

FM Wireless Stereo Transmitter

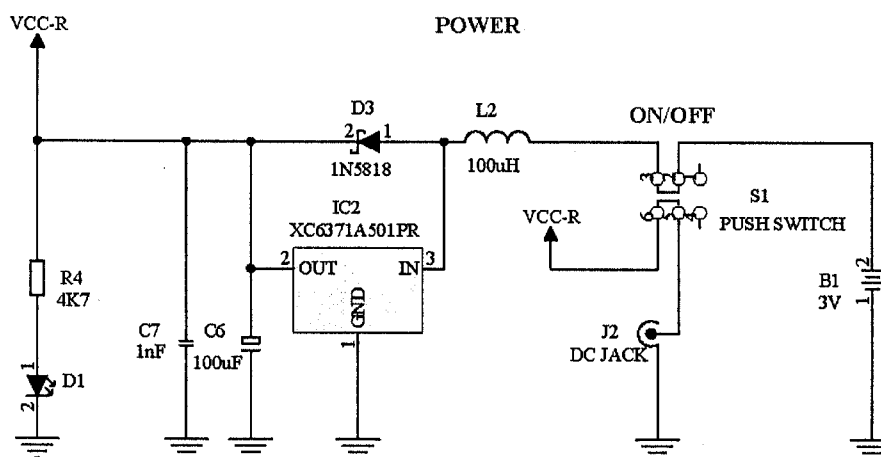
Scope

This product is used for sending your personal music sources (CD, MP3...) through FM radio waves to your home audio with built-in FM receiving tuner.

Circuitry Description

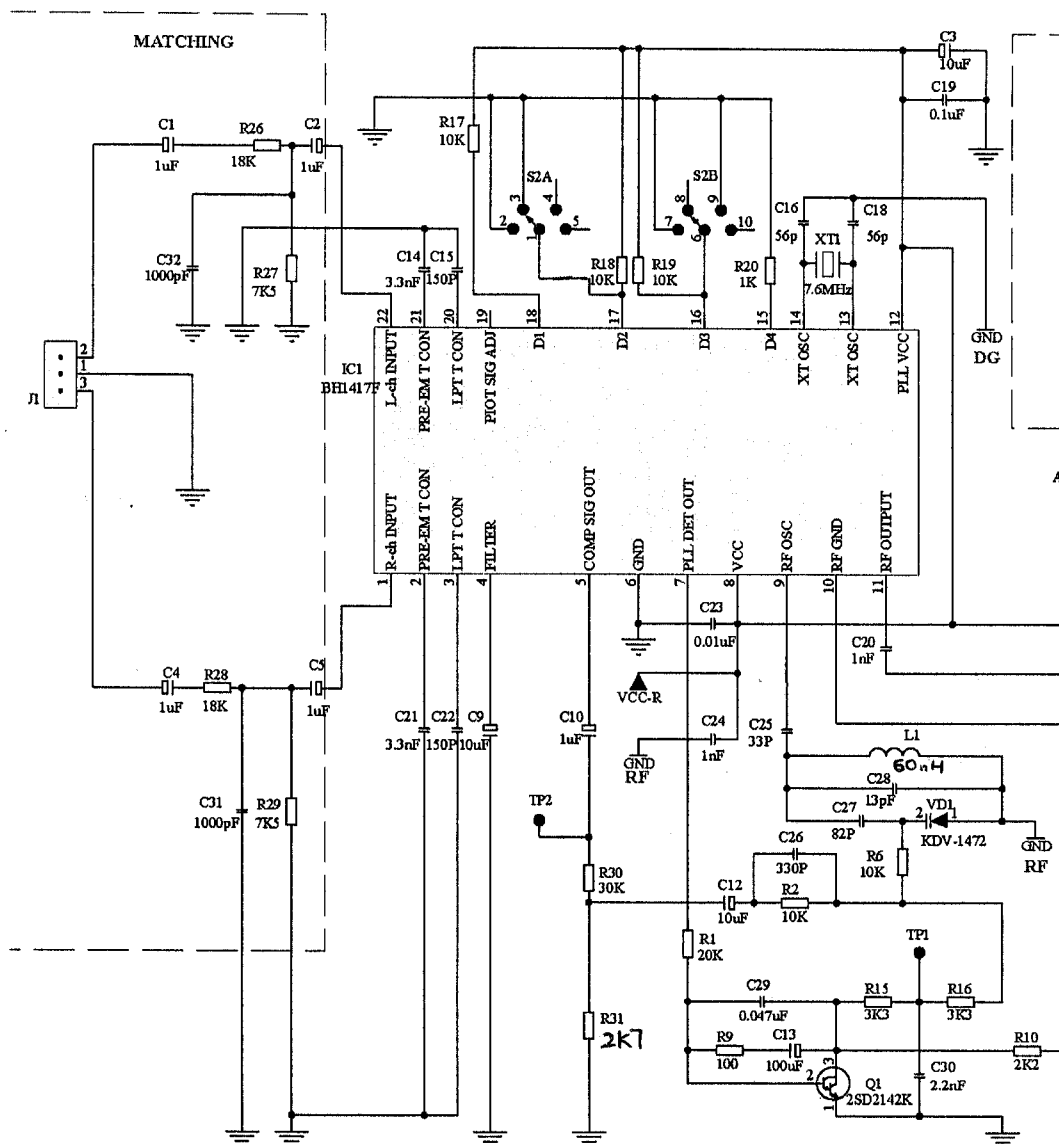
1. Battery Supply.

