

## Description

The S3394 SONET/SDH/FEC Receiver device is one of the latest additions to the AMCC DispersionXX™ product family. This device provides full deserialization capabilities for OC-192 applications and is suitable for Metropolitan, Long-Haul, Ultra Long-Haul, and Dense Wavelength Division Multiplexing (DWDM) networks. The device performs all necessary serial-to-parallel functions in conformance with the SONET/SDH transmission standards. The standard operating range is from 9.9 to 11.3 Gbps. AMCC's proprietary DispersionXX™ technology allows system designers to optimize coding gain without additional overhead expansion beyond the standard FEC data rate of 10.7 Gbps.

Figure 1, *System Block Diagram*, shows a typical system configuration for the S3394 device.

## Overview

The S3394 device can be used to implement the front end of SONET/SDH/FEC equipment which consists primarily of the serial receive interface. The system timing circuitry consists of a high-speed phase detector, clock dividers, and clock distribution. The devices utilize on-chip clock synthesis PLL components that allow the use of a slower external clock references, 155.52 or 622.08 (plus FEC rate) MHz, in support of existing system clocking schemes. The low-jitter, 16-bit, Low Voltage Differential Signaling (LVDS) interfaces guarantee compliance with the bit-error rate requirements of the Telcordia and ITU-T standards.

### AMCC Suggested Interface Devices

Verrazano (S2509)	Quad SONET/SDH/Digital Wrapper Backplane Serdes
Ganges II (S19202)	STS-192 SONET/SDH Framer
Hudson II (S19203)	Digital Wrapper - FEC (7% Overhead)
Mekong (S19204)	STS-192 SONET/SDH MUX/DeMUX with PP
Khatanga (S19205)	10 GbE MAC and PHY/STS-192c POS Framer & Mapper
Niagara (S19208)	Digital Wrapper/Enhanced FEC (7% Overhead)

## - At a Glance -

### General Features

- Operational data rates at 9.9 to 11.3 Gbps
- Selectable Electrical RZ or NRZ Modulation
- Dispersion (ISI) compensation
- Robust CRU – can extract clock in low OSNR environments
- 16-bit OIF Compliant LVDS Data Path with Programmable Bit Swap
- Integrated low pass filter (coarse/fine adjust).
- Peak detector for input power monitoring (SSI - Signal Strength Indicator)
- Threshold and phase adjust capability
- Sensitivity 6.0 mV (p-p, SE)
- External phase adjust ± 0.30 UI
- Linearity gain control – variable gain adjust
- Selectable reference frequency of 155.52 or 622.08 MHz (or various protocol (+FEC))
- Complies with Telcordia/ITU-T/OIF specifications
- 3.3 V and 1.8 V power supplies
- Compact 15 mm x 15 mm 196 Pin CBGA Package

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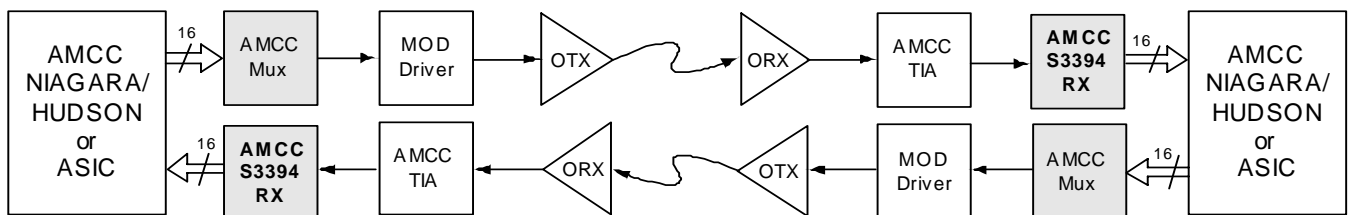


Figure 1. System Block Diagram

**Overview** (cont.)

Integrated in the S3394 are a low pass filter, peak detector, variable gain control amplifier, high performance CDR/demux, Chromatic and Polarization Mode dispersion compensation circuit. Phase and threshold adjust circuits work together to provide optimal data

sampling points for exceptional performance in networks that are susceptible to PMD.

The integrated dispersion management circuitry further expands the optical reach by compensating for dynamic fluctuations in the transmitted signal.

Prefix	Device	Package
S – Integrated Circuit	3394	CB - CBGA

<u>X</u>	<u>XXXX</u>	<u>XX</u>
Prefix	Device	Package

Figure 2. S3394 Ordering Information

**Applications**

- SONET/SDH/FEC-based transmission systems
- SONET/SDH/FEC modules
- SONET/SDH/FEC test equipment
- Section repeaters
- Add Drop Multiplexers (ADM)
- Broad-band cross-connects
- Fiber optic terminators
- Fiber optic test equipment
- Metro RZ/NRZ Networks
- Long Haul RZ/NRZ Networks
- Ultra Long Haul RZ/NRZ Networks
- DWDM Transport and Metro Networks

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