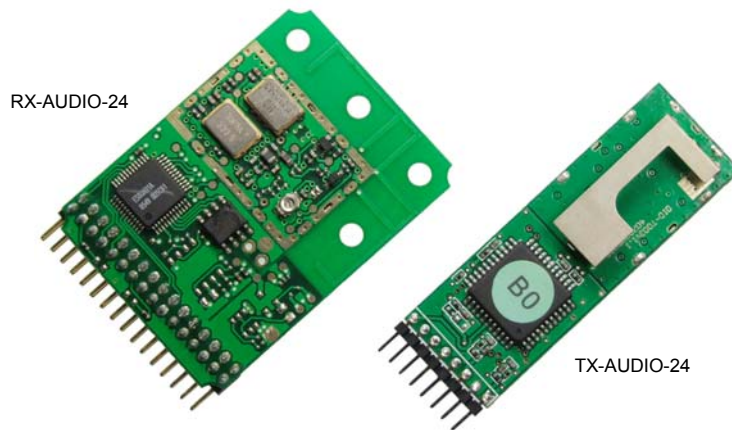




RX-AUDIO-24 2.4GHz Wireless Digital Audio Receiver Module

TX-AUDIO-24 2.4GHz Wireless Digital Audio Transmitter Module

The RX-AUDIO-24 and TX-AUDIO-24 RF wireless digital audio receiver and transmitter modules provide designers with a fast track to producing high quality wireless digital audio applications. Whether the application be for home theatre systems, wireless speaker systems, wireless headphones, wireless microphones or wireless MP3 player applications, these modules deliver top quality characteristics.



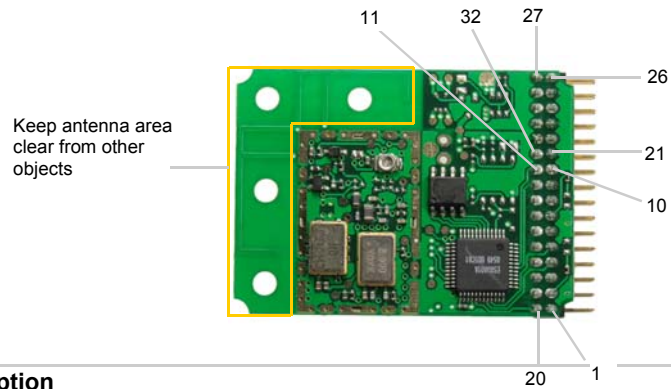
Features

- No compression for highest quality
- Digital audio with 44.1KHz sampling rate
- 16-bit resolution
- Minimal 0.5ms delay
- POP noise prevention at power ON
- Mute function in weak receiving conditions
- LOS range up to 100ft
- FSK digital modulation
- Line level receiver output
- **NEW FEATURE!** Headphone amp output
- 8 selectable operating channels
- Embedded antenna
- Receiver antenna diversity for best signal reception
- Low power for mobile applications
- 2mm pin headers
- Small size: 1.8in x 0.25in (TX), 1.26in. X 1.74in. (RX)

Typical Applications

- Home theater rear speakers
- PA systems
- Wireless headphones
- MP3 players, CD and DVD players
- Wireless speaker systems
- USB and PC applications

