

APPLICATION NOTE

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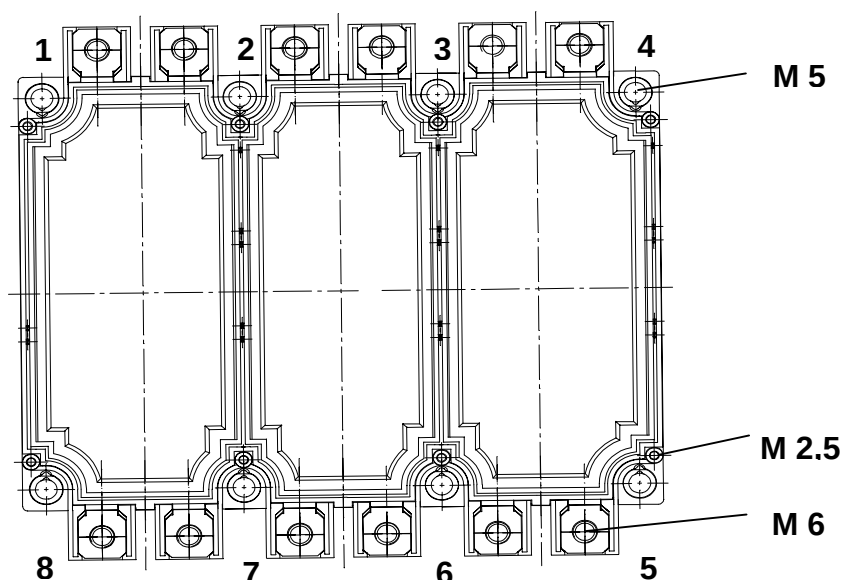
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Mounting of EconoPACK+ Modules

The contact surface of module and heatsink must be free from damage and contamination. A thin and uniform film of thermal grease (typ. thickness 50 - 100 μm) should be applied to the contact area before mounting. A recommended method is applying the thermal grease with rollers or spatulas to the surface of the module or the heatsink. The quality of thermal grease is sufficient if a small rim can be observed around the mounted module. Excessive grease will be pressed out. In the contact area of the module of the heatsink the roughness of the heatsink must not exceed 10 μm and the flatness must not exceed 50 μm .

All M5 fixing screws for mounting the module to the heatsink has to be uniformly tightened with the specified mounting torque of 3 up to 6 Nm. For a good thermal contact to the heatsink we recommend the following procedure of tightening the 8 screws:

1. Screws hand-screwed with 0,5 Nm in the following sequence:
screw no. 2-6-3-7-4-8-1-5
2. Screws tightening with 3 up to 6 Nm in the same sequence:
screw no. 2-6-3-7-4-8-1-5



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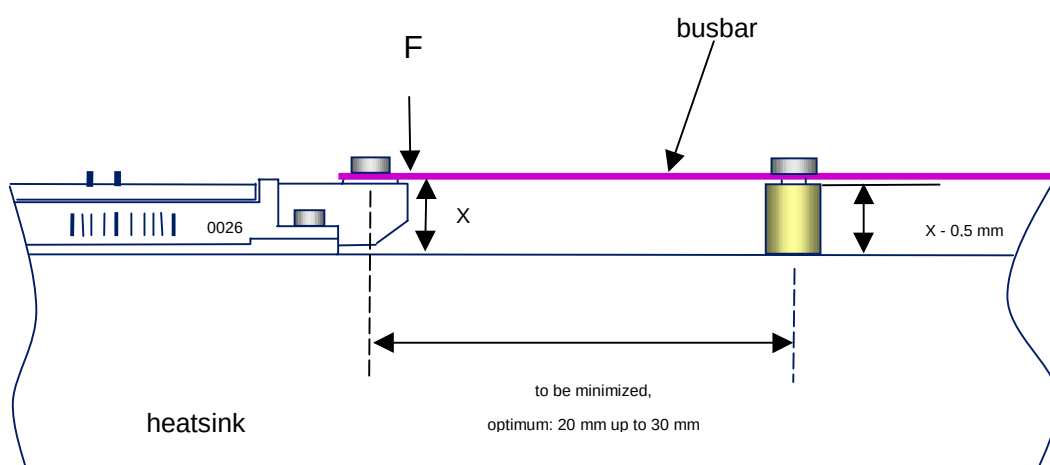
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For connecting the power terminals use M 6 screws with a mounting torque of 3 up to 6 Nm. The effective length of the screws for the power terminals should be 6,5 mm to 10 mm. For selecting the screw you have to add the thickness of the busbar to the effective length.

