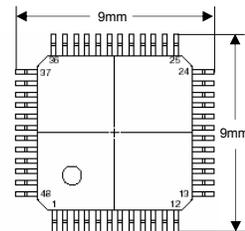## ECOUSB™ Series

μPD720114 USB2.0 Hub Controller

NEC Electronics is a key member of the USB implementer's forum. The World's first USB2.0 Host controller and Hub controller were introduced by NEC Electronics. ECOUSB™ series products inherit the best connectivity and quality from first generation products, while reducing power consumption and BOM costs. NEC Electronics' expertise in USB enables top-notch technical support. NEC Electronics can provide a total solution and accelerate customers' system designs with best performance.

μPD720114 is a USB 2.0 complaint Hub Controller which is suited for "Ecological Solutions." In an extremely small package, the controller integrates a 2.5 V internal voltage regulator for core logic, termination resistances, and reduces the number of external components needed. This results in reduced BOM (Bill of Materials) for the board design. Also, the controller's power consumption is greatly reduced when the Hub is active or in standby mode, through "power saving technology" implementation*. The Hub Controller has 4 downstream-facing ports (maximum) and LED port status indicators. It is suited for the USB Boxed Hub, Monitors, Port replicator, and many other applications.

■ Feature and Outline of the Specification

- 4 downstream ports (max)

- Low power consumption (149mA when all ports run in HS mode), Supports both Bus/Self-powered

- No need for external Serial ROM. Pin strapping options set the number of ports and power management control

- Automatic (detection or negotiation) of the speed of Upstream port. Hi-Speed mode or Full-speed mode supported automatically

- Integrated "Transaction Translator" supports "split transactions"

- Integrated over-current protection

- Integrated controls for LED port status indicators

- USB 2.0 Certified by USB Implementers Forum

- Certified WHQL Logo for Windows Vista, Windows XP & Windows 2000

- 30MHz clock input

- 3.3 V single source (integrated 2.5 V voltage regulator for internal core logic)

- 48-pin TQFP (7 x 7 mm, 0.5mm pitch), Lead (Pb) Free package

■ About ECOUSB™

NEC Electronics' new USB Controller series aims to be adaptive "Ecological Solutions" focused on being "easy to use" for design engineers and end users, reducing power consumption, and shrinking the size of board design by integrating many external electronic components in a small package.

*Remark: Only 10 μA in standby status (when Upstream port V_{BUS} OFF). It is ideal for portable systems and Energy Star program.

The information in this document is subject to change without notice.

■ Applications

- PCs, Monitors
- USB Hub boxes, Keyboards
- Port replicator, Docking station
- Multi-function printer
- Storage, Router, NAS etc.
- Digital TV, STB
- DVD/HDD player/recorder
- Media player, Digital Audio systems

USB application

■ Reference designs

2-layer PCB Self-powered
Hub Reference design
Part Name: **ET-0191A**

Bus-/Self-powered
Hub Reference design
Part Name: **ET-0192**

For more information: www.necel.com/usb/en/product/upd720114.html

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