



**SKYWORKS®**

## PRODUCT SUMMARY

# SKY76206-11: Mono Low-Power Multi-Level Class-D Audio Amplifier IC

## Applications

- Wireless earbuds
- Wireless headphones
- Active Noise Cancellation (ANC) circuits
- Portable electronics

## Features

- Low power consumption:
  - Quiescent power <900  $\mu$ W
  - Standby power ( $I^2C$  activity) <100  $\mu$ W
  - Reset power <6  $\mu$ W
- High incremental output efficiency:
  - 84% (62 mW O/P to 16 $\Omega$ )
- High quality audio performance:
  - DNR > 110 dB (A-wt)
  - THD+N: -79 dB
  - PSRR: -94 dB (<5 kHz)
- Low latency: < 5  $\mu$ s
- Supply voltage inputs:
  - VBAT (3.3V to 4.9V)
  - VDDIO (1.2V to 1.8V)
- Internally generated low-voltage supplies
- Operating Modes:
  - Reset
  - Standby
  - Audio playback
  - Two output gain modes, 0 dB (Normal) and +6 dB (High)
  - Fault
- PDM interface
  - 3.072 MHz PDM Clock, mono 1-bit PDM Data
  - 3.072 MHz PDM Clock, stereo 1-bit PDM Data
  - 3.072 MHz PDM Clock, 1.5-bit mono PDM Data
  - 6.144 MHz PDM Clock, 1.5-bit stereo PDM Data

## Features

- Serial Audio Interface (SAI):
  - Support for 44.1 kHz, 48 kHz and 96 kHz 32-bit data
  - SAI supports  $I^2S$  and left justified data formats
  - EN/WS pin used for Word Select
- Clock System:
  - Audio path clock derived from PDM or SAI clock in
  - Autonomous system clock for  $I^2C$  configuration without a PDM or SAI clock present
- Digital control:
  - RESET
  - EN (if not in SAI mode)
  - System/amp configuration (via  $I^2C$ )
  - Fault code read/clear (via  $I^2C$ )
- Host notification:
  - IRQ (active low)
- Multi-level, output driver/amplifier:
  - Programmable edge-rate control
  - Programmable non-overlap timing
  - Thermal protection
- Other features:
  - Supply fault protection
  - On-chip temperature fault protection
  - Chip unique ID and information in the OTP (can be read by host)
  - ESD: HBM = 1500 V, CDM = 300 V



Skyworks Green™ products are compliant with all applicable legislation and are halogen-free. For additional information, refer to *Skyworks Definition of Green™*, document number SQ04-0074.

## Ordering Information

Part Number	Part Description	Evaluation Board Part Number
SKY76206-11	Mono Low-Power Multi-Level Class-D Audio Amplifier IC	SKY76206-11EVK1

Copyright © 2023, Skyworks Solutions, Inc. All Rights Reserved.

Information in this document is provided in connection with Skyworks Solutions, Inc. ("Skyworks") products or services. These materials, including the information contained herein, are provided by Skyworks as a service to its customers and may be used for informational purposes only by the customer. Skyworks assumes no responsibility for errors or omissions in these materials or the information contained herein. Skyworks may change its documentation, products, services, specifications or product descriptions at any time, without notice. Skyworks makes no commitment to update the materials or information and shall have no responsibility whatsoever for conflicts, incompatibilities, or other difficulties arising from any future changes.

No license, whether express, implied, by estoppel or otherwise, is granted to any intellectual property rights by this document. Skyworks assumes no liability for any materials, products or information provided hereunder, including the sale, distribution, reproduction or use of Skyworks products, information or materials, except as may be provided in Skyworks' Terms and Conditions of Sale.

THE MATERIALS, PRODUCTS AND INFORMATION ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, INCLUDING FITNESS FOR A PARTICULAR PURPOSE OR USE, MERCHANTABILITY, PERFORMANCE, QUALITY OR NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT; ALL SUCH WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED. SKYWORKS DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. SKYWORKS SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING BUT NOT LIMITED TO ANY SPECIAL, INDIRECT, INCIDENTAL, STATUTORY, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS THAT MAY RESULT FROM THE USE OF THE MATERIALS OR INFORMATION, WHETHER OR NOT THE RECIPIENT OF MATERIALS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Skyworks products are not intended for use in medical, lifesaving or life-sustaining applications, or other equipment in which the failure of the Skyworks products could lead to personal injury, death, physical or environmental damage. Skyworks customers using or selling Skyworks products for use in such applications do so at their own risk and agree to fully indemnify Skyworks for any damages resulting from such improper use or sale.

Customers are responsible for their products and applications using Skyworks products, which may deviate from published specifications as a result of design defects, errors, or operation of products outside of published parameters or design specifications. Customers should include design and operating safeguards to minimize these and other risks. Skyworks assumes no liability for applications assistance, customer product design, or damage to any equipment resulting from the use of Skyworks products outside of Skyworks' published specifications or parameters.

Skyworks, the Skyworks symbol, Sky5®, SkyOne®, SkyBlue™, Skyworks Green™, ClockBuilder®, DSPLL®, ISOmodem®, ProSLIC®, SiPHY®, and RFcIC® are trademarks or registered trademarks of Skyworks Solutions, Inc. or its subsidiaries in the United States and other countries. Third-party brands and names are for identification purposes only and are the property of their respective owners. Additional information, including relevant terms and conditions, posted at [www.skyworksinc.com](http://www.skyworksinc.com), are incorporated by reference.