Receiver Pin Configuration

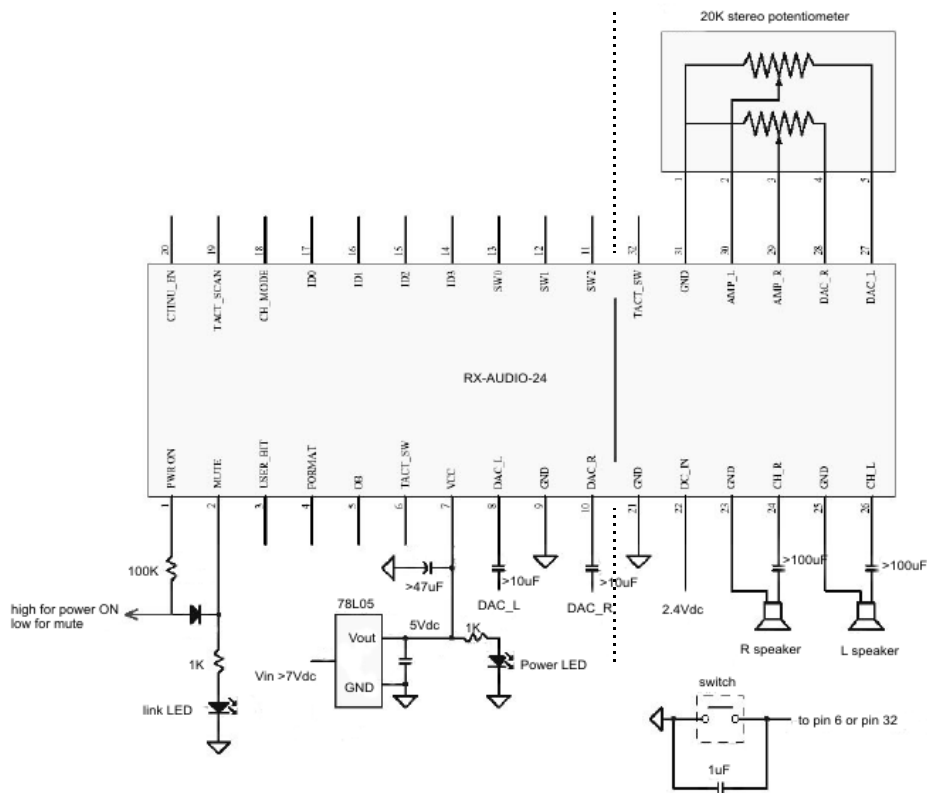


Pin #	Pin Name	Pin Description
1	PWR_ON	Transitions HIGH (2.7V) 1-2 seconds after power supply is applied to the module . May be used to turn on the audio power amplifier to prevent 'pop' noise when the RX module is powered ON
2	MUTE	Logic level LOW during poor RF signal reception. May be used for other functions with simple external circuits, such as receiving indicator, extra noise reduction when transmitter is OFF etc..
3	USER_BIT	Data output corresponding to the data input at the transmitter. (5Kbps max.)
4	FORMAT	Pull up for scrambling with "01" pattern. Pull down for scrambling with random pattern. (internally pulled high)
5	OB	Pull down to enable out-band channel for testing purposes (internally pulled high)
6	TACT_SW	Pulse low to scan channel in TACT mode (internally pulled high) (see table for channel setting mode)
7	VCC	5Vdc power supply input
8	DAC_L	L channel audio output direct from DAC. A series DC blocking capacitor (>10uF) should be added, unless the load impedance is >10Kohm
9	GND	Ground
10	DAC_R	L channel audio output direct from DAC. A series DC blocking capacitor (>10uF) should be added, unless the load impedance is >10Kohm
11	SW2	Pull low for DIP mode channel selection (internally pulled high)
12	SW1	
13	SW0	
14	ID3	Pull low for ID selection (internally pulled high)
15	ID2	
16	ID1	
17	ID0	
18	CH_MODE	See channel mode setting table. Pull high for TACT mode and low for DIP mode (internally pulled high)
19	TACT_SCAN	See channel mode setting table. Pull high to enable scanning to next appropriate channel (internally pulled high)
20	CTINU	See channel mode setting table for details. Pull high to enable automatic channel-scan under poor receiving conditions (internally pulled high)
21	GND	Ground
22	DC_IN	
23	GND	Ground
24	CH_R	R-channel audio out direct from headphone driver. A DC blocking capacitor (>100uF) should be added
25	GND	Ground
26	CH_L	L-channel audio out direct from headphone driver. A DC blocking capacitor (>100uF) should be added
27	DAC_L	Same as pin 8
28	DAC_R	Same as pin 10
29	AMP_R	Headphone driver R-channel input
30	AMP_L	Headphone driver L-channel input
31	GND	Ground
32	TACT_SW	Same as pin 6

