AN6162SC

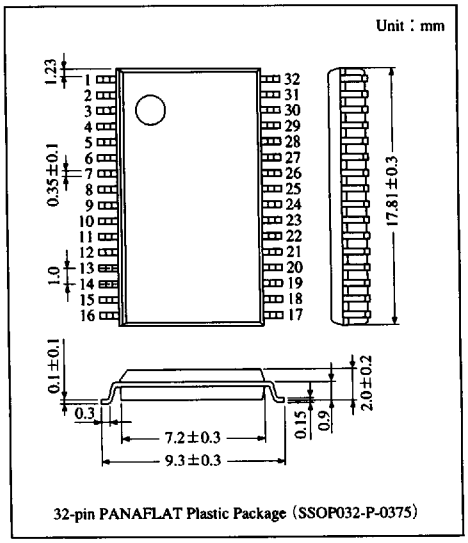
Narrow Band FM Receiver Circuit

■ Overview

The AN6162SC is an FM receiver IC for the cordless telephone sets.

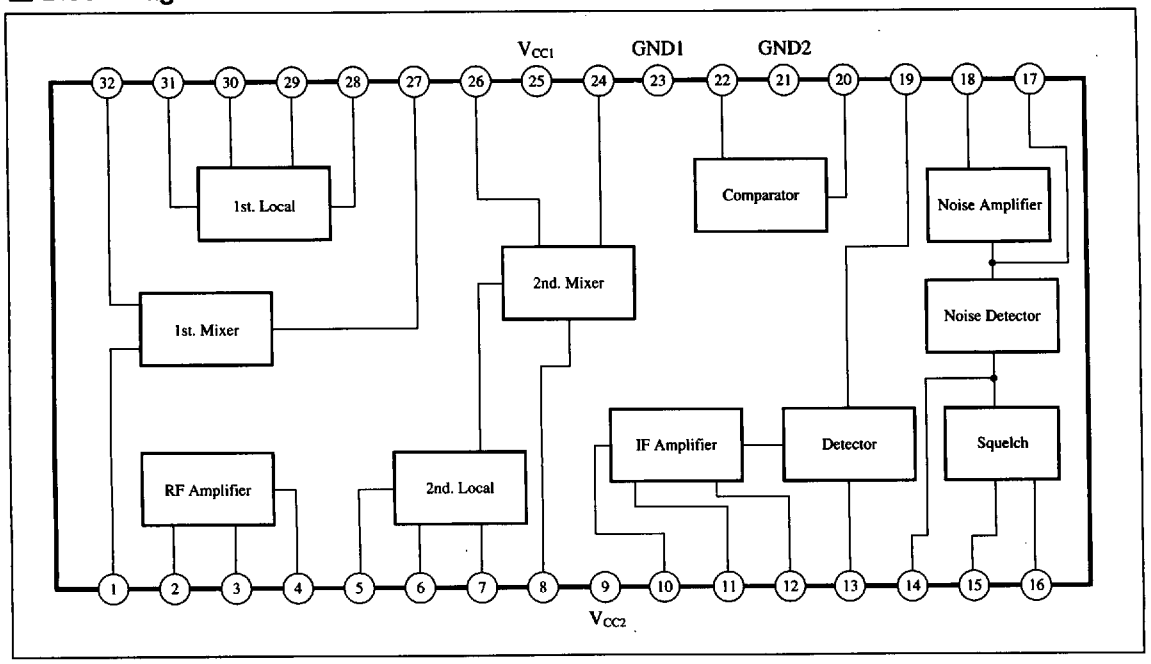
■ Features

- Built-in RF amplifier
- Double conversion system
- Built-in waveform shaping comparator
- Built-in squelch circuit



32-pin PANAFLAT Plastic Package (SSOP032-P-0375)

■ Block Diagram



ICs for Telephone

■ Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	6	V
Supply current	I_{CC}	15	mA
Power dissipation (Ta=75℃)	P_D	294	mW
Operating ambient temperature	T_{opr}	−20 to +75	℃
Storage temperature	T_{stg}	−55 to +125	℃

