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PCA7414

User's Manual

PROM Programming Adapter for M34551E8FP

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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.

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

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To Use the Product Properly

Precautions for Safety



- Either in the User's Manuals or on the product, several icons are used to insure proper handling of this product and also to prevent injuries to you or other persons, or damage to your properties.
- Their graphic images and meanings are given in Chapter 1, Precautions for Safety. Be sure to read this chapter before using the product.

1. PRECAUTIONS FOR SAFETY

In this User's Manual, several icons are used to insure proper handling of this product and also to prevent injuries to you or other persons, or damage to your properties.

This chapter describes precautions which should be taken in order to use this product safely and properly. Be sure to read this chapter before using this product.

1.1 SAFETY SYMBOLS AND MEANINGS



WARNING

If the requirements shown in the "WARNING" sentences are ignored, the equipment may cause serious personal injury or death.



CAUTION

If the requirements shown in the "CAUTION" sentences are ignored, the equipment may malfunction.

IMPORTANT

NOTE: It means important information on using this product.

In addition to the three above, the following are also used as appropriate.

 means WARNING or CAUTION.

Example :  **CAUTION AGAINST AN ELECTRIC SHOCK**

 means PROHIBITION.

Example :  **DISASSEMBLY PROHIBITED**

 means A FORCIBLE ACTION.

Example :  **UNPLUG THE POWER CABLE FROM THE RECEPTACLE.**

The following pages describe the symbols "WARNING", "CAUTION", and "IMPORTANT".



WARNING

Warning for Use Environment:

- This equipment is to be used in an environment with a maximum ambient temperature of 35°C. Care should be taken that this temperature is not exceeded.
- Select the proper programming mode of the PROM programmer.



CAUTION

Cautions to Be Taken for This Product:



- Do not disassemble or modify this product. Personal injury due to electric shock may occur if this product is disassembled or modified.
- Use caution when handling this product. Be careful not to apply a mechanical shock such as falling, etc.
- Do not directly touch the connector pins of this product.
- Be careful with the static electricity when handling this product and the MCU.

Cautions for Keeping This Product:

- When not using this product for a long time,
 - (1) Attach the connector pins of this product to the conductive sponge.
 - (2) Put it into a conductive polyvinyl, and keep it in the package case shipped from the factory.
 - (3) Store it in the place where humidity and temperature are low and direct sunshine does not strike.

IMPORTANT

- Attach this product to the IC socket on the PROM programmer properly.
- Insert the MCU to the IC socket of this product properly.
- When opening and closing the IC socket of this product, be sure to keep it horizontal.
- Do not use the PROM programmer's device identification code readout function.

2. INTRODUCTION

The PCA7414 is a programming adapter for 4-bit microcomputers of 4500 Series. The adapter is a tool that can be used to write a program into internal PROM of microcomputers using a commercially available PROM programmer.

This manual describes the specifications and the operation of the PCA7414.

Figure 2.1 shows the external view and constituent parts of the PCA7414.

