

To our customers,

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Renesas Electronics Corporation

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H8/300L Series User System Interface Cable  
For H8/300L Series Low-Cost Emulator

Microcomputer Development Environment System

User's Manual



**H8/300L Series User System Interface Cable**

**TQFP 80C-Pin  
(SD99AC3867T80C)**

H8/3827 series

H8/3827R series

H8/3827S series

H8/3867 series

ALE300L-H8/3880 Emulator

ALE300L-H8/3880R Emulator

**H8/300L Series User System Interface Cable  
User's Manual**

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Do not attempt to use the emulator product until you fully understand its mechanism.

### **Emulator Product:**

Throughout this document, the term 'emulator product' shall be defined as the following products produced only by Renesas System Solutions Asia Pte. Ltd. excluding all subsidiary products:

- Emulation system (SD00ALE3880R & SD98ALE3880)
- User system interface cable (SD98AC3867F80A or SD99AC3867T80C)

The user system or a host computer is not included in this definition.

### **Purpose of the User System Interface Cable:**

This user system interface cable is for connection between the emulator station and the user system. This user system interface cable must only be used for the above purpose.

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**Figures:**

Some figures in this user's manual may show items different from your actual system.

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Renesas cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this user's manual and on the emulator product are therefore not all inclusive. Therefore, you must use the emulator product safely at your own risk.

## **! WARNING**

Observe the precautions listed below. Failure to do so will result in a FIRE HAZARD and will damage the user system and the emulator product or will result in PERSONAL INJURY. The USER PROGRAM will be LOST.

- Always switch OFF the emulator product and the user system before connecting or disconnecting any cables, the user system interface cable connector, and the user system IC socket.
- When connecting the user system interface cable connector to the user system IC socket, ensure that pin 1 on both sides are correctly aligned.

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## Section 1. Introduction

### 1.1 General description

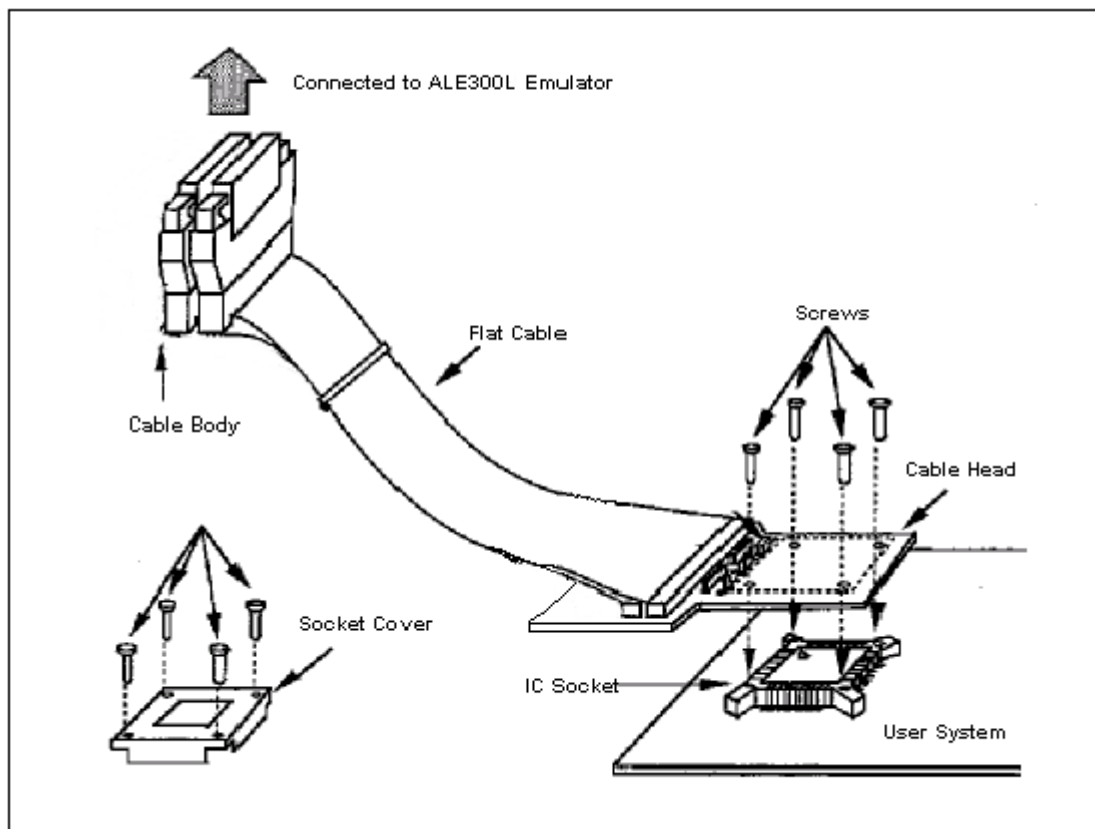
The user system interface cable (SD99AC3867T80C) connects an 8-bit ALE Emulator (ALE300L-H8/3880 & ALE300L-H8/3880R) to the IC socket for a TQFP 80C-pin package (Package code: TFP-80C) for the H8/3827, H8/3827R, H8/3827S and H8/3867 series MCU on the user system.

