

# **ML610Q102 Reference Board User's Manual**

---

Issue Date: Feb 20, 2013

## NOTES

No copying or reproduction of this document, in part or in whole, is permitted without the consent of LAPIS Semiconductor Co., Ltd. The content specified herein is subject to change for improvement without notice.

The content specified herein is for the purpose of introducing LAPIS Semiconductor's products (hereinafter "Products"). If you wish to use any such Product, please be sure to refer to the specifications, which can be obtained from LAPIS Semiconductor upon request.

Examples of application circuits, circuit constants and any other information contained herein illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

Great care was taken in ensuring the accuracy of the information specified in this document. However, should you incur any damage arising from any inaccuracy or misprint of such information, LAPIS Semiconductor shall bear no responsibility for such damage.

The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. LAPIS Semiconductor does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by LAPIS Semiconductor and other parties. LAPIS Semiconductor shall bear no responsibility whatsoever for any dispute arising from the use of such technical information.

The Products specified in this document are intended to be used with general-use electronic equipment or devices (such as audio visual equipment, office-automation equipment, communication devices, electronic appliances and amusement devices).

The Products specified in this document are not designed to be radiation tolerant.

While LAPIS Semiconductor always makes efforts to enhance the quality and reliability of its Products, a Product may fail or malfunction for a variety of reasons.

Please be sure to implement in your equipment using the Products safety measures to guard against the possibility of physical injury, fire or any other damage caused in the event of the failure of any Product, such as derating, redundancy, fire control and fail-safe designs. LAPIS Semiconductor shall bear no responsibility whatsoever for your use of any Product outside of the prescribed scope or not in accordance with the instruction manual.

The Products are not designed or manufactured to be used with any equipment, device or system which requires an extremely high level of reliability the failure or malfunction of which may result in a direct threat to human life or create a risk of human injury (such as a medical instrument, transportation equipment, aerospace machinery, nuclear-reactor controller, fuel-controller or other safety device). LAPIS Semiconductor shall bear no responsibility in any way for use of any of the Products for the above special purposes. If a Product is intended to be used for any such special purpose, please contact a ROHM sales representative before purchasing.

If you intend to export or ship overseas any Product or technology specified herein that may be controlled under the Foreign Exchange and the Foreign Trade Law, you will be required to obtain a license or permit under the Law.

Copyright 2013 LAPIS Semiconductor Co., Ltd.

ML610Q102 Reference board is prepared by LAPIS SEMICONDUCTOR to have you study the operations of ML610Q102.  
The board is only minimum necessary components are mounted on the board by LAPIS SEMICONDUCTOR for brief use of ML610Q102.  
By using the board with "uEASE on-chip debug emulator" (hereinafter referred to "uEASE") and "free sample U8 Development Tools CD-ROM" which is bundled in the package of uEASE not only Software development/debugging but also writing Flash ROM in the devices are capable.  
This board also works in stand alone mode with external power supply without uEASE.  
Before starting works with this board, read below carefully and understand notices.

1. The board features

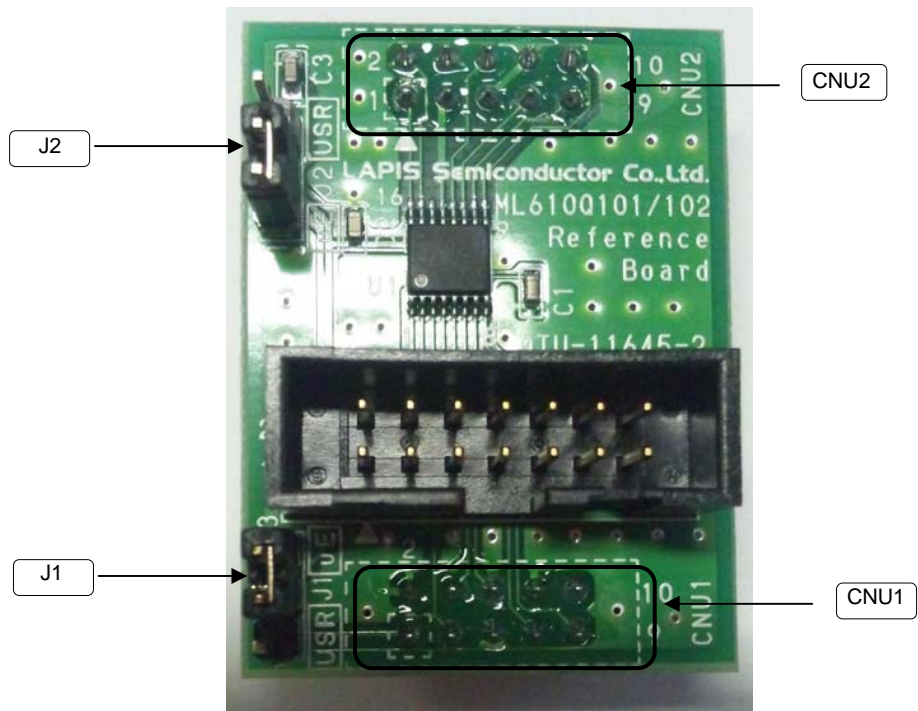
Supports flash ROM programming and on-chip debugging (using RESET\_N and TEST pins)

