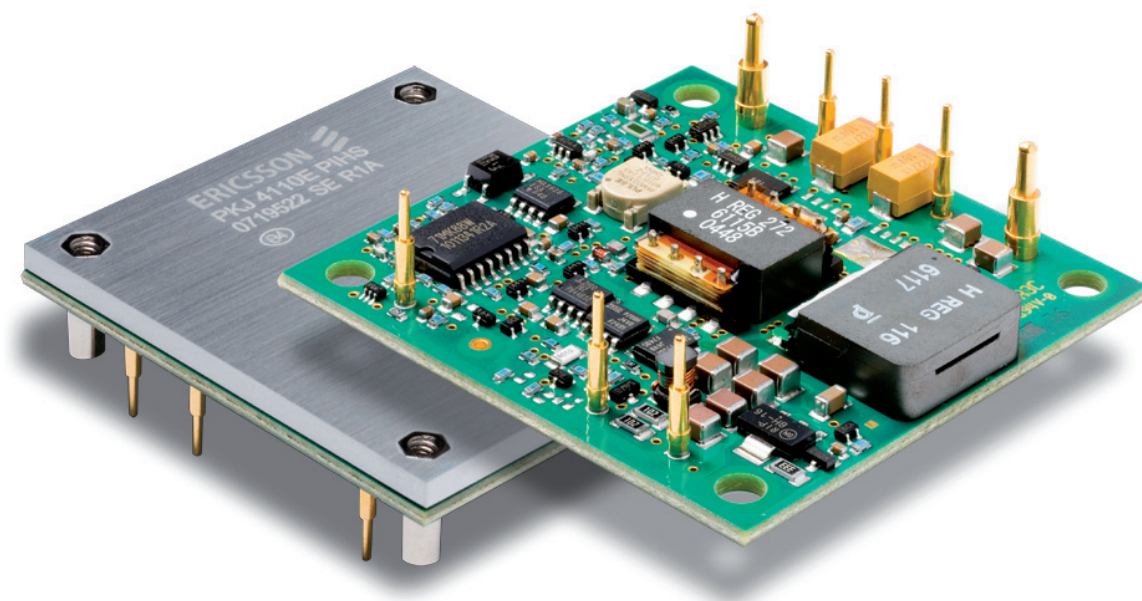




ERICSSON

## APPLICATION NOTE 112J-E

Ericsson Power Modules



# CONNECTING PKJ 4000E SERIES TO COOLING SURFACE

## Abstract

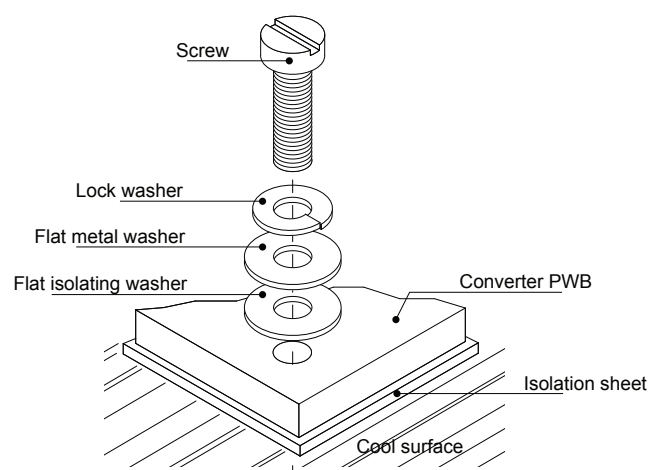
The PKJ 4000E series DC/DC converters has mounting holes in each corner of its PWB to make it possible to choose several mounting options. Normal condition is to solder the DC/DC converter pins directly to the connecting mother PWB. The cooling area provided by the body of the DC/DC converter is adequate for most applications when airflows higher than 1m/s (200 lfm) is offered by the system. In some applications the designer may want to mount the module to a cold wall or heatsink to transfer heat away from the module and improve cooling of the converter.

## Mounting to cooling surface

The top flat surface of the DC/DC converter may be connected to a cooling surface. Between this surface and the DC/DC converter an isolation sheet needs to be used. The isolation sheet should be capable of absorbing height differences up to 0.1 mm (0.004 in). As isolation we recommend the use of silicon rubber sheet, cut for half brick size converters, with a recommended thickness of appr. 0.3 mm (0.012 in) and capable of handling 125°C continuously. Isolation voltage and thickness may differ depending on supplier. Possible suppliers to be used are Bergquist, Chomerics, Fuji Poly or similar. We recommend to use 1500 Vdc isolation to fully utilize the level of isolation that is offered by Ericsson DC/DC converter PKJ 4000E series. It is of utmost importance that the DC/DC converter pins are not bent due to movements of connections made to the converter. This may cause fractured soldering joints and malfunction of the DC/DC converter or connections. The flatness of the cold wall or heatsink needs to be within 0.1 mm (0.004 in) within the area covered by the DC/DC converter.

## Fastening of the products

Please use M3 or UNC 4-40 screws. Recommended torque is 0.35-0.55 Nm ( 3.1 to 4.9 lbf·in). The four mounting locations for the screws should have a flat isolating washer facing the DC/DC converter PWB. The isolation voltage should be higher than 1500 Vdc and capable of handling up to 125°C continuously. After this a flat metal washer is mounted followed by a lock washer between the head of the screw and the washer to ensure a good quality of fastening by compensating for small movements in the materials. Please see drawing below.





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Formed in the late seventies, Ericsson Power Modules is a division of Ericsson AB that primarily designs and manufactures isolated DC/DC converters and non-isolated voltage regulators such as point-of-load units ranging in output power from 1 W to 700 W. The products are aimed at (but not limited to) the new generation of ICT (information and communication technology) equipment where systems' architects are designing boards for optimized control and reduced power consumption.

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