M38D59T-RLFS

Emulator MCU Board for 38D5 Group

User's Manual

Keep safety first in your circuit designs!

- Renesas Technology Corporation and Renesas Solutions Corporation put the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

Notes regarding these materials

- These materials are intended as a reference to assist our customers in the selection of the Renesas Technology product best suited to the customer's application; they do not convey any license under any intellectual property rights, or any other rights, belonging to Renesas Technology Corporation, Renesas Solutions Corporation or a third party.
- Renesas Technology Corporation and Renesas Solutions Corporation assume no responsibility for any damage, or infringement of any third-party's rights, originating in the use of any product data, diagrams, charts, programs, algorithms, or circuit application examples contained in these materials.
- All information contained in these materials, including product data, diagrams, charts, programs and algorithms represents information on products at the time of publication of these materials, and are subject to change by Renesas Technology Corporation and Renesas Solutions Corporation without notice due to product improvements or other reasons. It is therefore recommended that customers contact Renesas Technology Corporation, Renesas Solutions Corporation or an authorized Renesas Technology product distributor for the latest product information before purchasing a product listed herein. The information described here may contain technical inaccuracies or typographical errors. Renesas Technology Corporation and Renesas Solutions Corporation assume no responsibility for any damage, liability, or other loss rising from these inaccuracies or errors. Please also pay attention to information published by Renesas Technology Corporation and Renesas Solutions Corporation by various means, including the Renesas home page (http://www.renesas.com).
- When using any or all of the information contained in these materials, including product data, diagrams, charts, programs, and algorithms, please be sure to evaluate all information as a total system before making a final decision on the applicability of the information and products. Renesas Technology Corporation and Renesas Solutions Corporation assume no responsibility for any damage, liability or other loss resulting from the information contained herein.
- Renesas Technology semiconductors are not designed or manufactured for use in a device or system that is used under circumstances in which human life is potentially at stake. Please contact Renesas Technology Corporation, Renesas Solutions Corporation or an authorized Renesas Technology product distributor when considering the use of a product contained herein for any specific purposes, such as apparatus or systems for transportation, vehicular, medical, aerospace, nuclear, or undersea repeater use.
- The prior written approval of Renesas Technology Corporation and Renesas Solutions Corporation is necessary to reprint or reproduce in whole or in part these materials.
- If these products or technologies are subject to the Japanese export control restrictions, they must be exported under a license from the Japanese government and cannot be imported into a country other than the approved destination. Any diversion or reexport contrary to the export control laws and regulations of Japan and/or the country of destination is prohibited.
- Please contact Renesas Technology Corporation or Renesas Solutions Corporation for further details on these materials or the products contained therein.

Precautions to be taken when using this product

- This product is a development supporting unit for use in your program development and evaluation stages. In mass-producing your program you have finished developing, be sure to make a judgment on your own risk that it can be put to practical use by performing integration test, evaluation, or some experiment else.
- In no event shall Renesas Solutions Corporation be liable for any consequence arising from the use of this product.
- Renesas Solutions Corporation strives to renovate or provide a workaround for product malfunction at some charge or without charge. However, this does not necessarily mean that Renesas Solutions Corporation guarantees the renovation or the provision under any circumstances.
- This product has been developed by assuming its use for program development and evaluation in laboratories. Therefore, it does not fall under the application of Electrical Appliance and Material Safety Law and protection against electromagnetic interference when used in Japan.

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

Rev.2.00
Nov. 01, 2005
REJ10J1014-0200

RenesasTechnology
www.renesas.com

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.

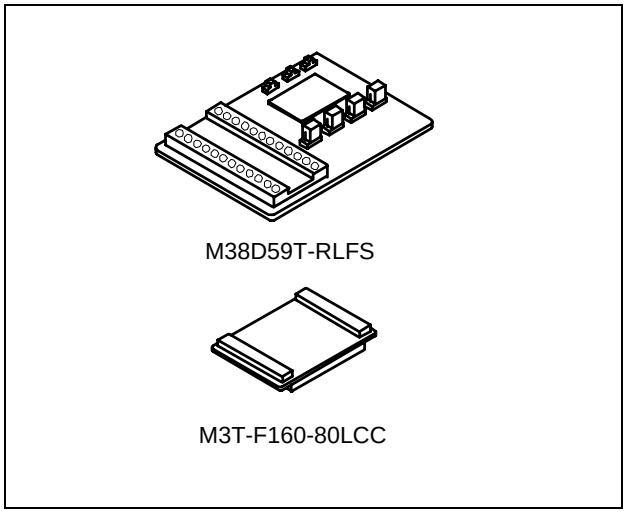

Figure 1 Package components of the M38D59T-RLFS

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.

