

SEMiX[®]

IGBT Modules & Bridge Rectifier Family

Technical Explanations

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1 Introduction

SEMiX was introduced as part of SEMIKRON's new line of IGBT modules at PCIM 2003. SEMiX modules are now available as a complete module family featuring different housing sizes and adapted bridge rectifiers (Fig. 1-1). Thanks to its features, this product line has become a standard for new developments.

1.1 Features

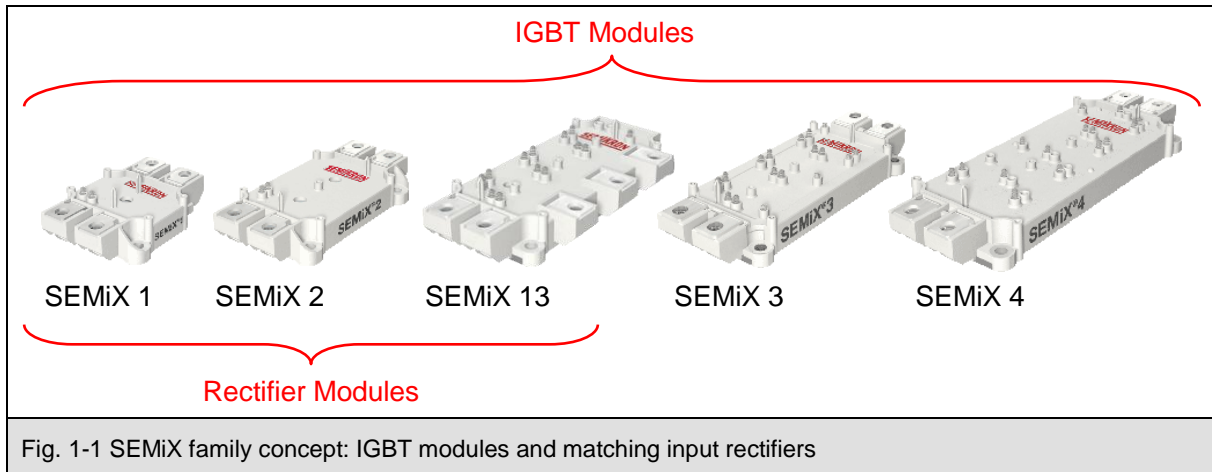


Fig. 1-1 SEMiX family concept: IGBT modules and matching input rectifiers

The low-profile housing design of SEMiX modules offers several advantageous features:

- ◆ Solder-free mounting for the driver with no additional wiring or connectors (Fig. 1-2)
- ◆ Spring contacts for the auxiliary contacts
- ◆ Family concept, meaning a similar package design for both input rectifiers and IGBT modules
- ◆ Complete product line from $I_{C, \max} = 100 \text{ A}$ to 900 A in 600 V , 1200 V and 1700 V
- ◆ Separate AC, DC terminals and control unit
- ◆ 17-mm-high main terminals

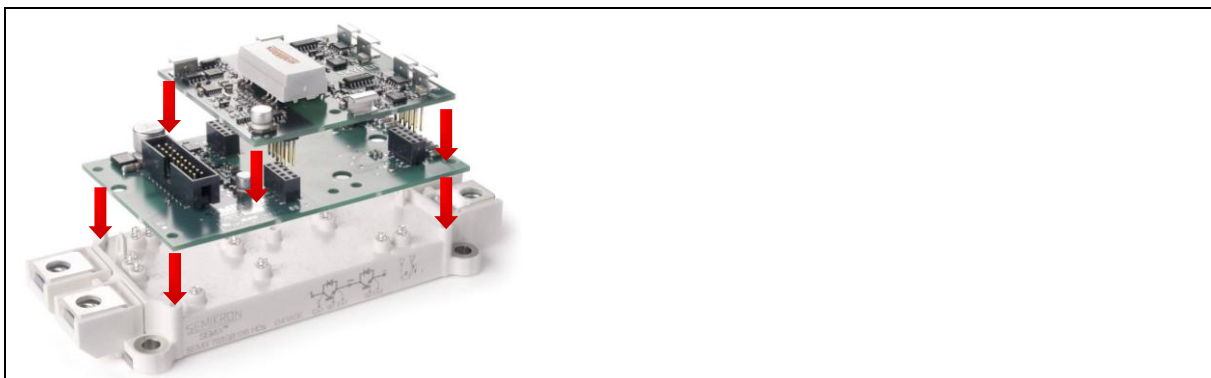


Fig. 1-2 SEMiX housing size 3 with SKYPER driver core and adapter board

1.2 Advantages and Benefits

The above-mentioned features allow for a compact, flat and low-inductance inverter design (see Fig. 1-3 and Fig. 1-4). The DC-link connections can be short and very low inductive, resulting in reduced voltage overshoots. In the case of paralleled IGBT modules, even and balanced current sharing can be achieved.

