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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.

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RENESAS TECHNICAL UPDATE

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Product Category	MPU&MCU	Document No.	TN-H8*-A320A/E	Rev.	1.00
Title	About the bit rate the SCI3 and the Delta sigma analog to digital convertor.	Information Category	Technical Notification		
Applicable Product	H8/38086R Group H8/38076R Group	Lot No.	Reference Document	H8/38086R Group Hardware Manual (REJ09B0182-0200 Rev.2.00) H8/38076R Group Hardware Manual (REJ09B0093-0300 Rev.3.00)	
		All			

I will add and correct the bit rate of H8/38076R group and H8/38076R group.

I will add directions of the $\Delta \Sigma$ analog to digital converter.

Please refer to the following for details.

[Before change]

H8/38086R Group Hardware manual (Page 321)

H8/38076R Group Hardware manual (Page 319)

[Asynchronous Mode]

$$N = \frac{\phi}{32 \times 2^{2n} \times B} - 1$$

[After change]

H8/38086R Group Hardware manual (Page 321)

H8/38076R Group Hardware manual (Page 319)

[Asynchronous Mode]

$$N = \frac{OSC}{32 \times 2^{2n} \times B} - 1 \quad N = \frac{OSC}{64 \times 2^{2n} \times B} - 1$$

[Before change]

H8/38076R Group Hardware manual (Page 319)

ϕ : Value of ϕ (Hz)

[After change]

H8/38076R Group Hardware manual (Page 319)

OSC: Value of ϕ_{osc} (Hz)

[Before change]

H8/38086R Group Hardware manual (Page 322 to 324)

H8/38076R Group Hardware manual (Page 320 to 322)

Table 15.3 Examples of BRR Settings for Various Bit Rates (Asynchronous Mode) (1)

Bit Rate (bit/s)	32.8kHz			38.4kHz			2.097152MHz		
	n	N	Error (%)	n	N	Error (%)	n	N	Error (%)
110	-	-	-	0	<u>10</u>	-0.83	2	36	0.64
150	<u>0</u>	<u>6</u>	-2.38	0	<u>7</u>	0.00	2	26	1.14
200	<u>0</u>	<u>4</u>	<u>2.50</u>	0	<u>5</u>	0.00	3	4	2.40
250	0	3	2.50	-	-	-	3	3	2.40
300	-	-	-	0	<u>3</u>	0.00	0	217	0.21
600	-	-	-	0	<u>1</u>	0.00	<u>2</u>	<u>6</u>	-2.48
1200	-	-	-	0	0	0.00	0	54	-0.70

Table 15.3 Examples of BRR Settings for Various Bit Rates (Asynchronous Mode) (2) to (3)

Bit Rate (bit/s)	3MHz			5MHz			6.144MHz		
	n	N	Error (%)	n	N	Error (%)	n	N	Error (%)
110	2	52	0.50	2	<u>28</u>	-0.25	2	108	0.08
150	2	38	0.16	2	64	0.16	3	19	0.00
200	2	28	1.02	2	48	-0.35	3	11	0.00
250	2	22	1.90	2	38	0.16	3	11	0.00
300	3	4	<u>2.34</u>	2	32	-1.36	3	9	0.00
600	0	155	0.16	0	<u>256</u>	1.33	3	4	0.00
1200	0	77	0.16	0	129	0.16	2	9	0.00

[After change]

H8/38086R Group Hardware manual (Page 322 to 324)

H8/38076R Group Hardware manual (Page 320 to 322)

Table 15.3 Examples of BRR Settings for Various Bit Rates (Asynchronous Mode) (1)

Bit Rate (bit/s)	32.8kHz			38.4kHz			2.097152MHz		
	n	N	Error (%)	n	N	Error (%)	n	N	Error (%)
110	-	-	-	=	=	=	2	36	0.64
150	-	-	-	0	3	0.00	2	26	1.14
200	-	-	-	0	<u>2</u>	0.00	3	4	2.40
250	0	<u>1</u>	2.50	-	-	-	3	3	2.40
300	-	-	-	0	<u>1</u>	0.00	0	217	0.21
600	-	-	-	0	<u>0</u>	0.00	<u>0</u>	<u>108</u>	<u>0.21</u>
1200	-	-	-	=	=	=	0	54	-0.70

Table 15.3 Examples of BRR Settings for Various Bit Rates(Asynchronous Mode) (2) to (3)

Bit Rate (bit/s)	3MHz			5MHz			6.144MHz		
	n	N	Error (%)	n	N	Error (%)	n	N	Error (%)
110	2	52	0.50	2	<u>88</u>	-0.25	2	108	0.08
150	2	38	0.16	2	64	0.16	3	19	0.00
200	2	28	1.02	2	48	-0.35	3	14	0.00
250	2	22	1.90	2	38	0.16	3	11	0.00
300	3	4	-2.34	2	32	-1.36	3	9	0.00
600	0	155	0.16	0	<u>255</u>	1.73	3	4	0.00
1200	0	77	0.16	0	129	0.16	2	9	0.00