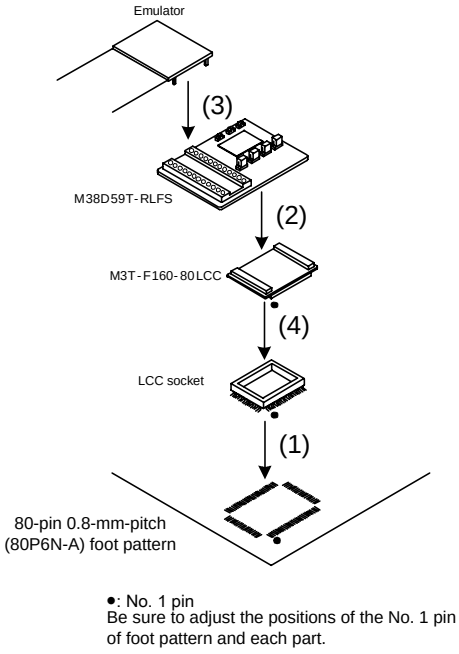

Figure 2 Connection procedure of the M38D59T-RLFS

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.

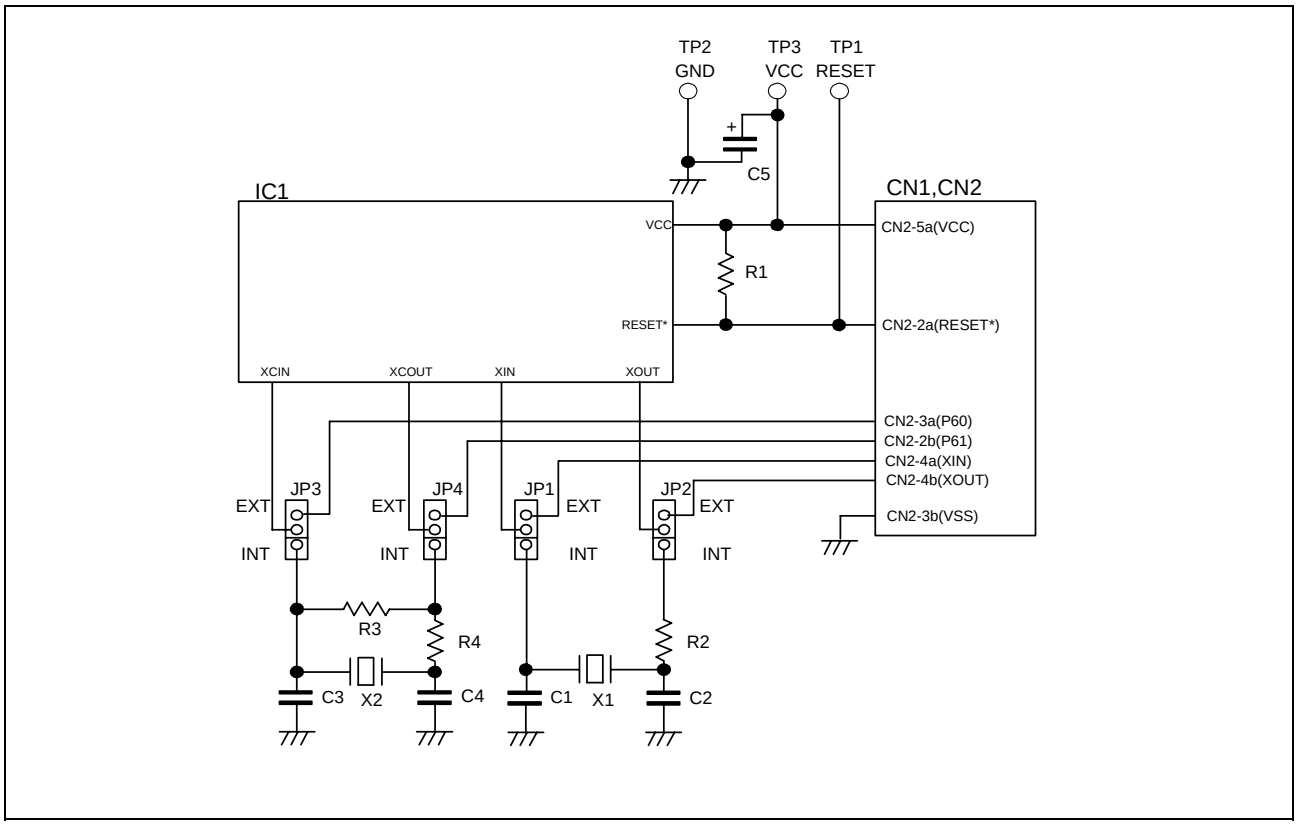

Figure 3 Oscillator circuit diagram

6. Oscillator Circuit Pattern

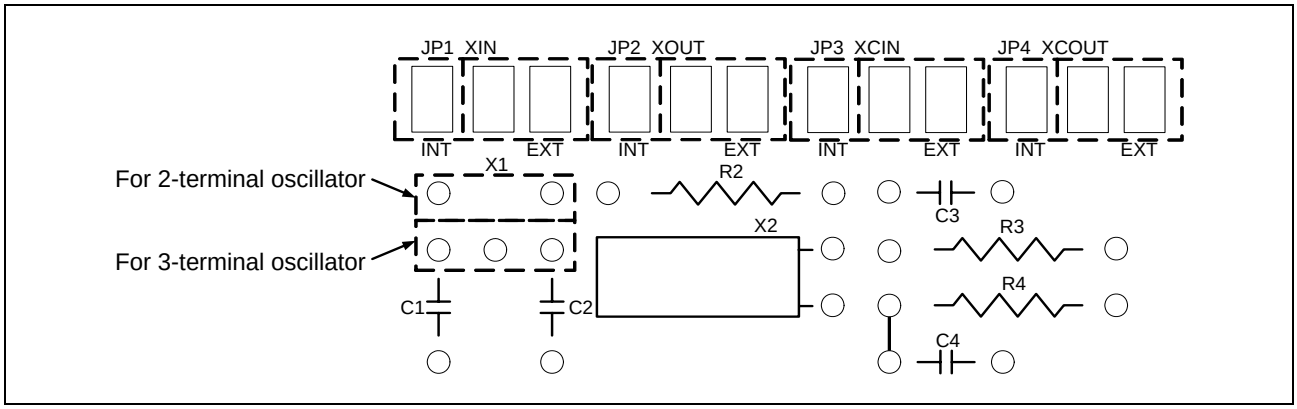