The busbar has to be connected to the power terminals in such a way that only a low force is applied to them, even during shock or vibration conditions.



The power terminals can withstand this force F best in the direction from the terminal to the baseplate. Force to other directions has to be avoided. This has also to be considered in the tolerance of the busbar. See drawing as example for ideal mounting condition.

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PCB's can be fixed directly on the module on the 8 standoffs with metric screws M 2,5 mm. The effective length of the screws should exceed 4 mm for light PCB's and exceed 7 mm for heavy PCB's. The thread is taped by the screw itself. Therefore a mounting torque less than 0,5 Nm is necessary. If bending moments are applied to the PCB stacks, separate stand-offs are required.

For connecting the auxiliary pins to the PCB we recommend a soldering process (wave soldering, hand soldering).

Take into account that the first 1,5 mm of the designated dome act as guide way and will not transfer any force.



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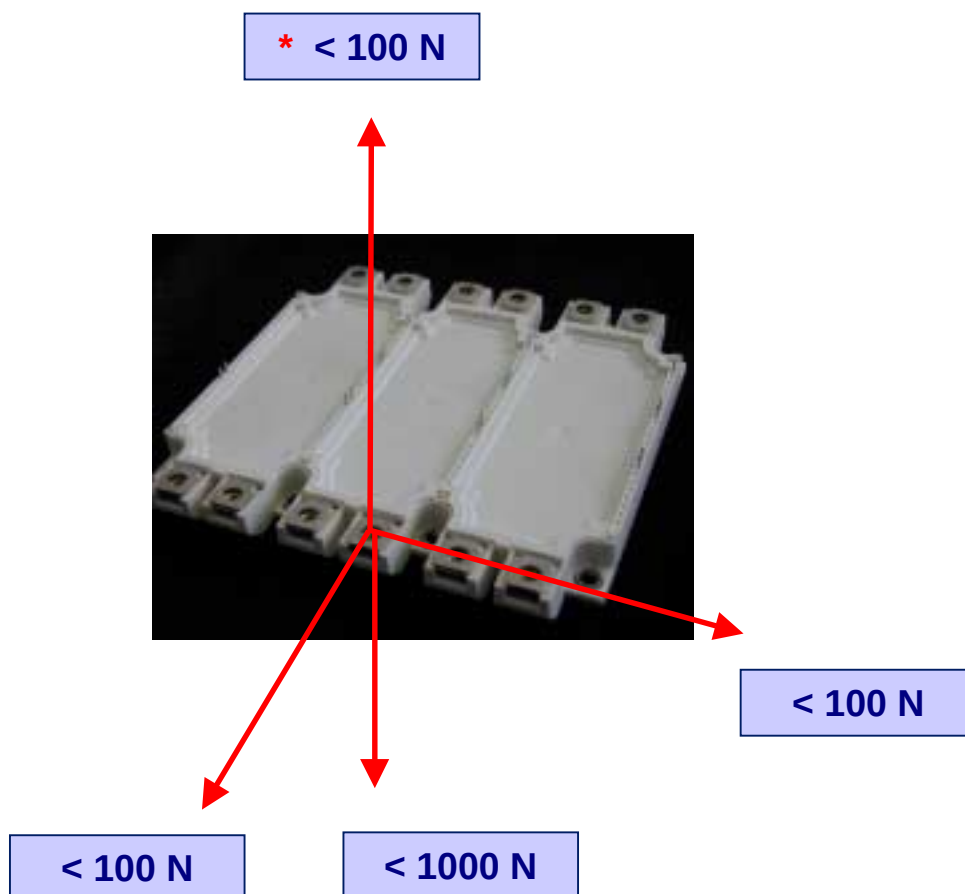
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* = maximum force for a short time during mounting

It is important that no high tractive force is applied in any way to the connecting points of the module power terminals. It must be achieved that a strong fixing point e.g. for the motor cable is created, so that the mounting and application relevant forces will take effect only to this strong fixing block and not to the EconoPACK + module.



