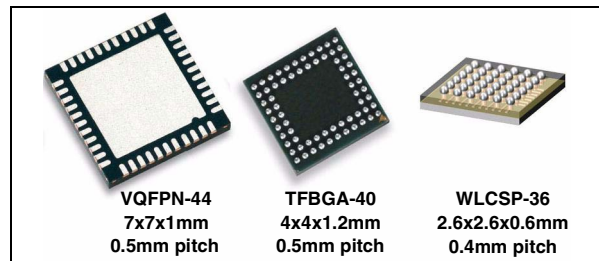


## 24-bit, 103 dB SNR audio DAC with playback time extender

Data Brief

### Features

- DAC
  - 24-bit audio DAC
  - 103 dB dynamic range for the full audio path
  - THD -66 dB (0.0 5%) on 32  $\Omega$
  - Sampling rate: 8 kHz to 48 kHz
  - Operating mode selection: PTE™ playback time extender or standard (continuous) mode
  - SNR and consumption adjustable by register (4 steps)
- Supply
  - Direct connection to the battery (2.7 V to 4.8 V) thanks to integrated power management
  - I/O supply: 1.62 V to 3.6 V
- Power consumption
  - Stand-by: 1  $\mu$ W
  - Playback: 44 mW for 103 dB SNR, 29 mW for 94 dB SNR
- PTE™ function
  - Integrated programmable PTE™ memory to store up to 100 ms of music (5120 x 24-bit stereo words).
  - Empty PTE™ memory detection pin
  - Auto-reset interrupt
- Inputs
  - I<sup>2</sup>S digital input up to 50 MHz (in PTE™ mode)
  - Stereo single ended or differential analog input
- Clock
  - 32 kHz only needed in PTE™ mode
  - System clock input (13 MHz, 19.2 MHz, 26 MHz and 38.4 MHz) for standard (continuous) mode
  - Internal PLL



- Analog output drivers
  - Stereo headset amplifier
    - ‘True ground’ output amplifier (no coupling capacitor).
    - 2x50 mW on 32  $\Omega$  and 2x80 mW on 16  $\Omega$
    - 66 dB programmable gain
    - Plug detection, click/pop suppression, independent right and left channel shutdown control
  - Stereo differential line out
- RoHS (lead-free) packages

### Description

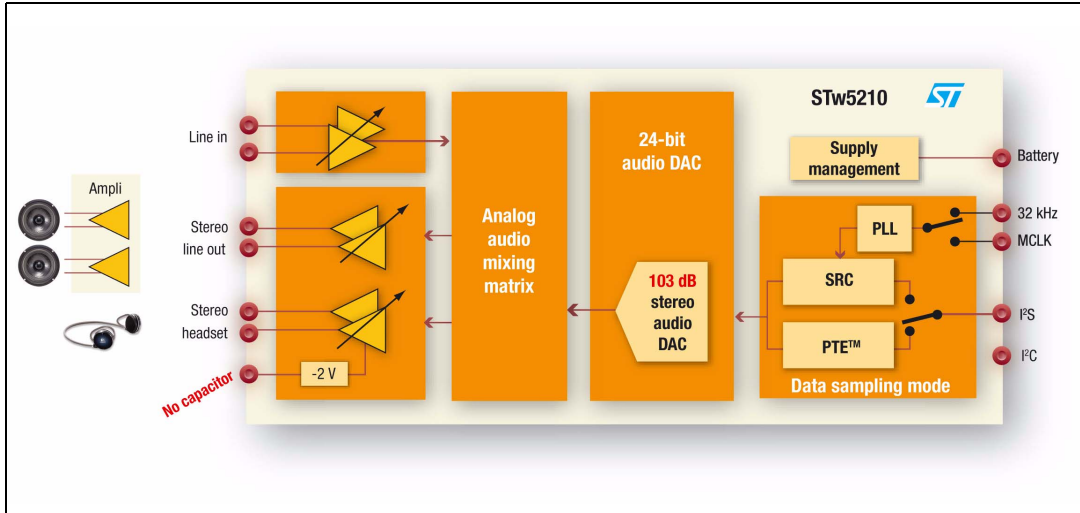
The STw5210 is a 24-bit high performance DAC for mobile handset application with 103 dB dynamic range for the whole audio path.

It embeds an innovative PTE™ function that reduces drastically the whole application power consumption. In this mode, the music is played back autonomously, while the whole system is switched to power saving condition. The IC is then driven by the 32 kHz clock only. The device can be used also in a conventional way (continuous mode) and be driven by the system clock. STw5210 is very easy to integrate and thanks to its embedded power management, it can be directly connected to the battery.

The device foot print is very small as the EBOM is reduced to a few components. The 50 mW headset amplifier is of “True-ground” type (no coupling capacitor) and no additional quartz is required in PTE™ mode, when the PLL is driven by the 32 kHz frequency.

# 1 Block diagram

Figure 1. STw5210 block diagram



# 2 Ordering information

Table 1. Order codes

Part number	Package	Packing
STW52100K/HK	TFBGA40 <sup>(1)</sup> 4 mm x 4 mm x 1.2mm, pitch 0.5 mm	Tray
STW52100KT/HF	TFBGA40 <sup>(1)</sup> 4 mm x 4 mm x 1.2mm, pitch 0.5 mm	Tape and reel
STW521062/HF	VQFPN44 <sup>(1)</sup> 7 mm x 7 mm x 1 mm, pitch 0.5 mm	Tray
STW521062T/HF	VQFPN44 <sup>(1)</sup> 7 mm x 7 mm x 1 mm, pitch 0.5 mm	Tape and reel
STW521025T/LF	WLCSP36 <sup>(1)</sup> 2.6 mm x 2.6 mm x 0.6 mm, pitch 0.4 mm	Tape and reel

1. ECOPACK® package

# 3 Revision history

Table 2. Document revision history

Date	Revision	Changes
24-Jan-2008	1	Initial release.

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