

# Wireless Audio Link IC

## BH1415F

The BH1415F 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.

### ●Applications

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

### ●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 data input (CE, CK, DA) by serial input.

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

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

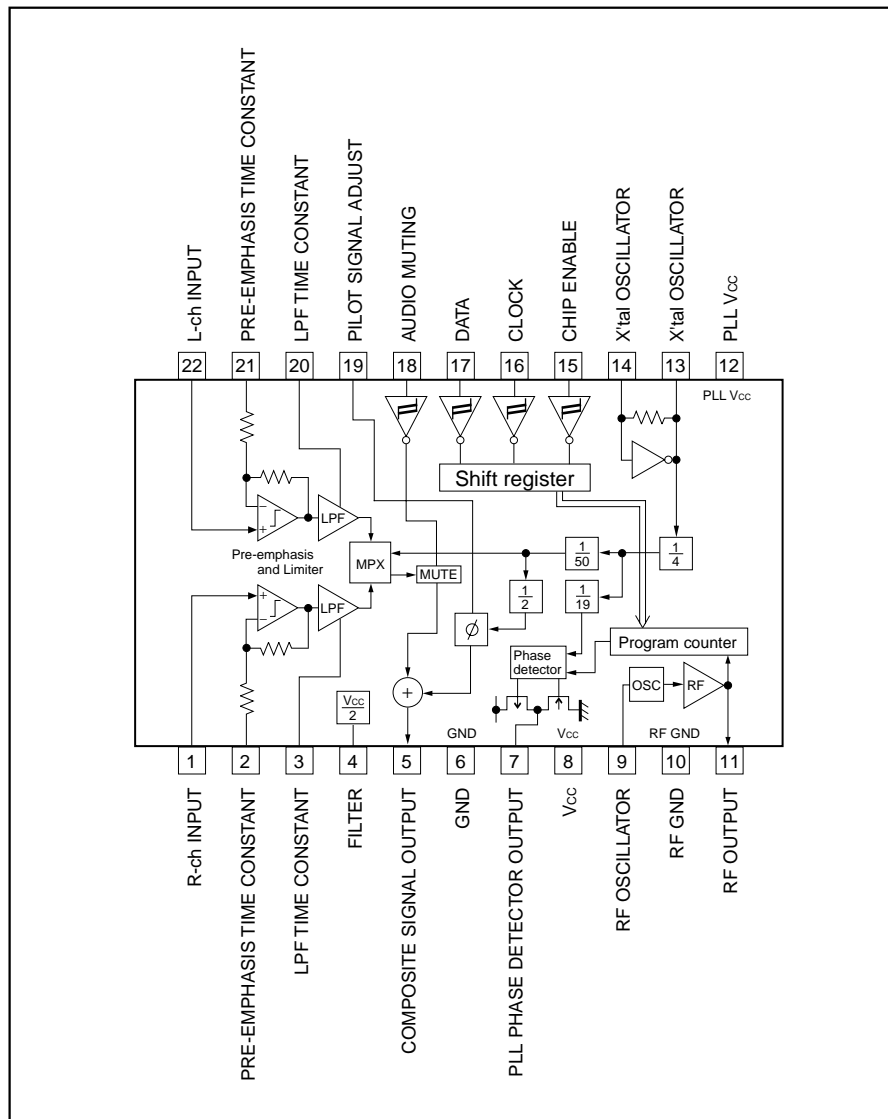
\* Derating : 4.5mW/°C for operation above Ta=25°C.

### ●Recommended operating conditions (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Operating supply voltage	V <sub>CC</sub>	4.0	—	6.0	V	Pin8,12
Operating temperature	T <sub>opr</sub>	-40	—	+85	°C	
Audio input level	V <sub>IN-A</sub>	—	—	-10	dBV	Pin1,22
Audio input frequency band	f <sub>IN-A</sub>	20	—	15k	Hz	Pin1,22
Pre-emphasis time constant set up range	t <sub>PRE</sub>	—	—	155	μsec	Pin2,21
Transmission frequency	f <sub>TX</sub>	70	—	120	MHz	Pin9,11
Control terminal "H" level input voltage	V <sub>IH</sub>	0.8V <sub>CC</sub>	—	V <sub>CC</sub>	V	Pin15,16,17,18
Control terminal "L" level input voltage	V <sub>IL</sub>	GND	—	0.2V <sub>CC</sub>	V	Pin15,16,17,18

## Audio ICs

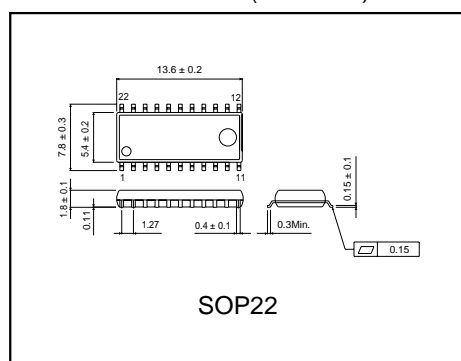
## ●Block diagram



## Audio ICs

No.	Control unit / Data	Contents															
(2)	MULTIPLEXER  MONO	<ul style="list-style-type: none"><li>It changes a stereo and monaural operation.</li></ul> <table><tr><th>MONO</th><th>Condition of the composite signal</th></tr><tr><td>0</td><td>Monaural operation L+R , Pilot OFF</td></tr><tr><td>1</td><td>Stereo operation L+R+(L-R),sinω<sub>st</sub>t+Psin <math>\frac{\omega_s}{2} t</math></td></tr></table>	MONO	Condition of the composite signal	0	Monaural operation L+R , Pilot OFF	1	Stereo operation L+R+(L-R),sinω <sub>st</sub> t+Psin $\frac{\omega_s}{2} t$									
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0	Monaural operation L+R , Pilot OFF																
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(2)	PHASE DETECTOR  PD <sub>0</sub> , PD <sub>1</sub>	<ul style="list-style-type: none"><li>It controls charge pump output by the phase comparator compulsorily.</li></ul> <table><tr><th>PD<sub>0</sub></th><th>PD<sub>1</sub></th><th>Charge pump output</th></tr><tr><td>0</td><td>0</td><td>Usual operation</td></tr><tr><td>0</td><td>1</td><td>Compulsion by Low</td></tr><tr><td>1</td><td>0</td><td>Compulsion by High</td></tr><tr><td>1</td><td>1</td><td>High impedance</td></tr></table>	PD <sub>0</sub>	PD <sub>1</sub>	Charge pump output	0	0	Usual operation	0	1	Compulsion by Low	1	0	Compulsion by High	1	1	High impedance
PD <sub>0</sub>	PD <sub>1</sub>	Charge pump output															
0	0	Usual operation															
0	1	Compulsion by Low															
1	0	Compulsion by High															
1	1	High impedance															
(3)	TEST MODE  T <sub>0</sub> , T <sub>1</sub>	<ul style="list-style-type: none"><li>It is data for the LSI test.</li><li>Always in T<sub>0</sub> Input "1".</li><li>Always in T<sub>1</sub> Input "0".</li></ul>															

## ●External dimensions (Units : mm)



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