

FOR IMMEDIATE RELEASE

No. 3759

Customer Inquiries

Media Inquiries

Semiconductor & Device Marketing Dept. A and Dept. B
Mitsubishi Electric Corporation

Public Relations Division
Mitsubishi Electric Corporation

www.MitsubishiElectric.com/semiconductors/

prd.gnews@nk.MitsubishiElectric.co.jp
www.MitsubishiElectric.com/news/

Mitsubishi Electric to Ship Samples of S1-Series HVIGBT Module

Designed for extra powerful and efficient inverter systems of railways, electric power systems and more



S1-Series HVIGBT Module

TOKYO, December 23, 2024 – [Mitsubishi Electric Corporation](https://www.mitsubishielectric.com) (TOKYO: 6503) announced today that it will begin shipping samples of two new S1-Series High Voltage Insulated Gate Bipolar Transistor (HVIGBT) modules, both rated at 1.7kV, for large industrial equipment such as railcars and DC power transmitters from December 26. Thanks to proprietary Insulated Gate Bipolar Transistor (IGBT) devices and insulation structures, the new modules offer excellent reliability and low power loss and thermal resistance, which are expected to increase the reliability and efficiency of inverters in large industrial equipment.

Mitsubishi Electric's 1.7kV HVIGBT modules, first released in 1997 and highly regarded for their excellent performance and high reliability, have been widely adopted for inverters in power systems.

The new S1-Series modules incorporate Mitsubishi Electric's proprietary Relaxed Field of Cathode (RFC) diode, which increases the Reverse Recovery Safe Operating Area (RRSOA) by 2.2 times compared to previous models* for improved inverter reliability. In addition, the use of an IGBT element with a Carrier Stored Trench Gate Bipolar Transistor (CSTBT**) structure helps reduce both power loss and thermal resistance for more efficient inverters. Furthermore, Mitsubishi Electric's proprietary insulation structure increases the insulation voltage resistance to 6.0kVrms, 1.5 times that of previous products,* resulting in more flexible insulation designs for compatibility with a wide range of inverter types.

* Comparison with CM1200DC-34N, CM1200E4C-34N and CM1200DC-34S.

** Mitsubishi Electric's proprietary IGBT chip construction incorporating carrier-store effect.

Product Features

- 1) ***Proprietary RFC diode and IGBT elements, and CSTBT structure, for reliable and efficient inverters***
 - The use of a proprietary RFC diode improves inverter reliability by increasing the RRSOA withstand capacity by 2.2 times compared to existing models, thus extending the guaranteed range in which reverse recovery current and reverse voltage during switching will not cause damage.
 - RFC diodes and IGBT elements combined with a CSTBT structure reduce power loss and thermal resistance, thereby increasing inverter efficiency.
- 2) ***1.5 times higher insulation voltage for compatibility with diverse inverters***
 - Mitsubishi Electric's proprietary insulation structure improves the insulation voltage resistance to 6.0 kVrms, 1.5 times that of existing products, which increases the internal insulation design flexibility for compatibility with diverse inverter types.
- 3) ***Dimensional compatibility with existing products simplifies inverter design***
 - By maintaining the same external dimensions as existing products,* the modules enable easy replacement to simplify and shorten the process of designing new inverters.

Main Specifications

Series	New S1-Series		Existing products		
			S-Series	N-Series	
Type	CM1200DC -34S1	CM1200E4C -34S1	CM1200DC -34S	CM1200DC -34N	CM1200E4C -34N
Voltage rating	1.7kV		1.7kV	1.7kV	
Current rating	1200A		1200A	1200A	
Isolation voltage	6.0kVrms		4.0kVrms	4.0kVrms	
Connection	Dual Type	Chopper type	Dual Type	Dual Type	Chopper type
Dimensions (W×D)	130×140mm		130×140mm	130×140mm	
Price	By individual quotation		By individual quotation	By individual quotation	
Sample shipments	December 26, 2024		January 1, 2013	April 1, 2004	

Power semiconductors that efficiently convert electricity are increasingly being used to help realize a more decarbonized society. Power semiconductor modules for large industrial equipment are used in power-conversion devices such as inverters in power-related systems, including railway traction systems, power supplies, and DC power transmitters. There is a growing need for high-output, high-efficiency products that can further improve power conversion efficiency. In addition, such products must have high insulation-voltage resistance to ensure reliability and reduce the risk of internal short circuits and leakage currents in inverters for greater safety.

Website

<https://www.MitsubishiElectric.com/semiconductors/powerdevices/>

CSTBT is a trademark of Mitsubishi Electric Corporation.

###

About Mitsubishi Electric Corporation

With more than 100 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Mitsubishi Electric enriches society with technology in the spirit of its “Changes for the Better.” The company recorded a revenue of 5,257.9 billion yen (U.S.\$ 34.8 billion*) in the fiscal year ended March 31, 2024. For more information, please visit www.MitsubishiElectric.com

*U.S. dollar amounts are translated from yen at the rate of ¥151=U.S.\$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2024