

HXR45100

Single Channel 56GBaud Linear TIA

The HXR45100 is an extension of low-power, single-ended input, quad channel linear Trans-Impedance Amplifier (TIA) array, and a member of the Optical Receiver Transmitter Array (ORTA) product family. Together with an array of PIN detectors or a group of detectors, the HXR45100 can be used to design a compact linear ROSA for next generation 400G optical transceivers with advanced modulation schemes in 56GBaud PAM4 applications.

This TIA operates in a 3.3V supply or in a 2.9V supply for low power consumption, providing exceptionally low input referred noise density, wide input optical power range, excellent linearity up to 3mA overload, and a high bandwidth. The chip is designed with the patented adaptive biasing scheme.

Ordering Information

Part Number	Die Size	Temp. Range
HXR45100-DNJ	1.365 x 1.115 mm	-40°C to +95°C
HXR45100-EVB	Evaluation Board	Room Temp.

Features

- High receiver sensitivity for 112Gbps PAM4 Ethernet applications
- Low power mode in 56GBaud applications
- Power consumption as low as 158mW/channel
- Industrial operating temperature range -40°C to 95°C
- Up to 5kΩ typical differential gain
- Wide adjustable output voltage swing
- Linear operation up to 3mAppSE overload with internal AGC
- Up to 43GHz typical bandwidth
- 10pA/√Hz input referred current noise density
- RSSI, LOS and Rx Disable functions
- I²C interface
- 100G Lambda MSA and IEEE 802.3cd compliance

Applications

- 100G/400G Ethernet LR Linear ROSA and OBO

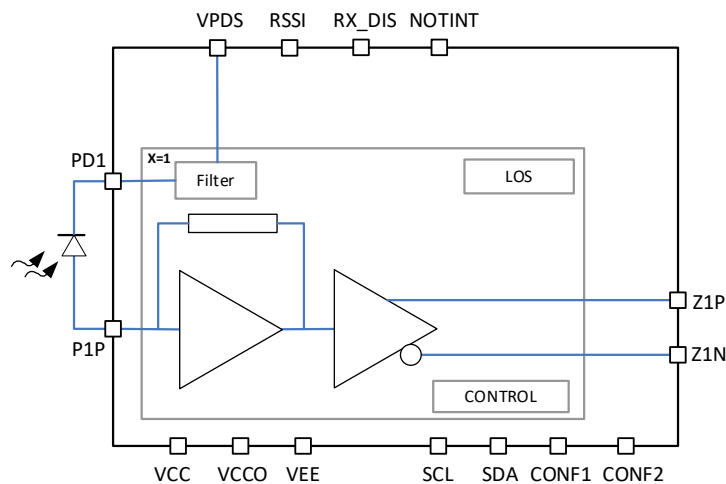


Figure 1. Block Diagram

IMPORTANT NOTICE AND DISCLAIMER

RENESAS ELECTRONICS CORPORATION AND ITS SUBSIDIARIES (“RENESAS”) PROVIDES TECHNICAL SPECIFICATIONS AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for developers skilled in the art designing with Renesas products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. Renesas grants you permission to use these resources only for development of an application that uses Renesas products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Renesas intellectual property or to any third party intellectual property. Renesas disclaims responsibility for, and you will fully indemnify Renesas and its representatives against, any claims, damages, costs, losses, or liabilities arising out of your use of these resources. Renesas' products are provided only subject to Renesas' Terms and Conditions of Sale or other applicable terms agreed to in writing. No use of any Renesas resources expands or otherwise alters any applicable warranties or warranty disclaimers for these products.

(Disclaimer Rev.1.0 Mar 2020)

Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Contact Information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit:
www.renesas.com/contact/

Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners.