



**THE DATASHEET OF  
BH1415F-E2**



# 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	

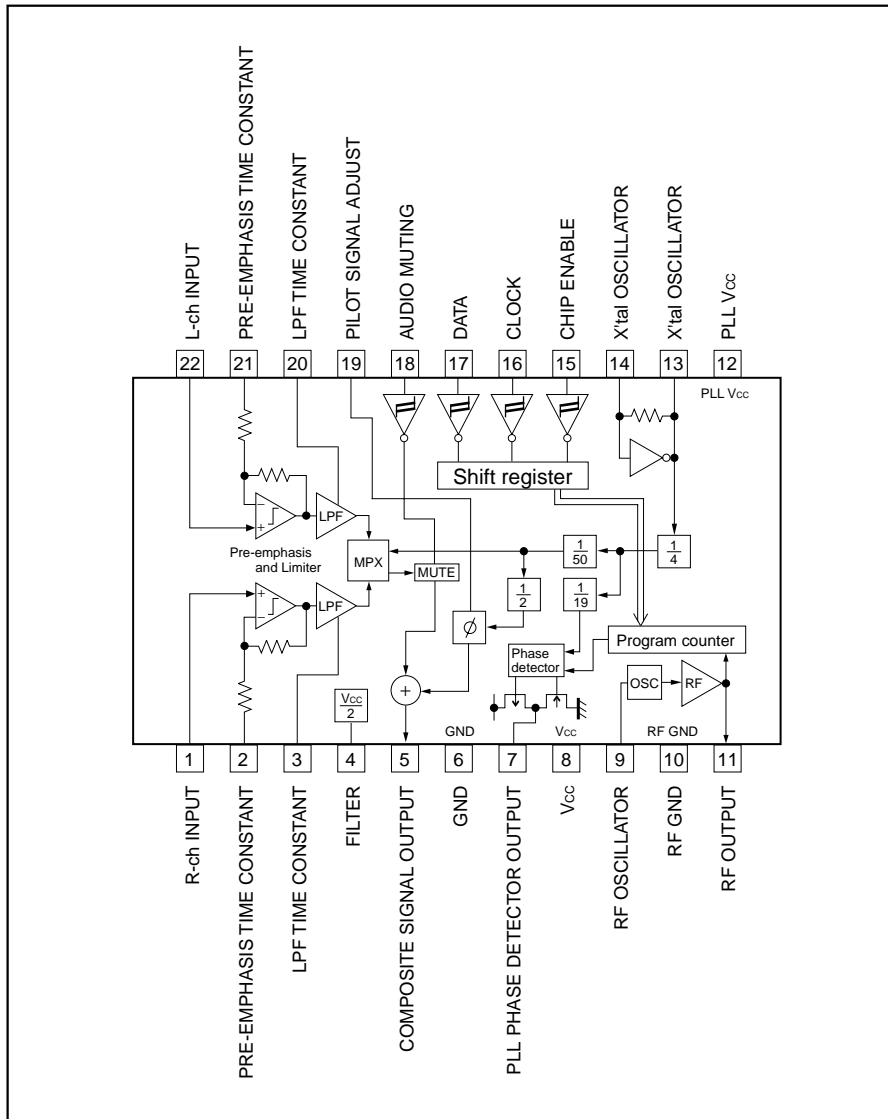
\* Derating : 4.5mW/°C for operation above Ta=25°C.

### ●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

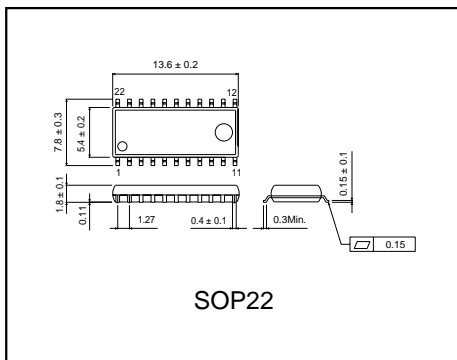
●Block diagram



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 border="1"> <thead> <tr> <th>MONO</th> <th>Condition of the composite signal</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Monaural operation L+R , Pilot OFF</td> </tr> <tr> <td>1</td> <td>Stereo operation <math>L+R+(L-R)\sin\omega st+P\sin\frac{\omega s}{2}t</math></td> </tr> </tbody> </table>	MONO	Condition of the composite signal	0	Monaural operation L+R , Pilot OFF	1	Stereo operation $L+R+(L-R)\sin\omega st+P\sin\frac{\omega s}{2}t$									
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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 border="1"> <thead> <tr> <th>PD<sub>0</sub></th> <th>PD<sub>1</sub></th> <th>Charge pump output</th> </tr> </thead> <tbody> <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> </tbody> </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															
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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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