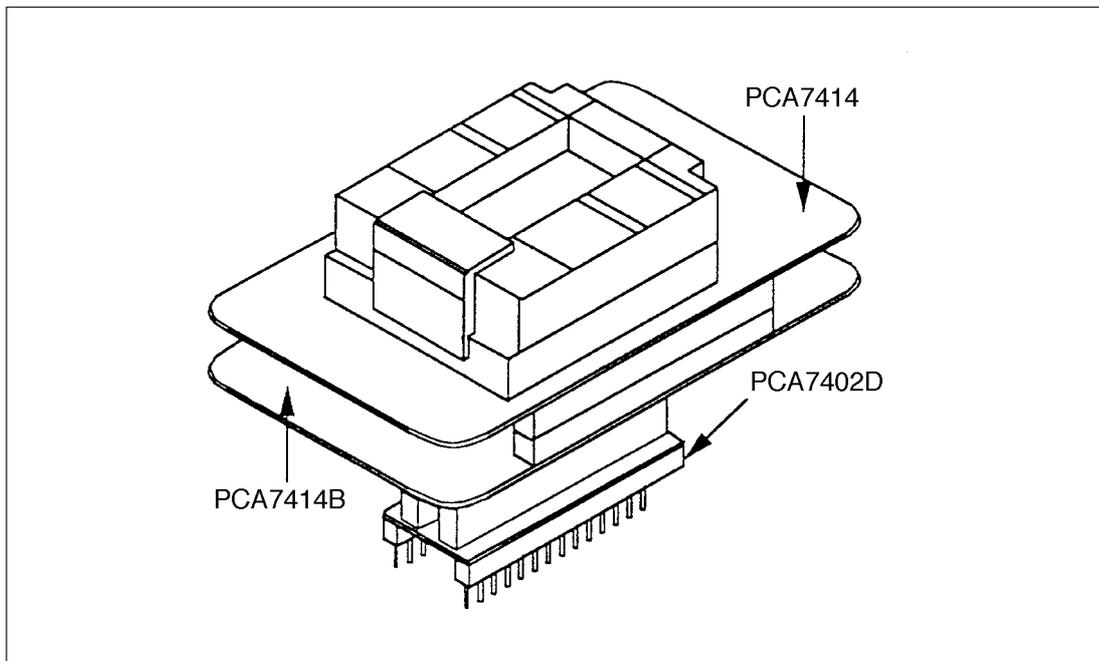


Figure 2.1 External view of PCA7414 and its parts

2.1 THINGS TO CHECK WHEN UNPACKING

The PCA7414 consists of following parts and boards. Check to see that it contains all of the components shown below.

Contents

- PCA7414 (Main unit) × 1
- PCA7414B (Interface unit) × 1
- PCA7402D (PROM programmer connector) × 1
- PCA7414 Instruction Manual (This manual) × 1

If any part is missing or there is any doubt about your product package, contact your nearest office of Mitsubishi or its distributor.

3. SPECIFICATIONS

Table 3.1 lists specifications of the PCA7414.

Table 3.1 Specifications of PCA7414

Item		Description
MCU type		M34551E8FP
Operating clock frequency		1 MHz (Supplied by the ceramic oscillator mounted on the PCA7414)
Power supply		Supplied from Vcc of the PROM programmer
IC socket		IC51-0484-652 (Made by Yamaichi Electronics Co., Ltd.)
Board configuration	PCA7414	Board to insert the programmable MCU (IC socket for 48-pin QFP is mounted.)
	PCA7414B	Interface board (Connected by two standard pitch 18-pin connectors and two standard pitch 16-pin connectors to the upper and lower boards)
	PCA7402D	Board to be connected to the PROM programmer (Standard pitch 28-pin pin-header to be connected to the PROM programmer is mounted.)

4. HOW TO WRITE THE PROGRAM

This chapter describes programming conditions and the programming procedure with a PROM programmer. For the operation of the PROM programmer, refer to the instructions of the PROM programmer.

