

Fujitsu Announces Fast-Response DC/DC Converter IC for Consumer Electronics

Tokyo, November 16, 2009 -

Fujitsu Microelectronics Limited today announced a new two-channel DC/DC converter⁽¹⁾ IC with fast transient response, for use in digital consumer products, such as LCD TVs and digital video recorders. This new DC/DC converter IC, the MB39A145, utilizes a "bottom detection comparator method", and includes new enhanced circuits which provide changes in voltage, for changes in current to realize a more stable and low ripple output voltage. This improved stability subsequently reduces the number of external components that are needed, such as condensers, thus reducing space. The IC also includes Pulse Frequency Modulation (PFM)⁽²⁾ that is highly efficient in low-current ranges, and allows the equipment to have low power consumption in stand-by mode. Samples of the new converter IC will be available from January 2010.

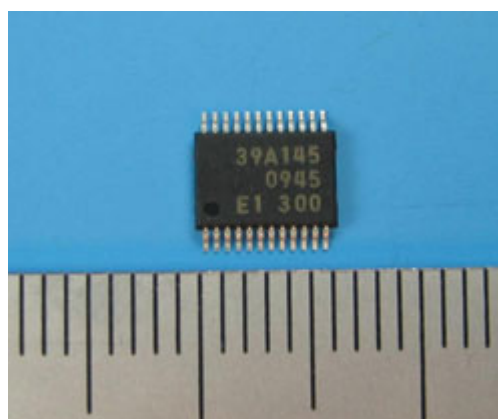


Figure 1. DC/DC Converter IC, MB39A145
(unit: cm)

Today's consumer AV equipment, such as LCD TVs and digital video recorders, have increasingly larger screens, come with multiple functions and utilize advanced video compression technologies. These are supported by ICs required to provide high-speed and multi-functionality. To supply power to those ICs, power supplies must handle the requirements of large currents and fast transient response.

To meet these needs, Fujitsu Microelectronics has been providing DC/DC converter ICs making use of a "bottom detection comparator method" it introduced in 2005, to give fast transient response to rapid changes in output current. This new IC enhances some of the comparator circuits, to provide even greater stability in output voltage. In addition, for low current ranges below 100 milli-Amperes(mA), the use of PFM reduces the power consumption in stand-by mode.

This IC was jointly developed by Fujitsu Microelectronics and Fujitsu VLSI Limited, and will be exhibited at Embedded Technology 2009 to be held in Yokohama, Japan, from November 18-20.

Sample Price and Availability

Series	Price	Sample release schedule
MB39A145	JPY 200	From January 2010

Sales Target

2 million units per month

Press Contacts

Fujitsu Semiconductor Limited Public and Investor Relations Department
Inquiries : <https://www-s.fujitsu.com/jp/group/fsl/en/release/inquiry.html>

Product Features

1. Fast transient response

In consumer AV equipment, such as large screen TVs, when starting the equipment or when there are rapid contrast changes in the scenes of the video, fast transient response and large current supply are necessary. By utilizing a "bottom detection comparator method" in which detection cycle of the output voltage and reference voltage at transient loads is sped-up, the new DC/DC convertor can minimize variations in the generated output voltage when the change in load is large.

2. Energy efficient in low current ranges

In low current ranges below 100mA, or in stand-by mode, the PFM function reduces the power used, thus contributing to a reduction in power consumption of the equipment it is being used in. Additionally, as audio equipment require low-frequency noise measures, the Prohibit Audio Frequency (PAF)⁽³⁾ function can set the minimum frequency to 30 kHz.

3. Reduced component count leads to size reduction and ease of design of power supply systems

The result of the enhanced comparator circuits is a more stable ripple voltage. The improved stability reduces the number of necessary external components, such as condensers, thus making the design of power supply systems easier.

For More Information

<http://jp.fujitsu.com/group/fml/en/> (Fujitsu Microelectronics)

Glossary and Notes

1 DC/DC convertor:

A circuit that converts a direct current voltage to a different voltage.

2 PFM (Pulse Frequency Modulation):

When in operation in this DC/DC converter, if frequency is reduced when in low current ranges, the voltage conversion is done at higher efficiency, thus resulting in lower power consumption.

3 Prohibit Audio Frequency (PAF):

Stops operation in audible frequency ranges

Press Contact:

Fujitsu Microelectronics Ltd.

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About Fujitsu Microelectronics Limited (FML)

Fujitsu Microelectronics Limited designs and manufactures semiconductors, providing highly reliable, optimal solutions and support to meet the varying needs of its customers. Products and services include ASICs/COT, ASSPs, power management ICs, and flash microcontrollers, with wide-ranging expertise focusing on imaging, wireless, automotive and security applications. Fujitsu Microelectronics also drives power efficiency and environmental initiatives. Headquartered in Yokohama, Fujitsu Microelectronics Limited was established as a subsidiary of Fujitsu Limited on March 21, 2008. Through its global sales and development network, with sites in Japan and throughout Asia, Europe, and the Americas, Fujitsu Microelectronics offers semiconductor solutions to the global marketplace.

For more information: <http://jp.fujitsu.com/fml/en/>

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Main specifications of the power management IC, MB39A145

Operating Voltage Range	6.0V ~ 28.0V
Power Method	Bottom detection comparator method, buck converter, 2 channel
Operating Frequency	310KHz, 620KHz, 1MHz (with internal preset)
Voltage Precision	±0.7% (room temp.)
Voltage Range	0.7V ~ 5.5V
Start / Stop	Soft start circuit independent of loads / discharge control circuit
PFM/PWM Functions	Selectable: Auto switching mode, PWM mode
Protection Functions	UVLO/OCP/OVP/UVP/OTP
Operating Temperature	-30°C ~ +85°C
Package	Plastic TSSOP-24 pin (0.50mm pitch)

- *1. PFM (Pulse Frequency Modulation): When in operation in this DC/DC converter, if frequency is reduced when in low current ranges, the voltage conversion is done at higher efficiency, thus resulting in lower power consumption.
- *2. Voltage Precision: Precision measured on evaluation board and conditions set, by Fujitsu Microelectronics.
- *3. UVLO/OCP/OVP/UVP/OTP: Under Voltage Lock-Out / Over Current Protection / Over Voltage Protection / Under Voltage Protection / Over Temperature Protection.