Figure 4 Oscillator circuit pattern

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 http://www.renesas.com/en/tools

8. External Dimensions

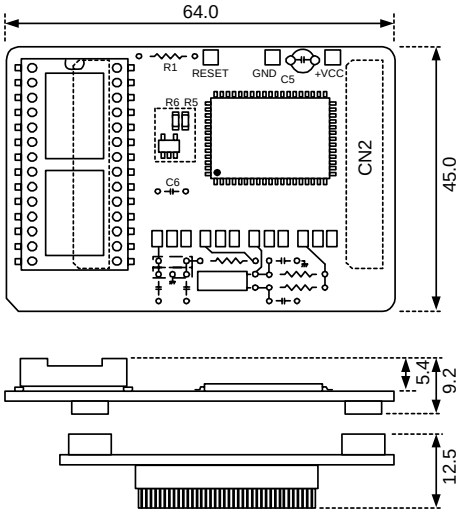

Figure 5 External dimensions

9. Connecting to the User System

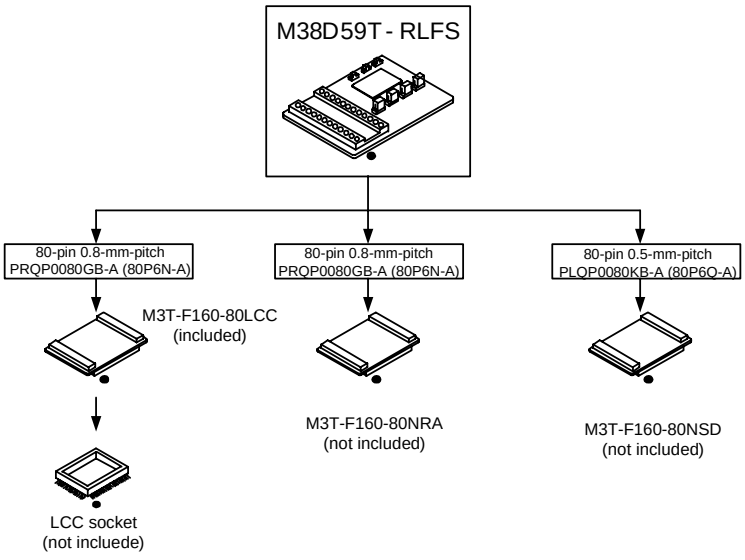

Figure 6 Connecting to the user system