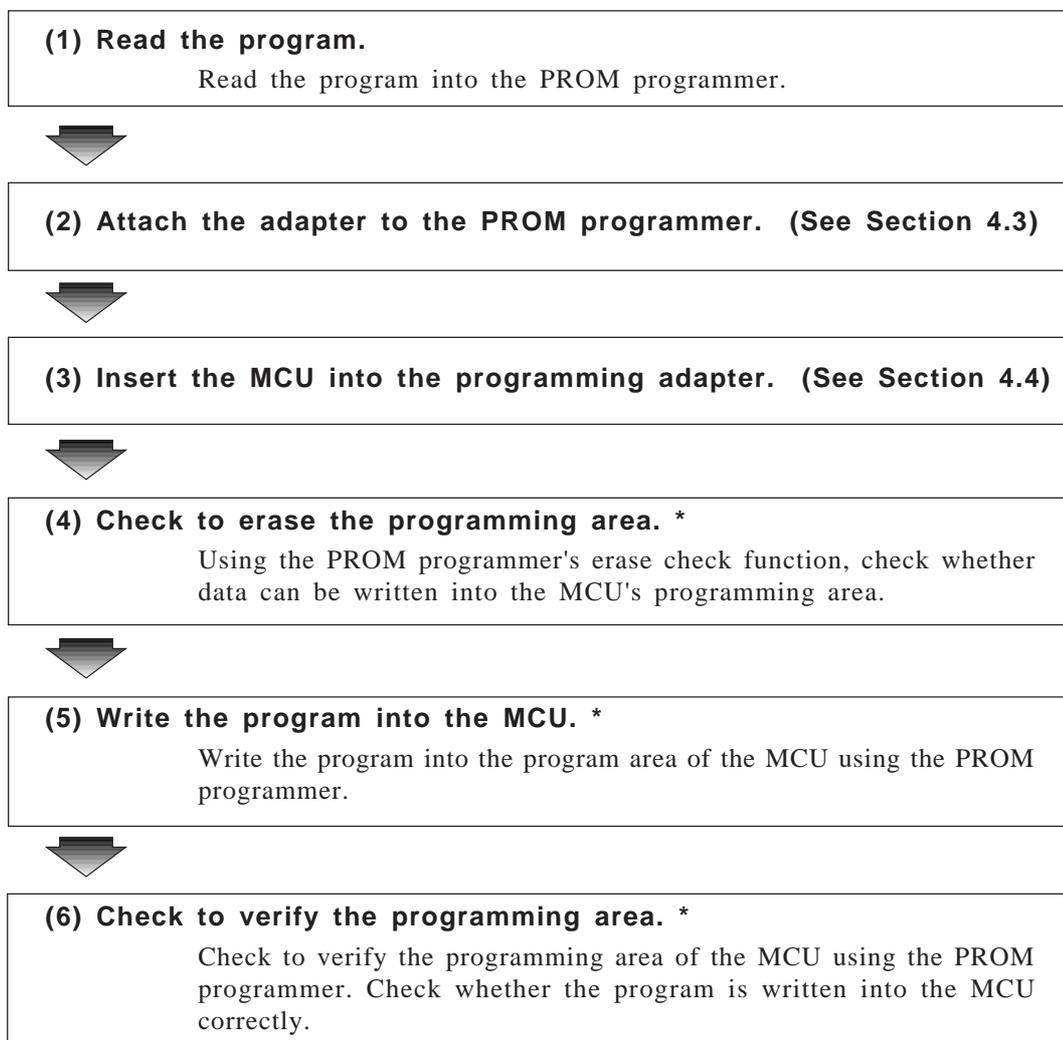
4.1 PROGRAMMING CONDITIONS

Programming conditions are shown here below.

Device name of PROM programmers: M5M27C256A (Made by Mitsubishi)
Programming voltage: $V_{pp} = 12.5V$

4.2 PROGRAMMING PROCEDURE

Follow these procedures (1) through (6) to write the program into the MCU.



Note:

* Some PROM programmers perform the procedures (4) through (6) written above automatically.

4.3 ATTACHING ADAPTER TO PROM PROGRAMMER

Attach the pin No. 1 of the PCA7402D PROM programmer connector (Standard pitch 28-pin pin-header mounted) to the specified pin of the IC socket of the PROM programmer.

Be careful when attaching the adapter because incorrect insertion can cause fatal damage to the MCU.

