

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 _{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 | |

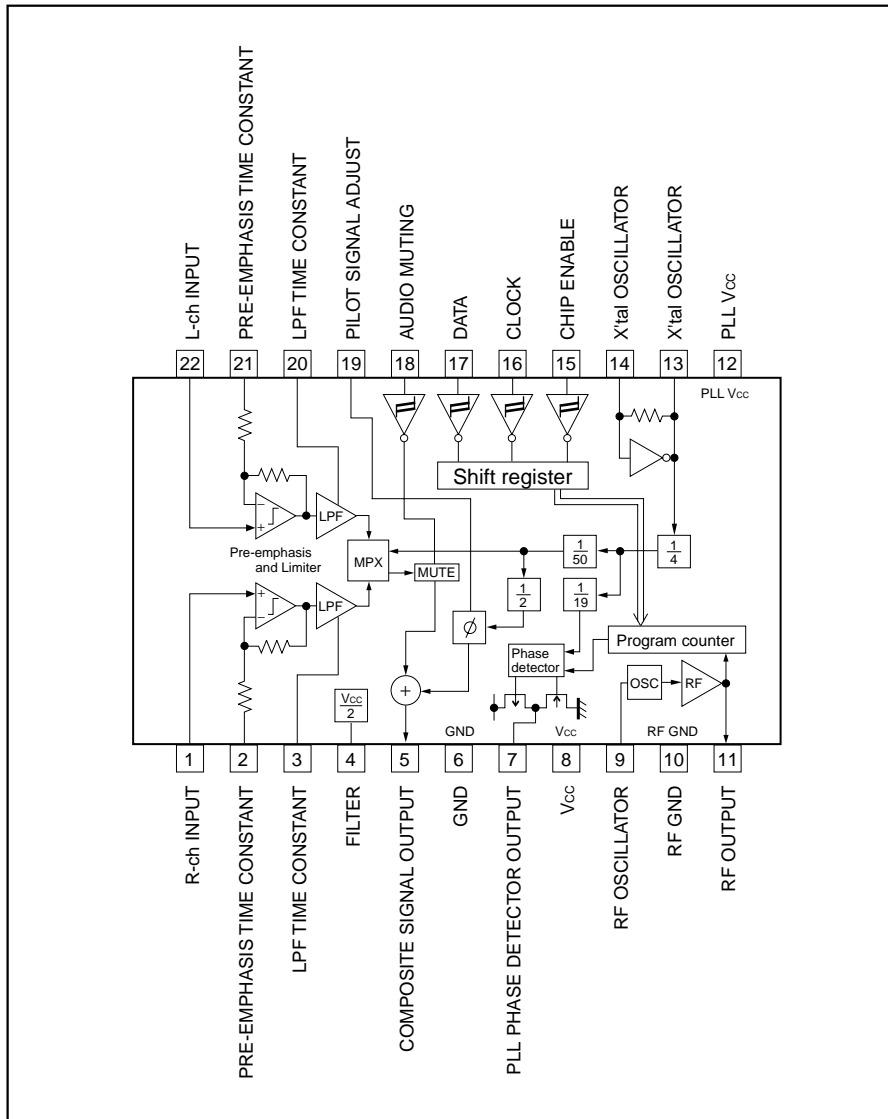
* Derating : 4.5mW/°C for operation above Ta=25°C.

●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 | t _{PRE} | - | - | 155 | μsec | Pin2,21 |
| Transmission frequency | f _{TX} | 70 | - | 120 | 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 |

Audio ICs

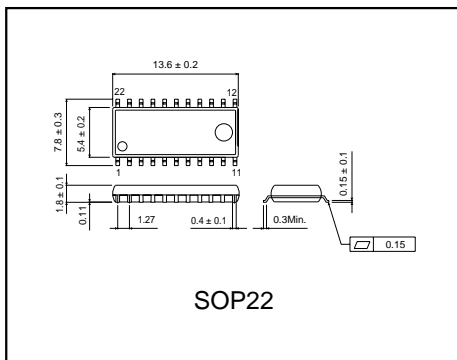
●Block diagram



Audio ICs

| No. | Control unit / Data | Contents | | | | | | | | | | | | | | | |
|-----------------|--|---|-----------------|-----------------------------------|--------------------|------------------------------------|---|--|---|---|-------------------|---|---|--------------------|---|---|----------------|
| (2) | MULTIPLEXER MONO | <ul style="list-style-type: none"> It changes a stereo and monaural operation. <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 $L+R+(L-R)\sin\omega st+P\sin\frac{\omega s}{2}t$</td> </tr> </tbody> </table> | MONO | Condition of the composite signal | 0 | Monaural operation L+R , Pilot OFF | 1 | Stereo operation $L+R+(L-R)\sin\omega st+P\sin\frac{\omega s}{2}t$ | | | | | | | | | |
| MONO | Condition of the composite signal | | | | | | | | | | | | | | | | |
| 0 | Monaural operation L+R , Pilot OFF | | | | | | | | | | | | | | | | |
| 1 | Stereo operation $L+R+(L-R)\sin\omega st+P\sin\frac{\omega s}{2}t$ | | | | | | | | | | | | | | | | |
| (2) | PHASE DETECTOR PD ₀ , PD ₁ | <ul style="list-style-type: none"> It controls charge pump output by the phase comparator compulsorily. <table border="1"> <thead> <tr> <th>PD₀</th> <th>PD₁</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 ₀ | PD ₁ | Charge pump output | 0 | 0 | Usual operation | 0 | 1 | Compulsion by Low | 1 | 0 | Compulsion by High | 1 | 1 | High impedance |
| PD ₀ | PD ₁ | 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 ₀ , T ₁ | <ul style="list-style-type: none"> It is data for the LSI test. Always in T₀ Input "1". Always in T₁ Input "0". | | | | | | | | | | | | | | | |

●External dimensions (Units : mm)



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