User's Manual

PCA4738F-42A PCA4738F-80A PCA4738F-64A
PCA4738F-100A PCA4738G-100A PCA4738H-80A
PCA4738S-42A PCA4738S-64A

User's Manual

Supported Devices:
740 Family

Renesas Electronics
www.renesas.com

Rev.2.00 Oct 2010

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⚠ WARNING **WARNING** indicates a potentially dangerous situation that will cause death or heavy wound unless it is avoided.

⚠ CAUTION **CAUTION** indicates a potentially dangerous situation that will cause a slight injury, a medium-degree injury or a property damage unless it is avoided.

In addition to the two 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.

⚠WARNING

Warnings to Be Taken for Handling:

Do not modify this product. Personal injury due to electric shock may occur if this product is modified. Modifying the product will void your warranty.

Warnings for Installation:

Do not set this product in water or areas of high humidity. Make sure that the product does not get wet. Spilling water or some other liquid into the product may cause unrepairable damage.

Warnings for Storage when Not Using This Product for a Long Time:

(1) Attach the connector pins of this product to the conductive sponge included in the package.
(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.

Warnings for Ambient Temperatures:

Do not use if the ambient temperature exceeds the rated maximum ambient temperature.
The rated maximum ambient temperature of this product is 35°C.

Warnings when Using the PROM Programmer:

Select the proper programming mode of the PROM programmer.
Be sure to set the programming area as described in this user's manual.
Do not use the PROM programmer's device identification code readout function.

⚠CAUTION

Cautions to Be Taken for Handling:

Use caution when handling this product. Be careful not to apply a mechanical shock.

Do not directly touch the connector pins of this product. Static electricity may damage the internal circuits. Be careful with the static electricity when handling this product and the MCU.

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.

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We cannot accept any request for repair.

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Contents

1. Outline

This product is a PROM programming adapter for the 38000 Series of Renesas 8-bit MCUs (available for some 740 Series MCUs). The adapter is a tool that can be used to write programs into internal PROM of MCUs using a PROM programmer commercially available. This chapter describes the package components, external views, system configuration and the specifications of this product.

1.1 Package Components

This product package consists of the following items. When unpacking it, check to see if your product contains all of these items. If there is any question or doubt about the packaged product, contact your local distributor.

Table 1.1 Contents

	Contents		
Main unit	PCA4738F-64A, PCA4738F-80A, PCA4738F-100A, PCA4738S-64A	PCA4738G-100A, PCA4738H-80A	PCA4738F-42A, PCA4738S-42A
Interface unit	PCA4738C	PCA7402B	PCA7402B
Connector	PCA4738D (28-pin) PCA4738E (32-pin)	PCA7402D (28-pin) PCA7402E (32-pin)	PCA7402E (32-pin)
User's Manual	This manual		

1.2 System Configuration

Figures 1.1 and 1.2 show a configuration of this product.