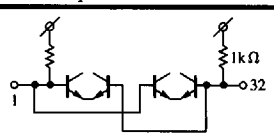
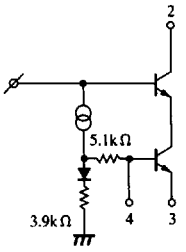
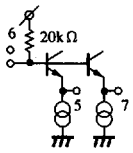
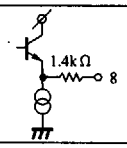
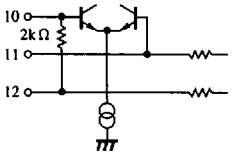
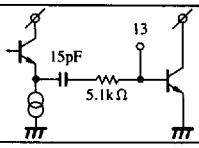
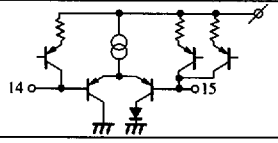
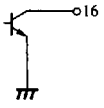
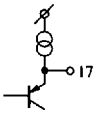
■ Recommended Operating Range (Ta=25℃)

Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	2 to 5.5V

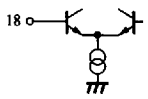
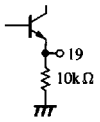
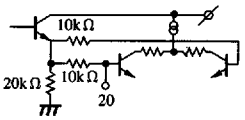
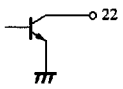
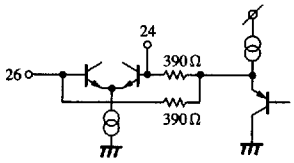
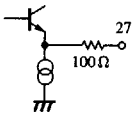
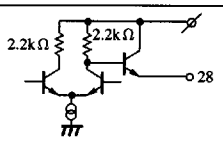
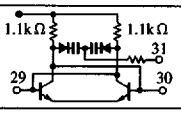
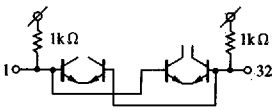
■ Electrical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Current consumption	I_{CC1}	V_{in}=80dBμ, f_O=455kHz, f_{MOD}=1kHz, Δf=10kHz Connect 240Ω to the Pin③ and 5.1kΩ to the Pin㉘	—	6.2	9	mA
	I_{CC2}	V_{in}=80dBμ, f_O=455kHz, f_{MOD}=1kHz, Δf=10kHz Open the Pins③ and ㉘.	—	3.8	5.2	mA
Output voltage	V_O	V_{in}=80dBμ, f_O=455kHz, f_{MOD}=1kHz, Δf=10kHz Input a signal from the Pin⑩ and measure the output at the Pin⑲.	100	125	180	mVrms
IF input limitting sensitivity	V_L	V_{in}=80dBμ, f_O=455kHz, f_{MOD}=1kHz, Δf=10kHz Pin⑩ input level when the Pin⑲ output is −3 dB.	—	55	60	dBμ
Mixer gain	G_M	V_{in}=80dBμ, f_O=455kHz, f_{MOD}=1kHz, Δf=10kHz, Measure the conversion gain between the input Pin④ and output Pin⑧.	59	64	—	dB
Total harmonic distortion	THD	V_{in}=80dBμ, f_O=455kHz, f_{MOD}=1kHz, Δf=10kHz Input a signal from the Pin⑩ and measure the output at the Pin⑲.	—	1	8	%

