

**NEC Electronics Europe Expands NP-Series  
With One of Industry's Lowest On-State Resistance PowerMOSFET**

***NP180N04TUG PowerMOSFET Features Super-Low On-Resistance of 1.5 Milliohms***

**DUSSELDORF (Germany), August 14, 2007** — NEC Electronics Europe today introduced the TO-263-7 PowerMOSFET series as the newest addition to the company's NP Series of low-voltage power-management devices. As part of the NP Series, the new MOSFET devices feature an innovative fabrication process and advanced packaging solutions designed to reduce leakage current, manage heat dissipation more efficiently and enable one of the industry's lowest on-state resistances  $R_{ds(on)}$ , of 1,5 milliohms (maximum). These new PowerMOSFET are ideal for applications such as automotive, low-voltage DC motor control and uninterruptible power supplies, where high current capability, as well as stringent power management and reliability are required.

With the increasing demand for power-management devices some new key challenges emerge, including a demand for smaller cell sizes that reduce overall chip costs and a lower  $R_{ds(on)}$  for optimized heat dissipation. Thanks to a combination of advanced architecture and packaging, NEC Electronics' new NP-Series PowerMOSFET are high-quality, proven power-management solutions.

The TO-263-7 PowerMOSFET series is manufactured in the UMOS-4 process, which is a trench technology and achieves an ultra-fine design rule of 0.25  $\mu\text{m}$ . This results in higher cell density, up to 160M cells/inch<sup>2</sup>, enabling chip designers to lower on-resistance over a given area of silicon. The new PowerMOSFET also features an advanced packaging developed by NEC Electronics using an unique multi-bonding technology that doubles the number of bonding wires from two to four wires. The additional wires allow the NEC Electronics MOSFETs to manage high currents with very low on-resistance in relatively small packages by limiting the on-resistance yet still improving current-carrying capabilities. With an ultra-low on-state resistance of  $R_{ds(on)} = 1,5$  milliohms, max. ( $V_{DSS} = 40\text{V}$ ;  $V_{GS} = 10\text{V}$ ), the new TO-263-7 PowerMOSFET also helps to reduce the amount of the PCB dedicated to handling heat dissipation

The NP Series is part of NEC Electronics Europe's family of low-voltage switching devices that provides efficient power management for power supplies, automotive systems, motor control, office, robotic and uninterruptible power applications.

Additional information about NEC Electronics Europe's PowerMOSFET products can be found at <http://www.eu.necel.com/mosfet>

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### **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>.

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