

National Semiconductor Introduces Industry's Fastest, Lowest Noise Laser Diode Driver for Optical Disk Drives

August 22 2004

National Semiconductor Corporation launched its newest laser diode driver (LDD) for use in optical pickup units (OPUs). The LMH6533 has extremely fast switching rates and very low output current noise with low power consumption. The reduced power consumption provides better heat dissipation in the system, while the low noise allows the fastest read times for optical disk drives. The LMH6533 is designed for combination DVD/CD recorder optical storage devices used in desktop, notebook and consumer [DVD](#) video recorders.

"National's LMH6533 laser diode driver's fast switching rates of 0.5 nanoseconds allow us to achieve the industry's fastest write and rewrite speeds of 16x write and 8x rewrite capability," said Erroll Dietz, vice president of National's Amplifier product group. "We continue to develop laser diode drivers for the red laser system requirements for current DVD drives. We are also developing laser diode drivers for the next-generation DVD blue laser systems, which will make it possible to write 25 GB of data on each side of a DVD."

National Semiconductor's latest laser diode driver allows OPU manufacturers to provide consumers with the highest-performance DVD/CD recorders on the market. National expanding portfolio of laser diode drivers leverages the company's unique capabilities in high-speed analog amplifiers, low voltage differential signaling (LVDS) technologies, LLP® chip-scale package technology and innovative

VIP10 manufacturing process.

By integrating the LVDS interface into the driver, National addresses the high speed requirements of driving the signal from the controller chip to the OPU. The LVDS interface also reduces overall system costs for optical storage device manufacturers by keeping the write strategy digital circuitry on the controller chipset rather than integrating it into the laser diode driver. National's VIP10C process technology provides a very fast switching rate of 0.5ns and noise levels of 0.5nA per square root hertz, enabling the fastest read, write and rewrite times for optical recording.

Better than the Rest

National's LMH6533 laser diode driver contains two high-current outputs for reading and writing DVD (650nm) or CD (780nm) lasers. It achieves read, write and erase functions through four separate switched current channels. The LVDS interface delivers DVD write speeds of 16x and higher while minimizing noise and cross-talk. The device provides one 300mA and two 150mA write channels, plus a 150mA read channel. Additionally, it minimizes electromagnetic interference (EMI), allowing disk drive manufacturers to develop devices without the extra cost of shielding.

VIP10C Process

National's LMH6533 is the latest laser diode driver created using the VIP10C process. Developed in National's wafer fabrication site in Arlington, Texas, VIP10C is a high-speed, dielectrically isolated, complementary BiCMOS process that utilizes deep trench technology on a bonded wafer for complete dielectric isolation and optimal high-speed amplifier performance. VIP10C is the process technology that allows National to design the most power-efficient, performance-oriented high-speed amplifiers on the market today.

Source: National Semiconductor Co.

Citation: National Semiconductor Introduces Industry's Fastest, Lowest Noise Laser Diode Driver for Optical Disk Drives (2004, August 22) retrieved 26 April 2024 from <https://phys.org/news/2004-08-national-semiconductor-industry-fastest-lowest.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.