

# VSC7224, VSC7224-01, and VSC7224-02

## 4-Channel Multirate Adaptive Retimer

Microsemi's EQNOX™ family of advanced unidirectional adaptive retimers equalize deteriorated input signals while dissipating the lowest possible power.

The VSC7224 devices are 4-channel unidirectional adaptive channel extenders with CDR. They incorporate analog and digital equalization, clock and data recovery, and output de-emphasis. VSC7224 supports data rates up to 12.5 Gbps. VSC7224-01 supports data rates up to 11.5 Gbps. VSC7224-02 supports data rates up to 10.3 Gbps.

The VSC7224 devices are simple-to-use copper media receivers and drivers that provide electrical compensation to cable, copper, and backplane environments to increase system margin and media driving distances. Target applications include Ethernet, Fibre Channel, Infiniband, CPRI, OTN, and many others, accomodating a wide collection of both standard and proprietary protocols. They equalize greater than 40 inches of FR-4 at 10 Gbps and greater than 10 m of 24AWG of copper direct-attached cable at 10 Gbps.

The VSC7224 devices can be used either on their own or with an external microcontroller to control, monitor, and enhance system performance.

The VSC7224 devices feature Microsemi's proprietary FlexEQ™ technology to equalize deteriorated input signals while dissipating the lowest possible power. A low-cost 25 MHz crystal, along with on-chip frequency synthesizers, allows for CDR operation at any data rate. Its three-tap FIR output driver architecture enables up to 18 dB of deemphasis.

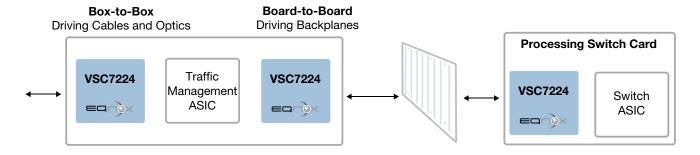
The VSC7224 devices include Microsemi's patented VScope input signal monitoring integrated circuit signal monitoring and waveform viewing technology.

# **Highlights**

- World-class adaptive equalization
- Up to 12.5 Gbps operation
- 18 dB programmable output de-emphasis
- Retimer and redriver modes
- Built-in VScope™
- On-chip frequency synthesizers

### **Applications**

- Line, backplane, and copper cable driver, receiver, and retimer
- PCB signal enhancement
- Optical module retimer and receiver





# VSC7224, VSC7224-01, and VSC7224-02

## 4-Channel Multirate Adaptive Retimer

### **Key Benefits**

- Simple-to-use device
- Low module and system power consumption
- Fully adaptive analog and digital equalization
- Wide range of data rate operation with 25 MHz crystal and built-in frequency synthesizers
- LOS detection
- Built-in VScope input signal monitoring integrated circuit eye diagram monitoring

#### **Architecture**

- Two-wire serial port for optional microcontroller and VScope input signal monitoring integrated circuit
- Pin-strap option for operation without microcontroller
- World-class adaptive equalization: 28 dB input equalization, Four-tap decision feedback equalizer (DFE)
- Built-in diagnostics
- Two-wire serial interface

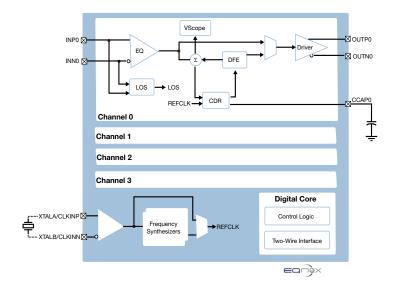
## **Key Specifications**

- 1.2 V single power supply
- 180 mW per channel power consumption (retimer)
- 110 mW per channel power consumption (re-driver)
- Compact 5 mm × 9 mm QFN package

#### **Related Products**

Visit www.microsemi.com for information about these related products:

- VSC7111 quad signal conditioner with up to 11.5 Gbps asynchronous operation
- VSC7227 twelve-channel multirate adaptive retimer with up to 15.5 Gbps operation





#### Microsemi Headquarters

One Enterprise, Aliso Viejo, CA 92656 USA Within the USA: +1 (800) 713-4113 Outside the USA: +1 (949) 380-6100 Sales: +1 (949) 380-6136 Fax: +1 (949) 215-4996 email: sales.support@microsemi.com www.microsemi.com

Microsemi, a wholly owned subsidiary of Microchip Technology Inc. (Nasdaq: MCHP), offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Learn more at www.microsemi.com.

Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold bereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.

©2011–2018 Microsemi, a wholly owned subsidiary of Microchip Technology Inc. All rights reserved. Microsemi and the Microsemi logo are registered trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.