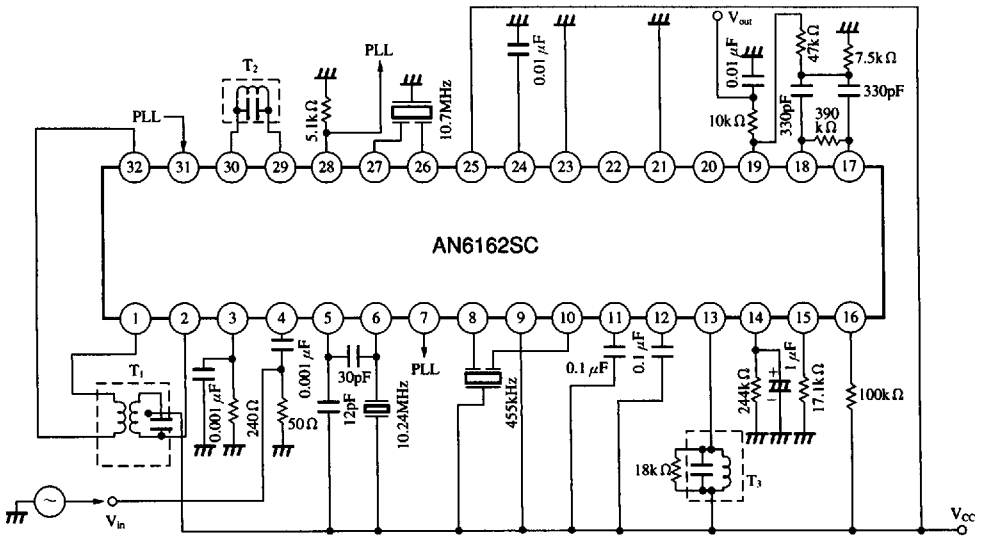
■ Pin Descriptions

Pin No.	Pin name	Description	Equivalent circuit
1	1st mixer input	Input pin of the 1st mixer circuit	
2	RF amplifier collect	Output pin of the RF amplifier	
3	RF amplifier emitter	Emitter ground pin of the RF amplifier	
4	RF amplifier base	Input pin of the RF amplifier	
5	2nd oscillator emitter	External part connection pin of the 2nd oscillator	
6	2nd oscillator base		
7	2nd oscillator output	Output pin of the 2nd oscillator	
8	2nd mixer output	Output of the 2nd mixer circuit	
9	V_{CC2}	Supply voltage pin	
10	IF amplifier input	Input pin of the IF amplifier	
11	IF amplifier decoupling	Bypass capacitor connection pin	
12			
13	Quadrature coil	Detection coil connection pin	
14	Noise detection	Noise detection level adjustment by external resistor	
15	Squelch hysteresis	Hysteresis width adjustment by external resistor	
16	Squelch output	Squelch output pin (open collector)	
17	Noise amplifier output	Noise amplifier output pin	

■ Pin Descriptions (cont.)

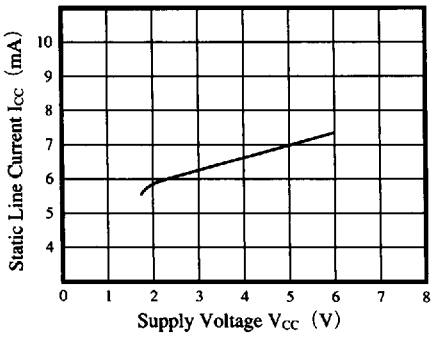
Pin No.	Pin name	Description	Equivalent circuit
18	Noise amplifier input	Noise amplifier input pin	
19	Detection	Detection signal output pin	
20	Comparator input	Comparator input pin	
21	GND2	Ground pin	—
22	Comparator output	Comparator output pin (open collector)	
23	GND1	Ground pin	—
24	2nd mixer decoupling	Bypass capacitor connection pin	
25	V_{CC1}	Supply voltage pin	
26	2nd mixer input	Input pin of the 2nd mixer circuit	
27	1st mixer output	Output pin of the 1st mixer circuit	
28	1st oscillator output	Output pin of the 1st oscillator	
29	1st oscillator tank	Tank coil connection pin	
30			
31	Variable cap control	Variable cap control pin	
32	1st mixer input	Input pin of the 1st mixer current	

■ Application Circuit

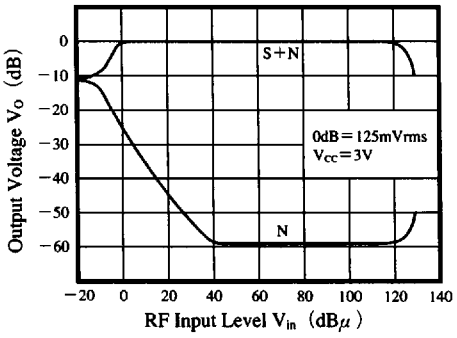


■ Characteristics Curve

$I_{CC} - V_{CC}$ Characteristics



$V_O - V_{in}$ Characteristics



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