

ROHM's first, most advanced MUS-ICTM series DAC chip enables expressive playback of classical music

ROHM announces the new BD34301EKV, a 32bit D/A converter IC designed for high fidelity audio equipment – capable of high-resolution playback of audio sources. At the same time, ROHM also provides BD34301EKV-EVK-001 evaluation boards to test the performance of ROHM’s new IC that is sold via distributor channels.

Designed to maximally extract and convert high resolution audio data to analog, audio DAC chips are one of the most important components for determining the quality in audio equipment. Leveraging 50 years of expertise in developing audio ICs allowed ROHM to establish sound quality design technology – capable of extracting the full amount of information from sound sources and offer products that deliver superior sound quality, including sound processor and power management ICs.

The BD34301EKV DAC chip, developed as part of ROHM’s high-grade MUS-ICTM series representing the pinnacle of audio ICs, emphasizes ‘spatial reverberation’, ‘quietness’, and ‘dynamic range’ – qualities important for reproducing classical music. Original sound quality design technology makes it possible to successfully reproduce the target sound quality by incorporating a circuit in the signal processing block to check for audio quality. At the same time, class-leading low noise and distortion (130dB SN ratio, -115dB THD+N) provide the high performance demanded by high fidelity audio equipment. At last, the customizable digital filter – a key function of the digital signal processing circuit – supports the creation of the ideal sound sought by audio equipment manufacturers.

Not surprisingly, the BD34301EKV chip has been adopted by LUXMAN CORPORATION for the digital circuitry of their flagship model SACD/CD player, the D-10X. They are a renowned manufacturer of high-end audio equipment. Masakazu Nagatsuma, Director and General Manager of the Development department at LUXMAN, praised the performance and sound quality of the BD34301EKV from the development stage: "The sound is natural and flat across the audio spectrum, making it easy to listen to for extended periods of time."