Channel Mode Setting

Channel Mode	CH_MODE (Pin18)	TACT_MODE (pin 19)	CTINU (pin 20)	Function
DIP	GND	X	X	Set SW0, SW1 and SW2 to change channel
TACT	X	GND	X	Switch channel by channel with each low pulse applied to TACT_SW (pin 6)
TACT SCAN	X	X	GND	Automatically search channel when a low pulse is applied to TACT_SW (pin 6)
AUTO SCAN	X	X	X	Automatically search channels under poor receiving condition

X = floating



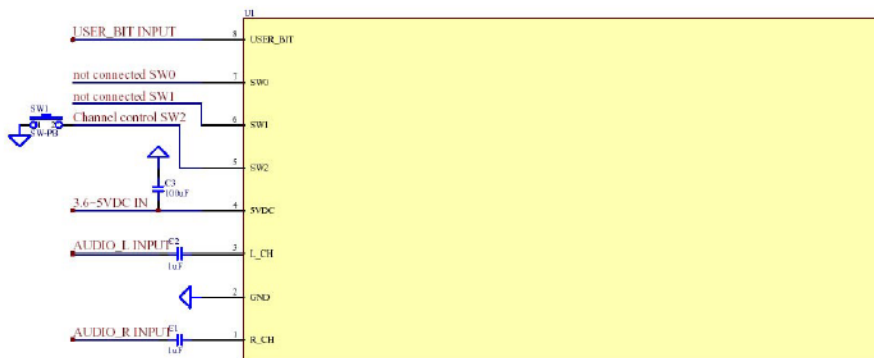
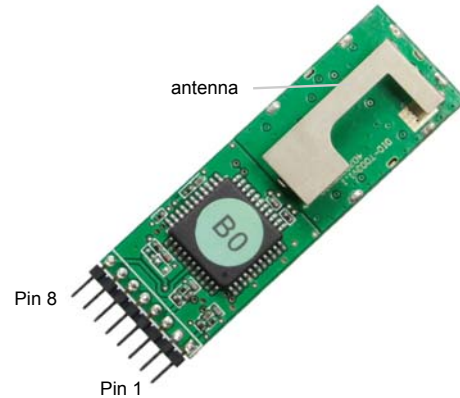
Application Information

If designing the receiver module into wireless speakers or headphones, pay attention to the following:

1. Keep the antenna clear of metal objects
2. Avoid magnetic interference by keeping the module at least 1 inch away from the speaker
3. The receiver modules power supply must be separate from the amplifier's power supply
4. Keeps cables and other circuits away from the antenna (up to 1 inch away if possible)

Transmitter Pin Configuration

Pin #	Pin Name	Pin Description
1	R-CH	Right Audio Channel
2	GND	Ground
3	L_CH	Left Audio Channel
4	5Vdc	3.6Vdc to 5Vdc
5	SW	Switch
6	N.C.	Not Connected
7	N.C.	Not Connected
8	USER_BIT	5Kbps Maximum Input Data rate



Notes

1. C1 and C2 are both DC blocking capacitors for audio R and L inputs respectively. 1uF capacitors for C1 and C2 will be sufficient for general applications because the input impedance of the A/D converter is greater than 10K ohm. If further low frequency audio response is desired, C1 and C2 may be increased to get more extension.
2. C3 is the DC power supply decoupling capacitor. In general a 100uF capacitor will work well.
3. SW is used to select the channel
4. For the user_bit, one can apply a user defined data stream to this pin for wireless RF transmission to the RX-AUDIO-24 receiver

