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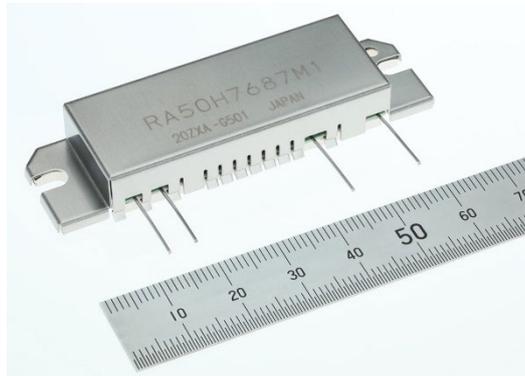
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## **Mitsubishi Electric to Launch 50W Silicon RF High-power MOSFET Module for Commercial Two-way Radio**

*Will help to expand communication range and reduce power consumption*



Silicon RF High-power MOSFET Module (RA50H7687M1)

**TOKYO, July 14, 2022** – [Mitsubishi Electric Corporation](https://www.mitsubishielectric.com) (TOKYO: 6503) announced today that it will launch a 50W silicon radio-frequency (RF) high-power metal-oxide semiconductor field-effect transistor (MOSFET) module for use in high-frequency power amplifiers of commercial two-way radios on August 1. The model, which offers an industry-leading<sup>1</sup> 50W power output in the 763MHz to 870MHz band and high total efficiency<sup>2</sup> of 40%, is expected to help expand radio communication range and reduce power consumption.

The 150MHz and 400MHz frequency bands used for various wireless systems have become congested in North America and other markets, so in response, the 700MHz band, formerly used for analog TV broadcasting, has been reallocated for commercial two-way radio, increasing the demand for radios that support this band. Conventional power amplifiers, however, experience large power loss, so there is a need for RF high-power MOSFET modules offering built-in input/output impedance-matching circuit<sup>3</sup> and guaranteed output-power performance. The new silicon RF high-power MOSFET (RA50H7687M1), which achieves unmatched power output and high total efficiency for commercial radios compatible with the 700MHz band, is expected to expand the communication range and lower the power consumption of such radios.

<sup>1</sup> As of July 14, 2022 according to Mitsubishi Electric's research of power amplifiers in the 763MHz to 870MHz band with input power of 50mW

<sup>2</sup> Efficiency of power converted to high frequency waves

<sup>3</sup> Circuit that suppresses loss and transmits signals by matching output and input impedances

## **Product Features**

### **1) *Industry-leading 50W power output for extended radio-communication range***

- Both on-resistance and drain-source capacitance<sup>4</sup> are reduced through miniaturization.
- Low on-resistance for improved power density achieves unmatched 50W output power for two-way radio.
- Increased output power expands communication range by max. 6% versus existing model.<sup>5</sup>

### **2) *Industry-leading total efficiency for reduced power consumption and smaller dimensions***

- Reduced drain-source capacity and optimized input/output impedance-matching circuit achieve industry-leading total efficiency of 40% for commercial two-way radio.
- Increased total efficiency reduces MOSFET heat generation, resulting in power savings and downsizing.

### **3) *Built-in impedance-matching circuit and conventional package reduce circuit-design load***

- Built-in input/output matching circuit simplifies the external circuit and reduces radio circuit-design load.
- Same external profile as that of existing product simplifies adoption of new module.

## **Future Developments**

Mitsubishi Electric plans to expand the frequency range of its lineup by launching a 900MHz module equipped with the newly developed MOSFET in January 2023.

## **Main Specifications**

Model	RA50H7687M1
Frequency	763 – 870MHz
Output power	50W min. (65W typ.)
Total efficiency	40% min. (50% typ.)
Drain supply voltage	12.5V
Input power	50mW
Release	Aug. 1, 2022

## **Environmental Awareness**

This product is compliant with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive 2011/65/EU and (EU) 2015/863.

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## **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 4,476.7 billion yen (U.S.\$ 36.7 billion\*) in the fiscal year ended March 31, 2022. For more information, please visit [www.MitsubishiElectric.com](http://www.MitsubishiElectric.com)

\*U.S. dollar amounts are translated from yen at the rate of ¥122=U.S.\$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2022

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<sup>4</sup>Reduced capacitance improves amplifier performance over a wider frequency band

<sup>5</sup>Mitsubishi Electric’s existing 45W RF high-power MOSFET module (RA45H7687M1)