Product performance

1．Description：

PS3 Bluetooth Headset is for SONY PS3 game consoles to a specially designed Bluetooth headset. This product in the PS3 host can implement man-machine dialogue, through the headphones are also available through the Internet, PS3 host voice more Earth add fun games and networks;

This product is for internal use lithium-ion polymer battery provides power for the headset 180mAh; when the battery voltage is low, combined with the PS3 host USB cable link-oriented production for charging.

In use will hook into headphones, worn on the head, to the headphones fixed, user-friendly.

Compliant with Bluetooth® Specification V2.0

Flexible MMI .

GPIO can indicate headset status

2．Working (movement principle)：

2．1 RF part works principle：

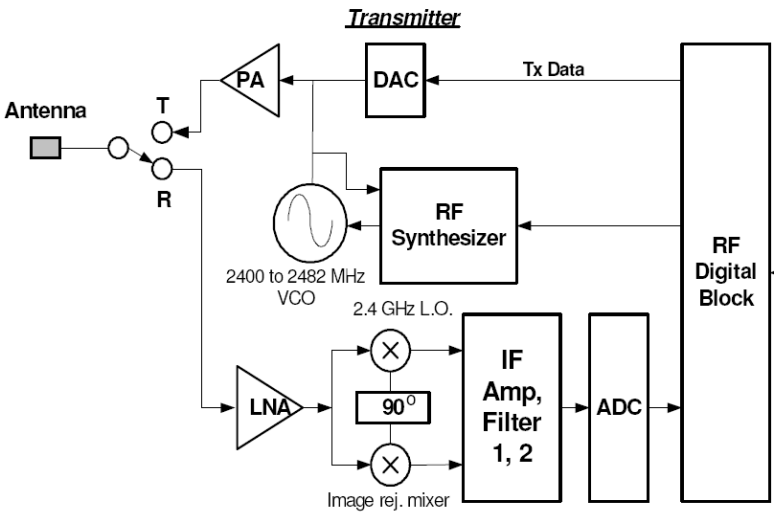
This product incorporates UTH6812 Bluetooth Single Chip for Headset, External oscillator, 12MHz.The UTH6812 is a highly-integrated digital/mixed-signal IC for use as Bluetooth® Transceiver. This chip is specifically designed for headset/hands-free applications. The overall code size is optimized within 128k bytes. By combining the baseband, RF Transceiver, and low noise audio CoDec functions on one chip, this industry-standard high quality wireless voice link product also features small overall size and cost. Headsets assembled from this product have been tested as conforming to Bluetooth® Specification v2.0.

Bluetooth v2.0 mandatory functionality:

Adaptive frequency hopping (AFH), including classifier Faster connection -enhanced inquiry scan (immediate FHS response)LMP improvements

UTH6812 RF contains transmit, VCO and PLL functions, including an on-chip channel filter, thus minimizing the need for external components. The receiver utilizes extensive digital processing for excellent overall performance, even in the presence of interference and transmitter impairments.

The RF transmitter is fully compliant with the Bluetooth® Class 2 operation, which allows -6 to +4 dBm output power. The low-IF receiver architecture produces low DC offsets and a 2 MHz spur below -40 dBc. Digital RSSI values are available to monitor channel quality.



***2．2 Built-in key control part works* principle：**

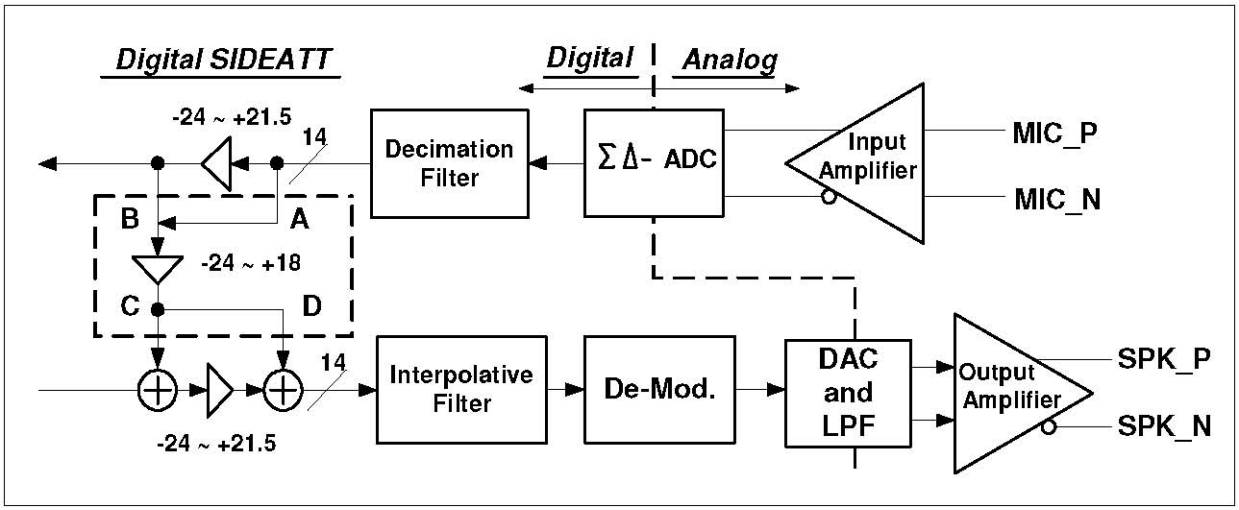
UTH6812 built three key (Universal key/Volume up/ Volume down key);

