

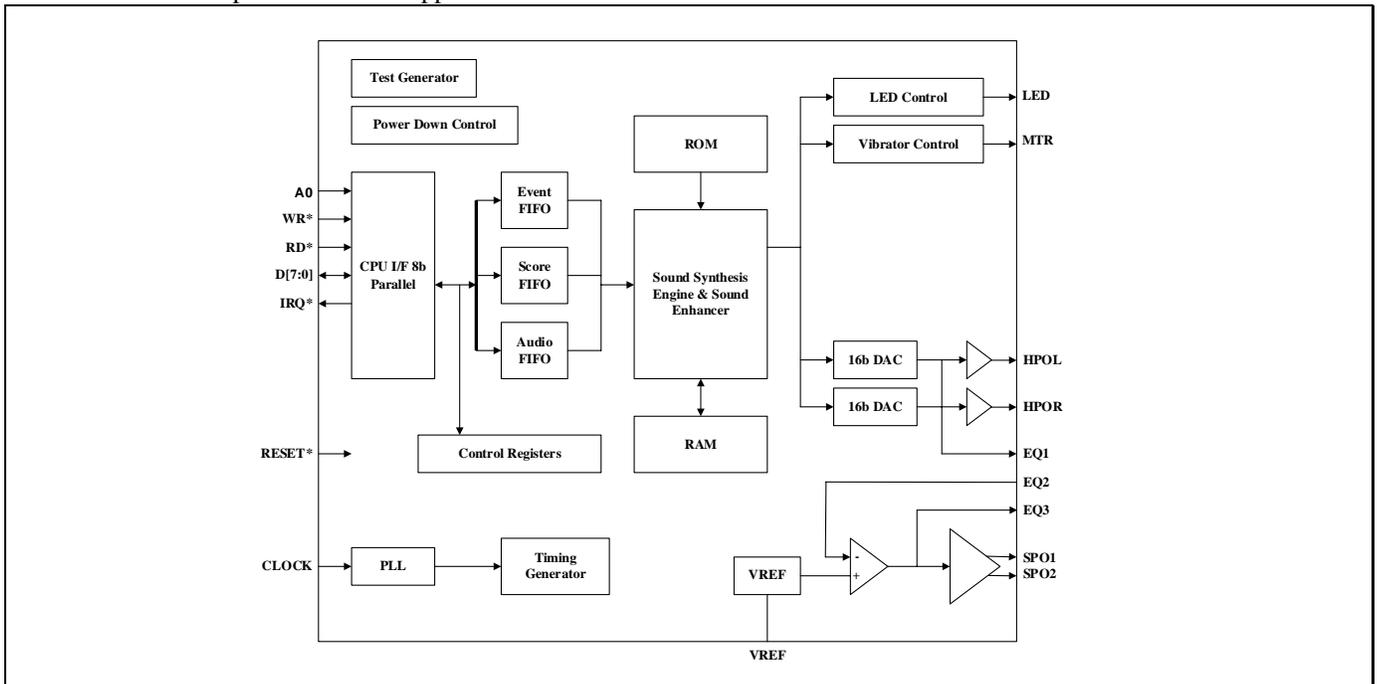
ft1601A is a MIDI interface based hi-grade audio synthesis processor mixed signal VLSI, developed specifically for music ringers and game sounds. With a built in mixer, equalizer, speaker and headphone amplifiers, this VLSI is an ideal device for cellular phones, PDAs and other mobile devices.

With high quality on-chip wavetables compatible with General MIDI sound set, ft1601A is capable of playing 48 polyphonies simultaneously.

This audio synthesis processor is able to present sounds by MIDI messages or arbitrary ADPCM voices. There are three on-chip FIFOs used to store musical score data, MIDI messages and ADPCM audio data. ft1601A is designed to provide maximum performance with minimum power consumption.

ft1601A has a built-in hardware sound synthesizer that is capable of complex sound replay with minimal loading by the host CPU. This VLSI also has built-in LED controller, Vibrator controller and internal PLL filter. A fantastic music ringer subsystem can readily be built around this chip with minimum external components and cost.

The device is available in a thin plastic 32pin LPCC (QFN) package. The pinout is organized to provide optimal PCB layout suitable for cellular phone and PDA applications.

