

# Power MOSFETs pack dual chips in small package

I-Micronews

The power semiconductor products each integrate a pair of power MOSFETs into a single package, enabling designs of DC/DC converters that are more compact with higher mounting density.

The compact, low-loss, 11th generation power MOSFETs are contained in an ultra-compact package measuring only 3.2mm × 4.8mm × 0.8mm (max.), making it possible to reduce the mounting area by about half compared with previous Renesas Electronics power MOSFET products.

At a switching frequency of 300kHz, the power MOSFETs claim a maximum efficiency of 95.2 per cent (input voltage: 12V, output voltage: 3.3V) which contributes to improved overall power supply efficiency and reduced power consumption.

Within the pair of power MOSFETs used for voltage conversion, the one used for synchronous rectification (low-side) incorporates an on-chip Schottky barrier diode. During the DC/DC converter's dead time, the faster current switching time from the power MOSFET to the Schottky barrier diode reduces power loss. In addition, it effectively suppresses the spike voltage when the power MOSFET switches on, reducing the electromagnetic noise.

Like Renesas Electronics' existing WPAK package, the HWSO3046 package offers heat radiation and has a die pad on the bottom of the device that allows heat to pass to the printed wiring board while the power MOSFET is operating, enabling the power MOSFET to handle large currents.

Renesas Electronics plans to develop a full line-up of dual-chip products using the HWSO3046 package for a variety of DC/DC converter specifications.

Samples of Renesas Electronics' power MOSFETs are currently available with pricing for each starting at Rs.25.68 (\$0.55) per unit. Mass production is scheduled to begin in December 2010 and is expected to reach a combined volume of 20 lakh units per month after July 2011. (Pricing and availability are subject to change without notice.)

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Published on Medical Design Technology (<http://www.mdtmag.com>)

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