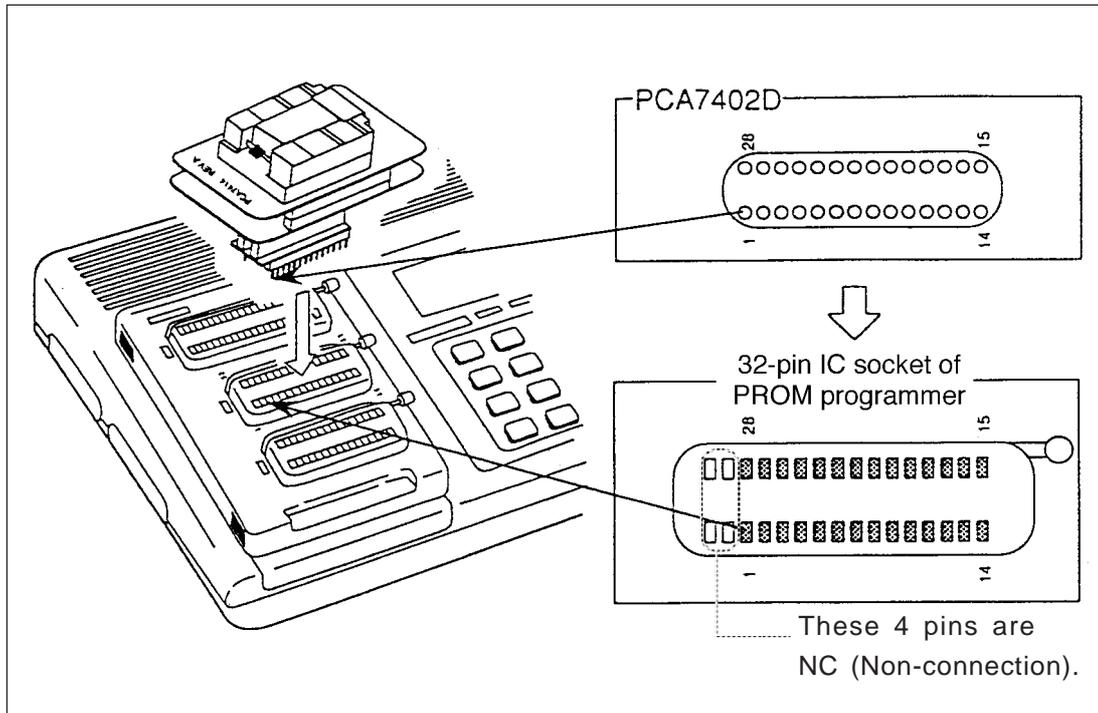


Figure 4.1 Attaching adapter to PROM programmer

4.4 INSERTING MCU INTO PROGRAMMING ADAPTER

As shown in Figure 4.2, insert the MCU into the IC socket, with the pin No.1 of the MCU matched to the pin No.1 of the IC socket on the PCA7414.

Be careful when inserting the MCU because incorrect insertion can cause fatal damage to the MCU.

