

Ericsson's 1/8 brick DC/DC module raises the benchmark for power and control performance

In the industry standard 1/8-brick footprint, Ericsson Power Modules' PKB-C DC/DC converter has considerably more output power compared with similar available products. This is an important benefit in applications where customers are looking for higher power in a smaller package than the traditional quarter-brick, or alternatively to obtain higher power in a standard eighth-brick format when upgrading boards to achieve higher performance levels.

The PKB-C's use of a secondary digital monitoring circuit makes it possible for Ericsson Power Modules to offer control of an infinite number of customers' output circuit characteristics, such as latching, Over Voltage Protection (OVP), Over Current Protection (OCP) and Over Temperature Protection (OTP) – all without adding any extra components. Because this circuit can be programmed during manufacturing, it reduces the time-to-customer when a tailor-made protection configuration is required.

Fully titled as PKB4110C PI 3.3V@ 40A, the module is available in two versions: through-hole and surface-mount. There is also a further mechanical option that features a broader baseplate to cater for higher operating temperatures in situations where airflow is reduced.

The PKB-C is aimed at existing eighth-brick customers aiming to provide power for applications demanding higher power without re-designing boards for larger products (e.g. quarter-brick). This saves time and costs and the transition is faster and easier. Customers facing challenging board space optimization and migrating from quarter-brick to eighth-brick without wanting to compromise performances will also find the converter very useful.

Because the surface mount version of the PKB-C is less than 9mm high, the module is particularly suitable for applications designed for low building height, guaranteeing enough isolation distance from the module to an adjacent board.

Designed for use with 48V input applications, the PKB-C is primarily made for telecom and datacom applications such as routers, servers, data-storage, wireless-network, but also for many other applications requiring high power density modules with a high thermal performance such as process control, robotics, embedded computer applications, and many others.

End users/customers are continually adding functionality to applications that require more power per board, while simultaneously expecting a reduction of space allocated to the on-board power sources. Driven by this, in 2004 Ericsson Power Modules introduced a 1/16th brick format module (PKU),

which, given its power and performance, effectively superseded the first generation of eighth-brick modules that were introduced only two years earlier, in 2002.

Despite the 1/16th brick gaining market share, whenever lower price and higher performance are required, eighth-brick remains a very competitive platform, and the increased level of deliverable power offered by PKB-C responds to the continuing demand for higher power in a similar footprint – without compromises.

Compared to Ericsson Power Modules' original PKB eighth-brick module, the output power has been increased significantly, delivering in the same environment up to 60 percent extra power (from 25A up to 40A at 3.3V). This same improvement level is also seen when compared with the most recent products released by various manufacturers in the eighth-brick format.

Apart from an increase in deliverable output power, end-customers are demanding high flexibility in terms of other performances (e.g. very specific trimming point of OVP, OTP, OCP, and protection characteristics such as latching or non-latching.), and PKB-C delivers in this area, too.

The inclusion of the secondary digital monitoring control circuit makes it possible to characterize the module during manufacturing without adding any extra components, and on a unique PCB, to customize the output protection requirements to meet customers' specific requirements. The use of so-called secondary-side control enables tighter control of Vout and ensures that the most stringent requirements for monotonic and prebiased start-up can be met. A digital microcontroller handles all the protection features in an extremely flexible way, simultaneously taking up a minimal amount of the space needed for the current doubler and the power train. Thus, a single, basic product can be defined in an infinite number of combinations to provide a customized product at the same cost as a standard module.

The PKB-C's footprint compatibility with eighth and quarter-brick, combined with surface-mount and through-hole options and the optional baseplate, makes this product very flexible in terms of choice per application.

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FOR FURTHER INFORMATION, PLEASE CONTACT

Patrick Le Fèvre, Marketing Director

Ericsson Power Modules AB

Phone: +46-8-568 695 07

Fax: +46-8-568 695 99

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If printing an Internet address please use Power Modules homepage and/or phone number to our International sales office:

URL: www.ericsson.com/powermodules

Europe: +46-8-568 696 20

USA: +1-972-583 6910/5254

China: + 86-21-5990 3258

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.