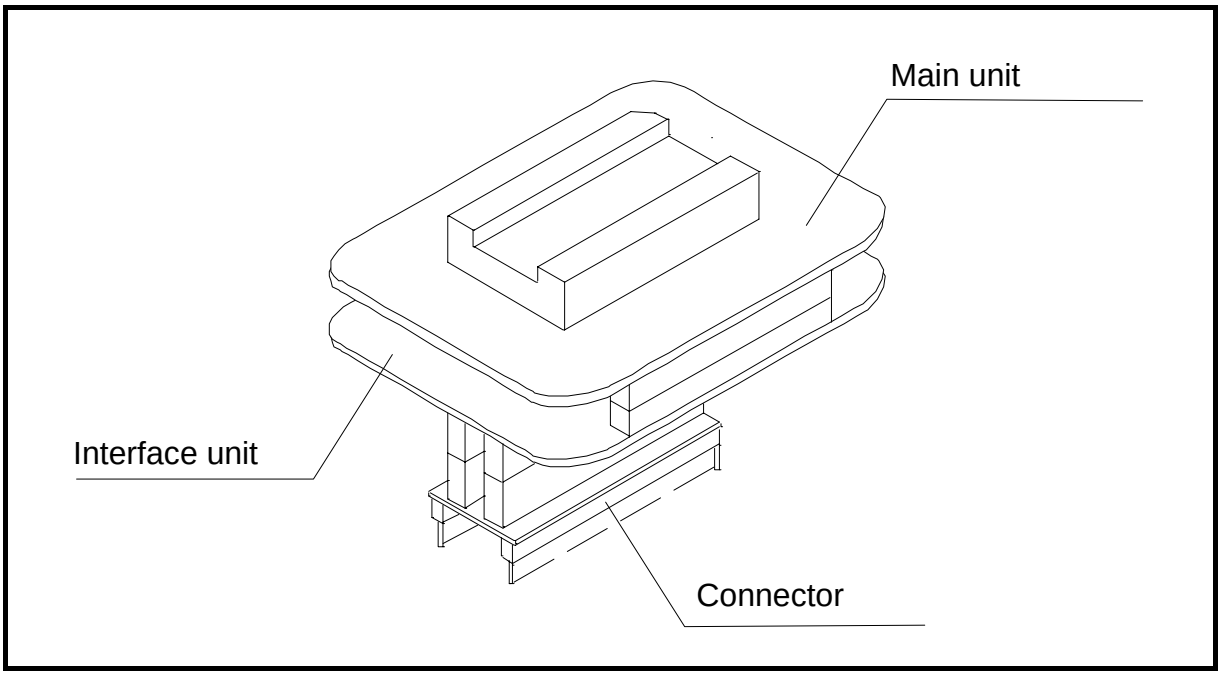


Figure 1.1 External view of the programming adapter (DIP type IC socket) and constituent parts

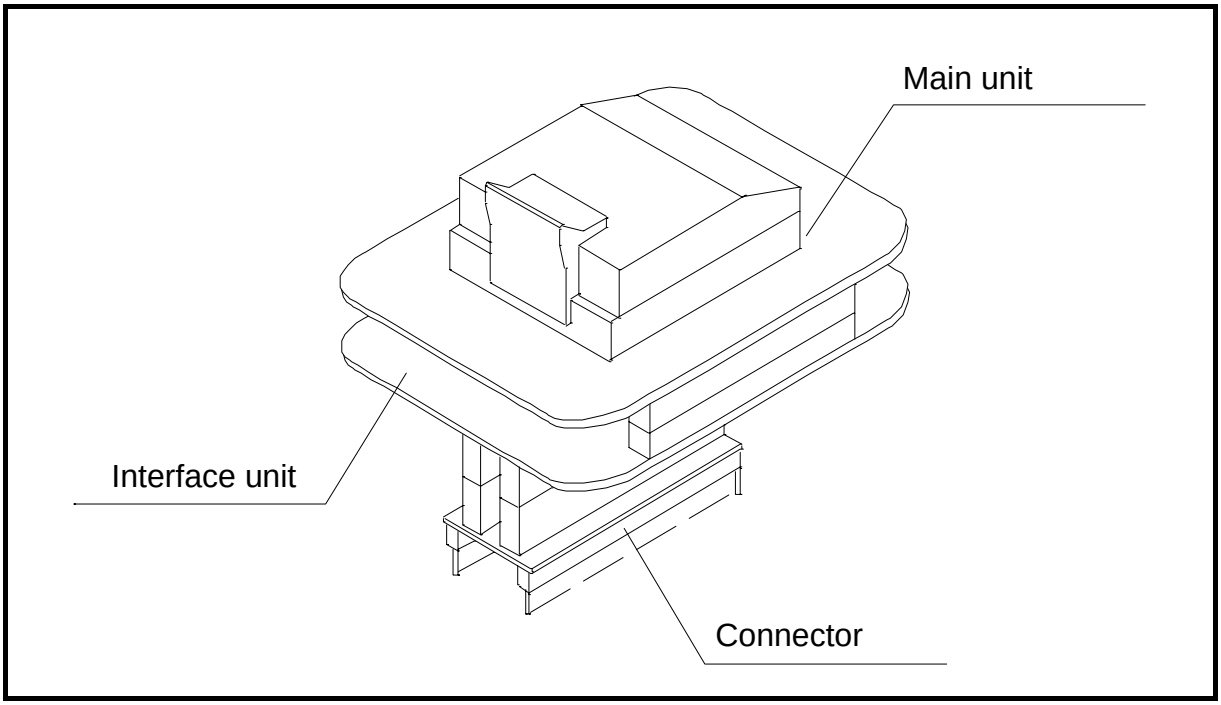


Figure 1.2 External view of the programming adapter (QFP, SOP, LCC type IC socket) and constituent parts

1.3 Specifications

1.3.1 Specifications

Table 1.2 lists common specifications of the programming adapters, and Tables 1.3 and 1.4 list individual specifications of each programming adapter.

