To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 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

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RENESAS TECHNICAL UPDATE

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Product Category	MPU&MCU		Document No.	TN-16C-A170A/E	Rev.	1.00
Title	R8C/Tiny Series Added Function (36.864 MHz Data for Frequency Adjustment) for High-speed On-chip Oscillator Control Register 7 (FRA7)		Information Category	Technical Notification		
Applicable Product	See below	Lot No. See below	Reference Document			

1. Added Function

36.864 MHz for the UART mode count source has been added for frequency adjustment data of the high-speed on-chip oscillator. The oscillation frequency of the high-speed on-chip oscillator can be adjusted to 36.864 MHz by writing the value in the high-speed on-chip oscillator control register 7 (symbol: FRA7, address: 002Ch) to the high-speed on-chip oscillator control register 1 (symbol: FRA1, address: 0024h). By doing this, when using the serial interface in UART mode, bit rate calculation errors can be adjusted to 0% as shown in the Table 1.
Table 1 shows the bit rate setting examples (when the internal clock is selected) in UART mode. Refer to the electrical characteristics of each group's hardware manual for the standard value of the high-speed on-chip oscillator when using this function.

Table 1. Bit rate setting example in UART mode (when internal clock is selected)

Bit Rate (bps)	BRG Count Source	System Clock = 18.432 MHz (1)		
		BRG Setting Value	Actual Time (bps)	Calculation Error (%)
1200	f8	119 (77h)	1200	0
2400	f8	59 (3Bh)	2400	0
4800	f8	29 (1Dh)	4800	0
9600	f1	119 (77h)	9600	0
14400	f1	79 (4Fh)	14400	0
19200	f1	59 (3Bh)	19200	0
28800	f1	39 (27h)	28800	0
38400	f1	29 (1Dh)	38400	0
57600	f1	19 (13h)	57600	0
115200	f1	9 (9h)	115200	0

Note:
1. When divide-by-2 is selected for the high-speed on-chip oscillator control register 2 (FRA2) and the high-speed on-chip oscillator is selected for the system clock.

2. Applicable Products

R8C/24 Group, R8C/25 Group, R8C/26 Group (1), R8C/27 Group (1), R8C/28 Group (1), R8C/29 Group (1), R8C/2A Group, R8C/2B Group, R8C/2C Group, R8C/2D Group, R8C/2E Group, R8C/2F Group, R8C/2K Group, R8C/2L Group

Note:
1. Excluding the J and K versions.

3. Affected Lots

Table 2 shows a list of lots affected by the added function.

Table 2. List of Lots Affected by the Added Function

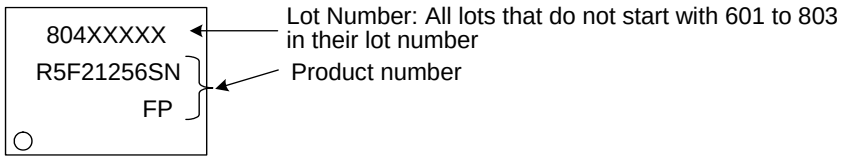
Groups	Program ROM size	Lot
R8C/24 Group R8C/25 Group	16 Kbytes 24 Kbytes 32 Kbytes	All lots that do not start with 601 to 803 in their lot number (lots shipping from April 2008 support the new function).
	48 Kbytes 64 Kbytes	All lots currently being shipped
R8C/26 Group (1) R8C/27 Group (1)	8 Kbytes 16 Kbytes 24 Kbytes 32 Kbytes	
R8C/28 Group (1) R8C/29 Group (1)	8 Kbytes	
	16 Kbytes	
R8C/2A Group R8C/2B Group	48 Kbytes 64 Kbytes 96 Kbytes 128 Kbytes	All lots that do not start with 601 to 741 in their lot number (lots shipping from January 2008 support the new function).
R8C/2C Group R8C/2D Group	48 Kbytes 64 Kbytes	
	96 Kbytes 128 Kbytes	All lots currently being shipped
R8C/2E Group R8C/2F Group	8 Kbytes 16 Kbytes	
R8C/2K Group R8C/2L Group	8 Kbytes 16 Kbytes	

Note:
1. Excluding the J and K versions.

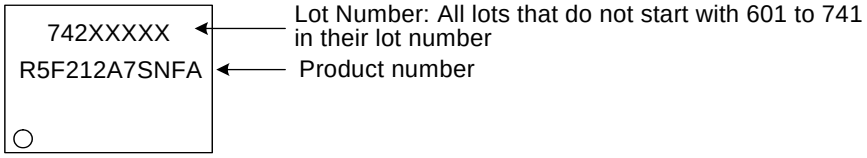
4. Identifying Lots

The following is an example of the printing on the package. Lots can be identified by the printing on the package.

Example: Printing example on the package (R8C/25 Group, PLQP0052JA package)



Example: Printing example on the package (R8C/2A Group, PLQ0064GA-A package)



5. Slated Revisions for Hardware Manuals and Datasheets
   Hardware manuals and datasheets of each group will be revised as follows:
   R8C/24 Group and R8C/25 Group : End of February 2008
   R8C/26 Group and R8C/27 Group : End of March 2008
   R8C/28 Group and R8C/29 Group : End of March 2008
   R8C/2A Group and R8C/2B Group : Already revised
   R8C/2C Group and R8C/2D Group : Already revised
   R8C/2E Group and R8C/2F Group : Already revised
   R8C/2K Group and R8C/2L Group : Already revised

   Note:
   1. Excluding the J and K versions.

6. Use with the Renesas Technology On-chip Debugging Emulator (E8 and E8a)
   The added function can be used for the on-chip debugging emulator.
   Use the lots described in item 3 for the target MCU.

7. Use with the Renesas Technology Compact Emulator (R0E521000CPE00)
   The added function cannot be used for the compact emulator.

8. Use with the Renesas Technology PC7501 Compatible Emulation Probe (R0E521000EPB00)
   The added function cannot be used for the emulation probe.

9. Remarks
   When using the added function for the products listed below, contact Renesas Technology sales department.
   R8C/24 Group and R8C/25 Group with ROM capacity 32 Kbytes or below
   R8C/2A Group, R8C/2B Group, R8C/2C Group and R8C/2D Group with ROM capacity 64 Kbytes or below