# USB SOUND CARD

Description.

Designing and building a USB sound card is no longer a head ache because we have got the PCM 2702 integrated circuit from Texas Instruments. The PCM2702 is an integrated 16 bit digital to analog converter that has two digital to analog output channels. The integrated interface controller of PCM2702 is compliant to the USB 1.0 standards. The IC can handle sampling rates of 48 KHz, 44.1 KHz and 32 KHz. The IC also has a number of useful features like on-chip clock generator, digital attenuator, play back flag, suspend flag, zero flag, mute function etc. The most interesting thing is that this circuit is plug & play and doesn't need any driver software for Windows XP and Windows Vista operating systems.

The circuit gets control data and audio data from the USB through the D+ and D- pins of the PCM2702 all the data transferring is carried out at full speed. The decoded audio signals will be available at the VOUTL and VOUTR pins of the IC. The 12MHz crystal is connected between the XT0 and XT1 pins of the IC. The VBUS (USB bus power) pin and DGND (digital ground) pins of the IC are connected to the +5V and ground pins of the USB respectively. The circuit requires +5V DC and +3.3V DC for operation and both of these voltages can be derived from the USB port using LDO (low drop out) voltage regulators (not shown in circuit).

Circuit diagram.
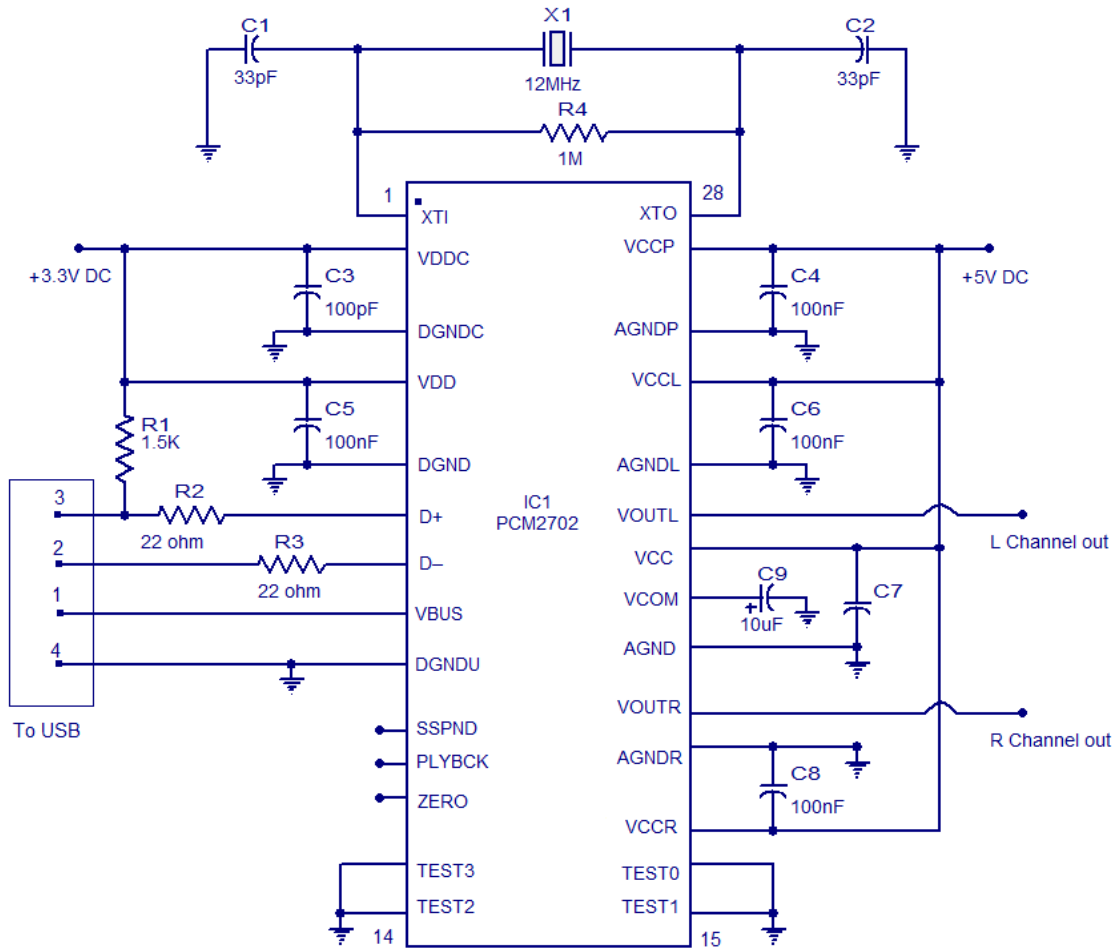
Block diagram of PCM2702.
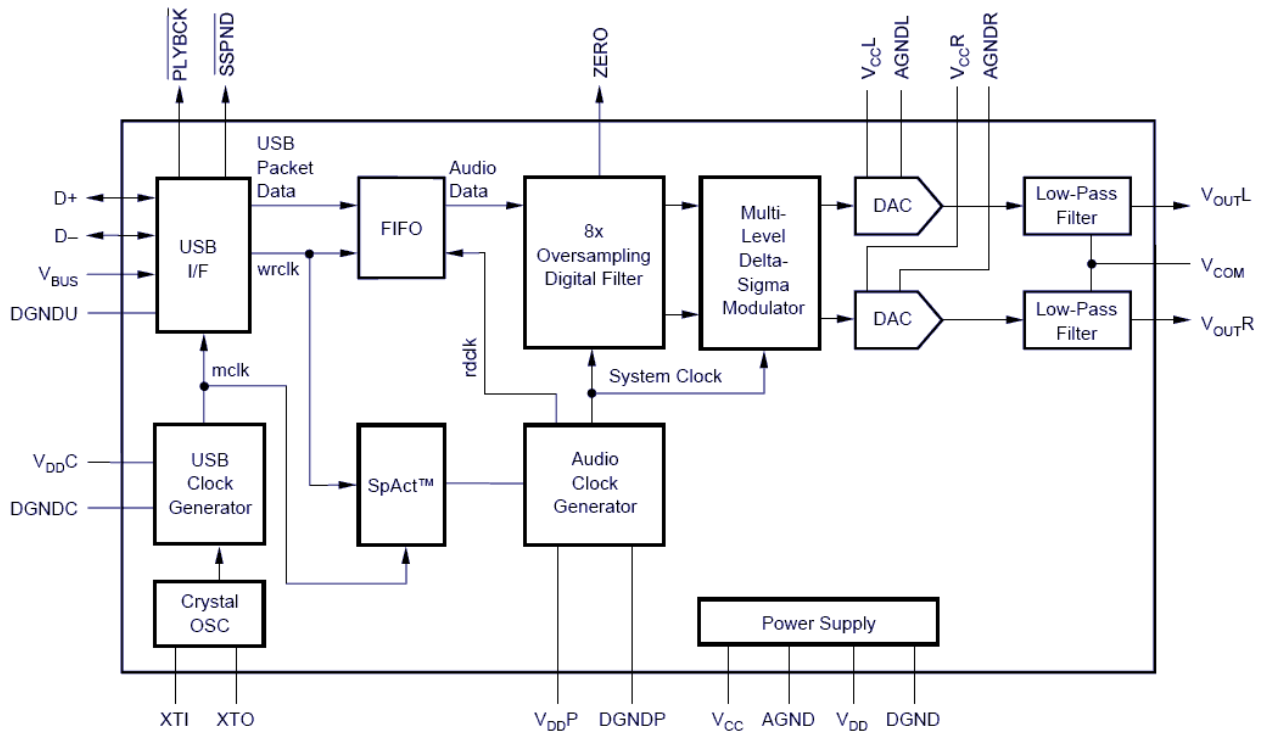
Notes.

▢ +5V DC supply can be derived from the USB port using a +5V LDO regulator.

▢ +3.3V DC supply can be derived from the USB port using a +3.3V LDO regulator.

▢ Audio signals (output) available at VOUTL and VOUTR requires further amplification for driving low impedance head phones or loud speakers.

▢ The PCM2702 is available only in SSOP28 package and requires special care while assembling.

▢ Before attempting this circuit please go through the datasheet of PCM2702 and get a clear idea about the device.

Source : http://www.circuitstoday.com/usb-sound-card