

To our customers,

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## Old Company Name in Catalogs and Other Documents

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April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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# M38D59T-RLFS

Emulator MCU Board for 38D5 Group

## User's Manual

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### CAUTION

If the requirements shown in the "CAUTION" sentences are ignored, the equipment may cause personal injury or damage to the products.

Renesas Tools Homepage <http://www.renesas.com/en/tools>

## 1. Outline

The M38D59T-RLFS is an emulator MCU board for the 38D5 Group.

## 2. Package Components (See Figure 1)

- (1) M38D59T-RLFS ..... 1 pc.
- (2) M3T-F160-80LCC converter board (preinstalled) ..... 1 pc.
- (3) M38D59T-RLFS User's Manual (This manual) ..... 1 pc.
- (4) M38D59T-RLFS User's Manual (Japanese)..... 1 pc.

## 3. Specifications

Table 1 Specifications

Emulator	M38000T2-CPE PC4701 + M38000TL2-FPD
Operation mode	Single-chip mode
Max. operating frequency	Vcc = 4.5 to 5.5 V: 12.5 MHz (frequency/2 mode) Vcc = 4.0 to 5.5 V: 8.0 MHz (frequency/2 mode) Vcc = 2.5 to 5.5 V: 12.5 MHz (frequency/4 mode) Vcc = 2.0 to 5.5 V: 8.0 MHz (frequency/4 mode) Vcc = 1.8 to 5.5 V: 5.0 MHz (frequency/4 mode) Vcc = 2.5 to 5.5 V: 12.5 MHz (frequency/8 mode) Vcc = 2.0 to 5.5 V: 8.0 MHz (frequency/8 mode) Vcc = 1.8 to 5.5 V: 5.0 MHz (frequency/8 mode) Vcc = 1.8 to 5.5 V: Low-speed mode
Operating power voltage	1.8 to 5.5 V

## 4. Connection Procedure (See Figure 2)

The procedure for connecting the M38D59T-RLFS is shown below.

- (1) Mount an LCC socket on the user system.
- (2) Attach the M3T-F160-80LCC to the M38D59T-RLFS (preinstalled).
- (3) Attach the tip of the probe of the emulator to the M38D59T-RLFS.
- (4) Attach the M3T-F160-80LCC to the LCC socket.

Before using the M38D59T-RLFS, be sure to read "7. Precautions" on page 4.

