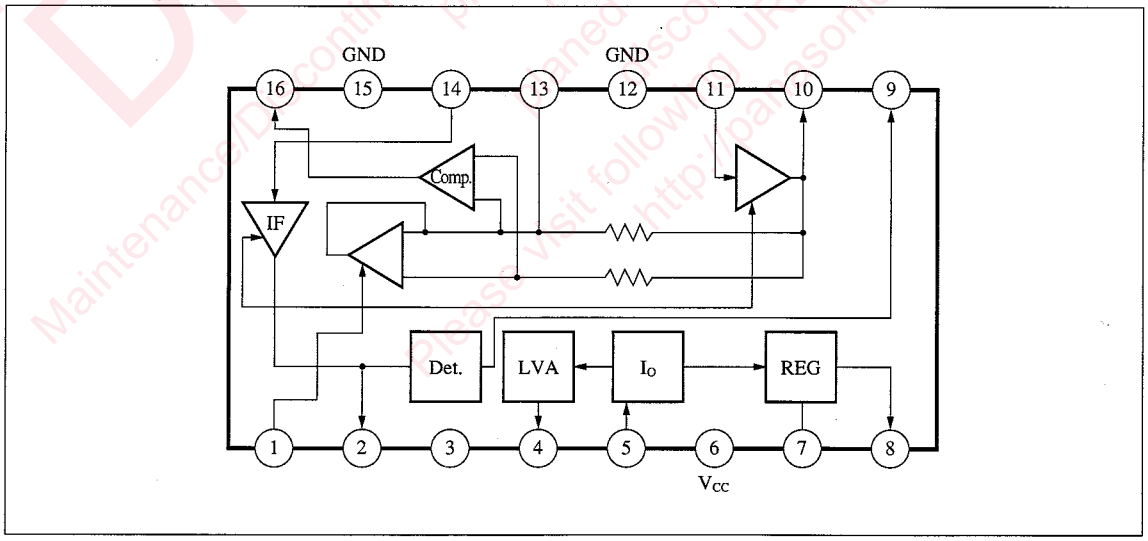
■ Features

- Operates on low voltage (V_{CC} = 1.0V to 1.8V)
- Low current consumption (I_{CC} = typically 450 μA)
- Battery saving function : zero current consumption
- Low voltage alarm (LVA)



SOP package with 16 pins (SSOP016-P-0225A)

■ Block Diagram



■ Pin Description

Pin No.	Description	Pin No.	Description
1	QCC	9	AF output
2	IF amp. output	10	LP output
3	DET	11	LP input
4	LVA low voltage alarm output DET	12	GND2
5	BSV input	13	REF
6	V_{CC}	14	IF input
7	REG control	15	GND1
8	REG output	16	NRZ output

■ Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	2.0	V
Supply current	I_{CC}	2.0	mA
Power dissipation	P_D	5.0	mW
Operating ambient temperature	T_{opr}	−20 to 70	℃
Storage temperature	T_{stg}	−55 to 125	℃

■ Operating Supply Voltage Range

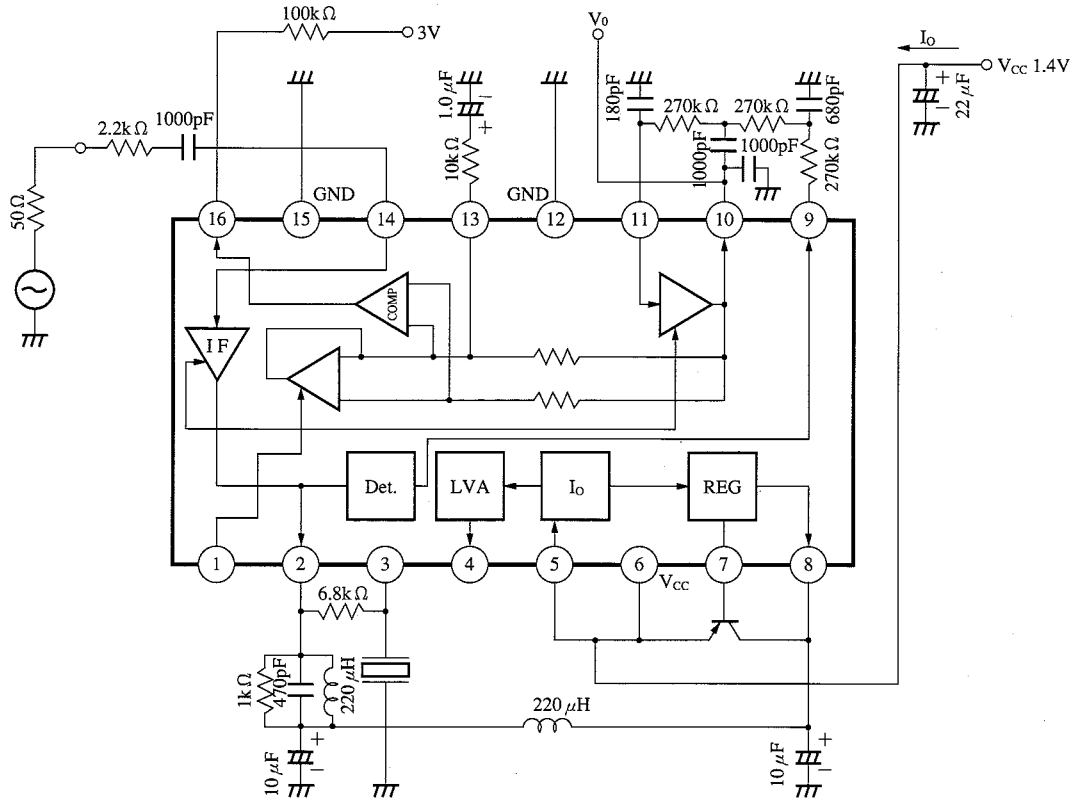
Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	1.0V to 1.8V

