

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.

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# MESC TECHNICAL NEWS

No.M740-20-0008

## Attention for programming using 7532/7536 Group USB function

When using 7532/7536 Group USB function, note the following for software on MCU side.

- **Affected Devices**

M37532RSS, M37532E8FP, M37532M4-XXXFP, M37532M4-XXXGP  
M37536RSS, M37536E8SP, M37536M4-XXXSP

- **Attention**

1. Attention for continuous USB RESET signals
2. Attention for USB Token interrupts (SETUP, OUT, IN) timing

- **Information for 7532/7536 Group User's Manual related to this attention**

● **Attention**

**1. Attention for continuous USB RESET signals**

When the interval between USB RESET signals (a few  $\mu\text{s}$ ) shown in Fig.1, the initialization of request flags in the first USB RESET must be finished before the second USB RESET detection.

Therefore, initialize the USB interrupt source discrimination register 2 and USB interrupt control register in the close subsequence after the end of USB RESET signal\*. The sample procedure is listed in Fig. 2.

(\*when RSTRQ (USB RESET request flag) is cleared)

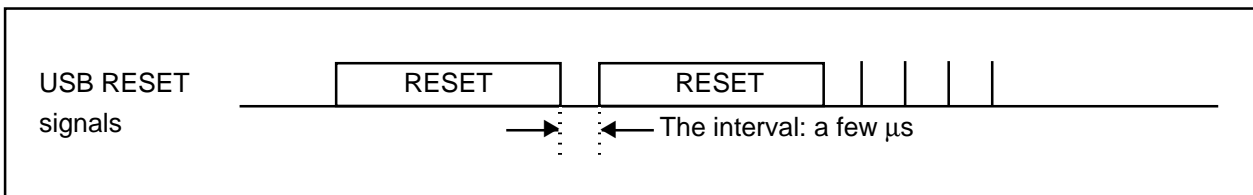


Fig. 1 Example of the short interval between USB RESET signals

USB RESET procedure:

```
.....
DO
  WHILE [RSTRQ] == ON           ; Wait until USB RESET signal ends
```

\* If other than the USB interrupt source discrimination register 2 and the USB interrupt control register are accessed after the USB reset signal ends, the second USB reset signal cannot be cleared/detected.

```
[USBIR2] = CLR                 ; USB interrupt source discrimination register 2 cleared
[USBICON] = %11010000         ; USB enabled, Token/RESET enabled
.....
```

Fig. 2 USB RESET procedure

2. Attention for USB Token interrupts (SETUP, OUT, IN) timing

The transmission/receive of data in 7532/7536 Group is processed by the software. Therefore, the following transmission/receive buffering is needed for USB transactions.

The software should be coded according to the buffering timing shown below in order to design the Token interrupt routine.

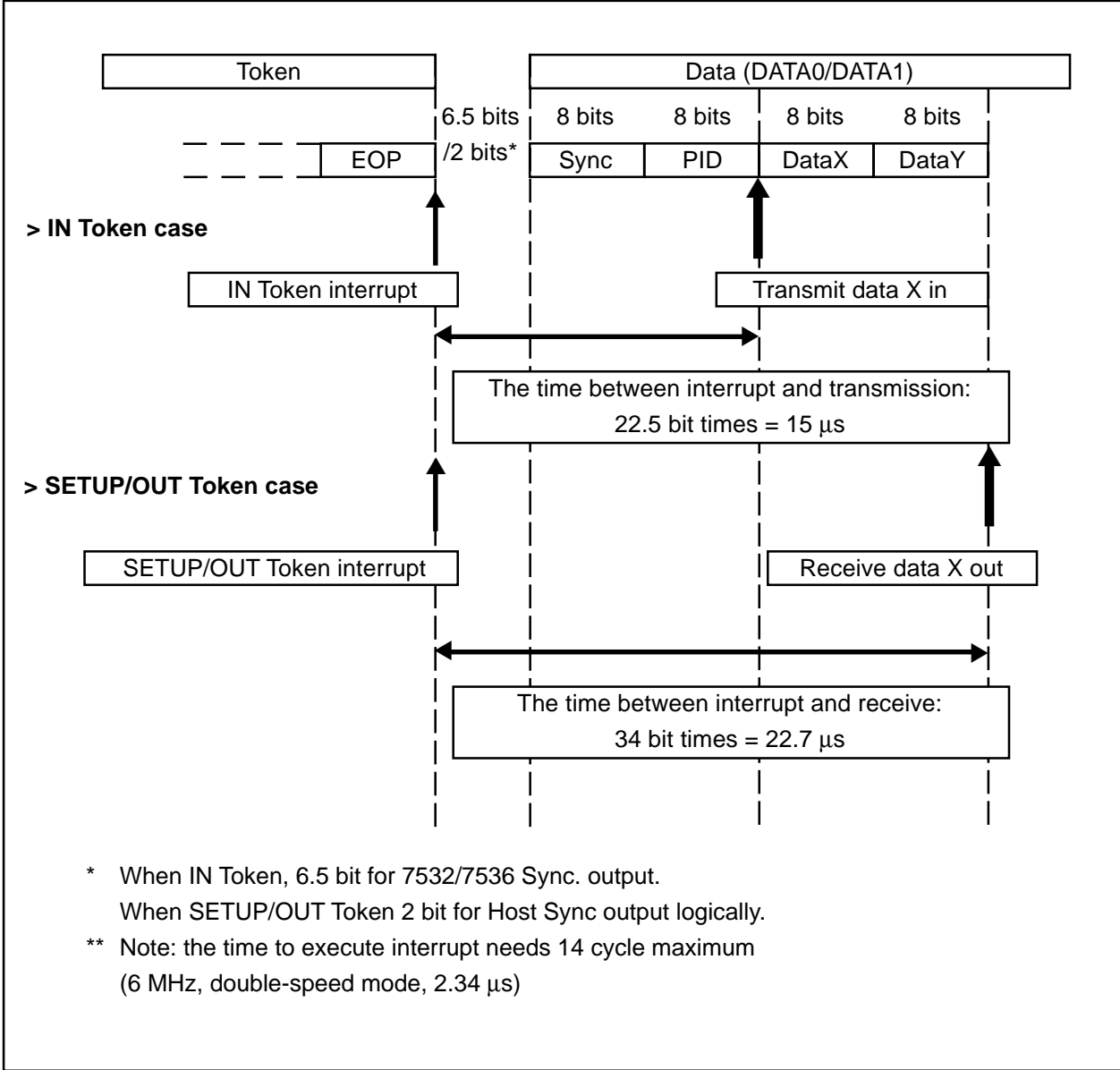


Fig. 3 USB Token transmit/receive interrupt execution timing chart

● Revised information for 7532/7536 Group User's Manual related to this attention

Page	Error	Correct
P2-65 Fig. 2.4.13	USBICON 1XXXXXXXX2	USBICON X1XXXXXXXX2
P2-66 Fig. 2.4.14 <Program description>	USBICON X1XXXXXXXX2	USBICON 1XXXXXXXX2
P2-65 Fig. 2.4.13 <Program description>	(IREQ1 XXXXXX0X2 <u>IN</u> token...) (ICON1 XXXXXX1X2 <u>IN</u> token...)	(IREQ1 XXXXXX0X2 <u>OUT</u> token...) (ICON1 XXXXXX1X2 <u>OUT</u> token...)
P2-66 Fig. 2.4.14 <Program description>	<u>INTKN</u> ?XXXXXXXX2	<u>USBIR1</u> ?XXXXXXXX2