



**THE DATASHEET OF  
PI3EQX6801ZDE**



## PI3EQX6801

6.5Gbps, 1-port, 1.5V/3.3V SATA/SAS ReDriver with Analog/Digital Configuration

### Description

Diodes Incorporated PI3EQX6801 is a low power, 1.5V/3.3V, 6.5Gbps, SATA/SAS signal ReDriver™. The device provides programmable equalization, to optimize performance over a variety of physical mediums by reducing Inter-Symbol Interference.

PI3EQX6801 supports two 100Ω Differential CML data I/O's between the Protocol ASIC to a switch fabric, across a backplane, 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.

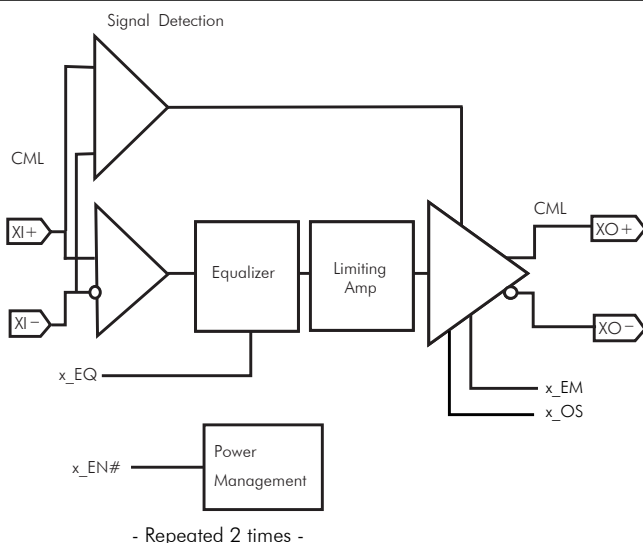
A low-level input signal detection and output squelch function is provided for each channel. Each channel operates fully independently. When the channels are enabled ( $x\_EN\# = 0$ ) and operating, that channels input signal level (on  $xI+/-$ ) determines whether the output is active. If the input signal level of the channel falls below the active threshold level ( $V_{th-}$ ) then the outputs are driven to the common mode voltage.

Each lane can be powered-down if  $x\_EN\# = 1$ , and when  $A\_EN\#$  and  $B\_EN\#$  are both high, the device enters a low power standby mode.

### Features

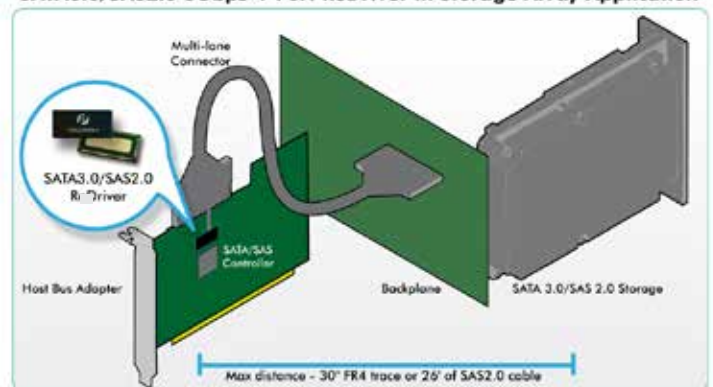
- Two 6.5Gbps differential channels
- Output swing up to 1.2V pk-to-pk
- SAS, SATA fully supported
- Adjustable Receiver Equalization - 0 to 16 dB
- 100Ω Differential CML I/O's
- Continuous step output swing adjustment
- Continuous step output pre-emphasis control
- Input signal level detect and squelch for each channel
- OOB fully supported
- Auto HDD Rate Detection for out swing/emphasis setting
- Supply Voltage: 1.5V or 3.3V
- Low Power, 162mW @ 1.5V (600 mV Swing)
- Stand-by Mode – Power Down State: Current < 56 μA
- HDD unplug power: 1.5mW
- Auto Slumber Mode power: 22.5mW typical
- Industrial Temperature Range -40 to 85°C
- Packaging: 20-contact TQFN (4x4mm)

### Application Diagram



### Application

#### SATA3.0/SAS2.0 6Gbps 4-Port ReDriver in Storage Array Application



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