Learn more on the 32bit D/A converter IC for high fidelity audio equipment ►

MUS-IC™ DAC Chip (BD34301EKV) Development Concept

ROHM's original sound quality design technology

Spatial reverberation

Quietness

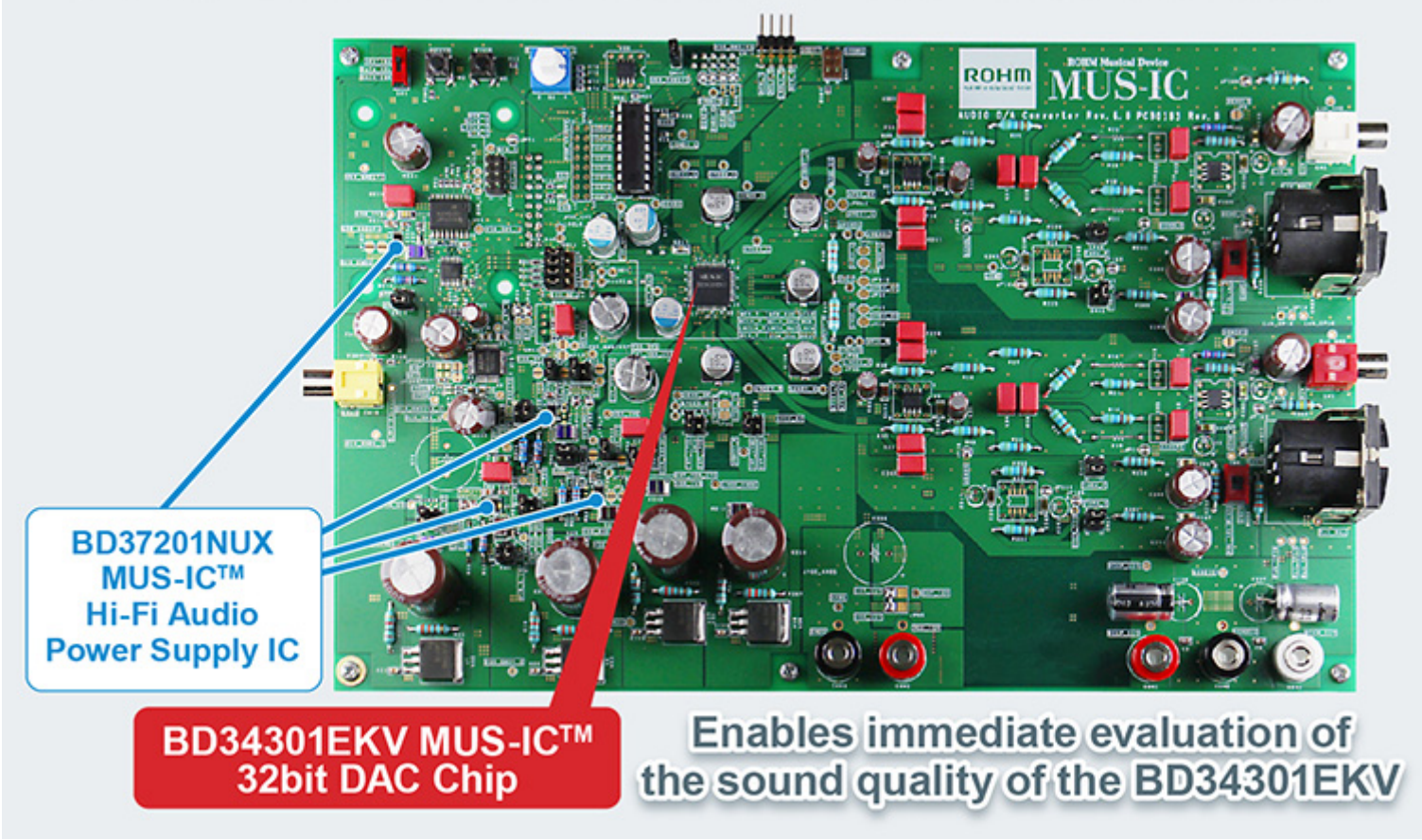
Dynamic range

ROHM Musical Device
MUS-IC

Developed with an emphasis on the above **3** elements important when listening to classical music

The background of the diagram features a close-up of a violin and a piano keyboard, suggesting a focus on classical music. A small icon of the BD34301EKV chip is placed within the 'Spatial reverberation' circle.

BD34301EKV-EVK-001 evaluation board also available



MUS-IC™ - ROHM’s Highest Grade of Audio ICs

Created by combining ROHM’s aforementioned sound quality design technology with its corporate mission of ‘Quality First’, ‘vertically integrated production system’, and ‘contribution to the advancement of musical culture’, MUS-IC™ (official name: ROHM Musical Device ‘MUS-IC™’) is an audio device brand that represents the ultimate IC solutions developed by ROHM’s team of experienced and dedicated engineers. For more information, please visit ROHM’s Musical Device ‘MUS-IC™’ web page. <https://www.rohm.com/mus-ic/>

