

## M21350 3G/HD/SD-SDI Low Power Quad Video Reclocker

### Product Overview

The M21350 is a quad serial digital video reclocker with integrated trace equalization and automatic rate detect (ARD) circuitry. Each of the four reclocker channels features a 4:1 input mux. The device operates at SDI data rates ranging from 270Mbps to 2970Mbps and is compliant to SMPTE 424M, SMPTE292M, and SMPTE 259M. It also supports DVB-ASI at 270Mbps.

The M21350 has an input jitter tolerance (IJT) of greater than 0.6 unit intervals (UI) and can provide retimed serial outputs with very low output jitter. The quad reclocker requires a single, external, 27MHz crystal, which is used as the reference clock for all four channels. It includes per lane analog input equalization for up to 40" of FR4 trace and two connectors in addition to output de-emphasis.

This device features integrated supply regulators, allowing it to be powered from 1.2V, 1.8V, 2.5V, or 3.3V supply voltages. When operating at 1.2V, it consumes only 135mW per channel at 3G-SDI. Furthermore, the power rails for the core, input, and output circuitry are electrically isolated on-chip and as such may be connected to different voltage rails on the board. This feature enables the M21350 to be DC coupled to any upstream or downstream device regardless of its input/output voltage level.

The 4:1 mux at the input of each reclocker allows for any one of four inputs to be selected for each reclocker channel. The device may be configured by setting the internal registers through the I2C or SPI interfaces. Optionally, the quad reclocker may be configured at power up through an external I2C EEPROM device. Limited configuration is also possible through hardware pin.

The M21350 is offered in a green and RoHS compliant, 10mm x 10mm, 72pin QFN package.

Features	Benefits
› Independent, quad channel, multi-rate reclocker	Save board area and enable high density designs
› SMPTE 424M, 292M, 259M-C, and DVB-ASI compliant	Standard compliant solution
› 0.6UI input jitter tolerance	Enable robust, error free designs
› Integrated 50Ω input termination	Save board area and enable high density designs
› 4:1 Input mux on each reclocker channel	Save cost and area (no external component necessary)
› Input equalization 40" of FR4 Trace and two connectors	Ease of high speed design and layout
› Output de-emphasis	Ease of high speed design and layout
› 135mW power consumption per channel (1.2V operation)	Enable low power designs with minimal heat dissipation
› Integrated regulators for multi-voltage operation (1.2V – 3.3V)	Reduce number of power rails required on a board
› Electrically isolated input, output, and core supply rails	DC interface – saves board area and cost
› Mute and configurable auto or manual bypass mode	Allow design for non-standard rates
› Automatic and manual modes for rate indication and selection	Ease of use and flexibility
› Loss of lock (LOL), loss of signal (LOS) and data rate indication	Ease of status update and diagnostics
› I2C, SPI and I2C EEPROM interface	Flexibility and ease of control and configuration
› Industrial operating temperature range ( -40°C to +85°C)	Provides higher tolerance and additional design margin



