The New Technology Creator

VLSI Solution Oy

VS1000 Button-Cell Player

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Overview

- Ogg Vorbis format for best quality and low bitrates

- 4MByte SPI FLASH for boot code and audio content

- Single CR2032 battery

- Continuous playing time 4 hours

- Total playing time over 6 hours

- Low-power pause with automatic power off

Applications

- Entrance ticket bundled audio guide (museums, sight-seeing tours)
- Solar cell operated audio guide
- Intelligent clothing
- Promotional tool (new product audio presentation)
- Novelty item
- Intelligent toy

Block Diagram
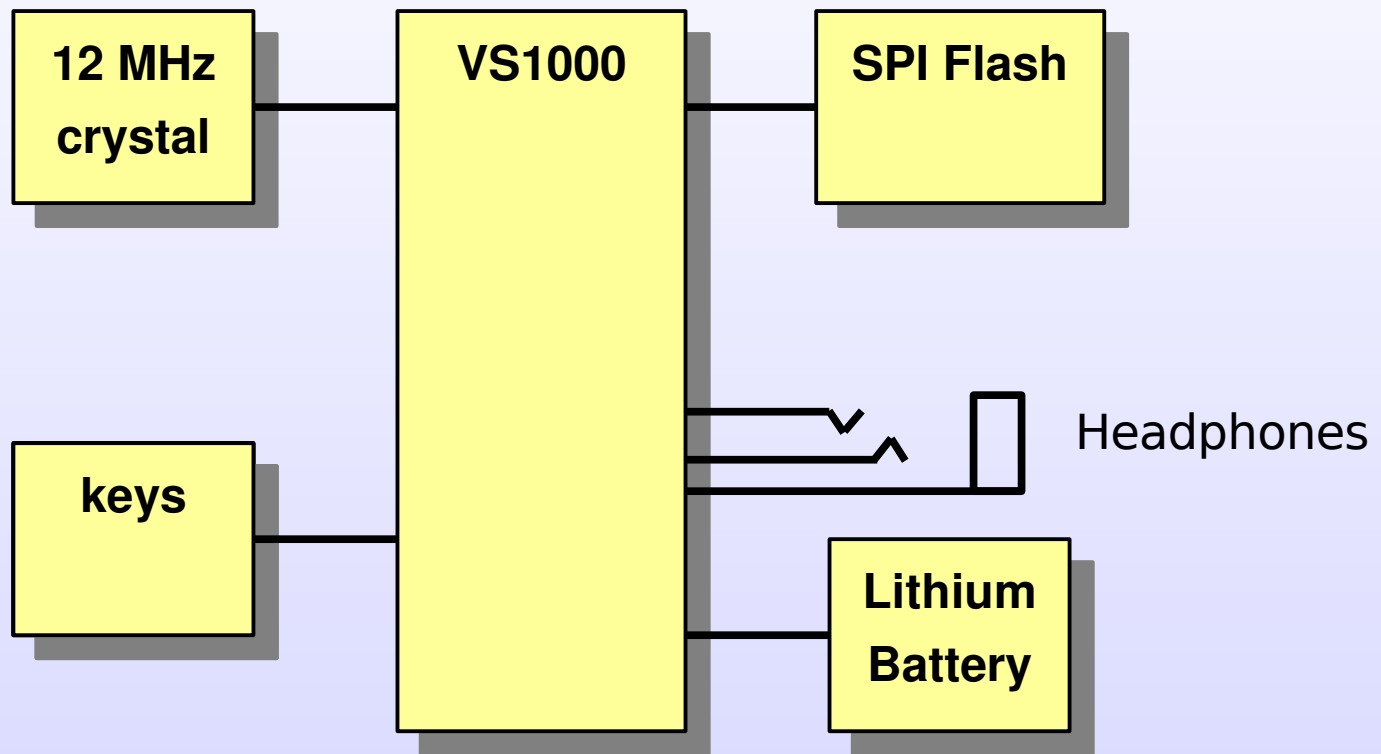
- Very simple
- BOM less than 3 USD in mass production

