

### HLR1M00 2.5Gbps STIA CMOS multi-rate Transimpedance Amplifier

#### Main Features

- **Typical -31.0 dBm sensitivity @2.5 Gbps**, with 0.2 pF PIN PD (0.9 A/W, 10dB ER, BER 1E-10)
- Typical -31.0 dBm sensitivity @ 1.25 Gbps and -29.0 dBm sensitivity @ 2.5 Gbps (0.9 A/W, C<sub>PD</sub> = 0.5 pF)
- Typical transimpedance: 51 kΩ
- Internal regulated photodiode bias
- 30kHz typical LFC
- No internal TO-Can VDD supply decoupling capacitor required for typical operation
- Photodiode current monitor output – can be programmed to Sink or Source
- Single +3.3V supply
- -40°C to +95°C Operating temperature range

#### Applications

- GPON Transceivers and BOSA-on-Board
- Turbo EPON
- OC-48 Extended Reach
- SFF, SFP, PON Transceivers

#### Product Overview

The HLR1M00 is a super high sensitivity CMOS transimpedance amplifier with automatic gain control. The AGC enables over 31 dB of dynamic operating range, resulting in a high performance TIA designed primarily to replace avalanche photodiode (APD) based receivers in GPON applications with a cost effective PIN PD based solution. The HLR1M00 is also suitable for use in multi-rate fiber optic receivers from 155 Mbps to 2.5 Gbps.

The HLR1M00 is pad compatible with all popular industry TIAs whilst the small die size and optimal pad placement help to minimize cross-talk and provide superior performance by enabling orthogonal bonding of critical wire bonds. The HLR1M00 supports a wide range of photodiode capacitances including  $\leq 0.25\text{pF}$  for GPON applications. It is designed to be used with the internal photodiode (PK) bias only.

Featuring photodiode monitor and monitor invert functions and being designed to operate without the requirement for a VDD supply decoupling capacitor within the ROSA, the HLR1M00 offers the most flexible, high performance receiver solution up to 2.5 Gbps.

#### Block Diagram

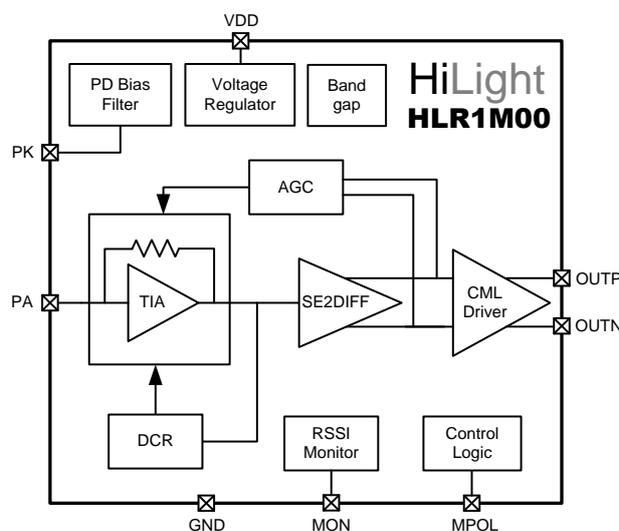


Figure 1 – HLR1M00 Functional Block Diagram

#### Pad Out

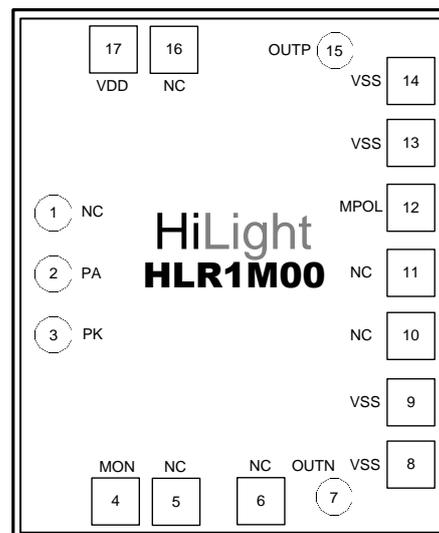


Figure 2 – HLR1M00 Package

## Ordering Information

Part Number	Package
HLR1M00-WP	400 known good die in waffle tray packs
HLR1M00-WP-2K	2,000 known good die in 5 stacked waffle tray packs (5 x 400)
HLR1M00-GRP6-5K	4" reconstructed wafer of 5,000 known good die on an 8" grip ring
HLR1M00-GRP6-10K	6" reconstructed wafer of 10,000 known good die on an 8" grip ring

## HiLight Address and Contact Details

HiLight Semiconductor Ltd  
Delta House  
Enterprise Road  
Southampton  
SO16 7NS  
United Kingdom  
Tel: +44 238 097 0330

Please contact your local sales representative or [sales@hilight-semi.com](mailto:sales@hilight-semi.com) for further information and support.