Mounting Instruction
SEMIPACK®

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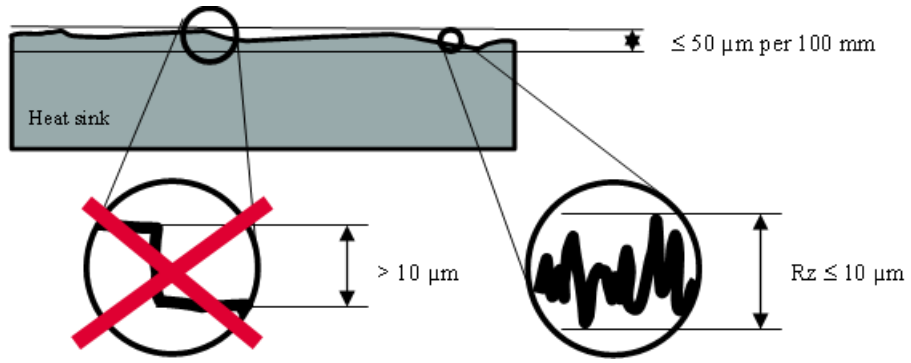
1. Heat sink and surface specifications, preparation

In order to ensure good thermal contact and to obtain the thermal contact resistance values specified in the datasheets, the contact surface of the heat sink must be clean and free from dust particles. It is useful to clean the mounting surface of the heat sink with wipes and an alcohol cleaner, e.g. isopropanol, right before the mounting process. The following mechanical specifications have to be met:

- Unevenness of heat sink mounting area must be ≤ 50µm per 100 mm (DIN EN ISO 1101)
- Roughness Rz: < 10 µm (DIN EN ISO 4287)
- No steps > 10 µm (DIN EN ISO 4287)

Figure 1: Heat sink surface specification



2. Applying thermal paste

SEMIKRON recommends to use stencil printing in order to apply thermal interface material. For SEMIPACK we recommend thermal paste thickness in the range from 50 µm to 100 µm. Further information about applying thermal interface material you find in the application note AN_18-001 *Thermal Paste Application* (download available from www.semikron-danfoss.com).
Applying thermal paste by means of roller is not recommended for mass production as reproducibility of an optimized thermal paste thickness cannot be guaranteed.

3. Assembly process

3.1 Mounting torque in heat sink M_s

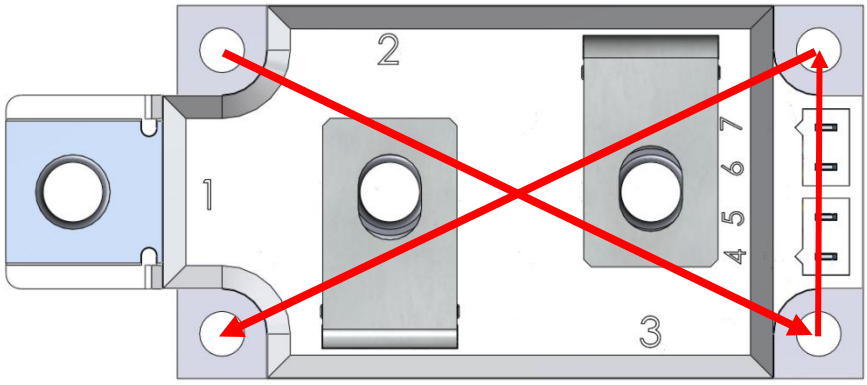
To mount SEMIPACK modules on a heat sink, the use of steel screws (DIN 7984-8.8) in combination with suitable washers and spring lock washers or combination screws is strongly recommended. For SEMIPACK 3 soldered the use of washers is mandatory. The specified torque value must be observed.

Table 1: Mounting details

	SEMIPACK 1, 2	SEMIPACK 3 soldered	SEMIPACK 3, 4, 5 pressure contact	SEMIPACK 6
Mounting screw	2 pcs M5 × 18 (DIN 7984-8.8)	4 pcs M5 × 18 (DIN 7984-8.8)	4 pcs M5 × 20 (DIN 7984-8.8)	4 pcs M6 × 20 (DIN 7984-8.8)
Mounting speed	max. 300 rpm	max. 300 rpm	max. 300 rpm	max. 300 rpm
Pre-tightening torque	0.6 Nm	0.6 Nm	0.6 Nm	0.6 Nm
Final torque M_s	4.25 – 5.75 Nm	4.25 – 5.75 Nm	4.25 – 5.75 Nm	5.1 – 6.9 Nm

A pre-tightening torque and retightening to the given torque value is recommended. For the screwing process the speed has to be limited and soft torque limitation is recommended to avoid torque peaks, which may occur with pneumatic screwdrivers. Calibrated screwdrivers (manual screwdriver or electrical screwdriver) are recommended.
The screws must be tightened in diagonal order with equal torque in several steps until the specified torque value M_s has been reached. An example of the diagonal mounting order is shown in Fig. 2.

Figure 2: Example of mounting order



Symbols and Terms

A detailed explanation of the terms and symbols can be found in the "Application Manual Power Semiconductors".

References

www.semikron-danfoss.com
A. Wintrich, U. Nicolai, A Gießmann, S. Berberich, “Application Manual Power Semiconductors”, 3rd edition, Semikron Danfoss International GmbH, 2025

IMPORTANT INFORMATION AND WARNINGS

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