

High Sensitivity CMOS Transimpedance Amplifier Optimized for APD Applications

Main Features

- Optimized for use with 10 Gbps APDs
- Compatible with avalanche photodiodes (APDs) and PIN photodiodes
- Up to -32 dBm sensitivity at 10.312Gbps when used with APD (Cpd = 200fF, BER = 10⁻³, ER = 6dB, Resp = 0.8A/W)
- Typical -27 dBm sensitivity at 10.312Gbps when used with APD (Cpd = 200fF, BER = 10⁻¹², ER= 9dB, Resp = 0.8 A/W)
- Bandwidth adjust function to enable operation with wide range of photodiodes
- 3.0kΩ transimpedance gain
- +3.3V supply. Typical 24 mA supply current
- Compact 900um x 711um die

Applications

- APD based receiver applications
- 10G-EPON / XG-PON1 / XGS-PON
- NG-PON2
- BOSA-on-Board PON/FTTH applications
- 10GbE ER Transceivers

Product Overview

The HLR10G1 is a 'State of the Art' high sensitivity transimpedance amplifier (TIA) with automatic gain control (AGC) manufactured in an advanced CMOS process.

With 3.0kΩ transimpedance gain and differential CML outputs with 50-ohm back termination the HLR10G1 is designed to interface with a wide range of limiting amplifiers. It typically consumes only 24 mA supply current from a single 3.3V power supply.

The HLR10G1 features a 2-bit bandwidth adjust function to optimise the TIA's performance for use with a wide range of Avalanche and PIN photodiodes.

The HLR10G1 features a compact die size, which together with on-chip supply filtering, and reduced bond count enables simple, low cost, high volume optical receiver assemblies.

The HLR10G1 is ideally suited to 10G-PON ONU applications requiring high sensitivity receivers.

Block Diagram

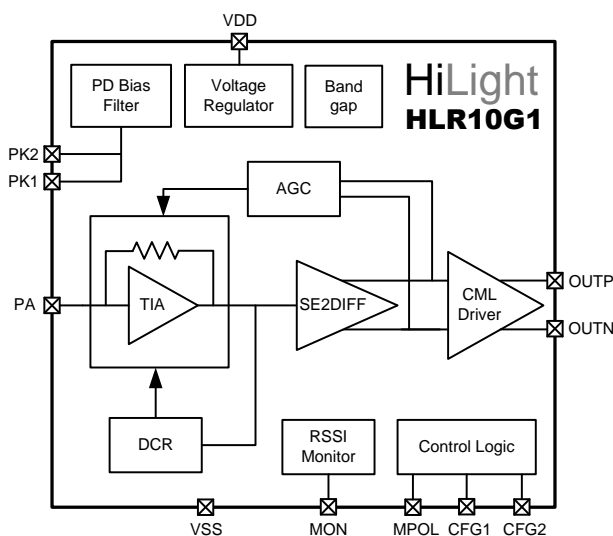


Figure 1 – HLR10G1 Block diagram

Pad Out

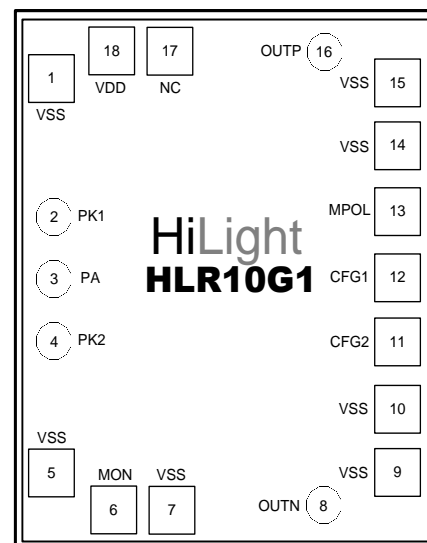


Figure 2 – HLR10G1 Pad Out

Ordering Information

Part Number	Package
HLR10G1-WP	400 known good die in waffle tray packs
HLR10G1-WP-2K	2,000 known good die in 5 stacked waffle tray packs (5 x 400)
HLR10G1-GRP6-5K	4" reconstructed wafer of 5,000 known good die on an 8" grip ring
HLR10G1-GRP6-10K	6" reconstructed wafer of 10,000 known good die on an 8" grip ring

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