### 1.2 IC socket type

The IC socket used on the user system is manufactured by YAMAICHI ELECTRONICS Co., Ltd.). The part number for the TFP-80C pin package IC socket is given below:

- IC149-080-058-S51

### 1.3 Configuration



**Figure 1.1 SD99AC3867T80C user system interface cable**

1. Align pin 1 of the Adapter of user cable header to IC socket on the user system.
2. Install Adapter to the socket with tightened screws.
3. Connect the other ends of 2x60-ways connectors to the ALE300L Emulator.

## 1.4 Component

| No. | Component        | Quantity | Remarks   |
|-----|------------------|----------|---|
| 1   | Cable body       | 1        |   |
| 2   | Cable head       | 1        | Includes two flat cables                          |
| 3   | IC socket        | 1        | For TQFP 80-pin package (TFP-80C)                 |
| 4   | Socket cover     | 1        | For installing the MCU                            |
| 5   | Screws (M2.5x12) | 4        | For fastening cable head (with four flat washers) |
| 6   | Screws (M2.5x8)  | 4        | For installing MCU (with four flat washers)       |

## Section 2. Connection Procedures

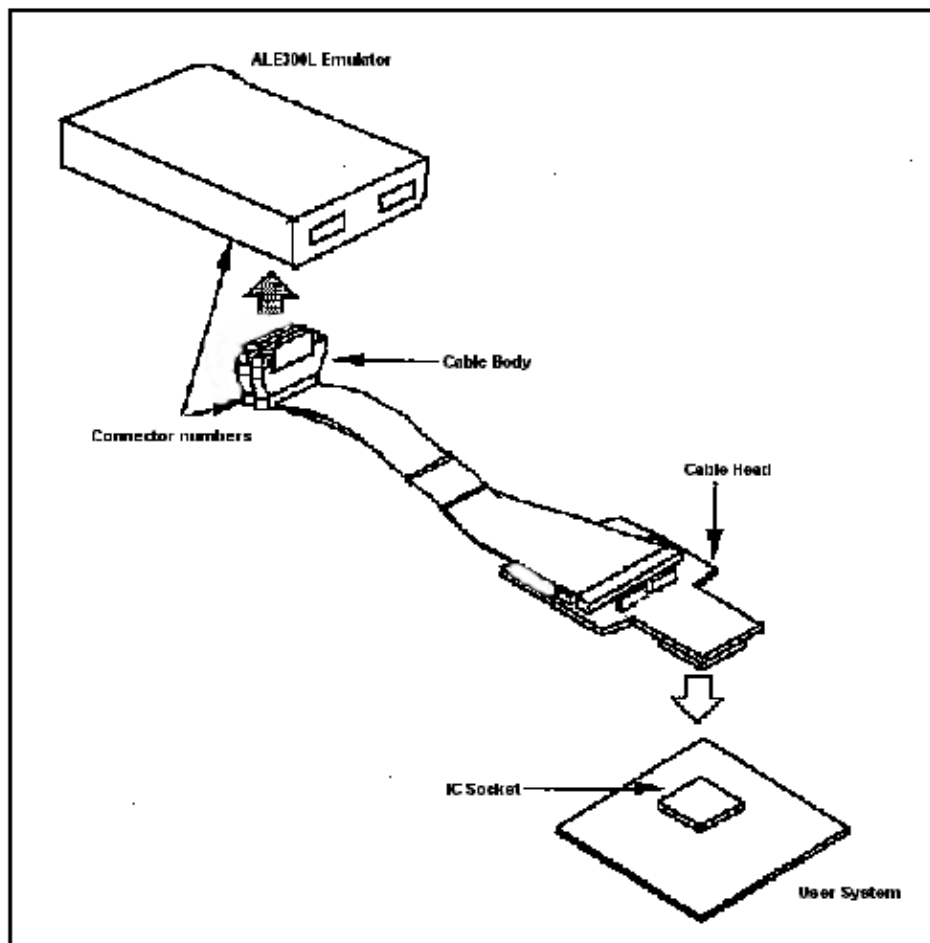
**WARNING:** Always switch OFF the user system and the emulator product before the USER SYSTEM INTERFACE CABLE is connected to or removed from either of the boards. Before connecting, make sure that pin 1 on both sides is correctly aligned. Failure to do so will result in a FIRE HAZARD and will damage the user system and the emulator product or will result in PERSONAL INJURY. The USER PROGRAM will be lost.

