

To our customers,

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## Old Company Name in Catalogs and Other Documents

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On April 1<sup>st</sup>, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

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Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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# RENESAS TECHNICAL UPDATE

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Product Category	MPU&MCU		Document No.	TN-SH7-A626A/E	Rev.	1.00
Title	Usage notes of resume operation of USB Host Controller (USBH)		Information Category	Technical Notification		
Applicable Product	SH7720 Group SH7721 Group SH7727 Group	Lot No.	Reference Document	SH7720 hardware manual Rev2.00 ( REJ09B0033-0200 ) SH7727 hardware manual Rev5.00 ( REJ09B0254-0500 )		
		All				

There are following usage notes of resume operation of USB Host Controller (USBH) in the SH7720 Group, the SH7721 Group and the SH7727 Group.

#### (1) Phenomenon

While the USB host is providing an output of a Resume (\*1) signal, suppose that (a) PortPower is turned off or that (b) OverCurrent is produced. In this case, the Resume signal should ordinarily be stopped so that the idle (\*2) state will be established. Actually, however, the result is that an idle signal is output.

\*1: In FullSpeed, D+ = Low and D- = High. In LowSpeed, D+ = High and D- = Low.

\*2: In FullSpeed, D+ = High and D- = Low. In LowSpeed, D+ = Low and D- = High.

#### (2) Conditions when the above phenomenon occurs

While a Resume (\*1) signal is being output, (a) PortPower is turned off or (b) OverCurrent is produced.

#### (3) Conditions when the above phenomenon does not occur

The above phenomenon will not occur if there is no Resume operation, that is, Suspend operation has not been done.

#### (4) Workaround by software

If the above phenomenon occurs, Resume is interrupted and then an idle signal is output. However, turning on PortPower enables device recognition. The above phenomenon is removed by the subsequent Port Reset for the device. Normal operation is thus recovered.

Note, however, the above phenomenon will not be removed by USB Reset, which is generated by the HCFS1 and HCFS0 bits in the HcControl (USBHC) register. For this reason, if you are using software that issues USB Reset by the HCFS1 and HCFS0 bits in the HcControl (USBHC) register, modify the software so that it issues Port Reset by setting the PRS bit in the HcRhPortStatus1 or HcRhPortStatus0 (USBHRPS1 or USBHRPS2) register.

However, there is no need to take corrective action if Port Rest has already been issued by the PRS bit before the recognition of USB device connection.