Through Universal key to switch machines, search, and so on; even the machine back up by Volume. Volume down key to adjust the volume.

***2．3 Audio part works* principle**

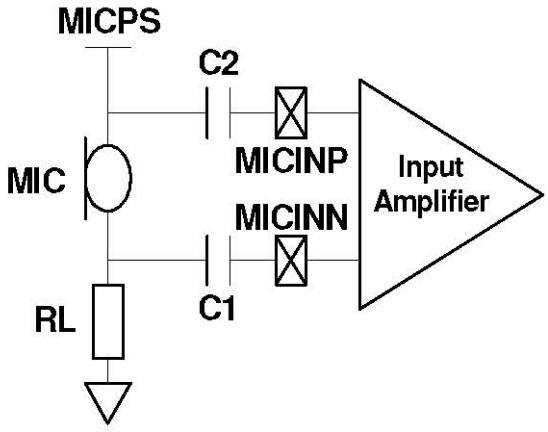
Mono Audio CODEC The UTH6812 audio CODEC is compatible with the direct speaker drive and microphone input using a minimum number of external components. It is primarily intended for voice applications and it is fully operational from a single 1.85V power supply. A fully differential architecture has been implemented for optimal power supply rejection and low noise performance. The digital format is 14-bit/sample linear PCM with a sample rate of 8 kHz.

The CODEC has an input stage containing a microphone amplifier, variable gain amplifier and a ∑ΔADC. The output stage contains a DAC, low-pass filter and output amplifier. The CODEC functional diagram and applicable gains are shown in below.

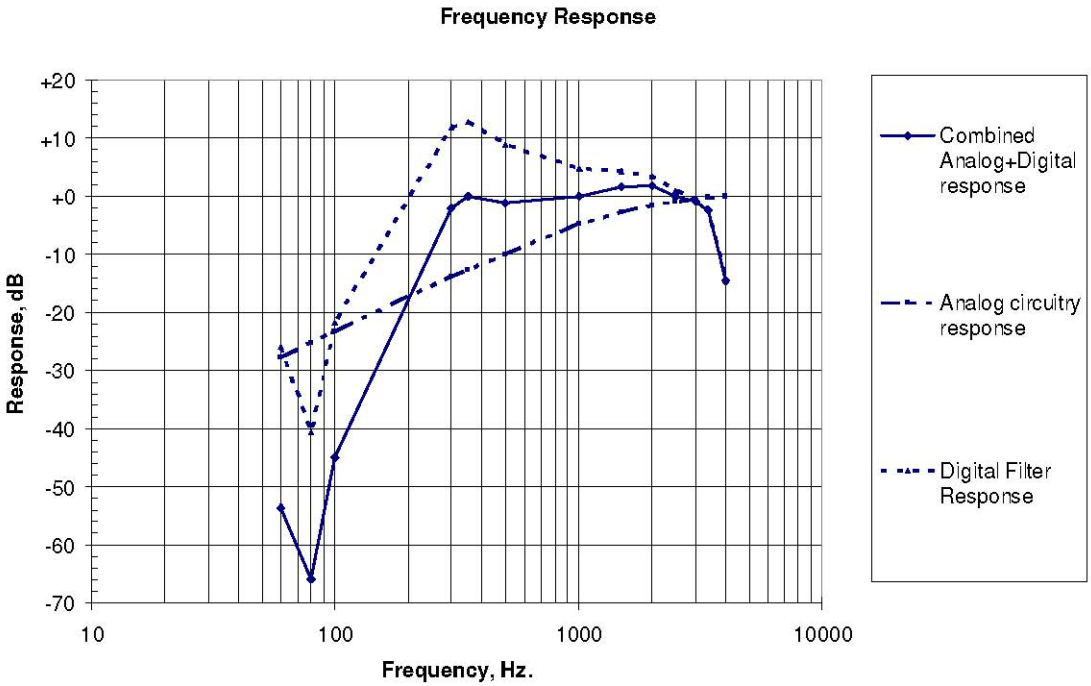


Transmit Audio Input Stage A variable gain amplifier amplifies the signal from MICIN. The analog signal is digitized by a second-order delta-sigma ADC, then converted to 14-bit 8kHz linear PCM data by digital circuit.