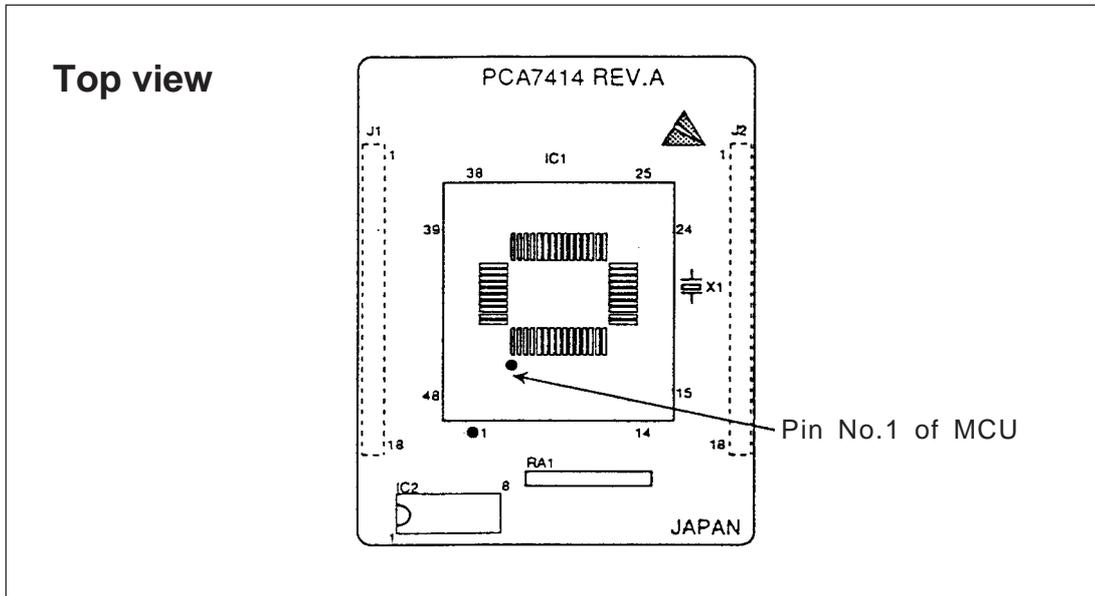


Figure 4.2 Inserting the MCU

4.5 PRECAUTIONS WHEN OPENING AND CLOSING IC SOCKET

When opening and closing the IC socket to insert the MCU, hold the adapter horizontally. Otherwise the inside of the IC socket may become damaged and cause an electrical insulation failure. Figure 4.3 shows in diagrammatic form the opening and closing of the IC socket.

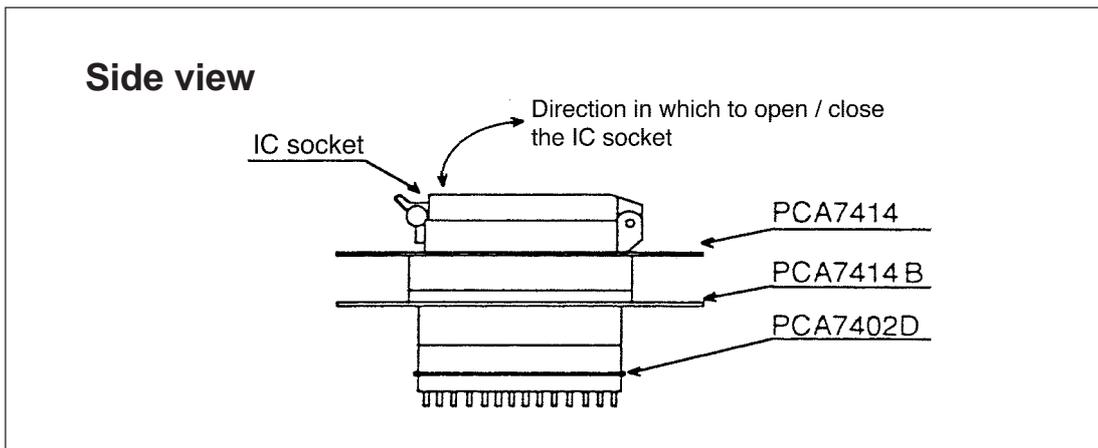


Figure 4.3 Opening and closing the IC socket

4.6 PRECAUTIONS WHEN HANDLING ADAPTER

Don't touch the connector in the IC socket and the pins on the PROM programmer connector lest it cause an electrical insulation failure because of dirt.

5. RECOMMENDED PROM PROGRAMMER

The PROM programmers listed in Table 5.1 are recommended for the adapter. Using the actual products, we have verified that these PROM programmers can be used to write programs without problem. Nonconformity occurring by using any other PROM programmers can not be supported. For the latest type of PROM programmers, contact the manufacturer to confirm whether it can be used for your product.

Table 5.1 Recommended PROM programmers

Manufacturer	Type name	Device name	Programming voltage (Vpp)
Advantest	TR4943	M5L27256 mode	12.5 V
	R4944A	M5M27C256 mode	
	R4945	M5M27C256A mode	
	R4945A		

6. How to Request for Support

After checking this manual, fill in the following information and email to your local distributor. For prompt response, please specify the following information:

(1) Contact address

- Company name
- Department
- Responsible person
- Phone number
- Fax number
- E-mail address

(2) Product information

- Name of the programming adapter
- Serial number
- Date of purchase
- Target MCU
- Symptoms (Fails blank check/Cannot write a program/Fails verification etc.)
- Detailed symptoms
- How often does the problem occur? (2 out of 10 etc.)
- When did the problem start to occur? (Since purchase/Used to work correctly)
- Type name of the PROM programmer (Advantest R4945A etc.)
- Specified device when writing to PROM (M27C101 etc.)
- Specified programming area when writing to PROM
- Switch settings of the adapter when writing to PROM

PCA7414 User's Manual

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PCA7414
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