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FOR IMMEDIATE RELEASE **No. 3907**

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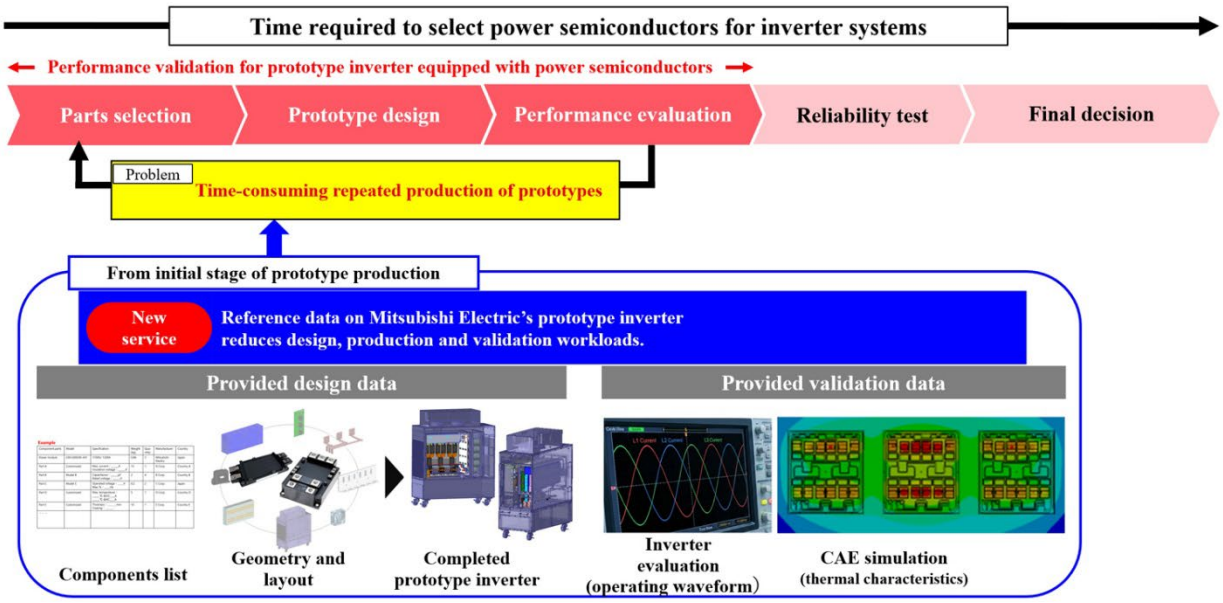
Mitsubishi Electric to Launch Data-provision Service to Accelerate Adoption of Latest Power Semiconductors

3-level inverter design and validation data will speed up inverter system development



Adoption flow of power semiconductors for inverter systems and details of new service

TOKYO, June 5, 2026 – Mitsubishi Electric Corporation (TOKYO: 6503) announced today that it will launch a free service on June 28 to provide design and validation data on a proprietary prototype inverter used for power conversion systems (PCSs). The Mitsubishi Electric's prototype inverter incorporates the company's insulated gate bipolar transistor (IGBT) module embedded with the latest 8th-generation IGBTs. The service is expected to help customers accelerate their development of PCSs for solar power and other renewable energy applications.

The service will provide design and validation data for three-level inverters,[1] including experimental results obtained through a technical collaboration with the Industrial Technology Research Institute (ITRI) in Taiwan. Mitsubishi Electric aims to reduce user workloads in parts selection, design, manufacturing and validation by providing comprehensive data on its Industrial LV100-type 1.2kV IGBT Module (for large-capacity PCSs)

[1] Controls output voltage in three levels by generating intermediate potential, offering significant advantages in achieving higher efficiency and more compact equipment.

and the Industrial NX-type 1.2kV IGBT Module (for medium- to large-capacity PCSs). This is expected to contribute to the faster development of renewable energy inverters.