There are two ways of supply, Battery 3V (1.5V x 2) or DC 6V 25mA adaptor. The battery voltage will be step up to DC 5V via IC2. There are no harmful of battery even the DC adaptor connected at the same time.



2. Signal Input, Pre-emphasis, Frequency Adjust, Deviation Adjust

- Signal sources were passing through stereo audio plug to audio filter circuitry (C1/C4, R26/R28, C32/C31, R27/R29), then to IC inputs.
- A Pre-emphasis of 75us was introduced (C14/C21) as well as LPF (C15/C22) was used to remove unwanted several kHz beat sounds.
- Switch S2 was used to select transmitted frequency.
- Deviation level was affected by setting the resistance of (R30/R31).



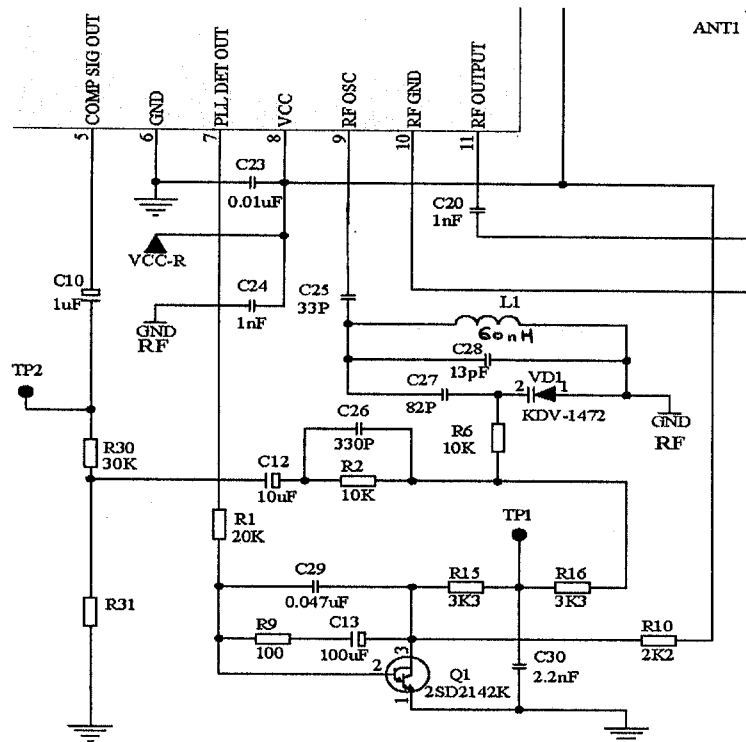
3. PLL and RF

- a. PLL was formed by VCO (L1/C28/VD1) and LPF (Q1/R9/C13/C29/R15). Composite signal from pin 5 with pre-adjusted modulation rate was injected to FM modulator.