2. The board hardware specifications

Please refer to the reference schematics for detail on connections of each hardware parts.

Embedded microcontroller	U1: ML610Q102
Embedded parts	J1: Jumper for RESET_N switch ( 3pin pin-header and short pin )
	J2: Jumper for VDD switch ( 3pin pin-header and short pin )
	CNU1,2: Connector for Peripheral
	CNUE: Connector for on-chip debug emulator ( 14pin connector )
	C1 – C3: Capacitors for power supply
Operating voltage	+2.7V to +5.5V
Board size	30.00 x 40.00 mm

3. Parts layout



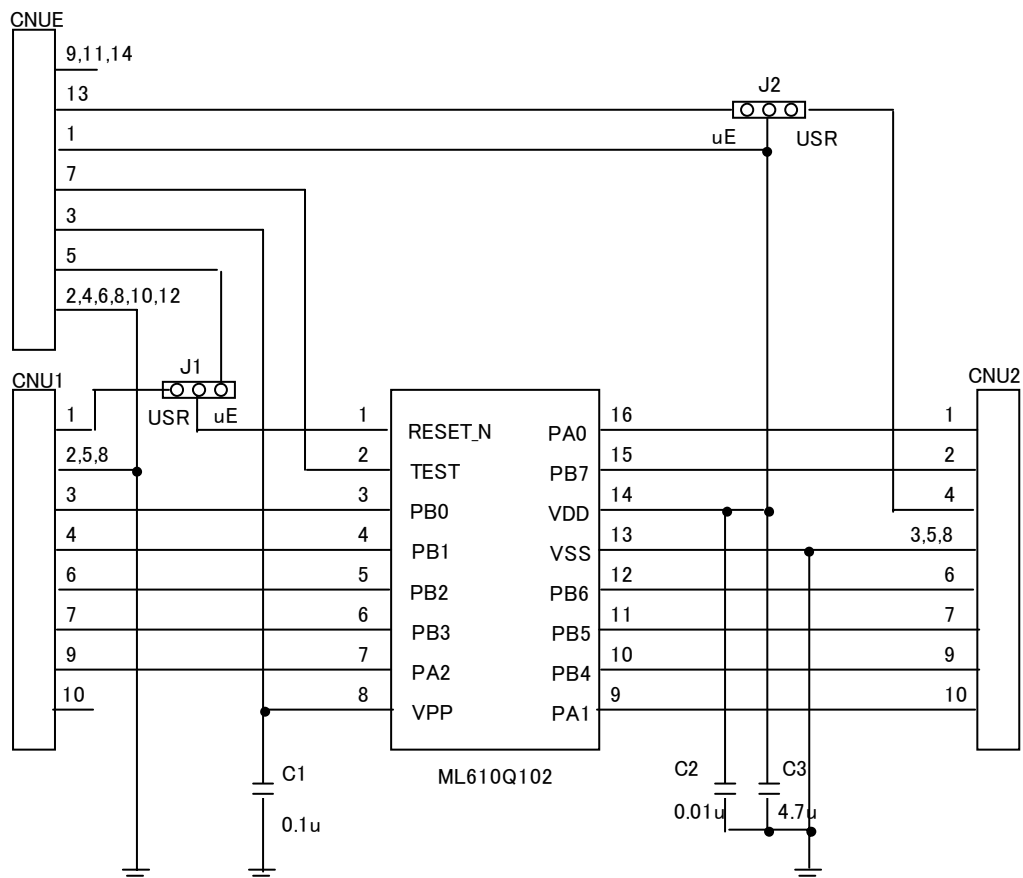
<fig.1 Parts layout>

#### 4. Notes on use

- (1) The information contained herein can change without notice owing to product and/or technical improvements.  
Before using the product, please make sure that the information being referred to is up-to-date.
- (2) Before using this board, read carefully and understand the contents of the ML610Q102 user's manual and the uEASE user's manual.
- (3) The engineering sample of ML610Q102 is mounted on the board.  
Therefore, please confirm the characteristic finally by using MP of ML610Q102 and customer's mass production boards.
