

**MITSUBISHI ELECTRIC CORPORATION**  
**PUBLIC RELATIONS DIVISION**  
7-3, Marunouchi 2-chome, Chivoda-ku, Tokyo, 100-8310 Japan

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**No. 3397**

*Customer Inquiries*

*Media Inquiries*

Semiconductor & Device Marketing Div.B  
Mitsubishi Electric Corporation

Public Relations Division  
Mitsubishi Electric Corporation

<http://www.MitsubishiElectric.com/semiconductors/>

[prd.gnews@nk.MitsubishiElectric.co.jp](mailto:prd.gnews@nk.MitsubishiElectric.co.jp)  
<http://www.MitsubishiElectric.com/news/>

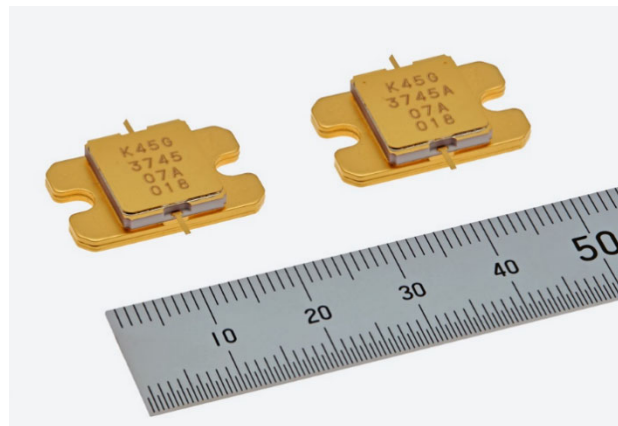
## **Mitsubishi Electric to Expand Product Range of Ku-band GaN HEMTs**

*For multi- & single-carrier communications, larger data capacity and smaller SATCOM earth stations*

**TOKYO, February 18, 2021**– [Mitsubishi Electric Corporation](https://www.mitsubishielectric.com) (TOKYO: 6503) announced today that two new 13.75–14.5 GHz (Ku-band) 30W (45.3dBm) gallium-nitride high-electron-mobility transistors (GaN HEMTs) will be added to the company’s GaN HEMT lineup for satellite-communication (SATCOM) earth stations. The two products, one for multi-carrier<sup>1</sup> communication and the other for single-carrier<sup>2</sup> communication, will support increased data-transmission capacity and smaller earth stations. Sales will begin on March 15.

<sup>1</sup> Voice, video and data communication method that uses carrier signals of various frequencies

<sup>2</sup> Communication method that uses a single-frequency carrier signal



GaN HEMTs for Ku-band SATCOM earth stations  
Single-carrier 30W MGFK45G3745 (left) and multi-carrier 30W MGFK45G3745A (right)

Ku-band satellite systems are increasingly being deployed for emergency communication during natural disasters and for satellite news gathering (SNG) by TV broadcasters in remote areas where cable networks do not exist. Meanwhile, in addition to the growing use of conventional single-carrier communication, multi-carrier communication is increasingly needed for fast, high-volume communication and to support the downsizing of mobile stations for purposes such as SNG.

So far, Mitsubishi Electric has introduced five GaN HEMTs for multi-carrier and single-carrier SATCOM earth stations. The two new 30W GaN HEMTs will enable more flexible amplifier designs, including for rated power levels and the use of GaN drivers. They also will support the downsizing of earth stations as well as faster, larger-capacity satellite communication.

**Sales Schedule**

Product	Application	Model	Overview			Release
			Frequency	Saturated output power	Application	
Ku-band GaN-HEMTs	SATCOM earth stations	MGFK45G3745A	13.75–14.5 GHz	45.3dBm (30W)	Multi-carrier	Mar. 15, 2021
		MGFK45G3745		45.3dBm (30W)	Single-carrier	

**Product Features**

**1) Low IMD3 with wide offset frequencies of up to 400MHz for large-capacity SATCOM**

The MGFK45G3745A for multi-carrier communications delivers low IMD3<sup>3</sup> with wide offset frequencies<sup>4</sup> of up to 400MHz for large-capacity, high-speed satellite communication.

<sup>3</sup> Frequency difference between two-tone signals, used in IMD3 measurements.

<sup>4</sup> Third-order intermodulation distortion, a measure of amplifier distortion in the case of two-tone signals.

**2) Expanded GaN HEMT lineup will enable smaller SATCOM earth stations**

Multi-carrier communication (new model in bold)



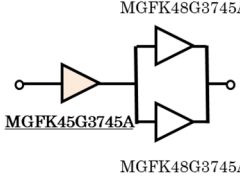
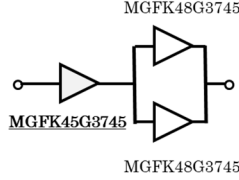
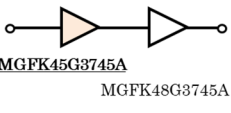

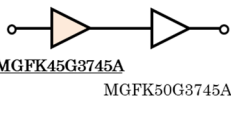
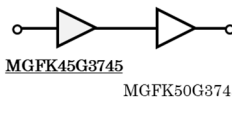
Model	<b>MGFK45G3745A</b>	MGFK48G3745A	MGFK50G3745A
Frequency	13.75GHz–14.5GHz		
Saturated output power	45.3dBm (30W)	48.3dBm (70W)	50.0dBm (100W)
Linear gain	9.5dB	11dB	10dB
Offset frequency @IMD3 = -25dBc	Up to 400MHz	Up to 400MHz	Up to 200MHz

Single-carrier communication (new model in bold)

Model	<b>MGFK45G3745</b>	MGFK48G3745	MGFK50G3745	MGFG5H1503
Frequency	13.75GHz–14.5GHz			
Saturated output power	45.3dBm (30W)	48.3dBm (70W)	50.0dBm (100W)	43.0dBm (20W)
Linear gain	9.5dB	12dB	10dB	24dB
Offset frequency @IMD3 = -25dBc	Up to 5MHz	Up to 5MHz	Up to 5MHz	Up to 5MHz

**Example Usage in Ku-band Power Amplifiers**

The new products are suitable for final-stage applications in 30W-class SATCOM amplifiers and driver-stage applications in 70W- to 100W-class amplifiers.

Amplifier output	Multi-carrier communication	Single-carrier communication	Amplifier output	Multi-carrier communication	Single-carrier communication
30W	 MGFK45G3745A	 MGFK45G3745	120W	 MGFK45G3745A MGFK48G3745A	 MGFK45G3745 MGFK48G3745
70W	 MGFK45G3745A MGFK48G3745A	 MGFK45G3745* MGFK48G3745 *MGF5H1503 also usable			
100W	 MGFK45G3745A MGFK50G3745A	 MGFK45G3745 MGFK50G3745			

**Environmental Awareness**

These products are 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.

Note: These products are based on results obtained from a project subsidized by the New Energy and Industrial Technology Development Organization (NEDO)

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**About Mitsubishi Electric Corporation**

With 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 4,462.5 billion yen (U.S.\$ 40.9 billion\*) in the fiscal year ended March 31, 2020. For more information, please visit [www.MitsubishiElectric.com](http://www.MitsubishiElectric.com)

\*U.S. dollar amounts are translated from yen at the rate of ¥109=U.S.\$1, the approximate rate on the Tokyo Foreign Exchange Market on March 31, 2020