

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	

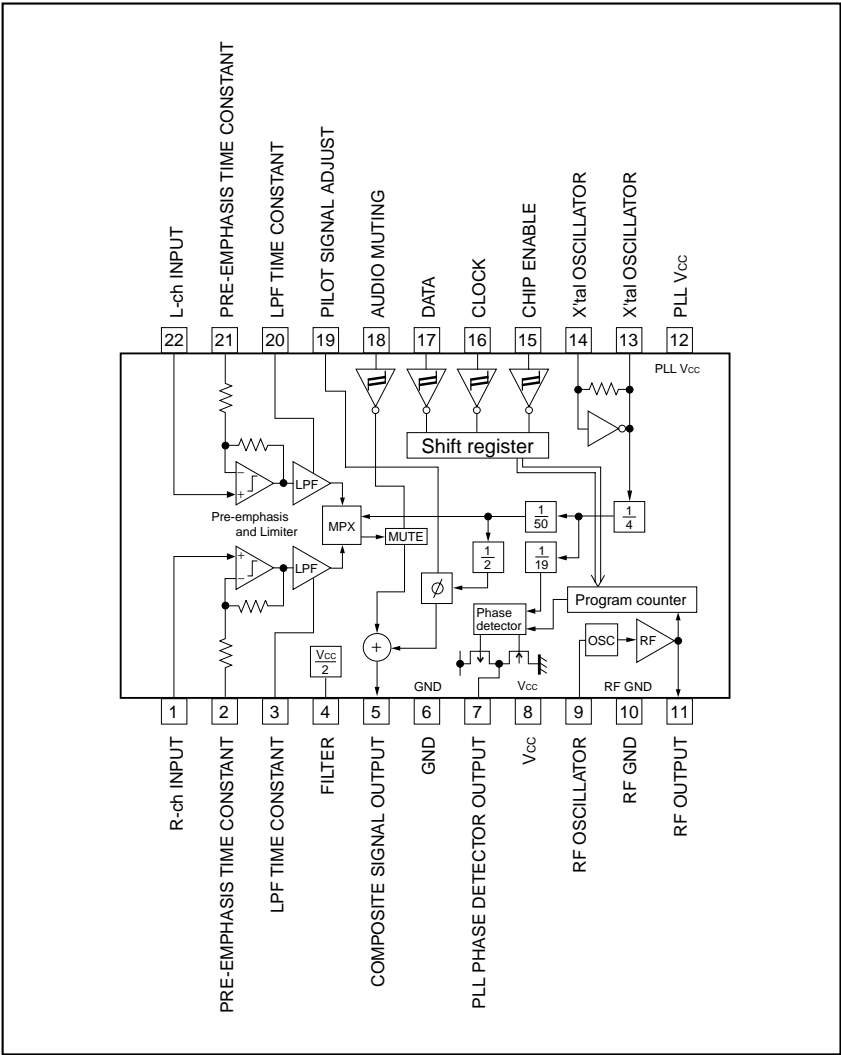
* Derating : 4.5mW/°C for operation above Ta=25°C.

●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

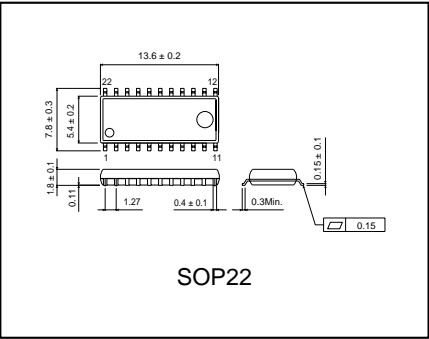
●Block diagram



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 $L+R+(L-R)\sin\alpha\sin t + P\sin\frac{\omega_s}{2} t$</td> </tr> </tbody> </table>	MONO	Condition of the composite signal	0	Monaural operation L+R , Pilot OFF	1	Stereo operation $L+R+(L-R)\sin\alpha\sin t + P\sin\frac{\omega_s}{2} t$									
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(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
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(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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