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## **Mitsubishi Electric Launches 1200V High-voltage Integrated Circuit for Inverter Systems**

Second-generation 1200V HVIC with high tolerance to switching noise

**Tokyo, March 13, 2012** – Mitsubishi Electric Corporation (TOKYO: 6503) announced today it has developed a high-voltage integrated circuit (HVIC) to drive power modules equipped with AC400 V-output inverter systems for use in Europe and elsewhere. The M81738FP boasts an industry-leading 1,200 V rating and high tolerance to switching noise. Sales begin on April 2.

Variable frequency inverters are being used increasingly in motor control systems of consumer appliances and industrial machinery to save energy and improve performance, which is leading to more demand for HVICs that drive power modules in inverter systems. For AC400 V inverter systems prevalent in Europe and other places, high-voltage HVICs are required. Mitsubishi Electric, which released a first-generation 1,200V HVIC in November 2005, has now developed a second-generation 1,200V HVIC that helps to improve the reliability of AC400 V inverter systems.



M81738FP

### **Product Features**

**1) Highly durable 1,200V voltage for industrial-use AC 400V inverter systems**

- The HVIC uses a 1,200V divided reduced surface field (RESURF) structure to optimize its surface structure. As the structure prevents the concentration of an electric field at p-n junction, the HVIC realizes low current leakage limited to a maximum of 10 $\mu$ A.
- The polycrystalline silicon resistor field plate (PolyRPF) structure of the IC chip surface greatly enhances product durability.

## 2) *High tolerance to switching noise helps achieve highly reliable inverter systems*

- High latch-up immunity (parasitic V-PNP transistor action) by low impedance buried layers of the IC chip.
- Built-in protection circuits provide high tolerance to electrical surges during operation.

## 3) *Compatibility with previous HVIC model (M81019FP)*

- The product's pin configurations and functions are the same as those of the company's first-generation 1,200V HVIC (M81019FP).

### **Main specifications**

|   |  |
|---|--|
| Model number                                  | M81738FP   |
| Breakdown voltage                             | 1200V (high side floating supply) / 24V (low side supply)            |
| Output current                                | ±1.0A  |
| Low side circuit current                      | 1.0mA  |
| High side circuit current                     | 0.5mA  |
| Package type                                  | 24P2Q  |
| Junction-ambient thermal resistance: Rth(j-a) | 90°C/W   |
| Functions                                     | 5V logic input   |
|   | Short circuit protection (SC)  |
|   | Error signal output (at SC circuit action)                           |
|   | Error signal input and output shutdown (both high-side and low-side) |
|   | Under voltage lockout: high-side only                                |
|   | Input interlock  |
|   | Error reset input  |
|   | Active clamp output for gate shutdown (sink current: 1A)             |
| Active clamp for power supply overvoltage     |  |

### **Other Features**

#### *Environmental designing*

- The M81738FP is compliant with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive.

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### **About Mitsubishi Electric**

With over 90 years of experience in providing reliable, high-quality products to both corporate clients and general consumers all over the world, 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. The company recorded consolidated group sales of 3,645.3 billion yen (US\$ 43.9 billion\*) in the fiscal year ended March 31, 2011. For more information visit <http://www.MitsubishiElectric.com>

\*At an exchange rate of 83 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2011