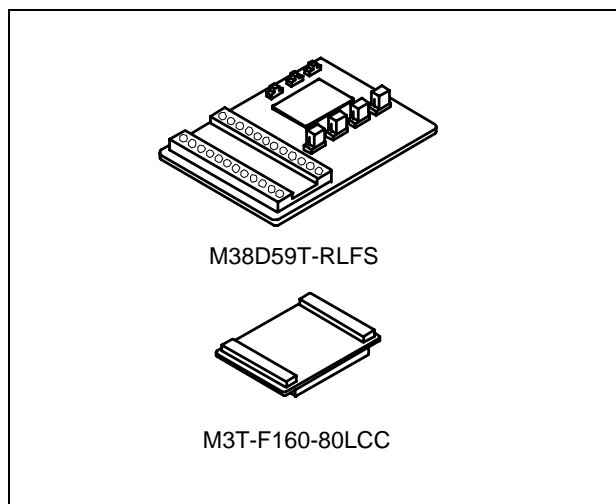


Figure 1 Package components of the M38D59T-RLFS

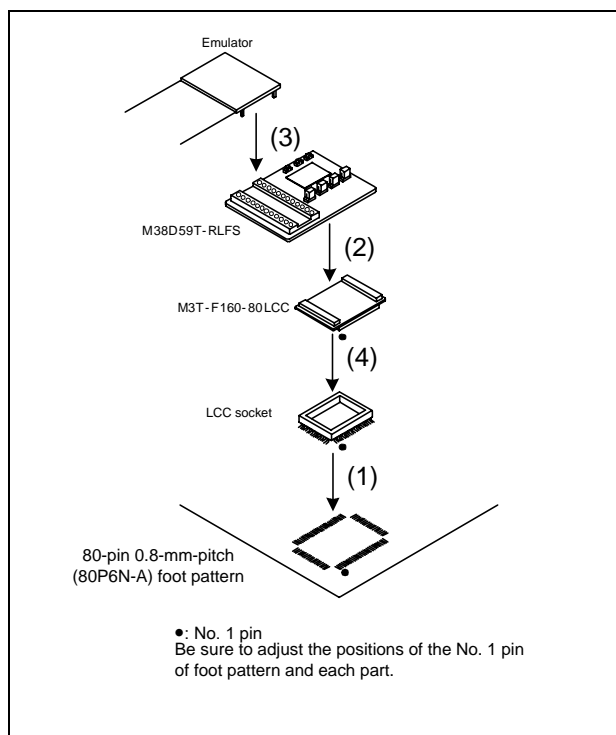


Figure 2 Connection procedure of the M38D59T-RLFS

## 5. Oscillator Circuit (See Figure 3)

This product has two oscillator circuit patterns for the main clock XIN and sub-clock XCIN. Select one of them according to the oscillator circuitry of the user system.

(1) When using the internal oscillator circuit of the MCU:

The oscillator circuit on the user system may not oscillate because a converter board is used between the emulator MCU and the user system. In this case, set the jumper switch to INT and mount an oscillator circuit on the M38D59T-RLFS's oscillator circuit pattern. When using the oscillator circuit on the user system, be sure to set the jumper switch to EXT.

(2) When using an oscillator module IC etc. (self-oscillation):

It is not necessary to mount an oscillator circuit on the M38D59T-RLFS's oscillator circuit pattern.

