

## ***Appendix 7. Operational Description***

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Refer to the following pages

# Wireless Audio Link

## Operation Concept

This In-dash color LCD CAR TV with FM Transmitter is a equipment which has built-in low power FM transmitter radiate the TV audio signal to the external car audio receiver. The built-in FM transmitter is a kind of RF modulator which convert the internal TV audio signal to FM signal for car audio receiver system.

The external car audio receiver shall be tuned to the same frequency as the Car TV FM transmitting frequency. The EUT is powered by car battery(12VDC). The FM frequency is controlled by the PLL with 100kHz step in the frequency band of 88.0 MHz to 92.0 MHz.

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.

### ●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~V <sub>CC</sub> +0.3	V	Pin15,16,17,18
Phase comparator output voltage	V <sub>OUT-P</sub>	-0.3~V <sub>CC</sub> +0.3	V	Pin7
Power dissipation	P <sub>d</sub>	450*	mW	
Storage temperature	T <sub>stg</sub>	-55~+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