MOST Network Interface Controller

Multimedia Network Protocol Chip OS8104A

Enhanced Features
- The OS8104A is a value-priced option to the OS8104
- Power consumption is reduced by 55% to 432 mW compared to the OS8104 controller
- Lead free
- New: 3.3 V power supply, inputs tolerant of 5.0 V signals
- New: Variable retry function
- New: Automatic channel muting
- New: Enhanced bypass architecture
- New: Increased system jitter tolerance
- New: Frequency regulator allows the PLL to lock to a stable reference clock when not locked to the network
- Max. zero-power-mode supply current reduced to 1 mA
- Max. digital supply current reduced to
  - 100 mA in normal operation
  - 40 mA in low-power mode
- Extended temperature range
  - Standard range: -40 °C ... +85 °C
  - Extended range: -40 °C ... +95 °C

Legacy Features
Multimedia Network Solution
- 24.5 Mbps MOST® Network Interface Controller
- Support for up to 60 bytes per frame of stream data (15 stereo channels in parallel)
- Support for 11 Mbps packet data
- Max. packet data size: 1014 bytes
- Support for up to 968 control messages per second
- Support for 256xFs and 384xFs crystal oscillator (512xFs is not supported)

On-Chip Network Management
- Stream data allocation
- Network activity and data valid detection
- Node position and delay sensing, alive check and power management

Flexible Consumer Electronics Interface
- Parallel, I²C and SPI control interface
- S/PDIF - IEC60958 digital interface

Ordering Information
The MOST Network Interface Controller is available as:

OS8104A Engineering Sample
- Standard Temperature  Order No. B10090
- Extended Temperature Order No. B10176

OS8104A Tape & Reel
- Standard Temperature  Order No. B10089
- Extended Temperature Order No. B10177

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Description

The OS8104A is a highly integrated C-MOS Network Interface Controller with a full-featured interface to the 24.5 Mbit/s MOST optical network system. All relevant network management on the data link layer level is on-chip, including stream data allocation, synchronization, and network detection. An ultra-low jitter PLL guarantees high quality audio and video transmission and clock recovery over a wide frequency range. Coding is optimized for plastic optical fiber. The OS8104A works at an ultra-low bit error rate supporting real-time synchronous data traffic of up to 15 stereo channels simultaneously. In addition to the control channel, some of the available bandwidth can be allocated to asynchronous packet data transfer. Programmable serial and parallel real-time data interfaces with different clock and data modes support various consumer electronic devices such as Codecs, converters and DSPs.

Functional Description

The OS8104A contains a MOST core and several peripherals including a clock manager, source data ports, a control port, and a network interface. The network interface includes an ultra-low jitter phase lock loop (PLL) and a channel demodulator on the input. The network output provides a channel coded signal. These signals can be connected directly to an optical receiving/transmitting device (FOT unit) or a balanced line driver.

Various A/D converters, D/A converters, digital signal processors and Media Players (CD-AUDIO / VIDEO / DVD etc.) can be synchronized using one of the many clock and serial interface modes. The source data ports provide a data interface to the serial bit stream on the MOST Network. Data sources and sinks can be linked to either a serial or parallel source port in order to send or receive data to/from another node on the network. The OS8104A operates in a peer-to-peer network or host centric architecture.