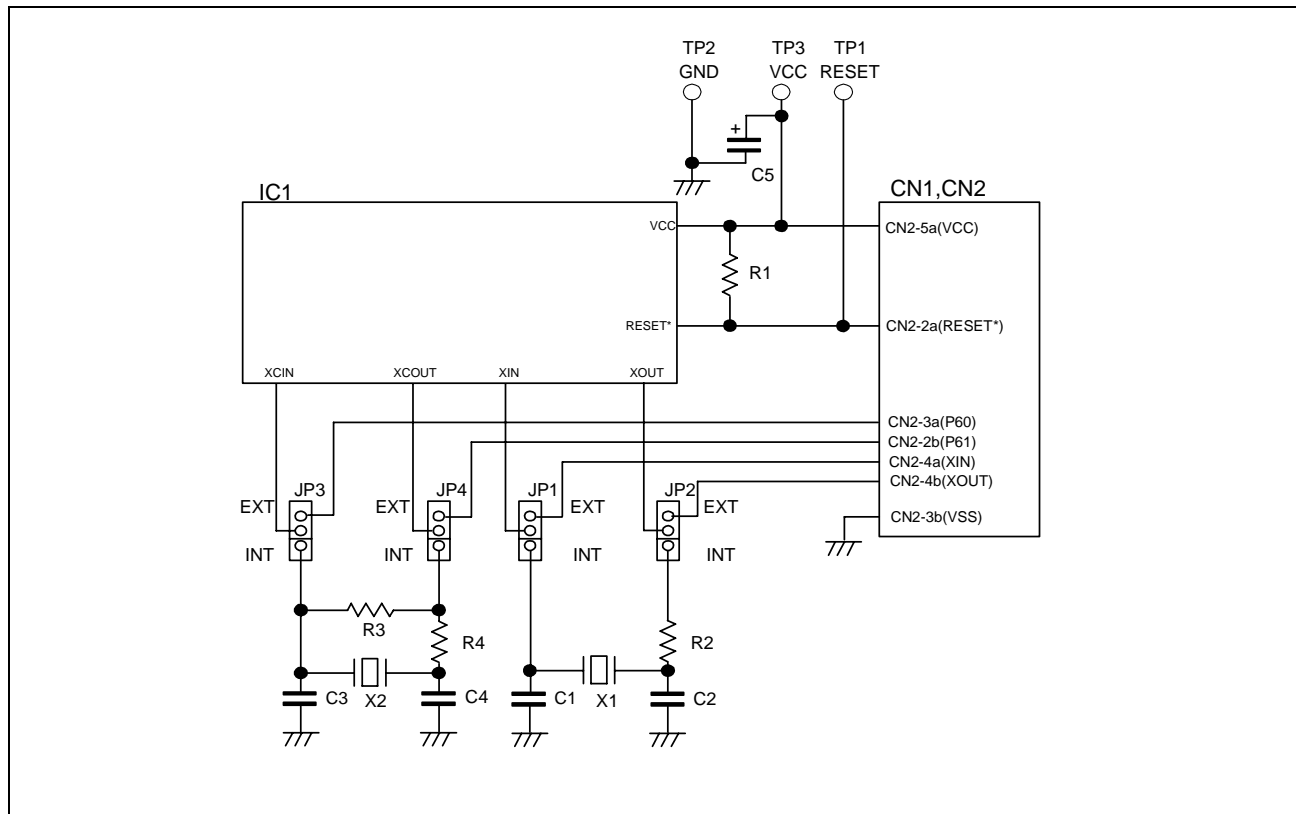


Figure 3 Oscillator circuit diagram

## 6. Oscillator Circuit Pattern

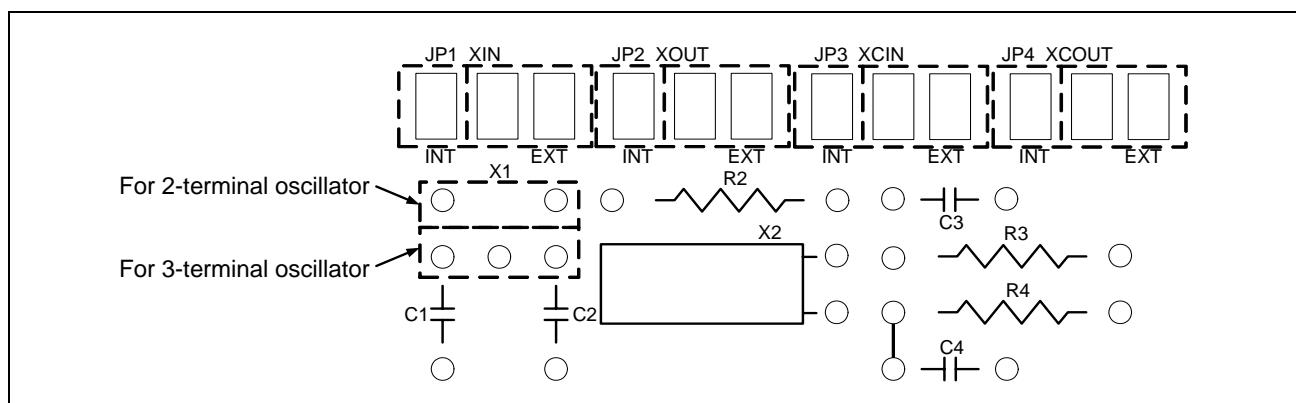


Figure 4 Oscillator circuit pattern

## 7. Precautions

### IMPORTANT

#### Notes on This Product:

- We cannot accept any request for repair.
- When using the oscillator circuit on the M38D59T-RLFS, check the output waveform of pins Xout and Xcout by an oscilloscope.
- When mounting an oscillator circuit on the M38D59T-RLFS, make sure that 2 mm or more of a DIP pin does not appear on the rear face (solder side). It may be short-circuited with the DIP pin of the converter board.
- For inquiries about the product or the contents of this manual, contact your local distributor.

