

## **Renesas Technology Releases Compact Lithium-Ion Battery Charger Control IC to Facilitate Design of Small, Safe Lithium-Ion Battery Chargers**

— Designed for battery chargers for digital still cameras, approximately 23% smaller mounting area than previous Renesas products —

Tokyo, November 28, 2005 — Renesas Technology Corp. today announced the M62245FP lithium-ion battery charger control IC, which is designed for use in battery chargers for products such as digital still cameras. Sample shipments of the M62245FP will begin in Japan in December 2005.

The new lithium-ion battery charger control IC incorporates functions essential for safe charging, such as protection against excess-voltage and over-current. In addition, its compact size will facilitate the design of small, safe chargers for lithium-ion batteries.

The features of the M62245FP are summarized below.

### (1) Approximately 23% Smaller Mounting Area than Previous Renesas Products

The new M62245FP has a smaller package and pin count than its well-established predecessor, the M62244FP. The M62245FP employs a 16-pin SSOP instead of the 20-pin SSOP of the M62244FP. This results in a reduction of about 23% in the mounting area, making it possible to design more compact battery chargers.

### (2) Integrates On-Chip all Protection Functions Needed for Safe Charging of Lithium-Ion Batteries

The new M62245FP provides all the protection functions of the M62244FP. These include adapter detection; over-discharge, excess-voltage, and over-current protection; thermal protection; and three timers for monitoring the charge time. This makes it possible to build a lithium-ion battery charger incorporating complex safety features using the M62245FP and a small number of additional parts. Furthermore, the M62245FP has a charger control voltage of  $4.2\text{ V} \pm 30\text{ mV}$ , enabling high-precision battery charging.

### (3) Supports Battery Packs without Thermistor Terminals

The M62245FP uses a battery connection detection method that does not employ a thermistor terminal\*. It can therefore be used in chargers for battery packs lacking such terminals, which have recently appeared on the market.

## **< Product Background >**

In recent years portable electronic products such as digital still cameras have become smaller and thinner, and this has spurred demand for more compact battery chargers. At the same time, the use of lithium-ion batteries, which support extended usage durations due to their high energy density, is increasing. This has made it necessary for battery chargers to incorporate complex safety features such as protection functions.

Renesas Technology currently mass produces the M62244FP, a lithium-ion battery charger control IC with on-chip protection functions to assure safe charging. Now, to better meet the requirements outlined above, Renesas has developed the M62245FP, a more compact lithium-ion battery charger control IC that retains all the protection functions of the M62244FP.

### < Product Details >

Of the functions provided on the earlier M62244FP, the M62245FP lithium-ion battery charger control IC implements the protection functions and only the most generally applicable additional functions. This enables a smaller package size and pin count. The M62245FP employs a 16-pin SSOP (6.4 mm × 5.0 mm) instead of the 20-pin SSOP (6.4 mm × 6.5 mm) of the M62244FP, and its mounting area is approximately 23% smaller.

In addition, the M62245FP uses a battery connection detection method that does not employ a thermistor terminal, relying instead on detection of the battery's positive electrode. This provides support for battery packs lacking thermistor terminals and ensures compatibility with a wider range of battery pack models.

In future, Renesas Technology will continue to develop more compact lithium-ion battery charger control IC products, for example through application of CMOS processes.

<Note>

Note: \* Thermistor terminal: A terminal connected to a thermistor (an element whose resistance value changes with temperature) built into the battery pack. Some battery chargers detect the connection of a battery pack by sensing the connection of the thermistor terminal.

\* Product names, company names, or brands mentioned are the property of their respective owners.

### < Typical Applications >

- Lithium-ion battery chargers for digital still cameras, etc.
- General-use lithium-ion battery chargers

### < Prices in Japan > \*For Reference

| Product Name  | Package     | Price for Orders of 10,000 (Yen/Unit) [Tax Included] |
|---------------|-------------|--|
| M62245FP-DF0T | 16-pin SSOP | 150  |

### < Specifications >

| Item                    | M62245FP Specification   |
|-------------------------|--|
| Power supply voltage    | 3 V to 6.5 V   |
| Charger control voltage | 4.2 V ±30 mV   |
| Recharge start voltage  | 3.9 V ±50 mV   |
| Precharge current 1     | 2 mA to 5 mA   |
| Precharge current 2     | Voltage between current detect resistor pins 20 mV ±10 mV  |
| Fast-charge current     | Voltage between current detect resistor pins 200 mV ±10 mV   |
| Protection functions    | Over-discharge detect, excess-voltage detect, over-current detect<br>Temperature detect, adapter voltage detect<br>Timers (precharge 1, precharge 2, charging completed) |
| LED indicator functions | 2  |
| Package                 | 16-pin SSOP  |

Information contained in this news release is current as of the date of the press announcement, but may be subject to change without prior notice.