

## PI3EQX7841

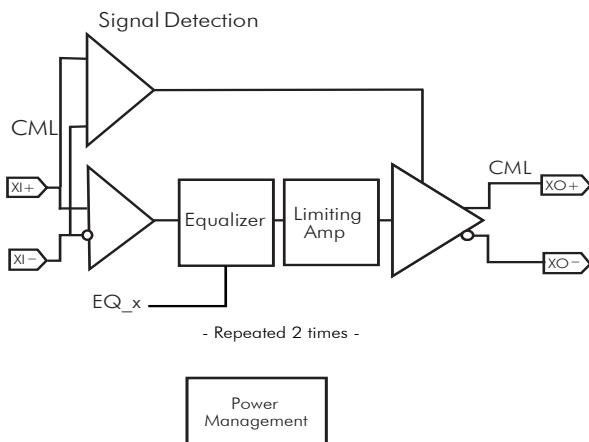
5.0Gbps, 1-port, USB3.0 ReDriver with I<sup>2</sup>C Programming Interface

### Description

Diodes' PI3EQX7841 is a low power, high performance 5.0 Gbps signal ReDriver™ designed specifically for the USB 3.0 protocol. The device provides programmable equalization, De-Emphasis, and Output Swings to optimize performance over a variety of physical mediums by reducing Inter-Symbol Interference. PI3EQX7841 supports two 100Ω Differential CML data I/O's between the Protocol ASIC to a switch fabric, over cable, or to extend the signals across other distant data pathways on the user's platform. The integrated equalization circuitry provides flexibility with signal integrity of the signal before the ReDriver. A low-level input signal detection and output squelch function is provided for each channel.

When the channels are enabled, EN#=0, and operating, that channels' input signal level (on XI+/-) determines whether the output is active. If the input signal level of the channel falls below the active threshold level (Vth-) then the outputs are driven to the common mode voltage. In addition to signal conditioning, when EN#=1, the device enters a low power standby mode. The PI3EQX7841 also includes a fully programmable I<sup>2</sup>C interface. When I<sup>2</sup>C control mode is enabled, I<sup>2</sup>C\_EN = 1, equalization, output swing, and de-emphasis settings can be adjusted by programming the related registers.

### Block Diagram



### Features

- USB 3.0 compatible
- Two 5.0Gbps differential signal pairs
- Adjustable Receiver Equalization
- 100Ω Differential CML I/O's
- Pin Configured Output Emphasis and Swing Control
- Input signal level detect and squelch for each channel
- Automatic Receiver Detect
- Low Power : ~330mW
- Industrial Temp Support -40°C~ +85°C
- Auto "Slumber" mode for adaptive power management
- Stand-by Mode – Power Down State
- Single Supply Voltage: 3.3V±10%
- Packaging: 20-Pin TQFN (4x4mm)

### Application Diagram

