

TX-AUDIO-2.4/AE



Features

- Non-compression for high sound quality with delay time 0.5 ms.
- Digital audio with 44.1 KHz sampling rate and 16-bit resolution.
- FSK digital modulation
- Whip antenna for high performance
- 8 selectable channels
- Low power consumption for mobile application
- 10dBm RF Output Power
- Application distance of more than 30 meters when used with RX-AUDIO-2.4 650201005G
- See **650201004G TX-AUDIO-2.4** for reduced features module.

Specification

	Min	Typical	Max	Unit	Notes
Supply Voltage	3,2	3,3	3,4	V _{DC}	
Current Consumption		68		mA	
Operating temperature	-10		+60	°C	
Modulation		FSK			
Frequency range	2400		2483.5	MHz	
Channel number		8			
Channel spacing		9		MHz	
Frequency stability	-100		+100	KHz	
Tx Power		+10		dBm	ERP
Input impedance	10K			ohm	
Input level			2,0	V _{PP}	
Response	20		20.000	Hz	(1)
Dynamic Range		90		dB	(1)
Separation		70		dB	(1)
SN radio		90		dB	(1)
Board dimensions	(43 module + 30 antenna) x 16 x 7			mm	

NOTE 1: When used with RX-AUDIO-2.4 650201005G

Le caratteristiche tecniche possono subire variazioni senza preavviso. La AUREL S.p.A non si assume la responsabilità di danni causati dall'uso improprio del dispositivo.
 Technical features are subject to change without notice. AUREL S.p.A. does not assume responsibilities for any damages caused by the device's misuse.

Pin description

Pin numbering starts from 3 to match pin numeration of the receiver module, which has more functionality and needs more outputs, that in this case are unnecessary.

Pin	Name	Description
3	USER_BIT	Input pin for customer specified data stream (max 5Kbps). Data are received at corresponding USER_BIT pin on receiver(s) and can be used to transmit additional information such as song title or specific commands
4	FORMAT	Pull down to use scrambling digital audio (internal pull up)
5	OB	Forced down enables Out of Band channel, recommended for testing purposes only (nternal pull up)
6	TACT_SW	In TACT MODE, used to switch channel. Requires a low impulse, see channel mode setting table for details (internal pull up) ⁽³⁾
7	V _{CC}	3.3 ± 0.1 V _{DC}
8	DAC_L	Left channel audio input pin (>10Kohm, max. 2Vpp). A DC blocking capacitor (>1microF) should be added.
9	GND	Ground
10	DAC_R	Right channel audio input pin (>10Kohm, max. 2Vpp). A DC blocking capacitor (>1microF) should be added.
11	SW2	In DIP MODE used to manually select channel (internal pull up), see DIP MODE selection table for details
12	SW1	
13	SW0	
14	ID3	ID selection, low active (internal pull up). Only receiver(s) with the same transmitter ID combination can reproduce transmitted audio.
15	ID2	
16	ID1	
17	ID0	
18	CH_MODE	Channel mode setting: '0' for DIP mode, '1' for TACT mode (internal pull up), see channel mode setting table for details.

NOTE 2: PWR ON, MUTE and USER_BIT outputs can each deliver a current up to 25mA.

NOTE 3: Input is caught on the TACT_SW rising edge, we recommend to apply a negative pulse with a duration of at least 10ms.

All inputs are in CMOS logic, with V_{DD}/2 threshold value to discriminate between high or low level.

Channel mode setting

There are two main ways to change the audio channel in use between 8 availables: a manually mode, called DIP MODE, or a sequential switch, called TACT MODE. When CH_MODE (pin 18) input signal value is '0' DIP MODE is selected, when it's value is a logic '1' TACT MODE is active.

Channel change mode	CH_MODE (pin 18)	Function
DIP MODE	GND	Manual mode: set SW2, SW1 and SW0 to choose the channel
TACT MODE	V _{CC} ⁽⁴⁾	Switch channel by channel when each low-impulse is applied to TACT_SW (pin 6)

NOTE 4: V_{CC} or floating, CH_MODE input is internally pulled up.

Table 1 – Channel mode setting table

In DIP MODE channel is selected manually by setting SW2, SW1 and SW0 input signals. Inputs are low active and SW2 is the most significant bit of the hexadecimal negated combination: it means that a 1-1-1 configuration correspond to channel '0', at lowest frequency; 1-1-0 is for the channel '1', immediately above, until to 0-0-0 that select the channel '7', at higher frequency, as in table below:

channel	SW2	SW1	SW0	Carrier frequency
7	0	0	0	2473 MHz
6	0	0	1	2464 MHz
5	0	1	0	2455 MHz
4	0	1	1	2446 MHz
3	1	0	0	2437 MHz
2	1	0	1	2428 MHz
1	1	1	0	2419 MHz
0	1	1	1	2410 MHz

