

KLR83012



Fully-Integrated Wireless Audio/Voice Transceiver

Features

- Designed, fabricated, tested, characterized and qualified for automotive applications
- TrueAuto™ design, service and support
- Fully-integrated, 2.4 GHz KlearStream™ radio
- KlearCheck™ design review service
- Industry-leading low-power consumption
- Industry-leading Wi-Fi® co-existence
- Full CD-quality stereo audio throughput
- Standard I²S™ digital audio interface
- KlearControl™ for connectivity, audio volume and music playback
- Broadcast to up to four receivers with ListenIn™ technology
- Integrated micro-controller to manage buttons, LEDs and external devices
- Integrated battery voltage monitor
- Configurable firmware
- Host control interface (optional)
- 45-pin LGA, lead-free, RoHS-compliant package
- Operating temperature range: -40 °C to +85 °C

Target Applications

- Automotive headphones
- Infotainment head units and fond units
- Rear seat displays
- Infotainment remote controls

Description

SMSC's KLR83012 is a System-on-Chip (SoC) solution for high-quality digital stereo audio over a robust RF link. The SoC integrates an ultra-low power 2.4 GHz radio called KlearStream with a digital stereo audio interface, integrated ISM band co-existence functions and a variety of auxiliary control and communication interfaces and functions. Full CD-quality (16-bit, 44k samples/sec) digital stereo audio is received over the I²S interface from a digital audio source, packetized, buffered to maintain audio continuity during radio interference and transmitted over the KlearStream radio. On the receiving side, radio packets are received via the KlearStream radio, buffered, the audio content is extracted and then transmitted over the I²S interface. The audio stream at the receiver is bit-for-bit identical to the audio input at the transmitter. ⇨



Ordering Information

The KLR83012 is available as:

KLR83012 Engineering Sample

Order No. B10373

KLR83012 Tape & Reel

Order No. B10372

The patented KleeStream radio consumes very little power allowing long battery life or smaller batteries in devices such as wireless headphones. A typical headphone application can consume as little as 20 mW, excluding the audio digital-to-analog conversion and amplification. The KleeStream radio also consumes very little radio spectrum and has the ability to switch radio channels to avoid interference, maximizing co-existence with other 2.4 GHz radios such as Wi-Fi.

SMSC's ListenIn technology allows up to four receivers to receive the same audio stream simultaneously, enabling multiple headphones to listen to the same content without requiring additional radio transmitters or consuming additional radio spectrum.

SMSC's KleeControl provides a rich set of features to manage the wireless link including the association of receivers to transmitters and connectivity control, which enables the headphone to select from multiple transmitters. Additionally, KleeControl provides audio volume and playback control from either the transmitter or receiver. Optionally, KleeControl functions can be managed by an external host using the Audio Control & Status Interface (ACSI) over a simple UART connection.

The KLR83012 comes with a full-featured firmware load that is highly configurable via a configurable database that is coupled to the firmware load. This approach allows customization of the feature set without modification of

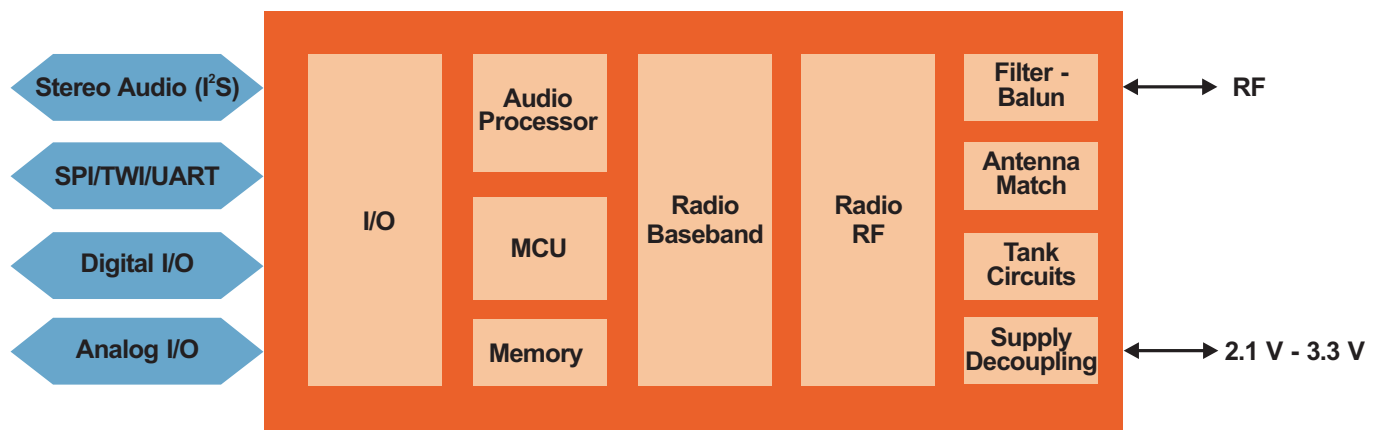
the firmware. This flexibility enables the KLR83012 to be deployed in audio source applications such as an automotive head unit or display, audio sink applications such as headphones, as well as remote control applications that can transmit a full set of control commands to the audio source while excluding the audio streaming functions.

TrueAuto

TrueAuto is SMSC's automotive quality process. It has proven its ability to deliver leading-edge quality and services for IC device products to fulfill the needs of the most demanding automotive customers. TrueAuto is a proven total automotive-grade quality approach. TrueAuto IC device robustness begins with SMSC's design for reliability techniques within the silicon IC itself: automotive-grade robustness and testability are designed into the IC. Once available in silicon, the IC is fully-characterized and qualified over a multitude of operating parameters to prove quality under the harshest conditions. In this, SMSC's TrueAuto approach significantly exceeds the usual automotive reliability standards and customer-specific requirements and goes far beyond the stress tests prescribed by the AEC-Q100 specifications. During the fabrication of TrueAuto products, extensive technologies and processes, such as enhanced monitors are used in order to continuously drive improvements in accordance with SMSC's zero Defects per Million (DPM) goals.



Block Diagram



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