

Ericsson's truly groundbreaking digital DC/DC converter offers unprecedented levels of control and power density

In an industry first, Ericsson's BMR453 series of DC/DC converters uses a digital control platform contained within the modules themselves. By integrating more into the control circuitry, the concept frees up real estate for greatly improving the power density, simultaneously offered unprecedented levels of control.

In the world of DC/DC converters – particularly in the ICT equipment market - the quest for greater power, greater efficiency, higher output accuracy and smaller size continues unabated. Traditional quarter brick DC/DC converters can achieve up to 300W with an output accuracy of $\pm 2\%$, while intermediate bus converters (IBC) can achieve up to 377W with an output accuracy of $+4/-9\%$ accuracy.

With 96% efficiency, the BMR453 offers up to 400W output power or up to 33A with $\pm 2\%$ accuracy. At that level of accuracy, the best module commercially available offers just 300W output power. So Ericsson's BMR453 offers a huge 33% more power in the same package size. Showing versatility, the BMR453 has an input voltage range of 36V to 75V, and its output voltage is variable from 8.5V to 13.5V.

The most important application areas for the BMR453 series are systems that must use a telecom input voltage with battery backup or both -48V and -60V nominal input voltages. Its inherent load regulation also allows the BMR453 to be used as an IBC in systems where the intermediate bus voltage directly powers devices such as hard drives that cannot tolerate the wide variation in bus voltage provided by a normal IBC.

Ideal for use in either traditional or IBC converter applications, the BMR453 series is available both with and without a baseplate. A communication pin header is used for connection to the PMBus. For users that do not need to use the PMBus interface, an optional version is available without the communication pin header.

The converters meet the insulation requirements of EN60950 and come complete with vital industry standard features. The product also offers an extensive set of capabilities and features such as: remote sense, configurable protections (over-temperature, over current and over-voltage), switching frequency synchronization, PMBus interface, power good, extensive power management programmability.

Whereas traditional bricks have just a few connection pins used to control simple functions such as turning them on or off, Ericsson's BMR453 modules feature a PMBus interface for system connection, opening up a whole new world of control features. The digital control system provides users with access to control, configure and monitor the device itself. This is a huge step forward for customers as this level of control has never been available before, and these new capabilities allow for much more intelligent energy management that helps to reduce energy consumption.

A synchronization facility enables multiple modules to operate at exactly the same frequency to facilitate optimum filter design for quiet running – RF or conducted. A 'power good' pin operates between active low and active high and is a useful feature for event-based programming, for example sequenced start-ups.

For current sharing duties, BMR453 modules can be operated in parallel without the need for external balancing circuitry. Instead, dedicated pins are simply tied together and current sharing is automatic. A voltage track pin will follow an external device and again is used for event-based programming.

It is important to remember that these extra features have all been added to what was the previous standard for a DC/DC converter, and together with its unprecedented power density, the combination makes the product truly unique.

BMR453's micro controller sweeps up a large quantity of discrete control and overhead components resulting in better integration, lower component count, less PCB area, and improved reliability. All this is reflected in the higher power density achieved by this converter. The net result for the customer is gains in virtually all areas; increased power density, greater accuracy, a much higher level of control and integration within a system, and reduced through life cost of ownership as a result of its high efficiency and intelligent use of energy management.

An evaluation kit is available to help designers evaluate and program the modules. It comprises evaluation board, operating manual, CD containing Graphic User Interface (GUI) and cables.

This is the first quarter brick DC/DC converter that can handle digital management and for the first time it is possible to actually 'see' inside the module when using a GUI, and track what is happening in the converter.

A new world will be opened for Ericsson customers. It now becomes a simple matter for them to optimize their systems and setups by using the GUI and the flexibility contained within this platform.

Ericsson is the world's leading provider of technology and services to telecom operators. The market leader in 2G and 3G mobile technologies, Ericsson supplies communications services and manages networks that serve more than 195 million subscribers. The company's portfolio comprises mobile and fixed network infrastructure, and broadband and multimedia solutions for operators, enterprises and developers. The Sony Ericsson joint venture provides consumers with feature-rich personal mobile devices.

Ericsson is advancing its vision of 'communication for all' through innovation, technology, and sustainable business solutions. Working in 175 countries, more than 70,000 employees generated revenue of USD 27.9 billion (SEK 188 billion) in 2007. Founded in 1876 and headquartered in Stockholm, Sweden, Ericsson is listed on the Stockholm and NASDAQ stock exchanges.

For more information, visit www.ericsson.com or www.ericsson.mobi.

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About Ericsson Power Modules

Ericsson Power Modules is a supplier of world-class DC/DC power modules for distributed power architectures. With its global design, development, manufacturing and sales network Ericsson Power Modules is a leading supplier of power solutions to meet the customer demand for high performance.