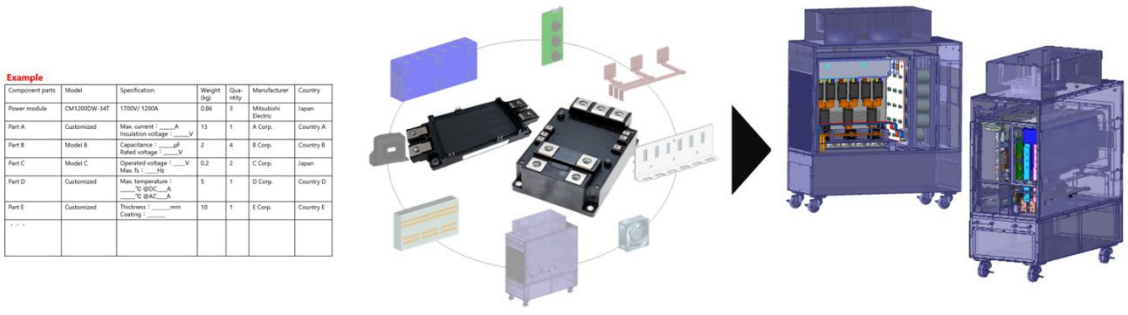
The global expansion of renewable energy power generation has increased demand for PCSs that convert power between direct current (DC) and alternating current (AC). Megawatt-class, high-voltage and large-capacity PCSs used in large-scale installations, such as mega-solar plants, require three-level inverter topologies to achieve high efficiency and compact size. However, incorporating power semiconductors into such systems poses challenges, including complex thermal design, fault protection, high-density layout design, and time-consuming validation at the system level.

To address these challenges, Mitsubishi Electric will provide data on prototype inverters equipped with its IGBT modules, including LV100 and NX types, which are both embedded with the latest 8th-generation IGBTs. The service will lighten development burdens and shorten the time to market for customers by offering design data, such as geometry, component layout and electrical circuitry, as well as validation data from real-world evaluations of thermal characteristics and short-circuit protection. Obtaining such data is often a technical hurdle in developing medium-to-large capacity systems.

Details of New Service

1) Provision of component lists and design data to reduce design workloads

- Mitsubishi Electric has developed proprietary prototype inverters equipped with its IGBT modules embedded with the latest 8th-generation IGBTs. These include the Industrial LV100-type 1.2kV IGBT Module (rated at 1200V/1800A) for large-capacity PCSs and the Industrial NX-type 1.2kV IGBT Module (rated at 1200V/1000A) for a wide range of medium- to large-capacity PCSs. All of these modules are used in megawatt-class renewable energy power generation systems.
- The service will provide component lists and design data, including part layouts and electrical circuitry, to reduce the burden of selecting and designing parts.



Example

Component parts	Model	Specification	Weight (kg)	Quantity	Manufacturer	Country
Power module	CM1200DW-34T	1700V/ 1200A	0.86	3	Mitsubishi Electric	Japan
Part A	Customized	Max. current : ____A Insulation voltage : ____V	13	1	A Corp.	Country A
Part B	Model B	Capacitance : ____pF Rated voltage : ____V	2	4	B Corp.	Country B
Part C	Model C	Operated voltage : ____V Max. fs : ____Hz	0.2	2	C Corp.	Japan
Part D	Customized	Max. temperature : ____°C @DC____A ____°C @AC____A	5	1	D Corp.	Country D
Part E	Customized	Thickness : ____mm Coating : ____	10	1	E Corp.	Country E
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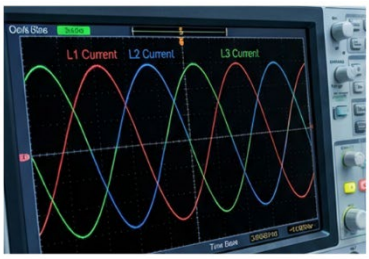
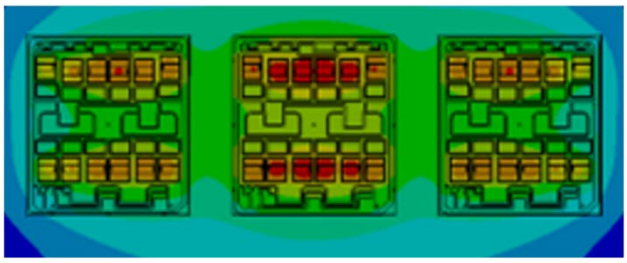
Components list **Geometry and layout** **Completed prototype inverter**