### 2.1 Connecting User System Interface Cable to ALE300L Emulator

To connect the cable body to the emulator, follow the instructions below:

- Make sure the user system and emulator are powered off.
- Open the cover at the bottom of the emulator.
- Align the connectors on the cable body with those on the emulator according to the specified number, insert the cable body connectors to those on the emulator until they are locked. Refer to figure 2.1.

Figure 2.1 Connect User System Interface Cable to ALE300L Emulator



## 2.2 Connecting User System Interface Cable to User System

### 2.2.1 Soldering IC Socket

- Apply epoxy resin adhesive to the corner guides and bottom face of an IC socket for the FP-80A pin package and fasten it to the user system.
- Align pin 1 on the IC socket with pin 1 on the user system interface cable head, and insert the user system interface cable head into the IC socket on the user system as shown in figure 2.2.
- Fasten the user system interface cable to the IC socket on the user system with the four screws provided. Each screw should be tightened a little at a time, alternating between screws on opposite corners. Use special care to prevent the soldered IC socket from being damaged by over-tightening the screws or twisting the components.

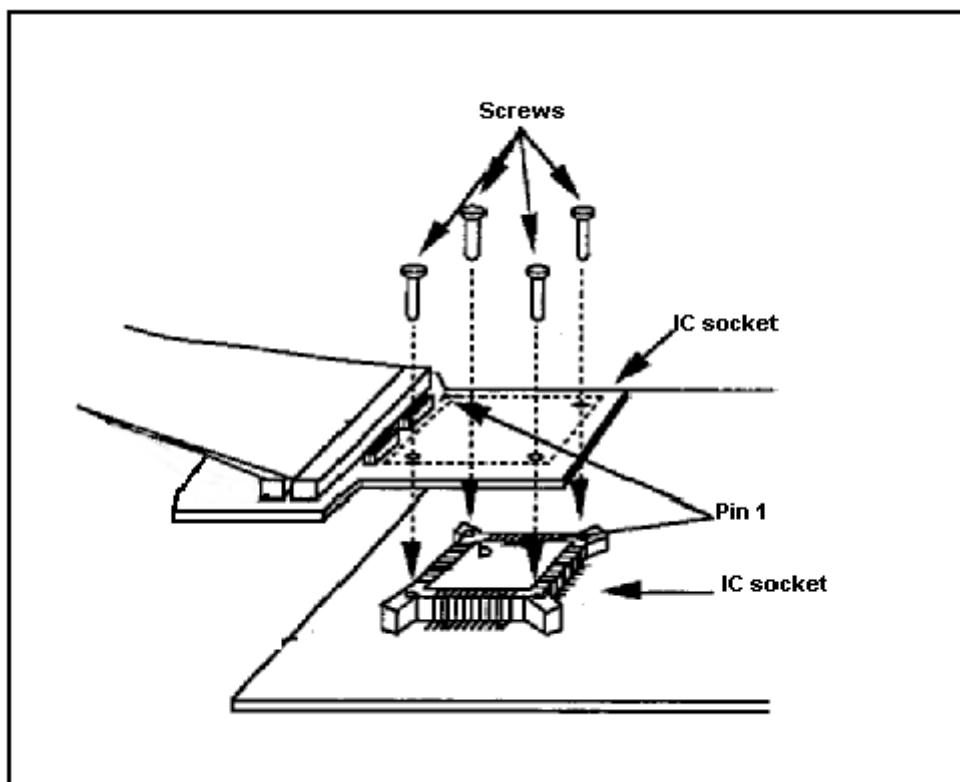
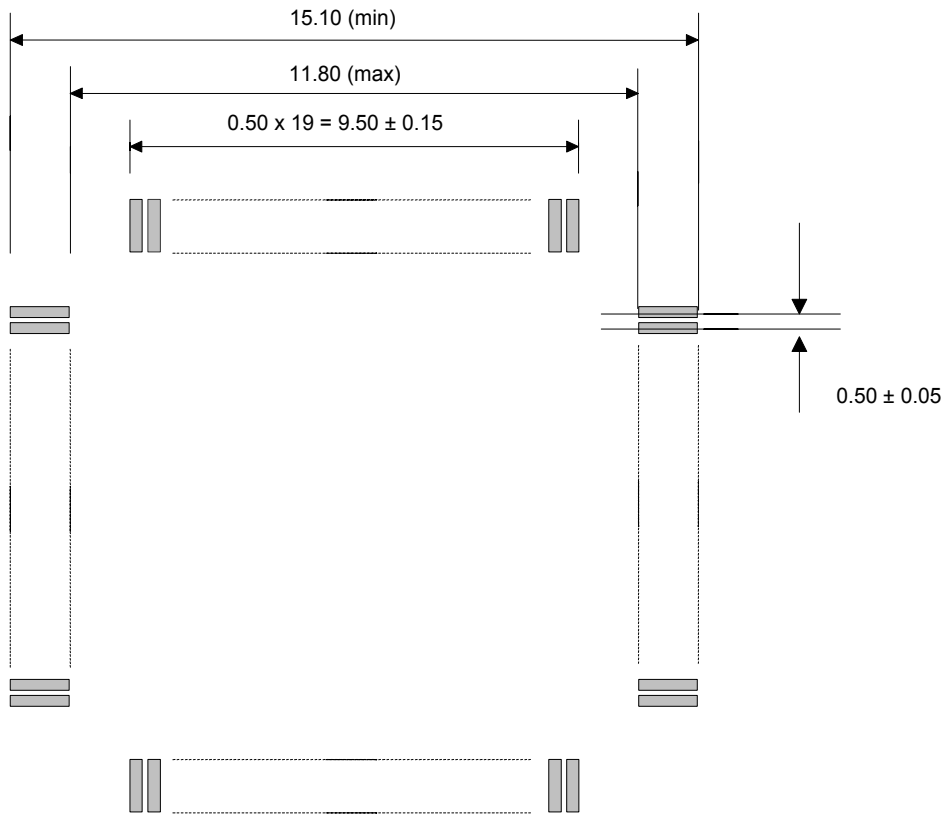