- (4) When you use uEASE, please set J1 jumper to the uE side.
- (5) When a power supply is given from the exterior, please be given by pin4 of CNU2 connector and set J2 jumper to the USR side.
- (6) When you set J2 jumper to the USR side and uEASE is connected, please turn ON the power supply of a board before starting uEASE.  
Moreover, please stop uEASE before turning off the power supply of a board.
- (7) When J2 jumper is set to the uE side, the power supply capacity of uEASE. is +3.3V/100mA.
- (8) This board has a conductivity pattern in the back, therefore it may short-circuits when it is used having put on the existing conductive component.

#### 5. Reference schematic:

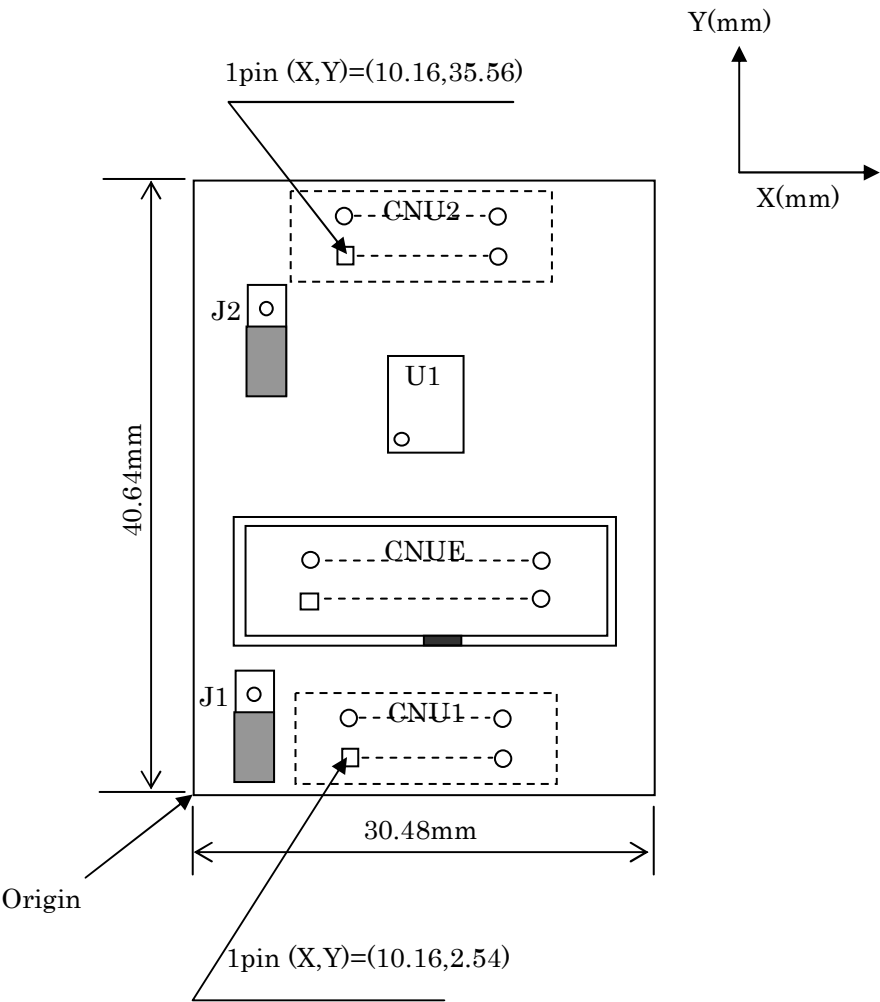
The reference schematic of this reference board is shown below.



<fig.2 Reference schematic>

6. Reference dimensions

The reference dimintions of this reference board is shown below.



<fig.3 Reference dimensions>

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[ROHM Semiconductor:](#)

[ML610Q102 reference board](#)