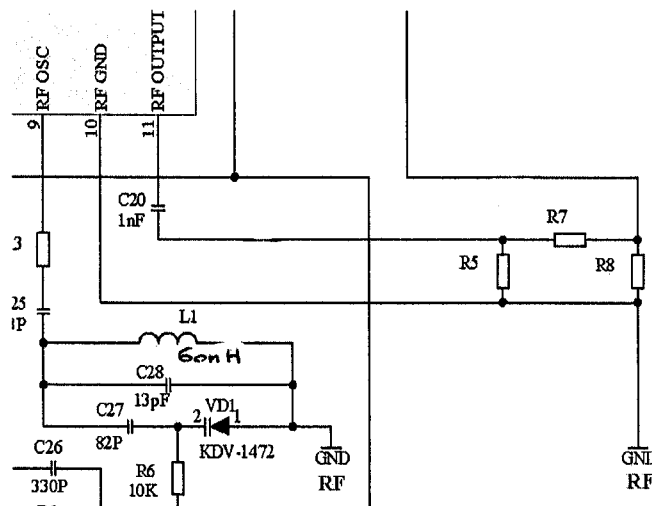
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b. RF

Modulated FM was transmitted from pin 11 through attenuator network (R5/R7/R8) and antenna coil.



End

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To: In - Tech (精選)

Date: 28 - 12 - 2004

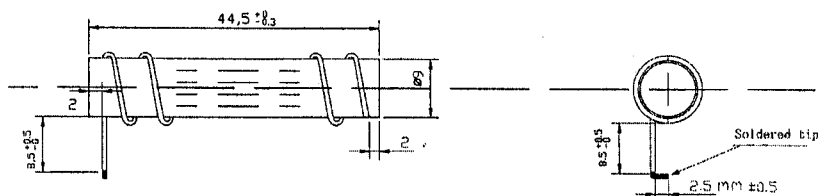
Attn: 林小姐 (採購部)

Spec No.: HP040076

SPECIFICATION

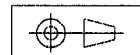
Air antenna (ANT 1)

4033 (FM transmitter 20041209)



Note:

- 1) Please reel 18 turns with average pitch on $\varnothing 9$ mm * L: 45 mm paper roll.
- 2) Please use adhesive fix it between coil and paper roll for preventing loose.
- 3) Should be soldered at the tip.
- 4) Material : 2UEW $\varnothing 0.7$ mm AWG 22.
- 5) All dimension are in: mm



Winding Specification

Turns	18T
Wire	Enamelled Copper Wire 0.70mm (#22) (2UEW) (Gold)
Paper Diameter	Inner : $\varnothing 9.0$ mm x 44.5 mm
Length	1 x 11mm ± 0.5 mm (2.5mm ± 2 mm Solder)

SAMPLE NO	APPROVED BY	REMARKS
12020/04		紙筒兩邊只可以留2mm $\pm$ 1mm 錫頭灣角90°c
CUSTOMER APPROVED		

Wireless Audio Link IC

BH1417F

The BH1417F is a FM stereo transmitter IC that transmits simple configuration. The IC consists of a stereo modulator for generating stereo composite signals and a FM transmitter for broadcasting a FM signal on the air. The stereo modulator generates a composite signal which consists of the MAIN, SUB, and pilot signal from a 38kHz oscillator. The FM transmitter radiates FM wave on the air by modulating the carrier signal with a composite signal. Frequency is set for North America.

●Applications

Wireless speakers, Personal computer(sound board), Game machine, CD changer, Car TV, Car navigation

●Features

- 1) It is possible to improve the timbre because it has the pre-emphasis circuit, limiter circuit, and the low-pass filter circuit.
- 2) Built-in pilot-tone system FM stereo modulator circuit.
- 3) The transmission frequency is stable because it has a PLL system FM transmitter circuit.
- 4) PLL controls data input in parallel (4bits, 14ch for North America).

●Absolute maximum ratings (Ta = 25°C, In measurement circuit.)