Table 1.2 Common specifications

Item		Description
Operating clock frequency		4MHz (Supplied by the ceramic oscillator mounted on the adapter)
Power supply		Supplied from Vcc of the PROM programmer
Board configuration	Main unit	Board to mount a programmable MCU (IC socket for MCU mounted on it)
	PCA4738C or PCA7402B (Interface unit)	Interface board (buffer IC mounted) (Connected by two rows of standard-pitch 18-pin connectors and two rows of standard-pitch 16-pin connectors to the upper and lower boards)
	PCA4738D or PCA7402D (28-pin connector)	Board to connect to the PROM Programmer (for M5M27C256 mode) (Standard-pitch 28-pin pin-header mounted)
	PCA4738E or PCA7402E (32-pin connector)	Board to connect to the PROM Programmer (for M5M27C101 mode) (Standard-pitch 32-pin pin-header mounted)

Table 1.3 Individual specifications (1/2)

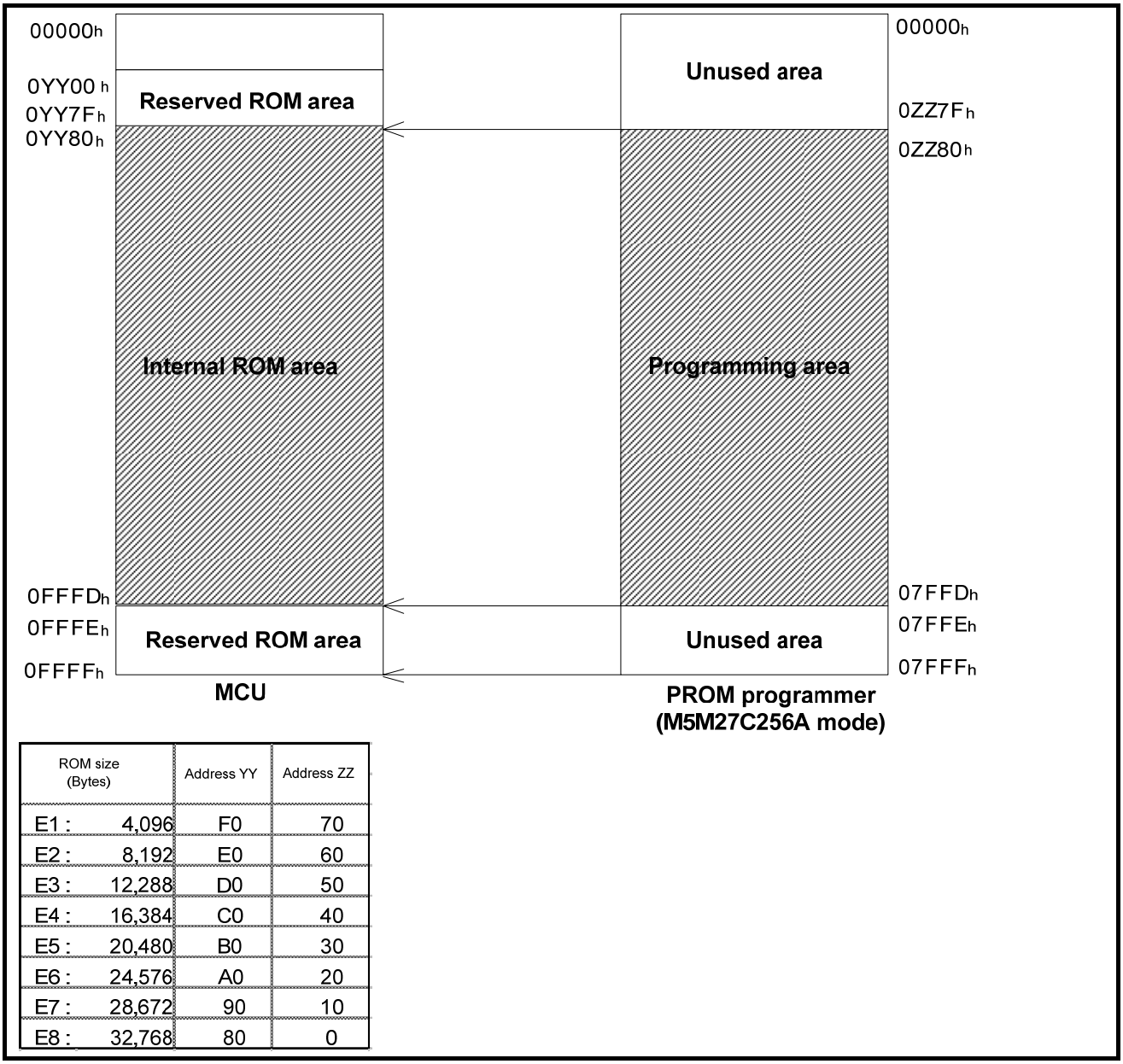
Product name	Item	Description	
PCA4738S-42A	MCU	38000 Series SDIP package (42P4B, 42S1B)	3850, 3851 Group 42-pin SP/SS package
	IC socket	IC59-4206-G4 (made by Yamaichi Electronics Co., Ltd.)	
PCA4738F-42A	MCU	38000 Series QFP package (42P2R-A)	3850, 3851 Group 42-pin FP package
	IC socket	IC51-0422-393 (made by Yamaichi Electronics Co., Ltd.)	
PCA4738S-64A	MCU	38000 Series SDIP package (64P4B, 64S1B)	3800, 3802, 3810, 3811, 3812, 3880, 3888, 3890 Group 64-pin SP/SS package
	IC socket	264-1300-00 (made by Sumitomo 3M Limited)	
PCA4738F-64A	MCU	38000 Series QFP package (64P6N-A)	3800, 3802, 3810, 3811, 3812, 3880, 3888, 3890 Group 64-pin FP package
	IC socket	IC51-824.KS-8095 (made by Yamaichi Electronics Co., Ltd.)	