■ Electrical Characteristics (Ta=25±2℃, V_{CC}=1.4V)

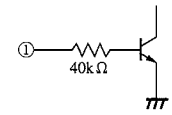
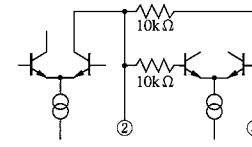
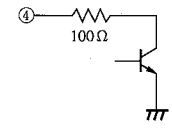
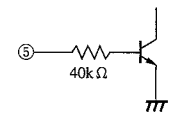
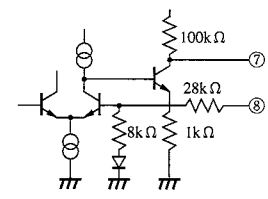
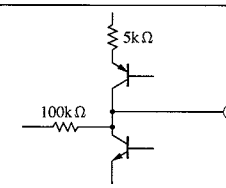
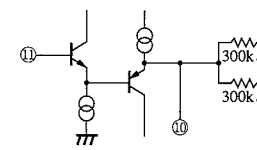
Parameter	Symbol	Condition	min	typ	max	Uni
Current consumption (operating)	I_O		300	450	500	μA
Current consumption (quiescent)	I_S	SW1 : b	—	0	10	μA
Low voltage alarm output voltage (L)	V_L	V_{CC}=1.03V	—	—	0.2	V
Low voltage alarm output voltag (H)	V_H	V_{CC}=1.11V	2.8	—	—	V
Low voltage alarm voltage	V_{LVA}		1.02	1.07	1.13	V
Regulated output voltage	V_{REG}		1.00	1.05	1.10	V
Demodulation output voltage	V_O		−26	−22	−18	dBs
Limiting sensitivity	V_L	V_O=−3dB (input)	—	—	−72	dBm
Demodulation output noise voltage	V_{NO}	Not modulated	—	—	−60	dBs
Waveform shaping duty (1)	DR1	ΔT=±2.0kHz	40	50	60	%
Waveform shaping duty (2)	DR2	ΔT=±4.0kHz, Vin=−25dBm	40	50	60	%
Total harmonic distortion	THD		—	—	−22	dB
Waveform shaping output voltage (L)	V_{nL}	V1=0.6V, V2=0V	—	—	0.2	V
Waveform shaping output voltage (H)	V_{nH}	V1=1.05V, V2=0V	2.8	—	—	V
Quick-charge/discharge current	I_{QH}	V1=1.1V, V2=3V	35	—	—	μA
Quick-charge/discharge current	I_{QL}	V1=0.3V, V2=3V	—	—	−35	μA

Note) Input signal f_o=455kHz, Δf=±7.0kHz, f_{mod}=400Hz, V_{in}=−45dBm

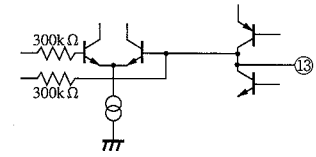
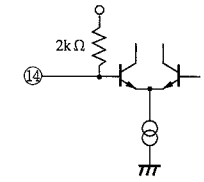
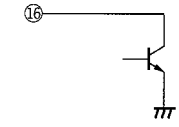
■ Application Circuit



■ Pin Descriptions

Pin No.	Symbol	Description	Equivalent circuit
1	QCC	Quick-charge/discharge control Quick-charge ON when high, and OFF when low.	
2	IF amp. output	IF amplifier output	
3	DET	To be connected to a detector coil.	
4	LVA	Low voltage alarm output	
5	BSV	Battery saving control	
6	V_{CC}	Supply voltage	———
7	REG control	Regulator control	
8	REG output	Regulator output	
9	AF output	Detector output	
10	LP output	Filter buffer output	
11	LP input	Filter buffer input	
12	GND2	Ground	———

■ Pin Descriptions (cont.)

Pin No.	Symbol	Description	Equivalent circuit
13	REF	Comparator reference	
14	IF input	IF amplifier input	
15	GND1	Ground	
16	NRZ output	NRZ output	

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