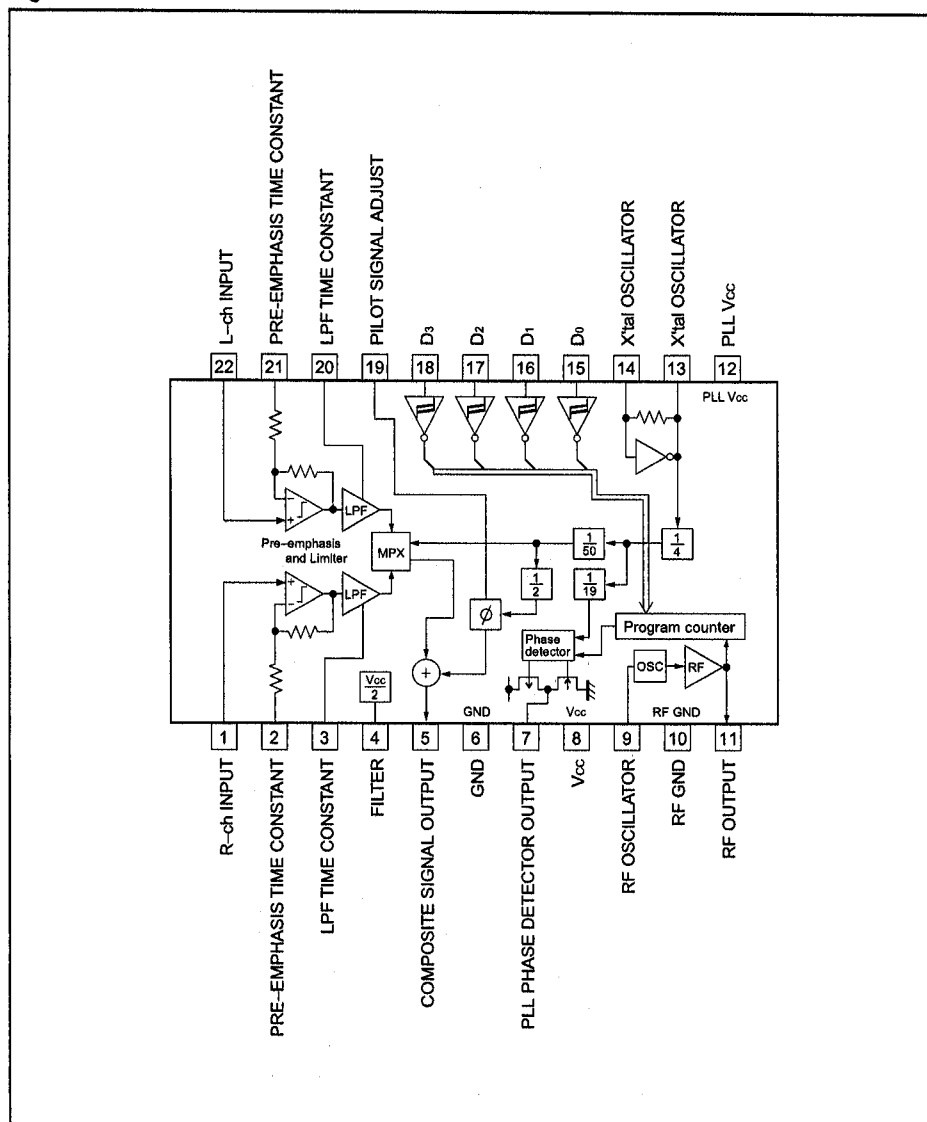
Parameter	Symbol	Limits	Unit	Conditions
Supply voltage	V _{CC}	+7.0	V	Pin8,12
Data input voltage	V _{IN-D}	-0.3 to V _{CC} +0.3	V	Pin15,16,17,18
Phase comparator output voltage	V _{OUT-P}	-0.3 to V _{CC} +0.3	V	Pin7
Power dissipation	P _d	450*	mW	
Storage temperature	T _{stg}	-55 to +125	°C	

* Derating : 4.5mW/°C for operation above Ta=25°C.

