

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

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

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RENESAS TECHNICAL UPDATE

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RenesasTechnology Corp.

Product Category	MPU&MCU		Document No.	TN-H8*-A316B/E	Rev.	2.00
Title	About the change of the crystal resonator for the recommended sub clock		Information Category	Technical Notification		
Applicable Product	H8/38076R Group,H8/38086R Group	Lot No.	Reference Document	For the hardware manual of each product group please refer to the revision mentioned section 2. for details.		
	H8/38104 Group,H8/38124 Group H8/38327 Group,H8/38347 Group H8/38602R Group	All				

The specification of the recommended crystal resonator for the sub clock in the H8/38076R group, the H8/38086R group, the H8/38104 group, the H8/38124 group, the H8/38327 group, the H8/38347 group, and the H8/38602R group is changed. Please refer to the following for details.

1. Reason for the change

Because the gain of the sub oscillation circuit of the target product was designed so that current consumption may decrease, the recommended oscillator may not operate correctly depending on the exact crystal resonator and conditions of use. Therefore, we recommend you evaluate carefully you're chosen oscillator within you're system operating parameters.

2. Before it changes

2.1 H8/38076R Group Hardware Manual (REJ09B0093-0300)

5.3.1 Connecting 32.768kHz/38.4kHz Crystal Resonator

Figure 5.5 Typical Connection to 32.768kHz/38.4kHz Crystal Resonator

Frequency	Manufacturer	Products Name	C1C2 Recommendation Value
38.4kHz	Seiko Instruments Inc.	VTC-200	10pF
32.768kHz	Nihon Denpa Kogyo., Ltd	MX73P	15pF

2.2 H8/38086R Group Hardware Manual (REJ09B0182-0200)

5.3.1 Connecting 32.768kHz/38.4kHz Crystal Resonator

Figure 5.5 Typical Connection to 32.768kHz/38.4kHz Crystal Resonator

Frequency	Manufacturer	Products Name	C1C2 Recommendation Value
38.4kHz	Seiko Instruments Inc.	VTC-200	10pF
32.768kHz	Nihon Denpa Kogyo., Ltd	MX73P	15pF

2.3 H8/38104 Group Hardware Manual (REJ09B0024-0600)

4.4.1 Connecting 32.768kHz/38.4kHz Crystal Resonator

Figure 4.9 Typical Connection to 32.768kHz/38.4kHz Crystal Resonator

Frequency	Manufacturer	Products Name
38.4kHz	Seiko Instruments Inc.	VTC-200
32.768kHz	Nihon Denpa Kogyo., Ltd	MX73P

C1=C2=6 to 12.5pF(typ)

2.4 H8/38124 Group Hardware Manual (REJ09B0042-0700)

4.3 Connecting 32.768kHz/38.4kHz Crystal Resonator

Figure 4.8 Typical Connection to 32.768kHz/38.4kHz Crystal Resonator(Sub clock)

Frequency	Manufacturer	Products Name
38.4kHz	Seiko Instruments Inc.	VTC-200
32.768kHz	Nihon Denpa Kogyo., Ltd	MX73P

C1=C2=15pF(typ)

2.5 H8/38327 Group Hardware Manual (REJ09B0144-0500)

4.3 Connecting 32.768kHz/38.4kHz Crystal Resonator

Figure 4.6 Typical Connection to 32.768kHz/38.4kHz Crystal Resonator(Sub clock)

Oscillation Frequency	Manufacturer	Products Name
38.4kHz	Seiko Instruments Inc.	VTC-200
32.768kHz	Nihon Denpa Kogyo., Ltd	MX73P

C1=C2=15pF(typ)

2.6 H8/38347 Group Hardware Manual (REJ09B0145-0500)

4.3 Connecting 32.768kHz/38.4kHz Crystal Resonator

Figure 4.6 Typical Connection to 32.768kHz/38.4kHz Crystal Resonator(Sub clock)

Oscillation Frequency	Manufacturer	Products Name
38.4kHz	Seiko Instruments Inc.	VTC-200
32.768kHz	Nihon Denpa Kogyo., Ltd	MX73P

C1=C2=15pF(typ)

2.7 H8/38602R Group Hardware Manual (REJ09B0152-0200)

4.3.1 Connecting 32.768kHz/38.4kHz Crystal Resonator

Figure 4.5 Typical Connection to 32.768-kHz/38.4-kHz Crystal Resonator

Frequency	Manufacturer	Products Name
38.4kHz	Seiko Instruments Inc.	VTC-200
32.768kHz	Seiko Instruments Inc.	VT-200

C1=C2=10pF(typ) (Reference value taking stray capacitances of a board into consideration)

3.After it changes(All Products Same)

Frequency	Manufacturer	Products Name	Motion Resistance
38.4kHz	EPSON TOYOCOM.	C-4-TYPE	30kΩ max
32.768kHz	EPSON TOYOCOM.	C-001R	35kΩ max

4.Others

- (1) Please evaluate carefully you're chosen oscillator, we recommend that you do this with the resonator maker, and make sure this is tested thoroughly when resonators other than the above-mentioned are used. Please do this evaluation on the actual mounting substrate of your system (PCB or other) because the oscillation characteristic is influenced by the substrate specification when the above-mentioned resonator or equivalent resonator are used.
- (2) Please do the evaluation both in the reset state (\overline{RES} ="Low") and the reset release state (\overline{RES} ="Low" to "High")