

Digital audio amplifier for high output power and variable supply voltage

Reference No: B72041

CHALLENGE

Time precision is of the essence in the high-end segment to ensure accurate local imaging of the sound sources in stereo or multichannel reproduction. In this respect, digital amplifiers receive worse evaluation compared to analog amplifiers. On the other hand, digital amplifiers are imperative for multichannel reproduction with high output without forced cooling due to a compact design and little waste heat. The problem is that high power amplifiers need a higher supply voltage resulting in increased losses. It is a common procedure to reduce these losses by adaption of the supply voltage to the signal level. The variation of the supply voltage may cause stability problems. Therefore, only little or even no negative feedback is used which is extremely problematic with class D amplifiers as the output voltage depends directly on the supply voltage.

INNOVATION

The innovation allows the design of digital amplifiers with negative feedback and without stability problems. The negative feedback is realized by a newly developed analog/digital converter that achieves high resolution with short conversion times. Therefore, the amplifier works with comparatively high switching frequencies. The supply voltage is adapted dynamically to the signal level, and thus the losses can be minimized. As a consequence the innovation is a digital amplifier with high output power, extraordinary linearity and time precision in reproduction. The excellent quality has been confirmed by experienced audio specialists. Besides the excellent sound quality and the energy saving potentials the extremely low height of the amplifier is an advantage of the invention compared to existing products. The low height is a result of the reduction of the supply voltage at low signals leading to little power consumption in case of low or little load. The heat dissipation is realized by a base plate. Due to the low height the innovation is particularly suitable for multi channel systems and active loudspeakers.

COMMERCIAL OPPORTUNITIES

- High-end-amplifier
- Multi channel systems
- Active loudspeakers

DEVELOPMENT STATUS

A predecessor model designed for extremely high energy efficiency is currently used successfully in more than 10000 amplification systems. There is a prototype of the high-end-design available.

