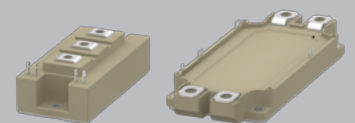


## Fuji Electric High-Performance Hybrid SiC Modules Equipped with a Next Generation Device

Fuji Electric Hybrid SiC modules consist of a SiC based SBD (Schottky Barrier Diode) and Si based IGBT (Insulated Gate Bipolar Transistor). With a lineup of rated voltages of 1200V and 1700V, this series contributes to energy saving and miniaturization in various types of industrial equipment.

- Configured with a “X Series / V Series IGBT + SiC-SBD” high-performance, low-loss chip-set
- Contributes to energy savings in power conversion equipment by significantly reducing losses
- Capable of high-frequency operation allowing for reduced magnetic filter size
- Compatible with previous Si-IGBT modules and packages

\*Fuji Electric Hybrid SiC modules were applied in the traction converters on the N700 Series Shinkansen (a joint development with Central Japan Railway Company).



Package (typical examples)

Applications: General motor drives  
UPS, PCS, and etc

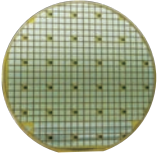


## 1. Significant Loss Reduction

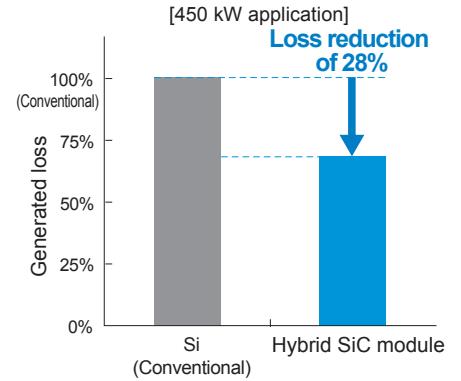
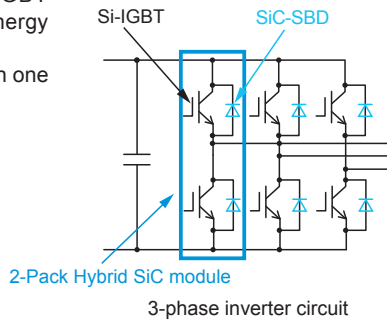
Significantly reduces diode switching loss and IGBT turn-on loss, while also contributing to substantial energy savings in power converters.

Reduce total device loss by 28%, when compared with one of our conventional inverters using Si modules\*1.

SiC-SBD wafer



2-Pack Hybrid SiC module



## 2. Higher Output and Smaller Footprint

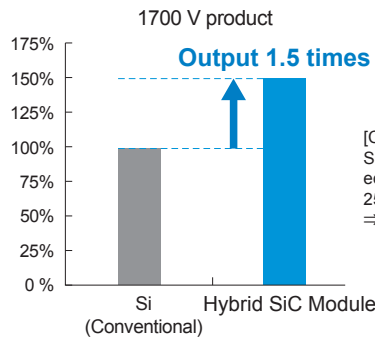
Capable of high-frequency operation and contributes to the miniaturization of peripheral components such as filters allowing for space-savings for equipment.

Capable of higher output at the same loss and size as conventional products.



Enable capacity expansion from 315 kW to 450 kW for Fuji Electric's inverters\*1 without changing the equipment size.





The resultant capacity expansion makes it possible to reduce the number of installed units.



Reduce 2 units to 1 unit



## Product lineup 1200V/1700V

Series Type	Package	Size [mm]	$I_c$			
			200A	300A	400A / 450A	600A
IGBT Hybrid Modules with SiC-SBD V series	 M274	45 × 92	1200V			
	 M276	62 × 108	1200V			
	 M277	80 × 110			1700V	
	 M254	62 × 150			1200V	

\*1 "FRENIC-VG Series Stack Type (690 V Series)" large capacity inverter

### ⚠ Safety Precautions

- \* Before using this product, read the "Instruction Manual" and "Specifications" carefully, and consult with the retailer from which you purchased this product as necessary to use this product correctly.
- \* The product must be handled by a technician with the appropriate skills.

## Fuji Electric Co., Ltd.

URL [www.fujielectric.com/products/semiconductor/](http://www.fujielectric.com/products/semiconductor/)  
Gate City Ohsaki, East Tower, 1-11-2, Ohsaki, Shinagawa-ku, Tokyo 141-0032, Japan Tel:+81-3-5435-7156

- Fuji Electric Hong Kong Co., Ltd. Unit 1601-03 & 05, 16/F., Tower II, Grand Century Place, No. 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong Tel: +852-2664-8699
- Fuji Electric Taiwan Co., Ltd. 5F, No.168, Song Jiang Road, Taipei, Taiwan Tel: +886-2-2511-1820
- Fuji Electric Asia Pacific Pte. Ltd. 151 Lorong Chuan, #03-01/01A, New Tech Park, SINGAPORE 556741 Tel: +65-6533-0014
- Fuji Electric India Private Ltd. 119(Part), 120, 120A, Electrical and Electronics Industrial Estate, Perungudi, Chennai - 600096, Tamil Nadu, India Tel: +91-44-40004200
- Fuji Electric Corp. of America 50 Northfield Avenue Edison, NJ 08837, USA Tel: +1-732-560-9410
- Fuji Electric Europe GmbH Goethering 58, 63067 Offenbach am Main, F.R. GERMANY Tel: +49-69-6690290

2024-9 FOLS PDF

The contents of this document are subject to change without notice.