Figure 2.2 Connecting user system interface cable to user system



### Section 3. Dimensions for User System Cable Head

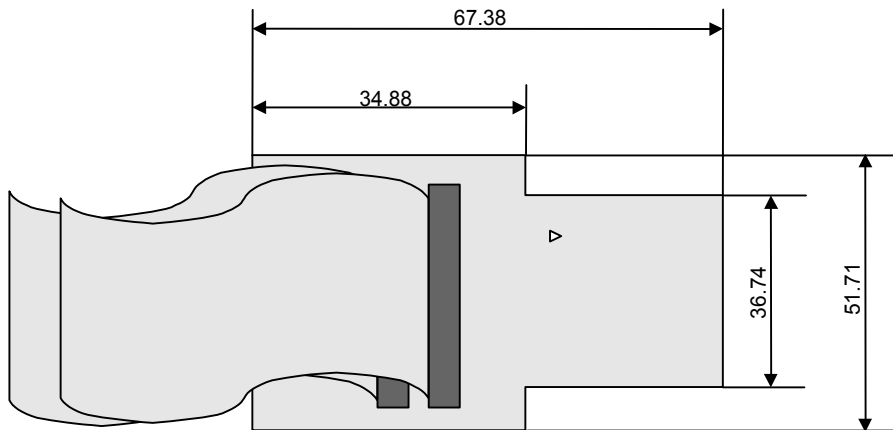
The dimensions for the recommended mount pad (footprint) using IC socket of a TQFP-80C-pin package (manufactured by YAMAICHI ELECTRONICS Co., Ltd.) that connect to the user system interface cable.



Recommended PCB Layout (Top View)  
pitch size: 0.50 mm (unit: mm)

**Figure 3.1** PCB footprint of TQFP-80C IC Socket

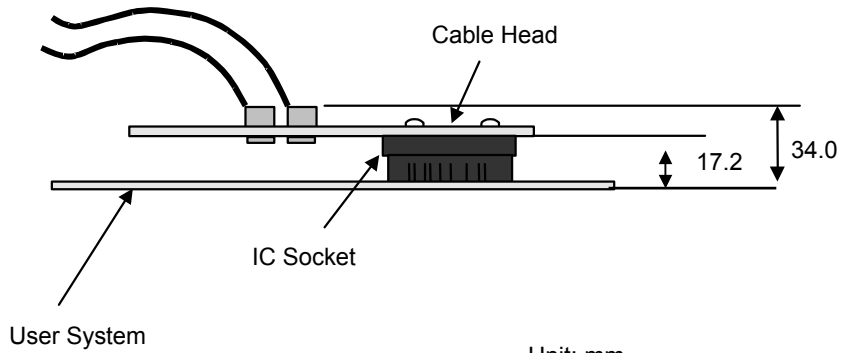
The dimensions for the user system interface cable head is shown in figure 3.2.



