

# VSC7224 and VSC7224-01

## 4-Channel Multirate Adaptive Channel Extender

Microsemi's EQNOX™ family of advanced unidirectional adaptive channel extenders 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.

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. 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 de-emphasis.

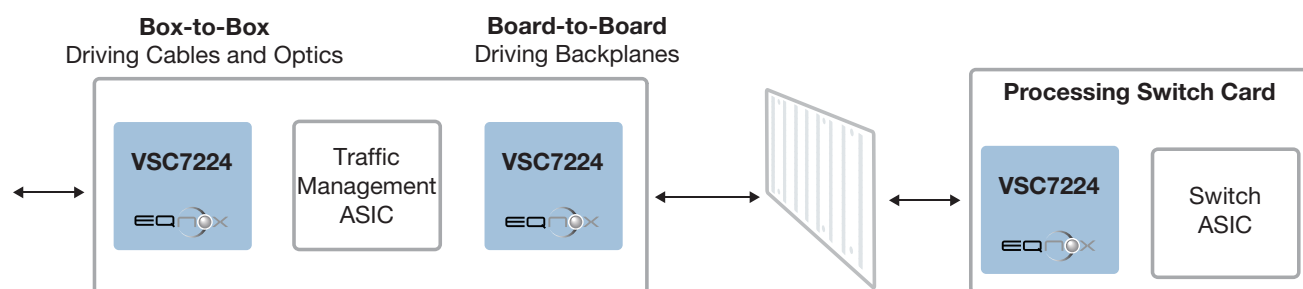
The VSC7224 devices include Microsemi's patented VScope input signal monitoring integrated circuit signal monitoring and waveform viewing technology.

### 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

- Wideband signal switching, clean-up, and retimer
- Line, backplane, and copper cable driver, receiver, and retimer
- PCB signal enhancement
- Optical module retimer and receiver



# VSC7224 and VSC7224-01

## 4-Channel Multirate Adaptive Channel Extender

### 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

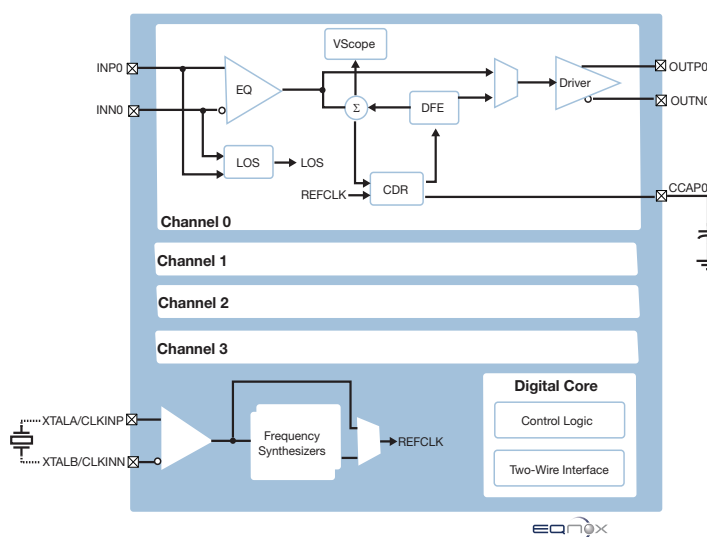
### Key Specifications

- 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](http://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 channel extender
- VSC8494 quad channel 10 Gbps OTN PHY with VeriTime™



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