

## NEC Compound Semiconductor Devices' Optical Modules Enable 10 Gigabits per Second Transmission over Multi-mode Fiber System

DÜSSELDORF, Germany, KAWASAKI, Japan, March 1, 2006 – NEC Compound Semiconductor Devices today announced the successful development of two compact optical module series compliant with the IEEE802.3aq 10GBASE-LRM standard that achieve high-speed signal transmission of up to 10 gigabits per second (Gbps) over Multi-Mode Fiber (MMF). The NX7320 series transmitter optical sub-assembly (TOSA) and NR3420 series receiver optical sub assembly (ROSA) are designed to facilitate construction of high-speed networks.

As broadband internet services have evolved, the volume of data transmitted in communications has skyrocketed, forcing companies and universities to build high-speed networks and local area networks capable of handling large volumes of data. The NX7320 TOSA and NR3420 series ROSA help meet this demand by delivering high speed.

NEC Compound Semiconductor Devices developed a new laser diode with AlGaInAs, a compound composed of aluminum, gallium, indium and arsenic, which has a large effect of electron confinement and is efficient in high temperature and high speed operating conditions. The laser diode is sealed in a CAN package, making it optimal for compact transceivers. The modules also use a receptacle package, allowing easy connection with an optical connector.

Major features of the new products are as follow:

(1) Compliance with 10GBASE-LRM standard

The NX7320 and NR3420 are fully compliant with the IEEE802.3aq 10GBASE-LRM standard promoted by the Institute of Electrical and Electronics Engineers (IEEE). This standard supports optic transmission speeds of up to 10 Gbps for a length of 220 meters over multi-mode optical fiber.

(2) High-speed transmission

The NX7320 series utilizes a new 1.3 $\mu$ m band Fabry-Perot laser diode developed by NEC Compound Semiconductor Devices which uses AlGaInAs, which has a large effect on electron confinement and high temperature/high speed operation, for uncooled and direct modulation. The new compound forms the basis of the active layer for laser oscillation, and achieves high reliability despite the use of aluminum, by adopting an oxidation-free crystal growth technique.

The NR3420 series implements a PIN photo diode with a large detective area to realize high coupling efficiency for multi-mode fiber, and a linear trans-impedance amplifier optimal for a combination of IC for EDC (Electronic Dispersion Compensation). As a result, stable and high speed optical communication can be achieved in the temperature range of -5°C to +85°C.

(3) CAN package optimal for compact optical transceiver

The NX7320 TOSA and NR3420 ROSA are sealed in compact CAN packages optimal for all major transceiver standards, including the compact XENPAK and X2 optical transceiver standards, as well as the industry's smallest XFP standard, while achieving transmission speeds of up to 10Gbps.

(4) Supports SC and LC connectors

The NX7320 TOSA and NR3420 ROSA are compatible with the popular SC type of optical connector, as well as the small LC connector, satisfying a variety of user needs.

With the development of the NX7320 TOSA and NR3420 ROSA, NEC Compound Semiconductor Devices will contribute to the expansion of local area networks toward 10Gbps speeds. The company plans to continue its pursuit of new technologies to meet the needs of the optical transceiver market, including wider operating temperature range and smaller devices.

The results of NEC Compound Semiconductor Devices' development will be published at the academic conference held concurrently with the Optical Fiber Communication Conference & Exposition/National Fiber Optic Engineers Conference (OFC/NFOEC) from March 7-9, 2006 at the Anaheim Convention Center in California

#### **Availability**

Samples of the NX7320 TOSA and the NR3420 ROSA will be available in May 2006  
Availability is subject to change.

#### **About NEC Electronics (Europe) GmbH**

NEC Electronics (Europe) GmbH, headquartered in Duesseldorf, Germany, is a leading developer and supplier of semiconductor products in Europe. Committed to meeting customers' cost, performance and time-to-market requirements, the company offers solutions ranging from standard products to system-on-a-chip (SoC) solutions, as well as customized products for next-generation

designs. Our customers also benefit from state-of-the-art manufacturing from the global production network of our parent company, NEC Electronics Corporation. Additionally, NEC Electronics (Europe) GmbH is the exclusive European sales and marketing channel of LCD modules from NEC LCD Technologies Ltd.. For more information visit <http://www.eu.necel.com>.

**About NEC Compound Semiconductor Devices**

NEC Compound Semiconductor Devices, Ltd. is a leading provider of optical and microwave devices, committed to meeting the specialized needs of its customers in the broadband and mobile networking fields with its compound and silicon semiconductor technologies. NEC Compound Semiconductor Devices was established in October 2001, and is a subsidiary of NEC Electronics Corporation. For further information, please visit the home page at: <http://www.ncsd.necel.com/>.

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**Media Contacts**

NEC Electronics (Europe) GmbH  
Oliver Lüttgen  
+ 49-211-6503-1469  
[oliver.luetzgen@eu.necel.com](mailto:oliver.luetzgen@eu.necel.com)

NEC Electronics Corporation  
Sophie Yamamoto  
+81 44-435-1676  
[sophie.yamamoto@necel.com](mailto:sophie.yamamoto@necel.com)