2) Provision of validation data to reduce design, manufacture and evaluation workloads

- The service will provide evaluation data from actual equipment and computer-aided engineering (CAE) analysis regarding thermal performance, short-circuit protection, current balance and surge voltage—areas that can present technical challenges in developing medium- to large-capacity inverters.

- By utilizing this validation data as reference information, users can improve the accuracy of their prototype designs and manufacturing processes to meet in-house design standards.





Inverter evaluations (operating waveform) **CAE simulation (thermal characteristics)**

Collaboration with ITRI

For this initiative, Mitsubishi Electric collaborated with ITRI to design and prototype peripheral components, such as control systems and reactor loads. They also established an inverter testing environment and evaluation processes. Combining ITRI's advanced expertise in power conversion technology with Mitsubishi Electric's latest power semiconductor technology enabled the extraction of highly practical and reliable validation data.

Specifications of Proprietary Prototype Inverters and Provided Data

		3-level inverter prototype (LV100-type)	3-level inverter prototype (NX-type)
IGBT modules	Products	8th-gen IGBT (Industrial LV100-type 1.2kV IGBT Module)	8th-gen IGBT (Industrial NX-type 1.2kV IGBT Module)
	Type name	CM1800DW-24ME	CM1000DX4-24ME
	Rating	1200V / 1800A, 2in1, 4kV isolation	1200V / 1000A, 2in1, 4kV isolation
Inverter prototype	Main app.	Power Conversion Systems (PCS) for solar power, etc.	
	Topology	3-level ANPC three-phase inverter	
	Capacity	1.2MW	0.8MW
	Voltage	DC 1500V / AC 660V	DC 1500V / AC 660V
	Current	AC 1050A	AC 700A
Provided data		Design data (parts list, layout, CAD) Validation data (waveforms, thermal, protection, etc.)	

About Industrial Technology Research Institute (ITRI)

ITRI is a non-profit organization headquartered in Hsinchu County, Taiwan. With approximately 6,000 researchers, it is one of the world's leading applied research institutions, focusing on scientific and technological research and development, promoting industrial development, creating economic value, and enhancing social welfare. For more details, please visit https://www.itri.org.tw/english/.

Website

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

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About Mitsubishi Electric Corporation

Guided by its corporate philosophy, Mitsubishi Electric Corporation (TOKYO: 6503) places sustainability at the core of its operations and values stakeholder trust—encompassing society, customers, shareholders and employees. In pursuing profitability, capital efficiency and growth, Mitsubishi Electric works closely alongside customers to develop value-added solutions that address today's complex challenges while enhancing the company's sustainable corporate value.

Founded in 1921, Mitsubishi Electric has over a century of experience in delivering reliable, high-quality products and solutions. With over 200 group companies and approximately 150,000 employees worldwide, the company is a recognized global leader in manufacturing, marketing and selling electrical and electronic equipment and systems across a broad range of sectors, including public utility systems, energy systems, defense and space systems, factory automation systems, automotive equipment, building systems, air conditioning systems & home products, digital innovations, and semiconductor & devices.

Mitsubishi Electric recorded consolidated revenue of 5,894.7 billion yen (U.S.$ 36.8 billion*) in the fiscal year that ended on March 31, 2026. For more information, please visit www.MitsubishiElectric.com

*JPY 160=USD 1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2026