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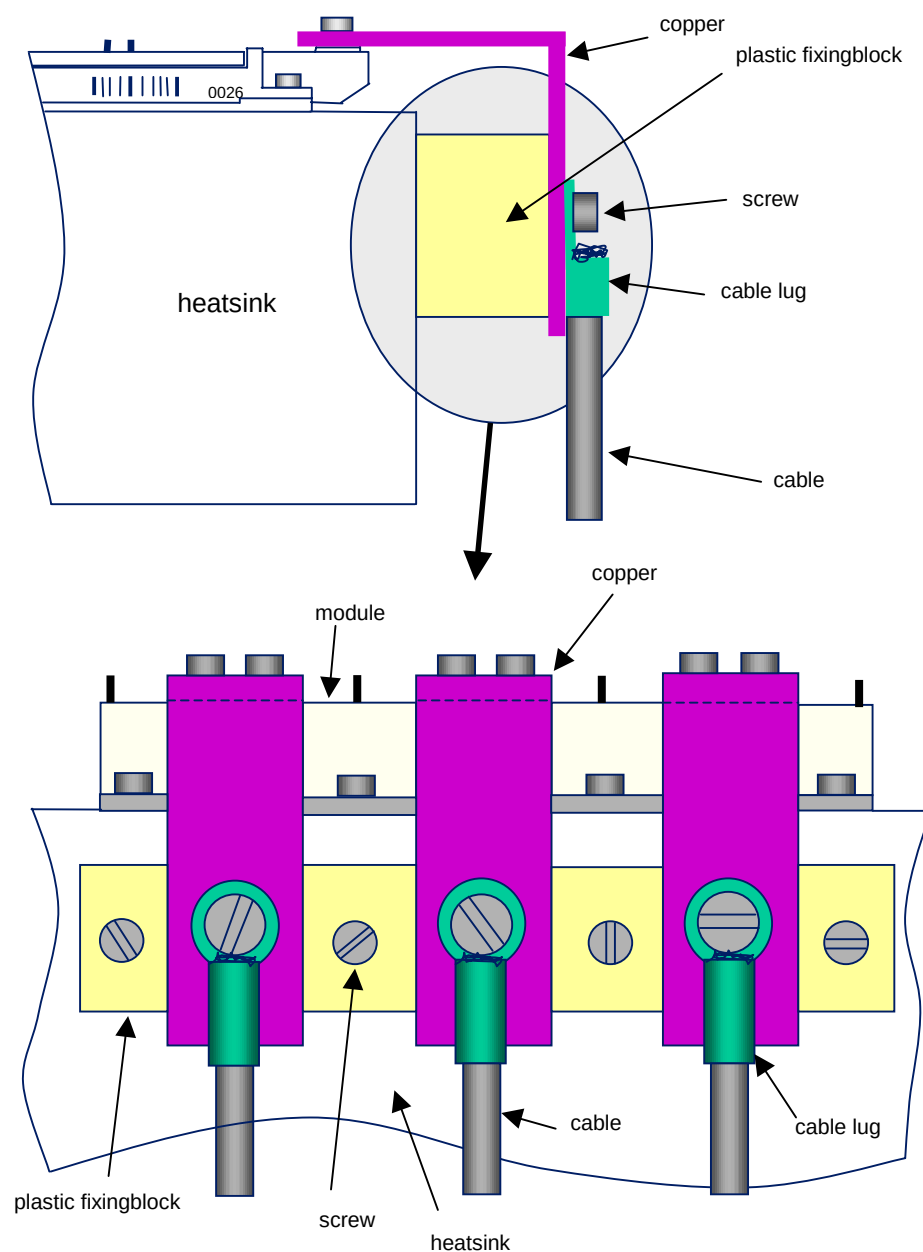
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Example for optimized mounting conditions



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