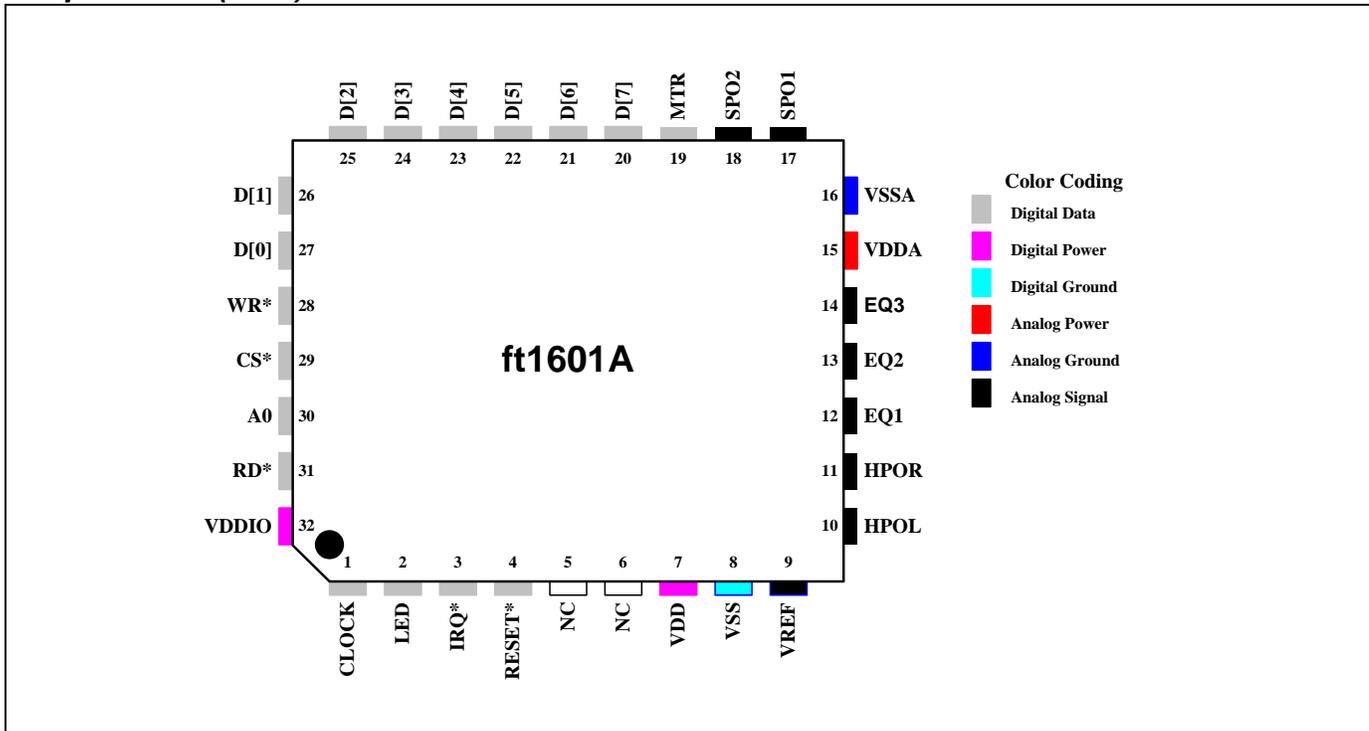


## Features

- On-chip high-quality wavetable sound set
- Simultaneous generation of 16 timbres, 48 polyphonies
- Compatible with General MIDI (GM) system level 1
- 128 timbres + 47 percussions embedded
- Stream replay with ADPCM
- Equipped with 8-bit parallel I/F for control from CPU
- 3 embedded FIFOs to reduce the host CPU loading
- Complies with the low voltage CPU interface (1.8V typical)
- Contains 16-bit stereo D/A converter
- Internal stereo headphone amplifier and mono speaker amplifier
- Equipped with equalizer circuit
- Built-in PLL with internal loop filter, and inputting of master clock up to 34MHz
- Vibrator motor and LED control
- Power down mode with power down current less than 0.3µA (typ.)
- Operating current: 40mA (typ.)
- Digital power supply (VDD: for internal core) 2.7 ~ 3.3V
- Digital I/O power supply (VDDIO: for CPU I/O) 1.65 ~ VDD
- Analog power supply (VDDA: for analog blocks) 3.0~ 4.5V
- 32pin LPCC (QFN) plastic package

## Pin Diagram

## 32 pin LPCC (QFN)



## Software Support

The following software is available (subject to a non disclosure agreement):  
Support software for standard MIDI, Real Time MIDI, ADPCM, etc.

## Applications

- Cellular phones
- PHS phones
- PDAs

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