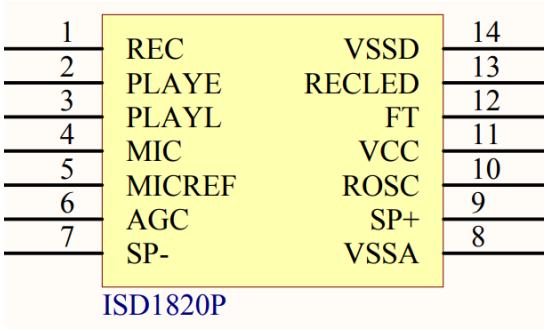
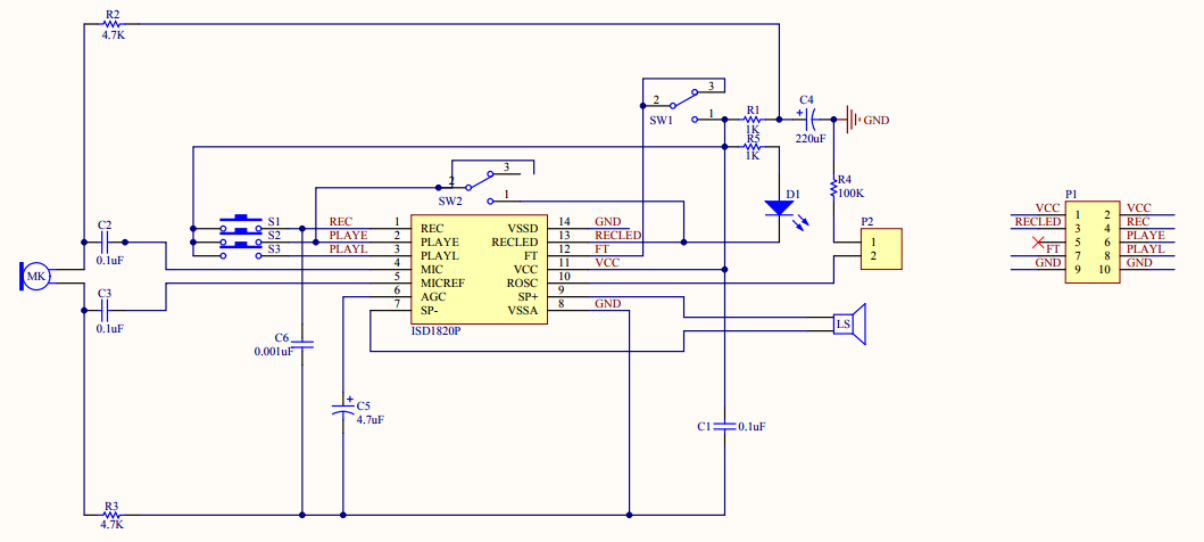
ZZ8202 ISD1820 RECORD PLAYBACK IC



Typical Application (as used in XC4605):



Notes:

The REC input is an active-HIGH record signal. The device records whenever REC is HIGH. This pin must remain HIGH for the duration of the recording. REC takes precedence over either playback (PLAYL or PLAYE) signal. If REC is pulled HIGH during a playback cycle, the playback immediately ceases and recording begins. A record cycle is completed when REC is pulled LOW. An End-of-Message (EOM) marker is internally recorded, enabling a subsequent playback cycle to terminate appropriately. The device automatically powers down to standby mode when REC goes LOW. This pin has an internal pull-down device. Holding this pin HIGH will increase standby current consumption.

When a HIGH-going transition is detected on PLAYE, a playback cycle begins. Playback continues until an End-of Message (EOM) marker is encountered or the end of the memory space is reached. Upon completion of the playback cycle, the device automatically powers down into standby mode. Taking PLAYE LOW during a playback cycle will not terminate the current cycle. This pin has an internal pulldown device. Holding this pin HIGH will increase standby current consumption.

When PLAYL transits from LOW to HIGH, a playback cycle is initiated. Playback continues until PLAYL is pulled LOW or an End-of-Message (EOM) marker is detected, or the end of the memory space is reached. The device automatically powers down to standby mode upon completion of the playback cycle. This pin has an internal pull-down device. Holding this pin HIGH will increase standby current consumption.

The microphone input (MIC and MICREF) transfers its signals to the on-chip preamplifier. An on-chip Automatic Gain Control (AGC) circuit controls the gain of the preamplifier. An external microphone should be AC coupled to this pin via a series capacitor. The capacitor value, together with an internal 10 KΩ resistance on this pin, determines the low-frequency cutoff.

The SP+ and SP- pins provide direct drive for loudspeakers with impedances as low as 8Ω. A single output may be used, but, for direct-drive loud-speakers, the two opposite polarity outputs provide an improvement in output power of up to four times over a single-ended connection. Furthermore, when SP+ and SP- are used, a speaker coupling capacitor is not required. A single-ended connection will require an AC-coupling capacitor between the SP pin and the speaker.

The resistor connected between the ROSC pin and VSS (R2) determines the sample frequency and the filter upper pass band. A value of 80kOhm will give 8s record time, while a value of 200kOhm will give 20s record time. Changing the resistor between recording and playback will allow the playback speed/pitch to be changed.

The RECLED output is LOW during a record cycle. It can be used to drive an LED to provide feedback that a record cycle is in progress. In addition, RECLED pulses LOW momentarily when and End-of-Message (EOM) or end-of-memory marker is encountered in a playback cycle. Looping playback operation can be performed by connecting the RECLED pin to PLAYE pin.

Parameter	Value
Minimum Operating Voltage	2.7V
Maximum Allowable Voltage	7V
Maximum Operating Current	30mA
Typical Output Power	24mW