Unit: mm  
Tolerance:  $\pm 0.01\text{mm}$

**Figure 3.2 User system interface cable head**

Below shows the dimensions after connecting to User System Interface Cable to the user system.



Unit: mm  
Tolerance:  $\pm 0.10\text{mm}$

**Figure 3.3 Connecting user system interface cable to user system**

## Section 4. Installing MCU to the User System

- Check the location of pin 1 before inserting the MCU into the IC socket on the user system as shown in figure 4.1.
- After inserting the MCU, fasten the socket cover with the four screws provided.
- Take special care, such as manually securing the IC socket soldered area, to prevent the soldered IC socket from being damaged by over-tightening the screws or twisting the component.

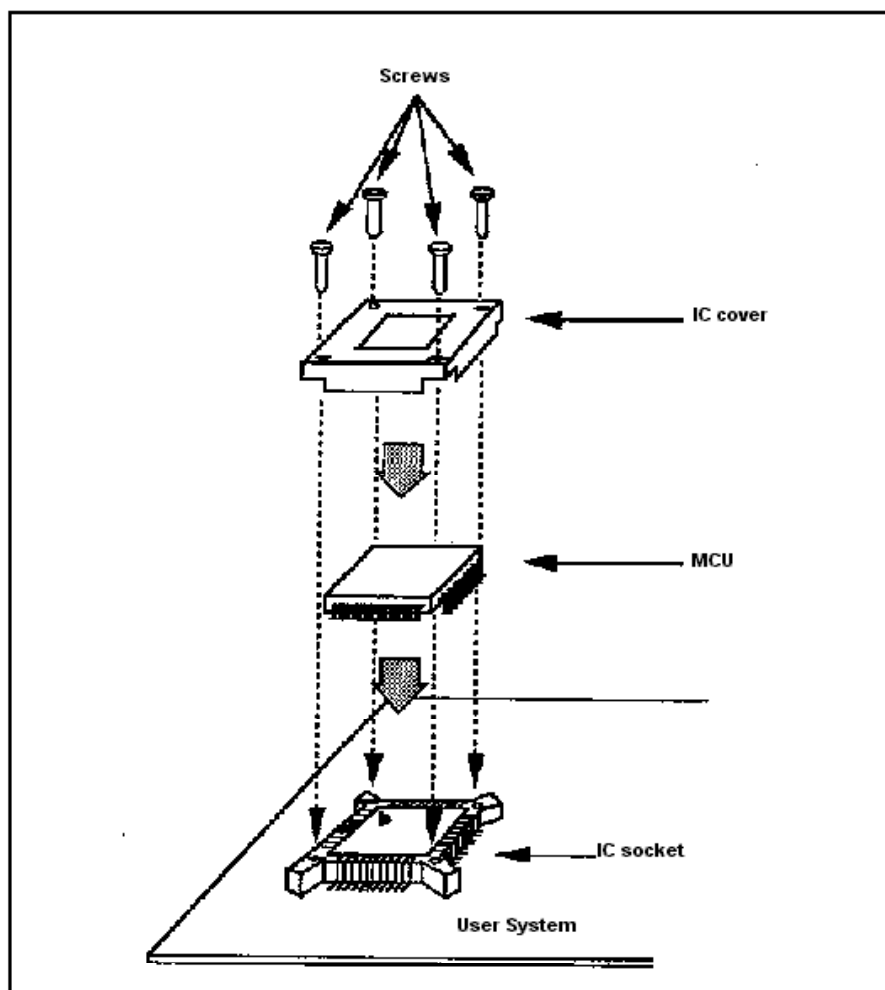


Figure 4.1 Installing MCU to user system

## Section 5. Warnings

- Make sure that pin 1 on the IC socket is correctly aligned with pin 1 on the cable head before inserting the cable head into the IC socket on the user system.
- Do not apply excessive force to the user system interface cable while it is connected to the user system.
- The dimensions of the recommended footprint for the IC socket are different from those of the actual chip.
- This user system interface cable is specifically designed for the ALE300L-H8/3880 & ALE300L-H8/3880R emulator. Do not use this cable with any other emulator.
- This user system interface cable cannot be operated with a crystal oscillator installed onto the user system. To use the crystal oscillator, it must be installed to the crystal oscillator installation terminals at the edge of the emulator marked with 'XTAL'.
- While the emulator is connected to the user system with the user system interface cable, force must not be applied to the cable head

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## H8/300L Series User System Interface Cable

