

Hitachi Releases P-Channel Power MOSFET with Approximately 40% Reduction in On-Resistance for Power Control in Products such as Notebook PCs

— Industry's lowest on-resistance of 3.6 milli Ohm achieved in small, thin, surface-mount LPAK package, for smaller, more energy-saving systems —

Tokyo, October 29, 2001 — Hitachi, Ltd. (TSE: 6501) today announced the HAT1072H P-channel power MOSFET with an approximately 40% lower on-resistance than Hitachi's previous model, for power control (power management switch) and over-charging/discharging protection circuit switch use in portable information devices such as notebook PCs. Sample shipments will begin in November 2001 in Japan.

The HAT1072H achieves a low on-resistance of 3.6 milli Ohm (typ.) with a breakdown voltage of -30 V--the industry's best performance--using a small, thin, surface-mount LPAK (Hitachi package code) package with the same mounting area as an SOP-8, enabling systems to be made smaller and more energy-saving.

[Background]

Portable information devices such as notebook PCs are provided with power management or similar functions to extend continuous battery drive time, and P-channel power MOSFETs that enable the drive circuitry to be simplified are used as power control switches. With the recent increase in MPU power consumption, large currents also flow in the power MOSFETs, bringing a demand for a significant reduction in on-resistance.

In response to this demand as well as the need for compact size essential to portable products, Hitachi has developed the HAT1072H which achieves a low on-resistance through the use of a new process.

[About this Product]

In the HAT1072H, higher cell density has been achieved through the use of a 0.3 μm process, and cell structure optimization has been implemented to achieve low on-resistance characteristics. In addition, the use of a wireless-construction small, thin, surface-mount LPAK package (Hitachi package code: 5.3 mm \times 6.2 mm \times 1.1 mm (max.)) has made it possible to achieve a reduction in on-resistance of approximately 40% compared with Hitachi's current HAT1048R. This is the industry's lowest on-resistance for an LPAK P-channel power MOSFET with -30 V drain-source breakdown voltage and 4.5 V drive capability, and an SOP-8 package power MOSFET with the same mounting area, making it possible to prevent the increase in loss associated with a greater load current. Moreover, one HAT1072H can be used where two previous products were used in parallel, enabling system size to be reduced and fewer parts to be used.

Future plans include the development of a product supporting -2.5 V drive with a -20 V breakdown voltage using this process, a greater number of package variations including a thin TSSOP-8 package (Hitachi package code) and an SOP-8 housing two devices, to cater for a wide variety of uses including small motor drive and automotive equipment.

< Typical Applications >

- Battery protection circuits (over-charge/discharge protection switches)
- Power control (power management switches) for notebook PCs and portable information devices

< Price in Japan > *For reference

Product Code	Sample price (yen)
HAT1072H	200

< Specifications >

Product Code	Package	Type	Maximum Ratings			-10 V RDS (on) (milli Ohm)		-4.5 V RDS (on) (milli Ohm)	
			VDSS (V)	ID (A)	Pch (W)	typ.	max.	typ.	max.
HAT1072H	LFPAK	P-channel FET (1 device)	-30	-40	30	3.6	4.5	5.3	7.7

Notes: * RDS (on): On-resistance
LFPAK: Hitachi package code