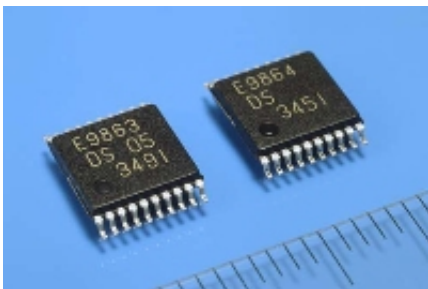


NEC Electronics Expands 8-Bit Microcontroller Series to Enable Compact, Economical and Advanced-Function Sensor Systems

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[NEC Electronics Corporation](#) (TSE: 6723) and its subsidiary in Europe, NEC Electronics (Europe) GmbH, announced the development of two new series of microcontrollers (MCUs), the μ PD789863 and the μ PD789864, designed to address a growing market demand for semiconductors to power smaller, more economical and higher-performance sensor applications. Further strengthening the company's 78K0S line of 8-bit single-chip MCUs, the two new series include on-chip features such as an amplifier, a constant voltage supply, analog circuits, temperature sensor and [wireless](#) sensor control support. By providing support for these features in hardware, the new MCUs eliminate the need for separate discrete components, resulting in a

20-percent reduction in the system price, as well as a 30-percent reduction in design footprint.

"The incorporation of traditionally discrete analog and digital features on chip has enabled us to meet the compact size, [low-power](#) and cost-efficiency requirements of designers developing sensors for industrial and consumer applications," said Yoshihiko Miura, General Manager, Multipurpose Microcomputer Systems Division, NEC Electronics. "We are seeing an increased demand in the sensor market, and we will continue to develop new products with advanced functions for this space."

The μ PD789863 Series, comprised of RC oscillation-type MCUs, can be used to achieve more cost-efficient systems by simply connecting external resistors and capacitors. The μ PD789864 Series, consisting of ceramic oscillation-type MCUs, can be used to create high-performance systems by connecting a ceramic resonator that generates highly accurate frequency waves. For each series, NEC Electronics provides both an EEPROM model that enables program data rewriting and a mask ROM model suitable for mass production.

By revising and optimizing the digital/analog mix technology for connecting both analog parts and digital circuits, NEC Electronics has succeeded in providing on-chip analog circuits that until now had to be connected externally, such as an operational amplifier that enables accurate data measurement by amplifying minute sensor signals and a constant voltage supply that keeps the voltage constant for proper sensor operation. Both series' on-chip temperature sensor eliminates performance differences between individual sensors due to variations in ambient temperature. MCUs in each series feature data saving EEPROMs for saving the ID codes of individual products.

On/off timing control also allows the μ PD789863 and μ PD789864 Series to reduce power consumption by providing an oscillator to enable the setting of sensor data transmission at intervals of up to 14 minutes.

This allows designers to select much longer intervals between transmissions, eliminating wasteful on/off switching and dramatically extending battery life.

The μ PD789863 and μ PD789864 Series also support wireless sensor control through the use of the on-chip LF detector, which has a 125 kHz wavelength (LF) and a 4 kHz data transfer rate, via an external antenna coil. Using this technology, designers can control sensors through a wireless connection by assigning an individual ID number to each sensor.

Pricing and Availability

Samples of the μ PD78E9863 and μ PD78E9864 EEPROM models allowing program data rewriting are priced at US\$7.00. Samples will begin shipping on July 30, 2004. Mass production is scheduled to begin September 2005, with a total combined production of 400,000 units per month by FY2006. Samples will only be available in EEPROM models. However, both EEPROM models and mask ROM models will be available in mass production.

Specifications of the new products [here](#).

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