The gain is programmable and has a 50dB range with 3dB resolution. A bias output from MICPS can provide DC bias to the microphone, as shown in Figure . The microphone is differentially ac-coupled to MICIN. The CODEC has been designed for use with microphone output approximately -50 to -40dbV (3 to 10 mV). The MICIN input impedance is typically 20kOhm. C1 and C2 should each be around 5.6 nF ±20% for overall flat frequency response. RL, typically about 1k Ohm, should match with load impedance of microphone. MICPS output should be filtered with -3dB bandwidth close to DC, to provide a low noise DC bias to microphone. The signal to noise ratio is better than 60dB from MICIN to ADC output.



Transmit Audio Frequency Response Digital enhancements have been made to the UTH6812 mono CODEC to reject low frequencies present in the ADC signal, such as from wind noise. This is achieved by using approximately 1.4 kHz first-order analog high-pass corner frequency, combined with a sharp digital filter located at the output of the ADC processing chain. The frequency response of each element, along with the aggregate response, is shown below.



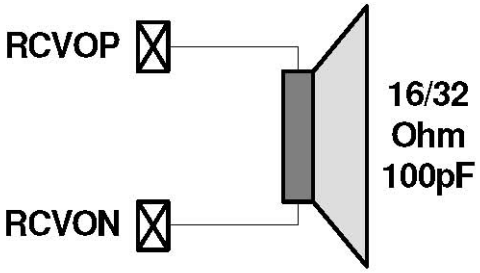
From these curves, we see that the analog filter serves to immediately attenuate the low frequency noise, keeping it from the microphone amps and ADC, reducing saturation and non-linearity problems. The digital filter then serves to restore the frequency response for the main audio passband, while providing a high rate of rolloff to frequencies below 300 Hz, which are known to carry very little audio intelligence for human voice frequencies.

Side Tone In most applications, it is desirable to implement side tone. This involves feeding a portion of the microphone signal to the earpiece. Surveys dating back to the early days of telephone show that users prefer to hear their own voice in the receiver as they speak, giving them confidence and reassurance that their voice is being heard at the far end, and that the telephony instrument is functioning properly. If the side tone level is too high, it will prove to be an annoying distraction, so proper level setting is important.

Receive Audio Output Stage The digital data is converted to analog signal by a DAC.

Out-of-band noise is filtered on-chip, without external components. The output is a differential signal that can reach 1.4Vpp or more. The output signal path has adjustable gain from -24 to +6 dB, in 3 dB steps.

In the differential output configuration, there is minimal DC bias to the speaker that could cause speaker damage or battery drain. No DC blocking capacitor is necessary in this configuration. The output can also be single ended, as shown in Figure when 3-wire speaker/microphone (common ground) will be used.



2．4 Charge part works principle:

When the battery voltage falls below 3.2V, Universal key at this point in the red LED flashes, is required to charge.

The matching USB Guitar lines and PS3 host link appears red LED indicates the charge indicates. The 9-bit ADC (analog to digital converter) is used to measure battery voltage. The firmware can thus determine if the unit has enough battery power to continue functioning, give the user a low-battery warning, or shut-down. It is not used by the battery charger.

UTH6812 includes two 4.2V tolerant pads dedicated to driving LED indicators. Both pads may be controlled by firmware. The intensity of the LEDs may be adjusted by firmware.

The terminals are low output impedance open-drain outputs, so the LED must be connected in series with a current limiting resistor between the battery terminal or positive supply and the pad.

2．5 power supply part works principle:

1.85V UTH6812 internal output voltage, such as for IC: UTH6812.AT24LC16 the entire circuit provides electric energy.

2．6 LED indicate works principle:

2.6.1 when in search state, red and green LED alternating flashing;

2.6.2 when in communication States, the Green led is blinking;

2.6.3 when the battery voltage to 3.2V, the red LED flashes;

2.6.3 when the battery charge, the red LED indicates; when the battery charge is completed, the Green LED indicates.