Renesas Tools Homepage

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## 8. External Dimensions

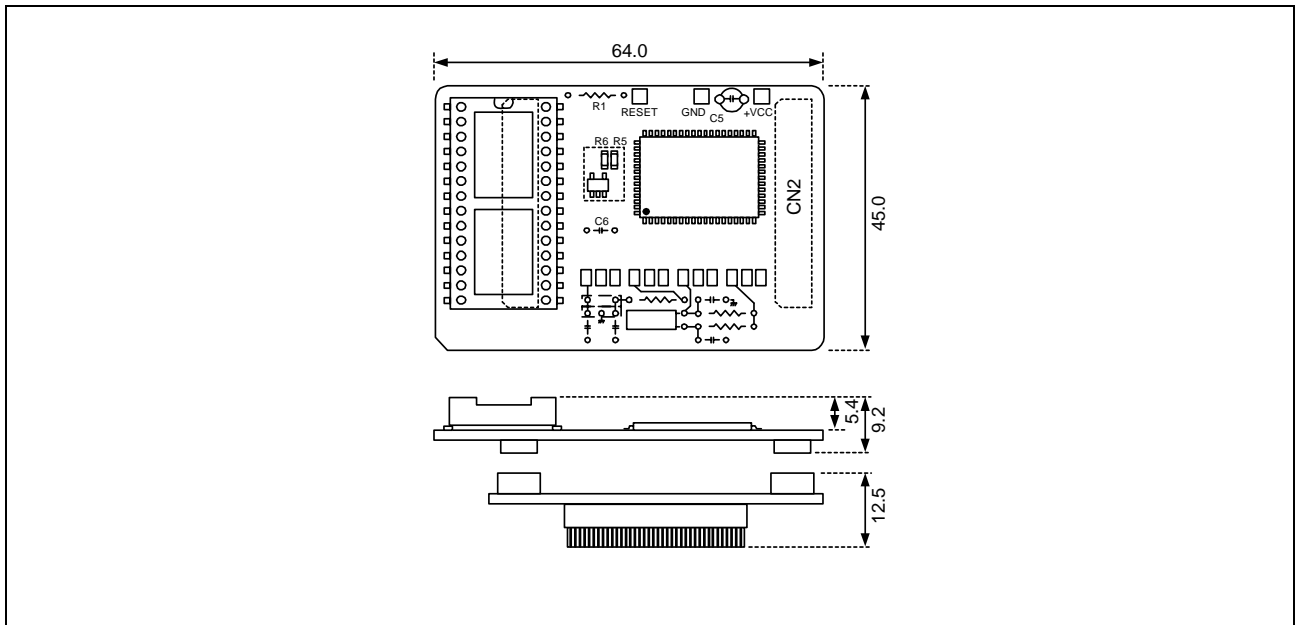


Figure 5 External dimensions

## 9. Connecting to the User System

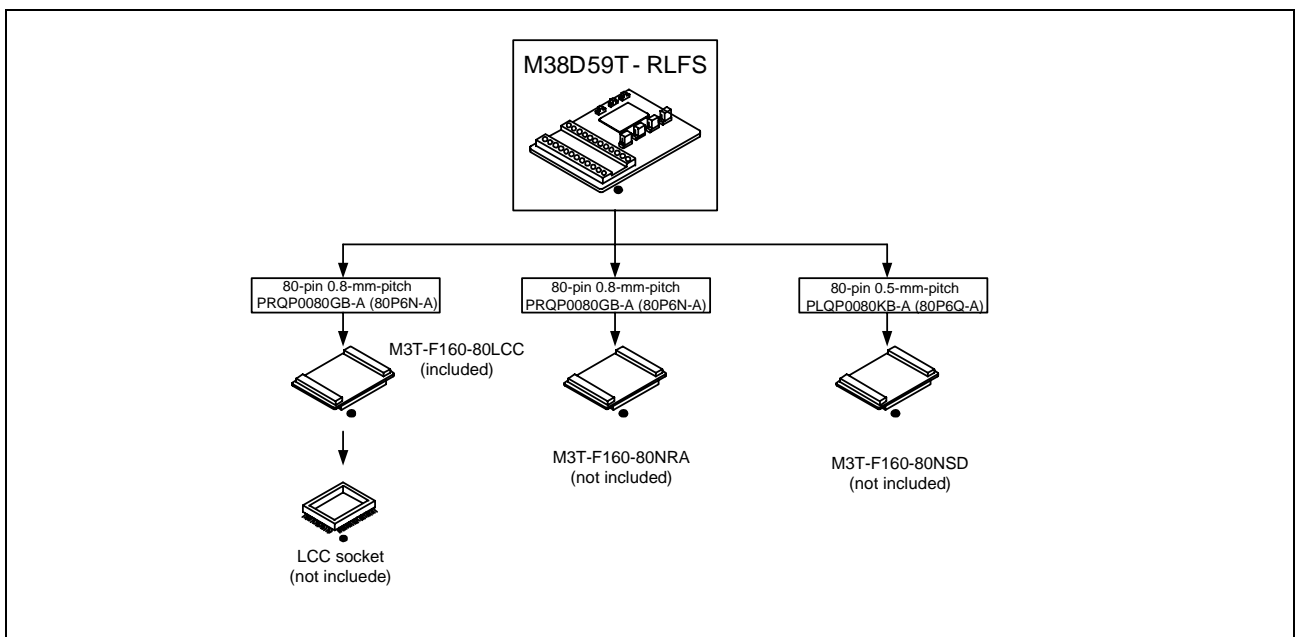


Figure 6 Connecting to the user system