

Chapter 11. A Voice-Synthesizer Project

This chapter is the extension of the previous chapter so that we generate voice from the typed words from the keyboard, using a voice synthesizer board. Imagine that a person communicate in a written form and wants it to be spoken. So the person can see what is s typed and the party can hear what the person intends to say. This feature needs a voice synthesizer which does the text-to-voice conversion.

1. DoubleTalk RC8650 Voice Synthesizer

The DoubleTalk RC8650 is versatile voice and sound synthesizers, integrating a sophisticated text-to-speech processor, audio recording and playback, musical and sinusoidal tone generators, telephone dialer and A/D converter, all in easy to use chipsets. This chipset translate plain English text into speech in real time, without the assistance of a PC or high-powered processor. It enables us to add text-to-speech capability to virtually any design, quickly and painlessly.

In addition, integrated tone generators provide telephone dialing, music, and programmable signaling tones. Up to 3.5 MB of built in, flash-based recording memory can store up to 15 minutes of sound files, which can be played back on demand by the host.

The RC8650 chip set is comprised of two surface-mounted devices: the RC8650 and RC4651. Both operate from a +5 V supply and consume very little power. In many cases, all that is needed to build a fully functional system is a low pass filter and audio amplifier (which can often be combined into the same circuit).

As text messages are sent to the RC8650, the RC8650 automatically converts the messages into speech using an integrated text-to-speech processor. The TTS processor utilizes RC Systems' DoubleTalk TTS technology, which is based on a patented voice concatenation technique using real human voice samples. Voice control parameters, such as speed, volume, tone, pitch and expression, can also be embedded within the text stream for dynamic on-the-fly voice control. RS-232 compatible serial and 8 bit bus interfaces are included to allow the chipset to interface to virtually any CPU or microcontroller.

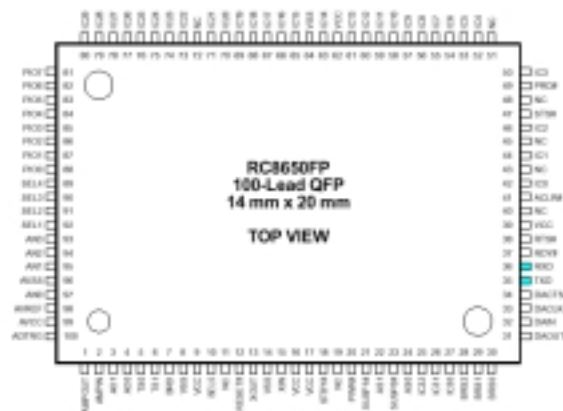


Fig. 79 RC8650FP

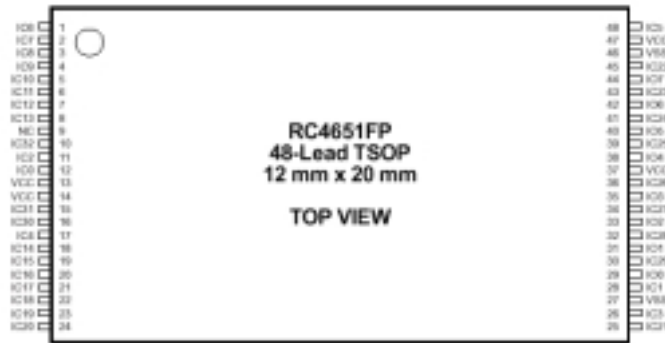


Fig. 80 RC4651FP

The DoubleTalk RC8650 Evaluation Kit enables you to experiment with the RC Systems RC8650 voice synthesizer chip set. Included in the kit are:

- Evaluation board containing the RC8650 chip set
- Speaker with volume control
- Serial cable
- RC8650 Studio software

The evaluation board is a complete, versatile voice synthesizer which can be used with the RC8650 Studio software as well as in stand-alone applications. The board includes the RC8650 voice synthesizer chip set, audio power amplifier, voltage regulator, RS-232C interface, and parallel I/O port. The chip set's I/O lines are made accessible through header connectors near the edge of the board. SW1 in the evaluation board is the Reset switch. Press once when we meet some problem.

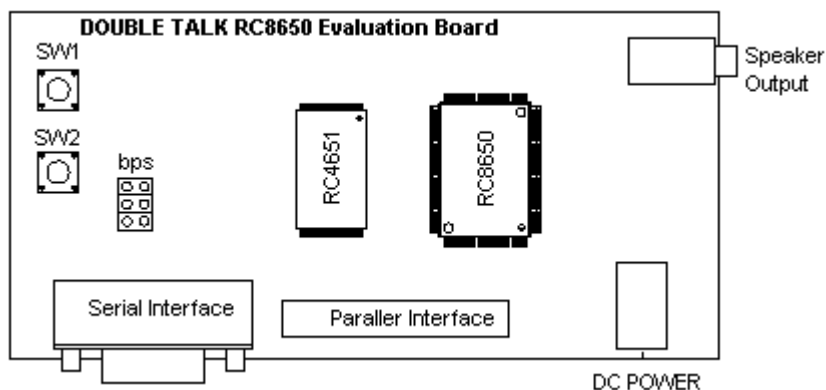


Fig. 81 RC8650 Evaluation board

The RC8650 Studio software is NOT required, however, in order to use the evaluation board. The board can be used "stand-alone" if desired by simply printing the desired text and commands to it via the board's serial or parallel ports.