Table 1.4 Individual specifications (2/2)

Product name	Item	Description	
PCA4738F-80A	MCU	38000 Series QFP package (80P6N-A)	3806, 3807, 3817, 3820, 3822 Group 80-pin FP package
	IC socket	IC51-0804-819-6 (made by Yamaichi Electronics Co., Ltd.)	
PCA4738H-80A	MCU	38000 Series QFP package (80P6Q-A)	3820, 3822, 3886 Group 80-pin HP package
	IC socket	IC51-0804-808 (made by Yamaichi Electronics Co., Ltd.)	
PCA4738F-100A	MCU	38000 Series QFP package (100P6S-A)	3818, 3825, 3826 Group 100-pin FP package, 100-pin FP package of M37560
	IC socket	IC51-1004-814-6 (made by Yamaichi Electronics Co., Ltd.)	
PCA4738G-100A	MCU	38000 Series QFP package (100P6Q-A)	3825, 3826 Group 100-pin GP package, 100-pin GP package of M37513, 100-pin GP package of M37527, 100-pin GP package of M37560
	IC socket	IC51-1004-809 (made by Yamaichi Electronics Co., Ltd.)	

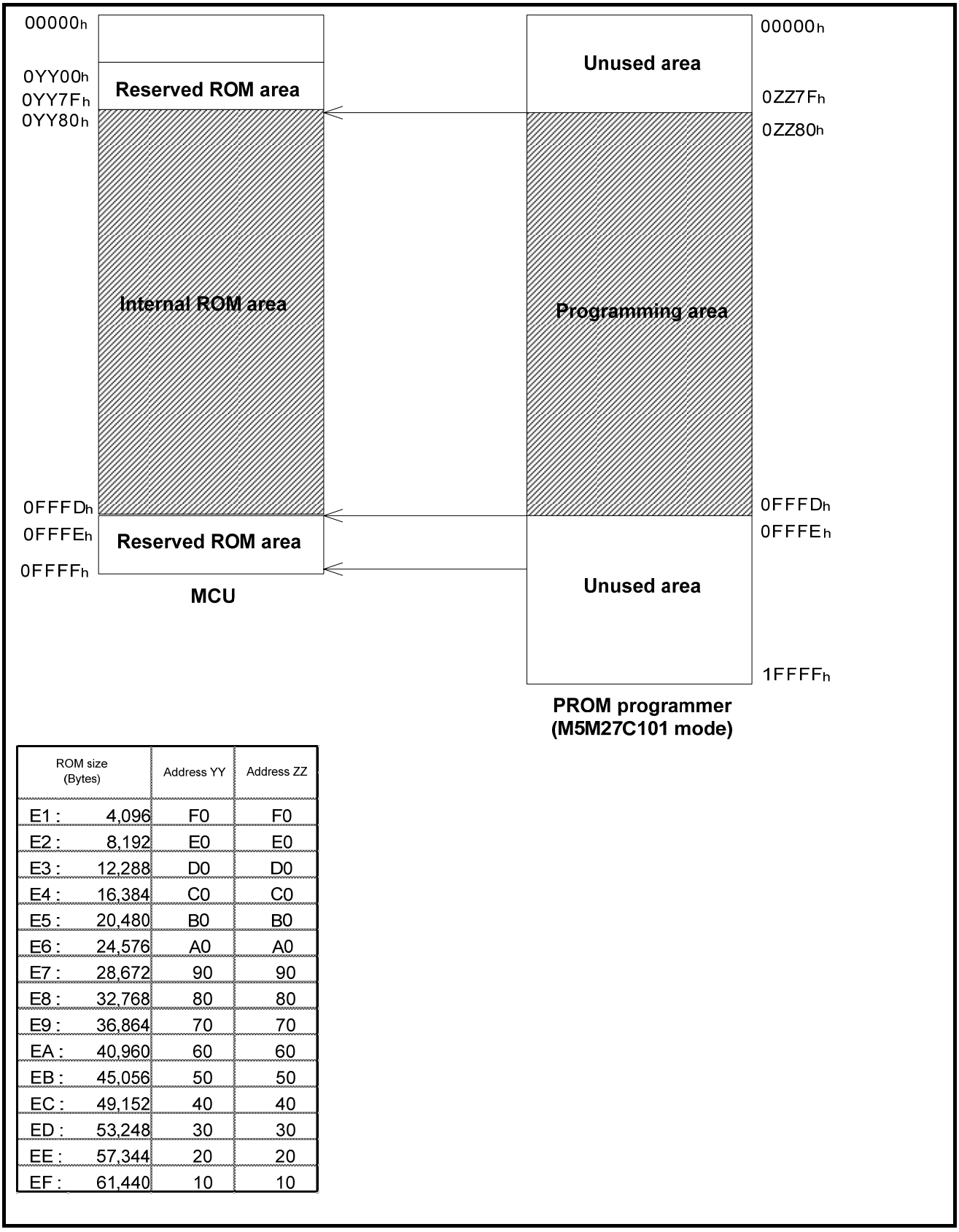
1.4 Memory Maps

Memory maps of the MCU and PROM programmers are shown in Figure 1.3 (M5M27C256A mode) and Figure 1.4 (M5M27C101 mode).



ROM size (Bytes)		Address YY	Address ZZ
E1 :	4,096	F0	70
E2 :	8,192	E0	60
E3 :	12,288	D0	50
E4 :	16,384	C0	40
E5 :	20,480	B0	30
E6 :	24,576	A0	20
E7 :	28,672	90	10
E8 :	32,768	80	0

Figure 1.3 Memory maps (M5M27C256A mode)



ROM size (Bytes)	Address YY	Address ZZ
E1 : 4,096	F0	F0
E2 : 8,192	E0	E0
E3 : 12,288	D0	D0
E4 : 16,384	C0	C0
E5 : 20,480	B0	B0
E6 : 24,576	A0	A0
E7 : 28,672	90	90
E8 : 32,768	80	80
E9 : 36,864	70	70
EA : 40,960	60	60
EB : 45,056	50	50
EC : 49,152	40	40
ED : 53,248	30	30
EE : 57,344	20	20