Thanks to the directly mounted driver (see Fig. 1-2) optimum IGBT control can be achieved and noise on gate wires or loose connectors can be ruled out.

With SEMiX modules, the entire inverter design can be simplified. Furthermore, the assembly processes involved in inverter production for the units are less complex (e.g. no manual or additional wave soldering). As a result, quality is boosted, while the overall system costs decrease.

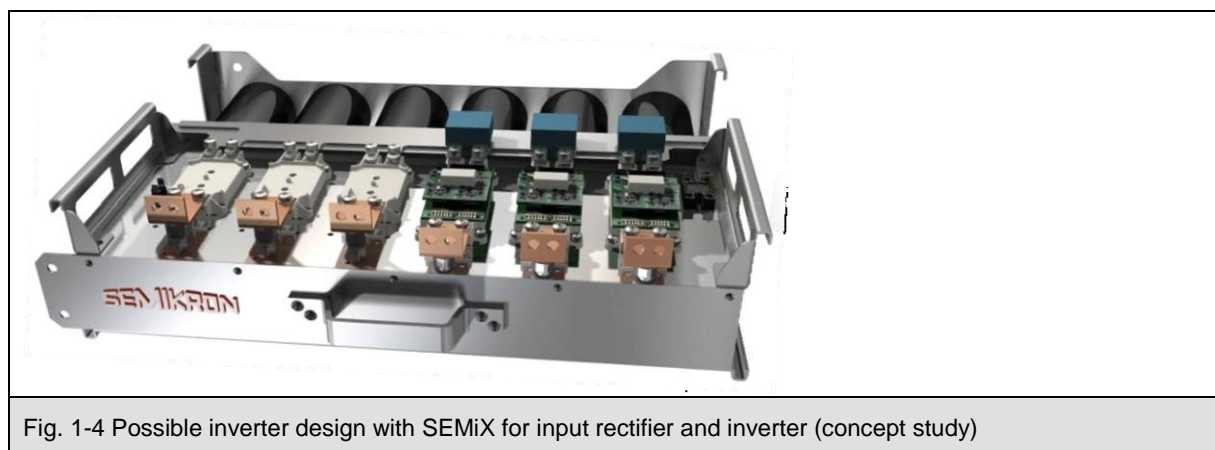
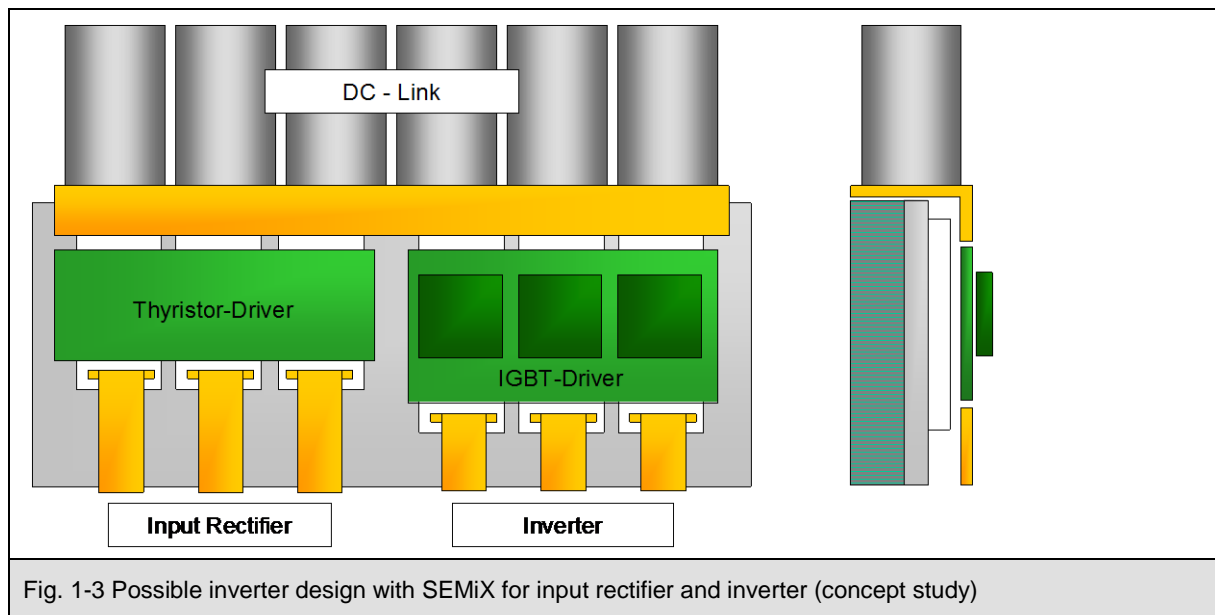


Fig. 1-4 Possible inverter design with SEMiX for input rectifier and inverter (concept study)

2 Disclaimer

The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior

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specification and written approval by SEMIKRON. Wetherefore strongly recommend prior consultation of our personal.