Summary
Microchip’s KLR3012 wireless audio transceiver is designed to transmit lossless CD-quality digital stereo audio over a robust, 2.4 GHz radio link while consuming minimal power—making it the technology of choice for battery-powered and line-powered audio sources and receivers. The KLR3012 delivers RF connectivity between products in a variety of markets including portable and home audio. Microchip’s TrueAuto automotive-grade KLR3012 device is also available.

Highlights
- Fully-integrated, 2.4 GHz KleerStream radio architecture
- Industry-leading low power consumption
- Industry-leading Wi-Fi® coexistence
- 10–25m range with integrated 1.5 dBm PA
- 16-bit, 44.1 kS/s stereo audio throughput
- Standard Inter-IC Sound (I²S™) digital audio interface
- Embedded application software for controlling connectivity, audio volume and music playback
- Allows multiple (up to four) users to share a single music source simultaneously
- Integrated microcontroller to manage buttons, LEDs and external devices
- Integrated LDO and Power-On-Reset (POR)
- Integrated battery voltage monitor and audio activity monitor
- Configurable firmware
- Host control interface (optional)
- Guaranteed interoperability

Target Applications
- Earphones
- Headphones
- Speakers
- Portable Audio/Media Players (PAPs/PMPs)
- Laptops
- Home stereo/theater systems
- Home Theater-In-A-Box (HTIB)
- Televisions
- Set-top Boxes (STBs)
- USB adapters
- SPDIF adapters
- iPod®/iPhone® adapters
- Headphone jack adapters
- Gaming systems
- Automotive infotainment systems

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<tr>
<th>Key Features</th>
<th>Benefits</th>
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<tr>
<td>KleerStream Radio Architecture and Protocol</td>
<td>Fully-integrated 2.4 GHz RF and baseband reduces system cost; minimizes need for RF design expertise</td>
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<td>Low Power Consumption</td>
<td>Increases battery life; reduces battery size/cost</td>
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<td>Wi-Fi® Coexistence</td>
<td>Minimizes impact of Wi-Fi on audio; minimizes impact of audio on Wi-Fi throughput</td>
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<td>CD-quality Audio</td>
<td>Kleer® technology can be used in high-end audio systems</td>
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<td>ListenIn Technology</td>
<td>Listeners can share single music source; left-right speakers can be untethered</td>
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<td>KleerControl Technology</td>
<td>Connectivity and music selection can be controlled from source, receiver or dedicated controller</td>
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<td>KleerCertified Interoperability</td>
<td>KleerCertified logo on retail package tells consumer that product will interoperate with all other KleerCertified products</td>
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KLR3012 Application Examples

Audio Source (Portable Audio Player)

Player Controller (Or Other Music Source)

Audio ADC

EEPROM

KLR3012

DAI
Audio Processor
Radio

SPI/TWI/UART
μC
Crystal Oscillator and PLL

GPIO
Program RAM
Power

2-3.3V Input

Audio Receiver (Headphones)

Buttons

2-3.3V Input

KLR3012 Block Diagram

Stereo Audio (I2S™)

SPI/TWI/UART

Digital I/O

Analog I/O

I/O
Audio Processor
MCU
Memory

Radio Baseband

RF Analog

Filter-Balun
Antenna Match
Tank Circuits
Supply Decoupling

2.1–3.3V