EF : 61,440	10	10

Figure 1.4 Memory maps (M5M27C101 mode)

2. Usage (How to Write the Program)

This chapter describes how to write programs with a PROM programmer. For the operation of the PROM programmer, refer to the user's manual of the PROM programmer.

2.1 Programming Procedures

Follow these procedures (1) through (9) to write programs into the MCU.

(1) Read the program into the PROM programmer. (Offset: 8000h)*1
*1) Offset address not required when writing in M5M27C101 mode.

↓

(2) Select the connector corresponding to the MCU. (See Section 2.2)*2
*2) Skip this step for the PCA4738S-42A and PCA4738F-42A.

↓

(3) Attach the adapter to the PROM programmer. (See Section 2.3)

↓

(4) Set the switches (SW1, SW2 and SW3). (See Section 2.4)

↓

(5) Insert the MCU into the adapter. (See Section 2.5)

↓

(6) Specify the programming area of the MCU using the PROM programmer. (See Section 2.6) *3

↓

(7) Using the PROM programmer's erase check function, check whether data can be written into the MCU's programming area. *4

↓

(8) Write the program into the programming area of the MCU using the PROM programmer. *4

↓

(9) Verify the programming area of the MCU using the PROM programmer to check whether the program is written into the MCU correctly. *4

⚠ CAUTION

*3 Be sure to set the programming area. Otherwise the mode's shift to the programming mode may not be performed successfully. The erase check function etc. may not also be performed completely.

*4 Some PROM programmers perform these steps (7) through (9) automatically.

