

■ Remarks for Special Issue on Electronic Devices

Thank you very much for your high appreciation.

In this issue, NEC Technical Journal features a Special Issue on Electronic Devices to offer a wide perspective of NEC Group's current status in developing electronic devices. This issue introduces research and development activities carried out at NEC Electronics and NEC TOKIN, which are affiliate companies of NEC Group in the field of electronic devices. As symbolized by the expression "ubiquitous society," the pervasion and advancement of Information and Communication Technology (ICT) is about to bring significant changes to lifestyle, industry and society by enabling more interactive means of communication. Key areas such as semiconductors and electronic components that have fostered the development of information and communication systems and electronic equipment are also in need of technological breakthroughs and differently-oriented business models.

The field of semiconductors is evolving at a fast pace to support increasingly more sophisticated functions. It is generally said that at the current level, further performance improvements can no longer be obtained using existing methods. On the other hand, market needs are becoming more and more demanding, requiring to simultaneously satisfy contradictory conditions of high speed, small size, low cost, and low power consumption. In the field of electronic components, in addition to ever-growing needs for compactness, high performance, low power consumption and large current, new devices and solutions are required to cope with high speeds and high frequencies, as well as the needs arising from mobile equipment and the expansion of the ubiquitous market.

Since NEC Electronics became independent of NEC in November 2002 to start as a specialized semiconductor manufacturer, the company has offered semiconductor solutions to meet the needs of individual customers based on proprietary, state-of-the-art technologies. For now on, based on three core competencies consisting of a well-balanced product portfolio, a more efficient platform-based development, and excellent solutions using the IDM (Integrated Device Manufacturer) model, NEC Electronics will strive to meet its customers' diversified needs of high quality and low cost by conducting business in three main business areas: SoC (System-on-Chip), MCU (microcontroller unit) and discrete semiconductors taking into consideration the peculiarities of each area and making efficient use of technologies and facilities

shared between them.

NEC TOKIN has started as a “material-based device creation company” in April, 2002 by integrating the advanced device technologies embodied in three NEC businesses (capacitors, Li-ion batteries, and relays) with TOKIN’s expertise in material technologies. NEC TOKIN has developed and implemented “key devices for innovation” using proprietary material technologies to achieve three device solutions: Energy, Noise & Power, and Access. For now on, the company expects to continue contributing to the market and society by conducting business with a strong focus on research and development, while actively promoting alliances with top-level companies in each area and cooperation between industry and university.

In this Special Issue, the results of the latest technological activities at both companies in representative business areas are reported. NEC Electronics will show representative products in the areas of SoC, MCU, and discrete semiconductors, as well as fundamental and common technologies that serve as the basis of state-of-the-art products. NEC TOKIN will display the latest products and related technology trends related to energy, magnetic, and applied piezoelectric devices. Detailed contents can be found in the abstracts and individual papers of the Special Issue. We hope this Special Issue can deepen your understanding about the products and technologies of both companies.

NEC Electronics and NEC TOKIN will keep contributing to the construction of a “ubiquitous society” through research and development activities taking advantage of the synergy within NEC Group by timely providing key devices to support our customers in developing systems and electronic equipment. We hope to count on your kind cooperation and advice.



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