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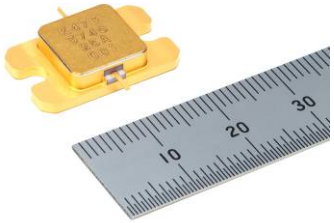
# Mitsubishi Electric Develops Ku-band 50W GaN HEMT for Satellite Earth Stations

**Tokyo, September 12, 2012** – Mitsubishi Electric Corporation (TOKYO: 6503) announced today it has developed a gallium nitride (GaN) high-electron mobility transistor (HEMT) Ku-band (12–18GHz) amplifier for satellite earth stations. The MGFK47G3745, featuring industry-leading output power of 50W, linear gain of 9dB and power added efficiency of 30%, is expected to reduce the number of high frequency amplifiers by half and contribute to greater power saving and downsizing for power transmitter equipment. Mitsubishi Electric will begin shipping samples on October 1.




MGFK47G3745

In recent years, the use of gallium arsenide (GaAs) amplifiers in microwave power transmitters has been increasingly replaced with gallium nitride (GaN) amplifiers due to their high breakdown-voltage, power density and saturated electron speeds.

Satellite-based communication, especially in the Ku-band, enables communication to be established under adverse conditions, such as during natural disasters, and in areas where communication facilities are hard to build. Mobile earth-based stations require in-vehicle portability and must be easy to install, so power-saving measures and downsized power transmitters are highly useful in helping to minimize the size of earth stations. Going forward, Mitsubishi Electric expects to expand its lineup of Ku-band satellite earth stations.

**Advantages of GaN HEMT Ku-band amplifier**

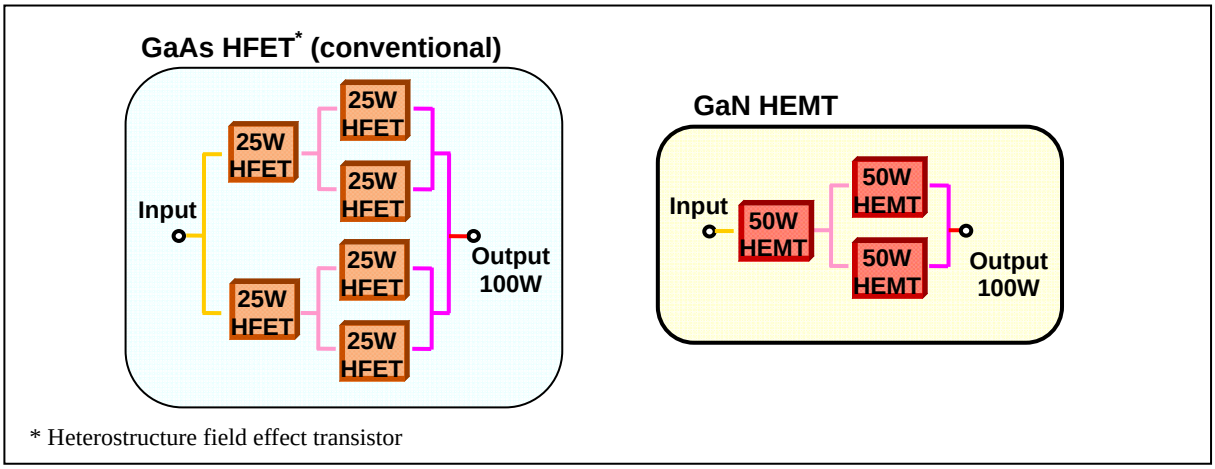
*High output power, efficiency and gain*

- High output power of 50W at 24V high-voltage operation
- High power added efficiency of 30%, 10 points greater than the predecessor MGFK44A4045 model
- High linear gain of 9dB achieved with new high-voltage gate structure and optimized layout

*Low Distortion*

- Output power meeting 3rd-order Inter Modulation (IM3) = -25dBc of 43dBm
- Internally impedance-matched

**Fig. Simplified schematic of amplifier**




* Heterostructure field effect transistor

**Other Features**

| | | MGFK47G3745 |
|---|---|---|
| Operating Conditions | VDS (Drain to Source Voltage) | 24 V |
| | IDQ (Quiescent Drain Current ) | 1 A |
| Frequency | | 13.75 – 14.5 GHz (Ku band) |
| Output Power | Pout (Typical Output Power at Pin=42dBm) | 47 dBm (50 W) |
| Linear Gain | Glp (Typical Linear Gain at Pin=27dBm) | 9 dB |
| Power Added Efficiency | PAE (Typical Power Added Efficiency at Pin=42dBm) | 30 % |

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**About Mitsubishi Electric**

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 3,639.4 billion yen (US$ 44.4 billion*) in the fiscal year ended March 31, 2012. For more information visit http://www.MitsubishiElectric.com

*At an exchange rate of 82 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2012