Features

Voice Player

- Up to 55 minutes of mono voice in 4-megabyte SPI FLASH

- Content can be preprogrammed or can be loaded via USB

- 6 MHz internal clock for very low power consumption

- 6 to 22 kHz sample rates, 10 to 41 kbit/sec bitrates

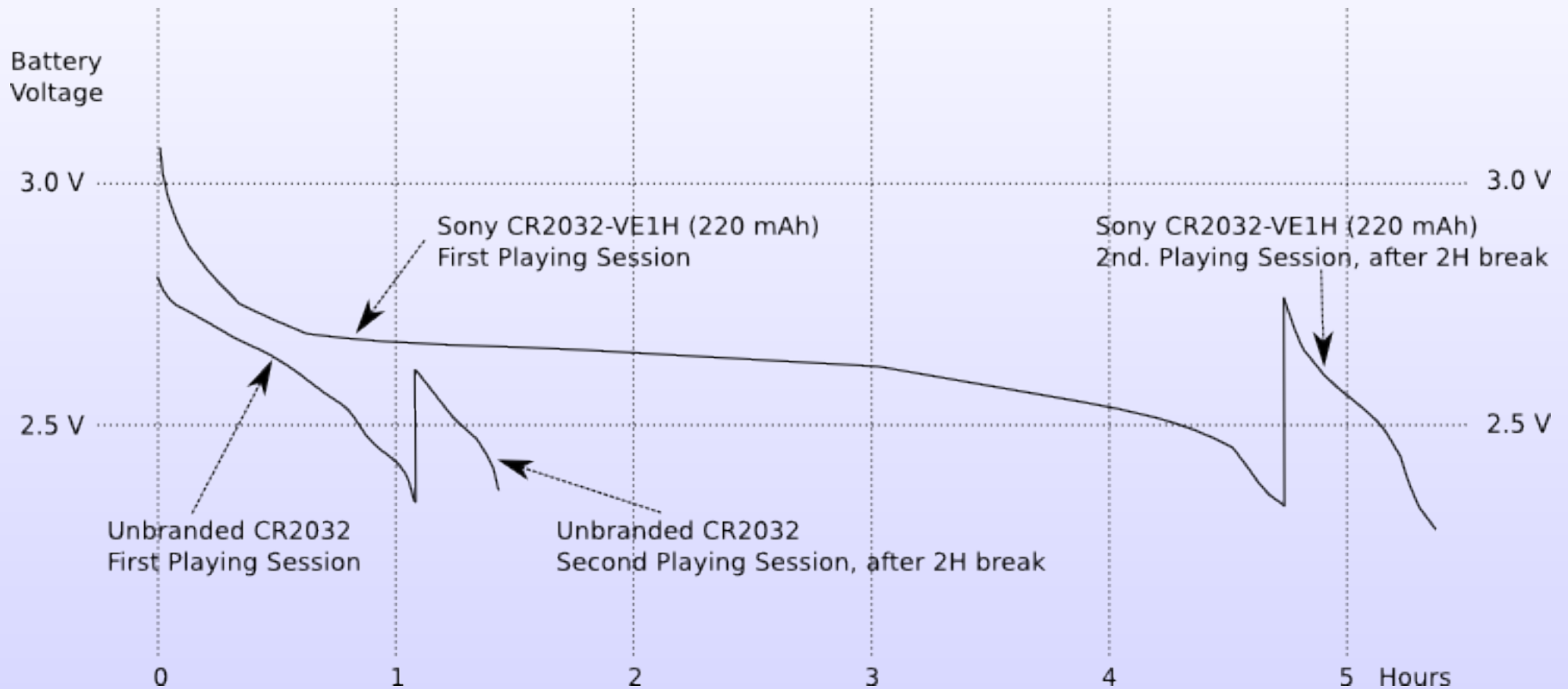**Extended Player**

- 6 MHz or 12 MHz internal clock, requires slightly more power

- Higher clock allows one or more extra features:
  - Stereo   (24kHz stereo, 96kbit/s, -q 5)
  - Higher sample rates   (44kHz mono, 70kbit/s, -q 3)
  - EarSpeaker processing (3D sound)

Features (cont.)

Power Consumption

- Depends on headphones, volume, and audio material

- Tested with 30-Ohm headphones and a talk radio program with default volume level

- Active mode (voice player): 6.0-7.0 mA

- Low-power pause mode: 0.425 mA

- Power-off mode: 0.0 µA

- Pause between tracks increases the total playing time

- Active mode (extended player): 9 mA

User Interface

Voice Player

- POWER – power on, pause/play, power off (long press)

- PREV – start of track or previous track, rewind (long press)

- NEXT – next track, fast forward (long press)

- VOL+ VOL- – volume up and down

- FEATURE – not used in voice player

Extended Player

- POWER, PREV, NEXT, VOL+, VOL- like in voice player

- FEATURE – EarSpeaker mode, random play (long press)

Operation

Player operation:

- Turn sw7 to BAT position

- Attach headphones

- Press POWER button (sw6) to start player

- Press POWER for a couple of seconds to turn off player

USB operation:

- Turn sw7 to USB position (disconnects battery)

- Attach USB cable

- Press POWER button (sw6) to start player

- Copy files

- Detach USB cable

Do you want to customize?

Our support will help you

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