ROHM Musical Device
MUS-IC

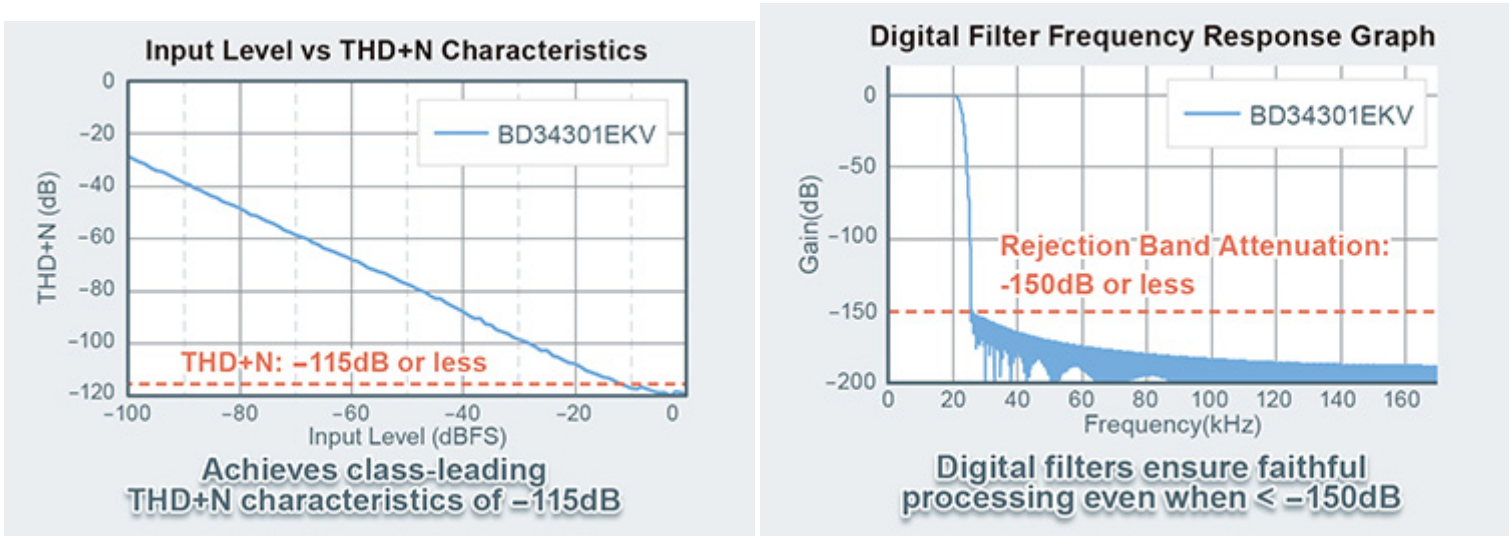
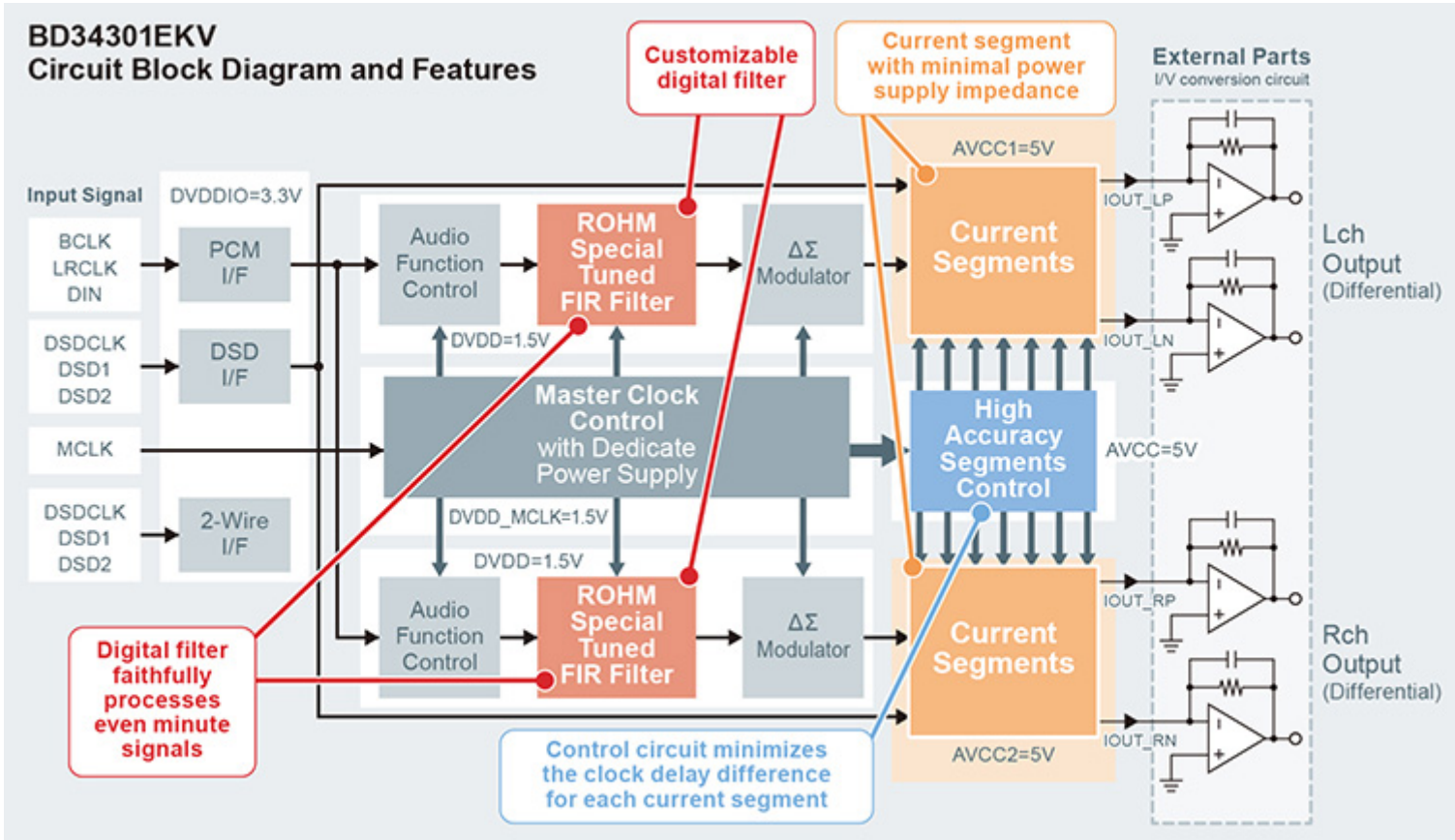
*MUS-IC™ is a trademark or registered trademark of ROHM Co., Ltd.