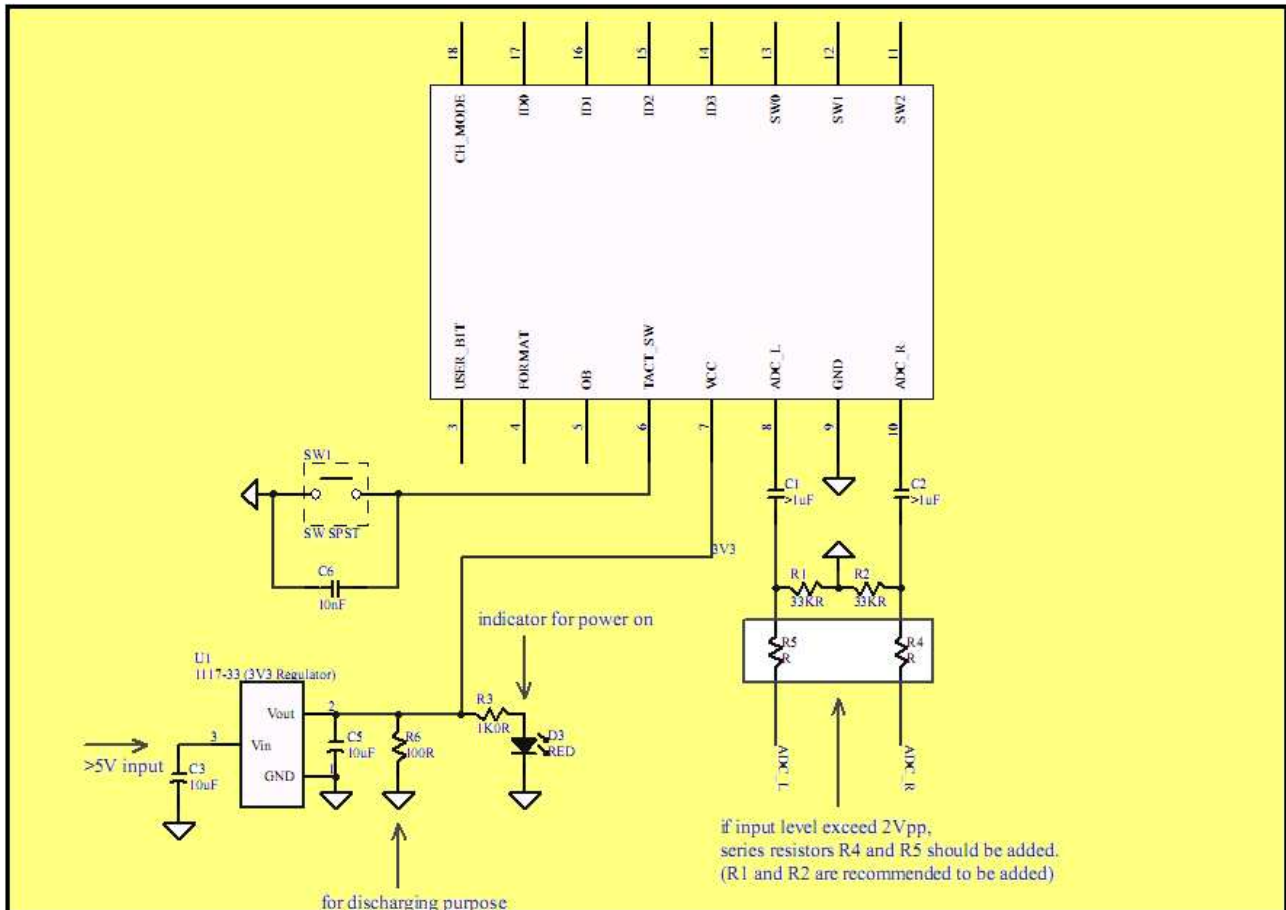
NOTE 5: SW2, SW1 and SW0 inputs are internally pulled up.

Table 2 – DIP MODE selecting channel

In DIP MODE SW2, SW1 and SW0 inputs are continuously monitored, so is not necessary to switch values simultaneously or doing any kind of synchronization.

In TACT MODE is possible to change channel by the single input signal TACT_SW (pin 6) switching channel by channel. After a channel change in TACT MODE, the module is ready to work on the new channel after 100ms from the rising edge detected on TACT_SW input.

Application circuit



Le caratteristiche tecniche possono subire variazioni senza preavviso. La AUREL S.p.A non si assume la responsabilità di danni causati dall'uso improprio del dispositivo. Technical features are subject to change without notice. AUREL S.p.A. does not assume responsibilities for any damages caused by the device's misuse.

Application information

When you design the transmitter module in wireless speakers and headphones, pay attention to the following considerations:

- ✓ Do not bend down or up the antenna
- ✓ Do not let any metal objects too close to antenna



Figure 1 - Antenna area (marked by diagonal lines)

- ✓ Transmitter module must be kept over 3 cm away from speakers to avoid magnetic interference
- ✓ Power supply to transmitter module must be independent, separate from any power circuits
- ✓ Avoid to put any cable or circuit nearby antenna (1-2 cm)