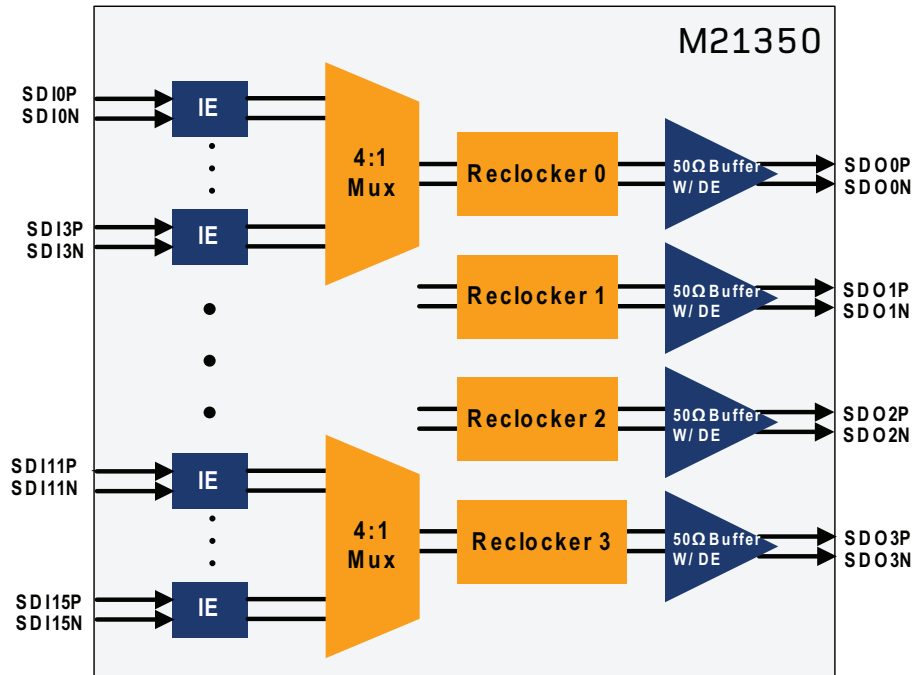


Fig. 1 - Functional Block Diagram

## Product Features

### Applications

- 3G/HD/SD-SDI switchers
- 3G/HD/SD-SDI routers
- 3G/HD/SD distribution amplifiers
- DVB-ASI equipment

### Standards Compliance

- SMPTE 424M, 292M, and 259M-C
- DVB-ASI (270 Mbps)

### Package (RoHS Compliant)

- 72pin QFN
- 10mmX10mm

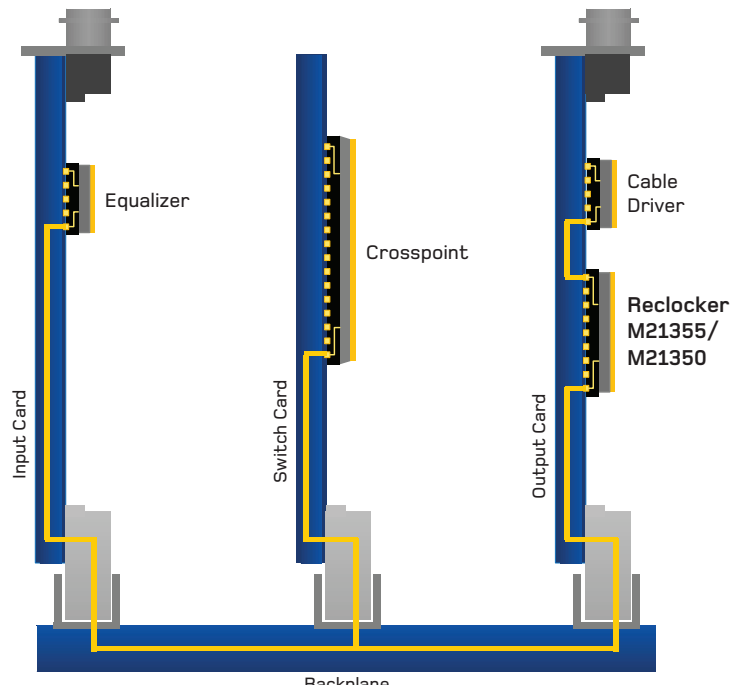


Fig. 2 - Typical Routing Switcher Application Diagram

For more product information, please visit [www.mindspeed.com](http://www.mindspeed.com)

[www.mindspeed.com/salesoffices](http://www.mindspeed.com/salesoffices)  
 General Information: (949) 579-3000  
 Headquarters – Newport Beach  
 4000 MacArthur Blvd., East Tower  
 Newport Beach, CA 92660-3007  
 M21350-BRF-001-B.pdf

© 2010 Mindspeed Technologies, Inc. All rights reserved. Mindspeed and the Mindspeed logo are trademarks of Mindspeed Technologies. All other trademarks are the property of their respective owners. Although Mindspeed Technologies strives for accuracy in all its publications, this material may contain errors or omissions and is subject to change without notice. This material is provided as is and without any express or implied warranties, including merchantability, fitness for a particular purpose and non-infringement. Mindspeed Technologies shall not be liable for any special, indirect, incidental or consequential damages as a result of its use.

**MINDSPEED**  
 BUILD IT FIRST®