1. **News Release**

No.: REN0786(A)

**Renesas Electronics Unveils Family of Encapsulated Simple Digital Power Modules**

*Pin-Strap Configurable Digital Modules Offer Highest Power Density and Efficiency for Advanced FPGAs, DSPs, ASICs, and Memory*

Düsseldorf, October 10, 2018 – Renesas Electronics Corporation (TSE:6723), a premier supplier of advanced semiconductor solutions, today announced a new family of encapsulated digital DC/DC PMBus™ power modules. The five RAA210xxx simple digital power modules offer advanced digital telemetry and performance, and are as easy to use as Renesas’ analog power modules. They are complete step-down regulated power supplies that deliver 25A, 33A, dual 25A, 50A, and 70A of output current, while operating from industry-standard 12V or 5V input power rails. The RAA210xxx family provides point-of-load (POL) conversion for advanced FPGAs, DSPs, ASICs and memory used in servers, storage, optical networking, and telecom equipment. Each device integrates a PWM controller, MOSFETs, inductor and passives inside a thermally optimized, High Density Array (HDA) encapsulated module. All that is needed to complete the power supply are input and output bulk capacitors.

The RAA210xxx is a lower cost, simplified digital power module family that is pin-to-pin compatible with Renesas’ full featured digital ISL827xM series. The RAA210xxx simple digital power modules offer run-time digital programmability to support configuration changes with a subset of PMBus commands, and full telemetry and system monitoring. If more advanced digital control is later required, upgrading to the pin-compatible ISL827xM modules will enable current sharing with multiple modules connected in parallel, access to all PMBus commands using the PowerNavigator™ tool, and non-volatile memory for configuration storage.

“Our simple digital power modules accelerate time to market for design teams that want an easier-to-use, lower-cost digital power solution,” said Philip Chesley, Vice President of Industrial Analog and Power Business Division, Renesas Electronics Corporation. “The RAA210xxx simple digital power products continue Renesas’ leadership in power density, high efficiency and fast transient performance to support demanding multi-rail POL requirements.”

The RAA210xxx family’s proprietary HDA package offers unmatched electrical and thermal performance at full load through a single-layer conductive package substrate that efficiently transfers heat from the module to the system board, and dissipates it without requiring airflow or heatsinks. Space-constrained boards take full advantage of the HDA’s high power density, which is not achievable with discrete components. The RAA210xxx simple digital power modules leverage Renesas’ patented ChargeMode™ control architecture that delivers up to 96 percent peak efficiency and better than 90 percent efficiency under most conditions. They also provide single-clock-cycle fast transient response to output current load steps, which reduces capacitance and saves cost and board space.

**Key Features of RAA210xxx Simple Digital Power Modules**

* Output current from 25A to 70A
* Wide input voltage range: 4.5V to 14V
* Programmable output voltage range: 0.6V to 5V
* ± 1.2% output voltage accuracy over line, load, and temperature
* ChargeMode control loop architecture
* Selectable switching frequency options from 296kHz to 1.06MHz
* Compensation-free design keeps the modules stable regardless of output capacitor changes due to temperature, variation or aging
* Complete input and output under voltage (UV), over voltage (OV), output current and temperature protection with fault logging

Power supply designers can combine the RAA210xxx simple digital power modules with the 3A [ISL8203M](https://www.renesas.com/products/isl8203m), 5A [ISL8205M](https://www.renesas.com/products/isl8205m) and 15A [ISL8215M](https://www.renesas.com/products/isl8215m) analog power modules, and [Renesas low-dropout regulators (LDOs)](https://www.renesas.com/products/power-management/low-dropout-regulator.html) to support ancillary power rails in embedded applications.

**Power Supply Design Tools**

The [PowerCompass™](https://www.renesas.com/powercompass) tool helps users quickly identify the right power modules and other parts that match their specific requirements. Multiple power rails can be set up for more than 200 FPGAs, and designers can perform high-level system analysis and generate custom reference design files in minutes. The [PowerNavigatorTM](https://www.renesas.com/powernavigator) tool allows designers to set up the simple digital power module’s sequencing, telemetry and real-time configuration.

**Pricing and Availability**

The RAA210xxx simple digital power modules and evaluation boards are available now from Renesas Electronics’ worldwide distributors. Module prices range from $18.38 USD for the 25-amp RAA210825, up to $51.75 USD for the 70-amp RAA210870 in 1k quantities. For more information, please visit: [www.renesas.com/simple-digital-power-modules](https://www.renesas.com/simple-digital-power-modules).

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| **Device** | **Output Current** | **Thermally Enhanced HDA Package** | **Price $USD**  **(1k units)** |
| [RAA210825](https://www.renesas.com/products/raa210825) | 25A | 19mm x 17mm x 3.55mm | $18.38 |
| [RAA210833](https://www.renesas.com/products/raa210833) | 33A | 19mm x 17mm x 3.55mm | $21.75 |
| [RAA210925](https://www.renesas.com/products/raa210925) | Dual 25A | 18mm x 23mm x 7.5mm | $29.25 |
| [RAA210850](https://www.renesas.com/products/raa210850) | 50A | 18mm x 23mm x 7.5mm | $33.75 |
| [RAA210870](https://www.renesas.com/products/raa210870) | 70A | 18mm x 23mm x 7.5mm | $51.75 |

**About Renesas Electronics Corporation**

Renesas Electronics Corporation ([TSE: 6723](https://www.jpx.co.jp/english/)) delivers trusted embedded design innovation with complete semiconductor solutions that enable billions of connected, intelligent devices to enhance the way people work and live—securely and safely. A [global](https://www.renesas.com/en-hq/about/company/profile/global.html) leader in microcontrollers, analog, power and SoC products and integrated platforms, Renesas provides the expertise, quality, and comprehensive solutions for a broad range of Automotive, Industrial, Home Electronics, Office Automation and Information Communication Technology applications to help shape a limitless future. Learn more at [renesas.com](https://www.renesas.com/en-us/).

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