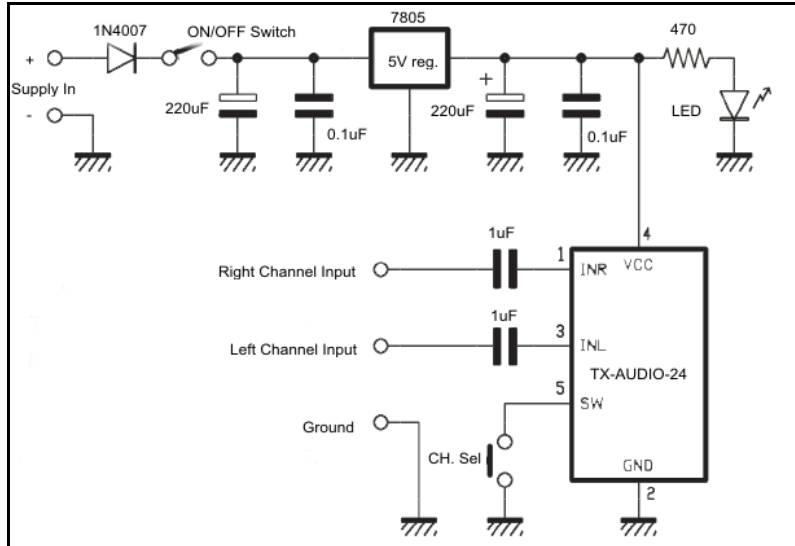
Application Information

When you design the transmitter module in wireless speakers and headphones, consider the following:

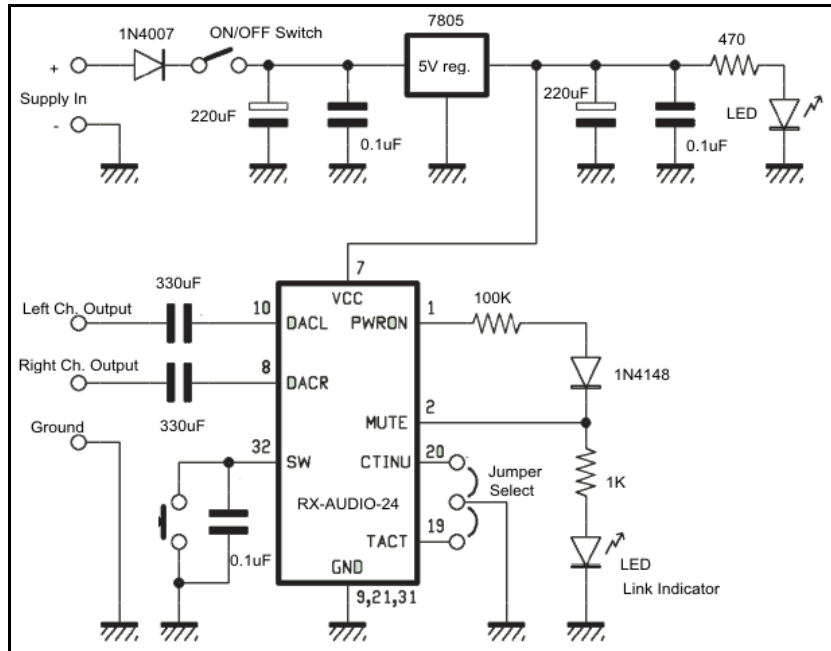
1. Do not attempt to bend the antenna up or down.
2. Keep metal object well clear of the antenna.
3. To avoid magnetic interference, the transmitter module must be kept at least 3 cm away from a speaker.
4. The transmitter must be powered by its own power supply and not by the amplifier power supply.
5. Keep any cables away from the antenna (1-2 cm).

Example Schematics

Transmitter



Receiver



Specifications

RX-AUDIO-24		TX-AUDIO-24	
Supply Voltage	5+/- 01.Vdc	Supply Voltage	3.6-5Vdc
Current Consumption	65mA (typ.)	Current Consumption	92mA 9typ.)
Operating Temperature	-10-+60 deg. C	Operating Temperature	-10-+60 deg. C
Frequency Range	2400-2483.5MHz	Frequency Range	2400-2483.5MHz
Modulation	FSK	Modulation	FSK
Channels	8	Channels	8
Channel Spacing	9MHz	Channel Spacing	9MHz
Frequency Stability	+/- 100KHz	Frequency Stability	+/- 100KHz
Sensitivity	-85dBm (typ.)	Tx Power	+10dBm
Output Impedance	<1K ohm	Input Impedance	>10K ohm
Output Level	3.4Vpp (max)	Input Level	4Vpp (max)
AF Response	20Hz - 20KHz	AF response	20Hz - 20KHz
Dynamic Range	92dB (typical)	Dynamic Range	92dB (typical)
Separation	80dB (typical)	Separation	80dB (typical)
S/N Ratio	87dB (typical)	S/N Ratio	87dB (typical)
THD	0.1% (typical)	THD	0.1% (typical)