

Flexound Systems

Helping Listeners Feel Music in a Whole New Way with MAX98357A Audio Amplifier



Flexound Systems's immersive audio technology, delivered with the MAX98357A audio amplifier, can be integrated into gaming chairs, treatment benches, and more.

Based in Espoo, Finland, [Flexound Systems](#) is integrating audio with vibration technology to bring a new immersive dimension to the listening experience: touch. The company's licensable Flexound Xperience module can be integrated into cushions like the Flexound HUMU Smart Cushion introduced on Indiegogo, movie seats, gaming chairs, office furniture, treatment benches, and more.

Challenge

- Needed a reliable, high-performing, low-power audio amplifier
- Wanted to achieve fast time to market

Solution

- MAX98357A

Benefits

- High-quality solution with lower power vs. competitive offerings
- Simplified design process

"Flexound Systems is a very exciting company. Through our innovation, we bring something very new to entertainment. For the first time in nearly 100 years, a new sense is being added to audio/visual entertainment," said Mervi Heinaro, CEO and partner at the startup. "We are a tiny Finnish company, but we have a chance to go big and global."

Listening to music is already credited with delivering a surge of the feel-good hormone dopamine to listeners. Adding vibration releases another "happy hormone": oxytocin, further reducing stress and enhancing the listener's emotional state, Heinaro explained.

While initially targeting therapeutic applications, such as aiding those with autism or sensory disorders, Flexound Systems is now extending its technology to entertainment applications such as virtual reality (VR), movies, gaming, radio, and audio books. "We have a vision that this is a new way to experience sound. If we are successful, this might even lead to new audio formats," noted Jukka Linjama, the company's CTO and partner. Linjama also invented the first instrument to integrate high-quality sound with distributed vibration—initially a therapy tool for children but eventually the basis for Flexound Systems's offering.

CUSTOMER SUCCESS STORY: FLEXOUND SYSTEMS



The Flexound Team

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- Jukka Linjama, CTO and Partner, Flexound Systems

Design Challenges

To create its Flexound Xperience module, the company needed a reliable, high-performing, digital input class-D audio amplifier. The design team wanted their module to support long battery life of the end devices. To meet their time-to-market goals, they also wanted a simplified design with a minimum of discrete components.

Solution

Flexound Systems found its answer in Maxim's [MAX98357A](#) digital pulse-code modulation (PCM) input Class D power amplifier. The IC provides five selectable gain settings (3dB, 6dB, 9dB, 12dB, and 15dB) in I2S mode and supports 8-channel time division multiplexed (TDM) data. To reduce electromagnetic interference (EMI), the amplifier doesn't need the external MCLK signal that's typically used for PCM communication and also provides active emissions-limiting, edge-rate limiting, and overshoot control circuitry.

Benefits

"We wanted a high-quality, reliable, and highly efficient solution, and Maxim's MAX98357 had all of the features we needed," said Linjama. "It just does the work well."

The MAX98357A also provides better power than other ICs the company evaluated. According to Heinaro, Flexound Systems's customers get a better user experience for their products because of the amplifier's low power consumption. "Also, the overall design is simple in a good way. There's no need for additional DA converters or audio codecs —it's straightforward to design with," she explained.

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