Key Features

The BD34301EKV provides the following features by leveraging audio design technology cultivated from identifying 28 parameters related to sound quality.

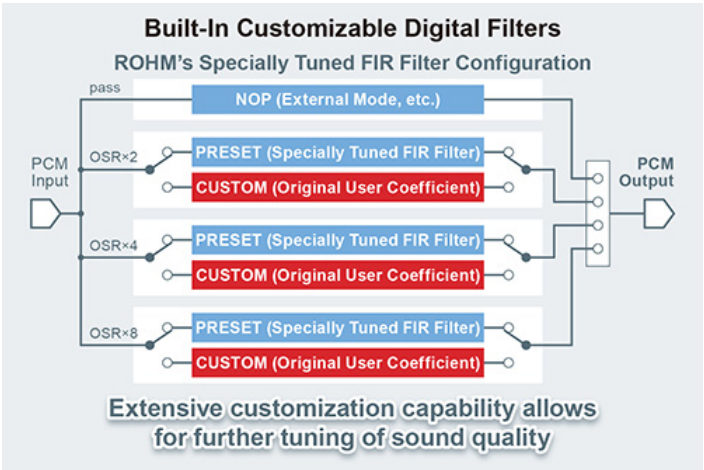
1. Achieves best-in-class sound quality characteristics ideal for classical music

The BD34301EKV delivers superior performance in audio equipment by improving sound quality in ways that cannot be defined by numerical characteristics (130dB S/N ratio, -115dB THD+N). For example, in the D/A conversion circuit, ROHM was able to minimize the power supply impedance of each constituent current segment while optimizing the wiring layout to reduce the clock delay (error that determines the timing operation of each current segment) as much as possible. In addition, the digital filter (FIR filter), a key function of the digital signal processing circuit, is designed to faithfully process even the smallest signals by achieving a rejection band attenuation of -150dB or less (a performance indicator of digital filters). This makes it possible to extract the full amount of information from sound sources and deliver sound quality characteristics that allow one to hear elements such as ‘spatial reverberation’, ‘quietness’, and ‘dynamic range’ important when listening to classical music.



2.Customizable digital filter allows designers to tailor the sound to audio equipment

The BD34301EKV enables selection of the digital filter (FIR filter) in the digital signal processing circuit from preset/custom/external settings. At the same time, both the filter’s calculation coefficients and oversampling rate are programmable. Constructing a unique digital filter makes it possible to achieve different sound quality tunings for each audio equipment, reducing development load while contributing to the creation of ideal sound sought by audio manufacturers.