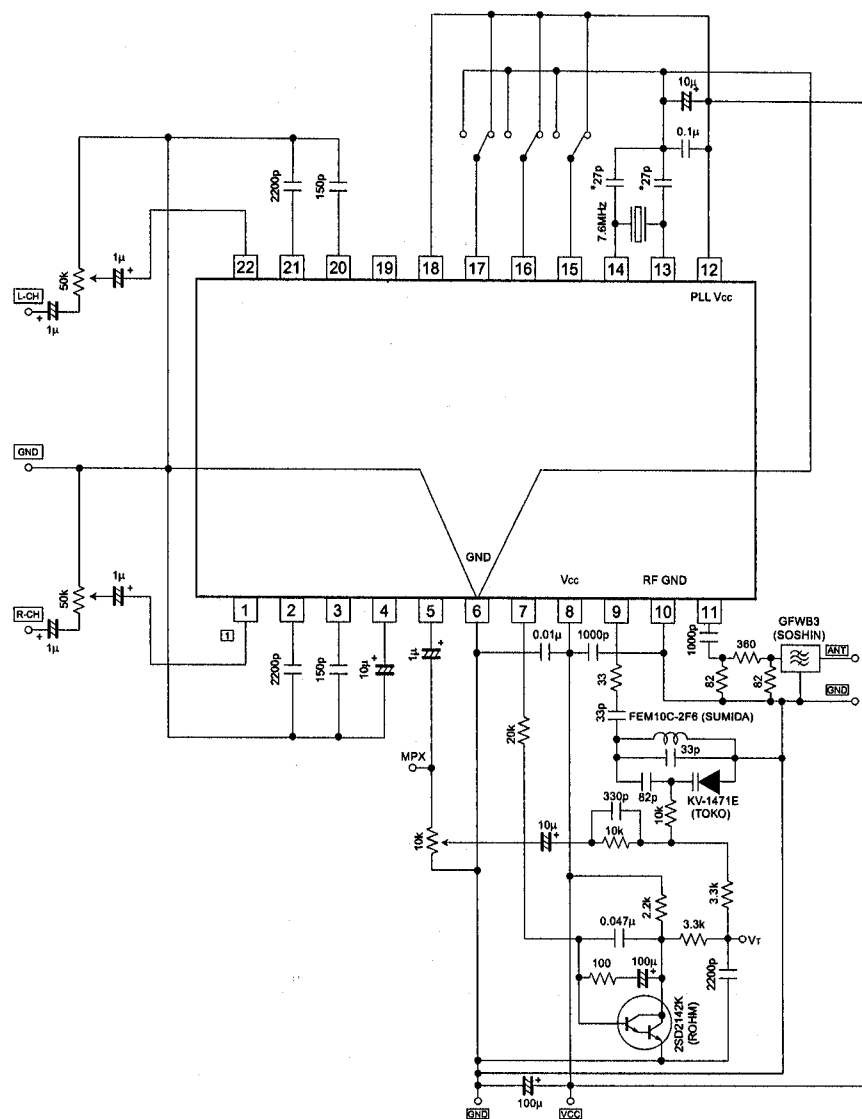
●Recommended operating conditions (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Operating supply voltage	V _{CC}	4.0	—	6.0	V	Pin8,12
Operating temperature	T _{opr}	-40	—	+85	°C	
Audio input level	V _{IN-A}	—	—	-10	dBV	Pin1,22
Audio input frequency band	f _{IN-A}	20	—	15k	Hz	Pin1,22
Pre-emphasis time constant set up range	τ _{PRE}	—	—	155	μs	Pin2,21
Transmission frequency(200kHz step)	f _{TX}	87.7 106.7	—	88.9 107.9	MHz	Pin9,11
Control terminal "H" level input voltage	V _{IH}	0.8V _{CC}	—	V _{CC}	V	Pin15,16,17,18
Control terminal "L" level input voltage	V _{IL}	GND	—	0.2V _{CC}	V	Pin15,16,17,18

●Block diagram



US BAND (88.0MHz~89.2MHz)



Technical drawing of the SOP22 package showing top, side, and detail views with dimensions in millimeters.

Top View Dimensions:

- Overall width: 13.6 ± 0.2
- Pin pitch (between pins 1 and 2): 2.54 ± 0.2
- Pin 1 offset from left edge: 7.8 ± 0.3
- Pin 1 offset from top edge: 5.4 ± 0.2
- Pin 1 diameter: 0.3 Min.
- Pin 11 diameter: 0.15 ± 0.1

Side View Dimensions:

- Maximum height: 1.8 ± 0.1
- Staggered pin height: 0.11
- Pin height: 1.27
- Pin thickness: 0.4 ± 0.1
- Lead thickness: 0.1

Pin Configuration:

- Pin 1: Bottom-left corner
- Pin 2: Top-left corner
- Pins 3-10: Along the top edge
- Pins 11-18: Along the bottom edge

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