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FOR IMMEDIATE RELEASE

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Mitsubishi Electric to Ship Samples of New IGBT Module T Series with Seventh-generation IGBT

Expanded lineup will contribute to low power loss and high reliability of industrial equipment

TOKYO, May 19, 2015 – [Mitsubishi Electric Corporation](http://www.mitsubishielectric.com) (TOKYO: 6503) announced today that it would begin shipping samples of its new T series power semiconductor modules featuring seventh-generation insulated-gate bipolar transistors (IGBTs), comprising three different packages and 48 models in total. The new modules realize improved power loss and reliability for general-purpose inverters, elevators, uninterruptible power supplies (UPS) and other industrial equipment. Sample shipments will begin June 30.

The modules will be exhibited at major trade shows including Power Conversion Intelligent Motion (PCIM) Europe 2015 in Nuremberg, Germany from May 19 to 21, MOTORTECH JAPAN 2015 during TECHNO-FRONTIER 2015 in Japan from May 20 to 22, and PCIM Asia 2015 in China from June 24 to 26.



NX-type Solder Pin Package



NX-type Press Fit Pin Package



Standard-type Package

Product Features

1) *Reduced power loss thanks to seventh-generation IGBT and seventh-generation diode*

- Seventh-generation CSTBT¹™ chip achieves low power loss and low EMI noise.
- Relaxed Field of Cathode (RFC) diode² chip incorporating new backside diffusion process achieves low power loss and suppression of recovery-voltage surge.

¹ Mitsubishi Electric's original IGBT chip construction incorporating carrier-store effect

² P layer is added partially on cathode side and the hole is injected during recovery term to soften the recovery waveform and to suppress the surge voltage (only for 1200V rating).

2) Reliability of de facto standard package are improved by latest package technology

- The internal structure is improved, keeping compatibility with de facto standard package.
- Integration of insulation and copper base in the substrate, along with improved internal electrode construction, helps to increase thermal cycle life³ and lower internal inductance, leading to more reliable equipment performance.

³ The life proven in a stress test of relatively long-term temperature cycling between two case temperature

Sample Shipments

Package	Voltage Rating	Current Rating	Shipment
NX-type Solder Pin Package	650V	100, 150, 200, 300, 450, 600A	From June 30
	1200V	100, 150, 200, 225, 300, 450, 600, 1000A	
NX-type Press Fit Pin Package	650V	100, 150, 200, 300, 450, 600A	
	1200V	100, 150, 200, 225, 300, 450, 600, 1000A	
Standard-type Package	650V	100, 150, 200, 300, 400, 600A	
	1200V	100, 150, 200, 300, 450, 600A	

Sample Shipment Targets

The new modules’ high-efficiency energy use, long life, low power loss and high reliability are expected to attract the attention of companies producing general-purpose inverters, elevators, UPS, wind- and solar-power equipment, servos and other industrial equipment.

Package Details

NX type

- Internal inductance has been reduced 30% compared with conventional modules⁴.
- Improved thermal cycle life and power cycle life⁵ realized with Solid Cover technology by combining a resin-insulated metal baseplate and direct potting resin⁶.
- The press-fit-pin package model can be fixed onto equipment without soldering, simply by pressing the pins into the PCB board.
- The resin filling reduces siloxane⁷ and improves the gas barrier effect to meet market demands.

Standard type

- Internal inductance is reduced 30% compared with a conventional model⁸ thanks to improved internal electrode construction.
- The Thick Metal Substrate technology removes the solder layer and increases the thermal cycle life.
- The package can be downsized⁹ by increasing the thickness of the copper pattern and improving the thermal conductivity.

⁴ Compared with Mitsubishi Electric’s sixth-generation IGBT module (CM450DX-24S)

⁵ The life proven in a stress test of relatively short-term temperature cycling between two junction temperature

⁶ Specially controlled epoxy resin matched to the thermal expansion rate and featuring improved adhesion

⁷ Low molecular chemical compound in the silicone resin

⁸ Compared with Mitsubishi Electric’s sixth-generation IGBT module (CM600DY-24S)

⁹ Base plate area decreased by 24% (CM600DY-24S: 80×110mm→62×108mm)

Other Features

PC-TIM module (optional)

- This module, which uses PC-TIM¹⁰ of optimized thickness, eliminates the need for thermal grease.

¹⁰ Phase Change Thermal Interface Material: high thermal conductivity grease, which becomes solid at room temperature and then softer as the temperature rises

Main Specifications

Package	Model	Voltage Rating	Current Rating	Circuit	Package Size W×D (mm)
NX-type Soldering Pin Package	CM300DX-13T	650V	300A	2 in 1	62×152
	CM450DX-13T		450A		
	CM600DX-13T		600A		
	CM100TX-13T		100A	6 in 1	
	CM150TX-13T		150A		
	CM200TX-13T		200A		
	CM150RX-13T	650V	150A	7 in 1	62×137
	CM200RX-13T		200A		
	CM225DX-24T	1200V	225A	2 in 1	62×152
	CM300DX-24T		300A		
	CM450DX-24T		450A		
	CM600DX-24T		600A		
	CM1000DX-24T		1000A	6 in 1	62×122
	CM100TX-24T		100A		
	CM150TX-24T		150A	7 in 1	62×137
	CM200TX-24T		200A		
	CM100RX-24T		100A		
	CM150RX-24T		150A		
NX-type Press Fit Pin Package	CM300DXP-13T	650V	300A	2 in 1	62×152
	CM450DXP-13T		450A		
	CM600DXP-13T		600A		
	CM100TXP-13T		100A	6 in 1	
	CM150TXP-13T		150A		
	CM200TXP-13T		200A		
	CM150RXP-13T	650V	150A	7 in 1	62×137
	CM200RXP-13T		200A		
	CM225DXP-24T	1200V	225A	2 in 1	62×152
	CM300DXP-24T		300A		
	CM450DXP-24T		450A		
	CM600DXP-24T		600A		
	CM1000DXP-24T		1000A	6 in 1	62×122
	CM100TXP-24T		100A		
	CM150TXP-24T		150A	7 in 1	62×137
	CM200TXP-24T		200A		
	CM100RXP-24T		100A		
	CM150RXP-24T		150A		
Standard-type Package	CM100DY-13T	650V	100A	2 in 1	34×94
	CM150DY-13T		150A		48×94
	CM200DY-13T		200A		
	CM300DY-13T		300A		62×108
	CM400DY-13T		400A		
	CM600DY-13T		600A		
	CM100DY-24T	1200V	100A	2 in 1	34×94
	CM150DY-24T		150A		48×94
	CM200DY-24T		200A		
	CM300DY-24T		300A		62×108
	CM450DY-24T		450A		
	CM600DY-24T		600A		

Environmental Awareness

The products mentioned in this release are compliant with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive 2011/65/EU.

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About Mitsubishi Electric Corporation

With over 90 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. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,323.0 billion yen (US\$ 36.0 billion*) in the fiscal year ended March 31, 2015. For more information visit:

<http://www.MitsubishiElectric.com>

*At an exchange rate of 120 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2015