[Before change]

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Table 15.5 Maximum Bit Rate for Each Frequency (Asynchronous Mode)

ϕ (MHz)	Maximum Bit Rate (bit/s)	Setting	
		n	N
0.0328	<u>1025</u>	0	0
0.0384	<u>1200</u>	0	0

[After change]

H8/38086R Group Hardware manual (Page 326)

Table 15.5 Maximum Bit Rate for Each Frequency (Asynchronous Mode)

OSC (MHz)	Maximum Bit Rate (bit/s)	Setting	
		n	N
0.0328	<u>512.5</u>	0	0
0.0384	<u>600</u>	0	0

[Before change]

H8/38076R Group Hardware manual (Page 324)

Table 15.5 Maximum Bit Rate for Each Frequency (Asynchronous Mode)

ϕ (MHz)	Maximum Bit Rate (bit/s)	Setting	
		n	N
		0	0
0.0384	<u>1200</u>	0	0

[After change]

H8/38076R Group Hardware manual (Page 324)

Table 15.5 Maximum Bit Rate for Each Frequency (Asynchronous Mode)

OSC (MHz)	Maximum Bit Rate (bit/s)	Setting	
		n	N
<u>0.0328</u>	<u>512.5</u>	0	0
0.0384	<u>600</u>	0	0

[Before change]

H8/38086R Group Hardware manual (Page 327 to 328)

H8/38076R Group Hardware manual (Page 325 to 326)

Table 15.6 BRR Settings for Various Bit Rates (Clocked Synchronous Mode)(1)(2)

φ Bit Rate (bit/s)	32.8kHz			38.4kHz			10MHz		
	n	N	Error (%)	n	N	Error (%)	n	N	Error (%)
200	0	<u>40</u>	<u>0.00</u>	0	<u>47</u>	0.00	3	194	0.16
250	0	32	-0.61	0	37	1.05	3	155	0.16
300	0	26	1.23	0	31	0.00	3	129	0.16
500	0	<u>15</u>	<u>2.50</u>	<u>0</u>	<u>18</u>	<u>1.05</u>	3	77	0.16
1k	0	<u>7</u>	<u>2.50</u>	-	-	-	2	155	0.16
2.5k	-	-	-	-	-	-	2	62	-0.79
5k	-	-	-	-	-	-	2	30	0.81
10k	-	-	-	-	-	-	2	<u>249</u>	<u>0.00</u>

[After change]

H8/38086R Group Hardware manual (Page 327 to 328)

H8/38076R Group Hardware manual (Page 325 to 326)

Table 15.6 BRR Settings for Various Bit Rates (Clocked Synchronous Mode)(1)(2)

OSC Bit Rate (bit/s)	32.8kHz			38.4kHz			10MHz		
	n	N	Error (%)	n	N	Error (%)	n	N	Error (%)
200	0	<u>20</u>	<u>-2.38</u>	0	<u>23</u>	0.00	3	194	0.16
250	0	15	2.50	0	18	1.05	3	155	0.16
300	0	<u>13</u>	<u>-2.38</u>	0	<u>15</u>	0.00	3	129	0.16
500	0	<u>7</u>	<u>2.50</u>	-	-	-	3	77	0.16
1k	0	<u>3</u>	<u>2.50</u>	-	-	-	2	155	0.16
2.5k	-	-	-	-	-	-	2	62	-0.79
5k	-	-	-	-	-	-	2	30	0.81
10k	-	-	-	-	-	-	2	<u>15</u>	<u>-2.34</u>

[Before change]

H8/38086R Group Hardware manual (Page 327)

H8/38076R Group Hardware manual (Page 325)

$$N = \frac{\phi}{4 \times 2^{2n} \times B} - 1$$

ϕ : Value of ϕ (Hz)

[After change]

H8/38086R Group Hardware manual (Page 327)

H8/38076R Group Hardware manual (Page 325)

Active(midium-speed/High-speed), sleep(midium-speed/High-speed)

$$N = \frac{OSC}{4 \times 2^{2n} \times B} - 1$$

Sub-Active, sub-sleep

$$N = \frac{OSC}{8 \times 2^{2n} \times B} - 1$$

OSC: Value of ϕ osc (Hz)

[Addition]

H8/38086R Group Hardware manual (Page 420)

19.6.5 About the processing of the PB/Vref/REF pin

Please switch the PB5/Vref/REF pin to the PB5 input pin.

When bit(VREF1,0) of the ADCR register is set to 01 or 11 by the $\Delta \Sigma$ A/D converter is not operated.