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HiLight Semiconductor announces production release of world's first pure CMOS 'Combo' IC family for 10G-PON and SFP+ Datacom applications following successful recent demonstration of 100G integrated receiver

HiLight Semiconductor are pleased to announce the production availability of the HLC12V0 4-in-1 transceiver IC for use in 10G SFP+ SR and AOC applications. Combining HiLight's CMOS HLR10G0 TIA with the new HLC12V0 provides a complete CMOS chipset solution for these Datacom applications.

The HLC12V0 SR Datacom 'Combo' IC highly integrated 4-in-1 functionality features are: 12G limiting amplifier receiver; 12G transmitter; integrated 8051 microcontroller and non-volatile memory with embedded firmware providing digital diagnostic monitoring. This is the first time all of these functions have been combined together in a single CMOS transceiver IC for SFP+ SR and AOC applications. When used with HiLight's HLR10G0 CMOS transimpedance amplifier customers can realise a complete SFP+ SR transceiver or AOC which offers significant BOM cost savings, enhanced performance and the lowest operating power in the market.

HiLight will shortly make available the HLC12L0 LR 'Combo' IC with 5-in1 integrated functionality alongside a complete SFP+ LR reference design with typical power consumption of 700mW. Interested customers should contact their HiLight sales representative.

During the recent CIOE show in Shenzhen, China, HiLight also demonstrated their forthcoming 100G Datacom product line capability with a complete quad 25G receiver with integrated CDRs, consuming less than 600mW typical. The quad receiver IC forms part of a complete CMOS chipset solution for 100G QSFP28 applications developed by HiLight for next generation 100G optical links requiring reduced power consumption and lower BOM costs as volume demand continues to grow in Asian markets and specifically for China's vast mega-datacentres requirements.

“Over the last decade, China made the single greatest impact on the global optical communications industry more so than any other country,” detailed Vladimir Kozlov, CEO and Founder, LightCounting Market Research. “The upgrades of Cloud datacenters in China to 100G connectivity are just starting. Low cost and power consumption of optics are critical for all Cloud customers, but datacenter operators in China may push it to new limits.”

HiLight Semiconductor are also pleased to announce the production availability of the HLC10P0 5-in-1 transceiver IC for use in symmetric 10G-PON BOSA-on-Board (BoB) and SFP+ module applications. Combining HiLight’s CMOS HLR10G1 TIA with the new HLC10P0 provides a complete CMOS chipset solution for 10G-PON applications.

The HLC10P0 PON ONU ‘Combo’ IC is designed in pure CMOS and has highly integrated 5-in-1 functionality with the following features: limiting amplifier receiver; burst-mode transmitter; patented laser dual-loop power and extinction ratio control; PWM APD bias controller and an 8051 microcontroller with embedded firmware providing digital diagnostic monitoring. With a laser bias capability of 115mA it is suitable for DML based NG-PON2 designs as well as 10G-EPON and XGS-PON. The laser driver output stage has sufficient operating headroom so that it does not require any external DC-DC converter to boost the laser supply voltage to operate at 10G unlike some other available solutions. The HLC10P0 is fully pin-compatible with HiLight’s production released HLC10P1 for asymmetric 10G-PON.

To demonstrate the HLC10P0’s capability, HiLight have produced a 10G-PON ONU ‘BOSA-on-Board’ reference design kit to showcase the HLC10P0 and HLR10G1 pure CMOS chipset, with the whole design consuming a class leading power consumption of <750 mW @ 3.3V.

“10G-PON optics and equipment are shipping today and being deployed by operators around the globe. Technology innovations are lowering the costs of next-gen PON optics dramatically, particularly 10G symmetrical.” commented Julie Kunstler, Principal Analyst at Ovum “Consequently, we are showing a strong ramp in 10G-PON and, by 2023, next-gen optics will account for more than 80% of total PON optics revenues.”

Christian Rookes, VP Marketing at HiLight, commented “HiLight’s symmetric HLC10P0 BoB reference design demonstrates market leading performance, including a low power CMOS 10G burst laser driver that can automatically control transmitter extinction ratio to within ± 1 dB across temperature with negligible additional power consumption. Typical receiver sensitivity is better than -32dBm @ BER 1E-3.” Christian added “In addition to the 10G-PON chipset and HLC12V0 Combo IC for VCSEL applications, HiLight is releasing the HLC12L0 Combo IC for SFP+ LR/CPRI directly modulated laser applications. With HiLight’s existing portfolio of TIAs, we can now provide complete 10G Datacom chipsets and, with our forthcoming 100G Datacom chipset, we can meet the need for reduced power consumption and lower BOM costs as volume demand continues to grow in Asian markets and specifically for China’s vast mega-datacentres requirements.”

Jess Brown, VP Sales, commented “With the addition of the HLC10P0, HiLight can now supply customers with pure CMOS 10G Symmetric and Asymmetric ONU chipsets to cover the entire PON market, include BOSA-on-Board and SFP+ modules. Using HiLight’s CMOS

products will enable our customers to drastically lower power, reduce BOM cost, whilst future-proofing their designs due to the flexibility of the integrated MCU.” He added, “The HLC12V0 SFP+ SR reference design is already sampling to key customers and we are excited to announce the production availability of the HLC12V0 to provide a complete CMOS chipset to customers. The forthcoming availability of our HLC12L0 SFP+ LR reference design means our customers will be able to make use of our ever growing competitive portfolio of Datacom products to develop cost competitive, high performing, low power solutions.”

About HiLight Semiconductor Limited:

HiLight Semiconductor Ltd. is a Venture Capital backed, Fabless chip company, founded in 2012 by veterans of several previous start-ups. Specialising in deep sub-micron CMOS, the company designs and supplies the world’s highest performance PMD and PHY ICs for high speed fiber-optics based communications and networking/Datacentre applications.

At the time of writing the company has already sold over 60 Million ICs into the fiber based PON, Datacentre and Networking markets.

HiLight is headquartered in Southampton, UK, with design offices in Bristol UK and sales and local technical support offices in China (Shenzhen, Wuhan), Taiwan and Japan.