Specifications and Sales Information								
Part No.	No. of Outputs	Resolution	Sampling Frequency	S/N Ratio	THD+N	DSD Clock	Digital FIR Filter	Package
BD34301EKV	2ch	32bit	32kHz ~ 768kHz	130dB (Typ.)	-115dB (Typ.)	2.8MHz, 5.6MHz, 11.2MHz, 22.4 MHz	Preset, Custom, External	HTQFP64BV

Pricing: 80.5USD/unit (samples, excluding tax)

Availability: In mass production from 2020. An evaluation board (BD34301EKV-EVK-001) is also available together with samples through online distributors.

Evaluation Board

Sales Launch Date: February 2021

Evaluation Board Part No: BD34301EKV-EVK-001

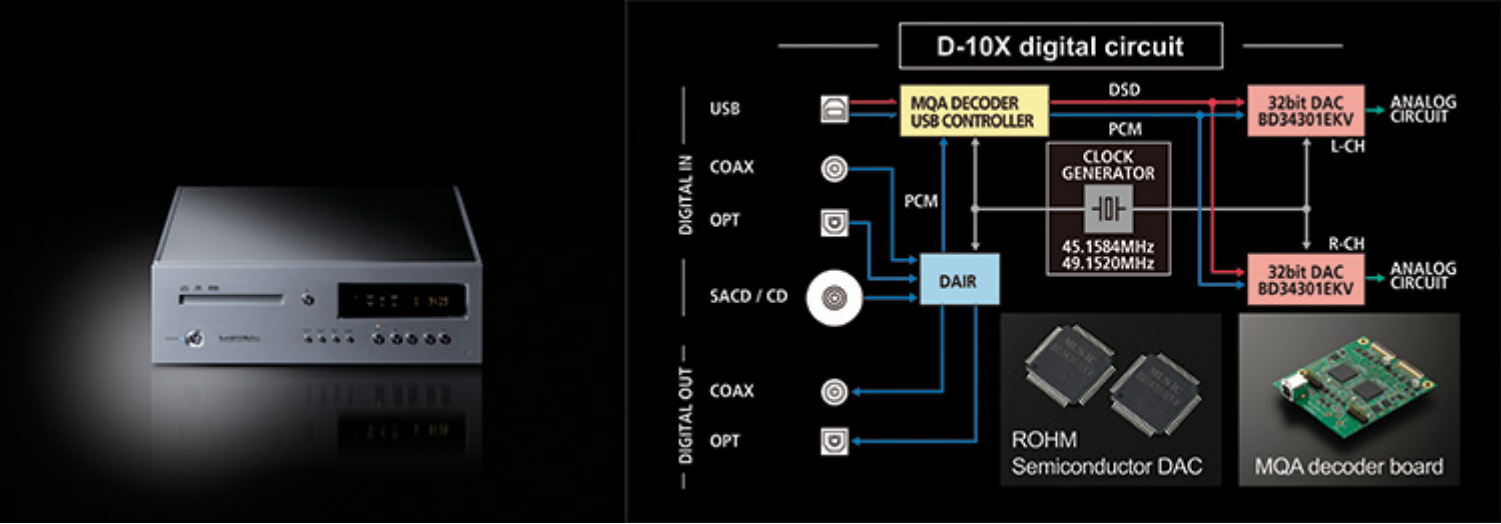
Support Page: www.rohm.com/products/audio-video/audio-converters/audio-dacs/bd34301ekv-product/documents

About LUXMAN’s D-10X SACD/CD Player

LUXMAN's new flagship SACD/CD player, the D-10X, builds on the outstanding heritage of our acclaimed D-08u, adding more playback capabilities, the latest conversion technology, robustly reinforced mechanics and a refined analog output stage.

In addition to LxDTM-i, the LUXMAN original Disc Transport Mechanism (improved), and ODNF-u, Only Distortion Negative Feedback (ultimate), the unit has a fully balanced output amplifier section. The heart of the digital circuitry utilizes dually configured ROHM BD34301EKV D/A converter ICs.

For more information, please refer to LUXMAN's D-10X product page.



Terminology

High Resolution Audio Source

General CD quality audio sources are played back at a sampling frequency of 44.1kHz and 16bit quantization bit rate, but with high resolution audio sources sampling frequencies 96 kHz or more and 24bit or more quantization bit rate are common. In other words, the amount of information contained in high resolution audio sources is much greater, resulting in higher quality audio.

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