2.2 Selecting a Connector

Select the connector depending on the type of the MCU as described in Table 2.1 and Figure 2.1 below.

Table 2.1 Selecting connector

Conditions			MCU	Applicable connector
MCU's programming mode	M5M27C256A mode	32 KB or less	M375XXE1/E2/E3/E4 M375XXE5/E6/E7/E8 M38XXXE1/E2/E3/E4 M38XXXE5/E6/E7/E8	PCA4738D or PCA7402D
	M5M27C101 mode	Over 32 KB	M375XXE9/EA/EB/EC M375XXED/EE/EF M38XXXE9/EA/EB/EC M38XXXED/EE/EF	PCA4738E or PCA7402E

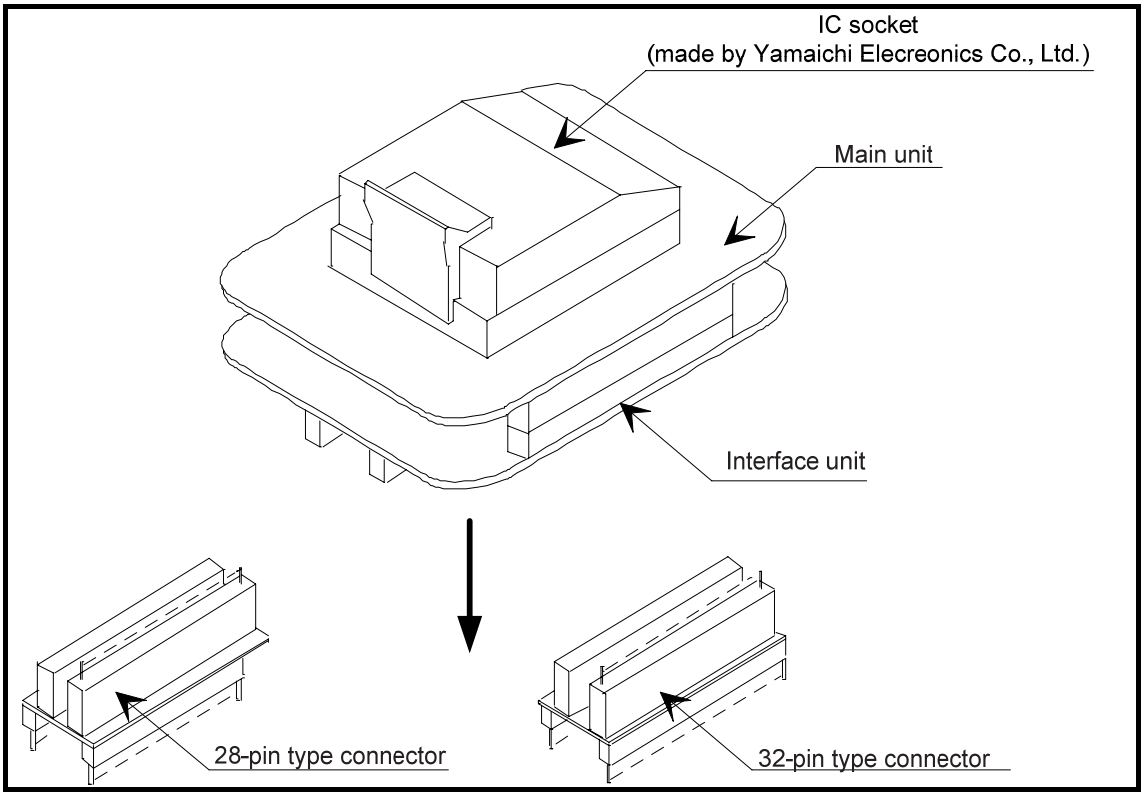


Figure 2.1 Selecting a connector

⚠ CAUTION

- No selection is required for the PCA4738S-42A and PCA4738F-42A. (The PCA7402E connector is already attached.)
- For the MCU whose internal ROM is 32 KB or less, the applicable adapter (PCA4738D/PCA7402D or PCA4738E/PCA7402E) depends on its device (M5M27C256A mode or M5M27C101 mode). For each matching device of the MCU, refer to Tables 2.6 to 2.9 on pages 21 to 22.

2.3 Attaching the Adapter to a PROM Programmer

2.3.1 For the PCA4738D and PCA7402D

As shown in Figure 2.2, attach the pin No. 1 of the connector (standard-pitch 28-pin pin-header mounted) to the No. 1 pin of the IC socket of the PROM programmer.

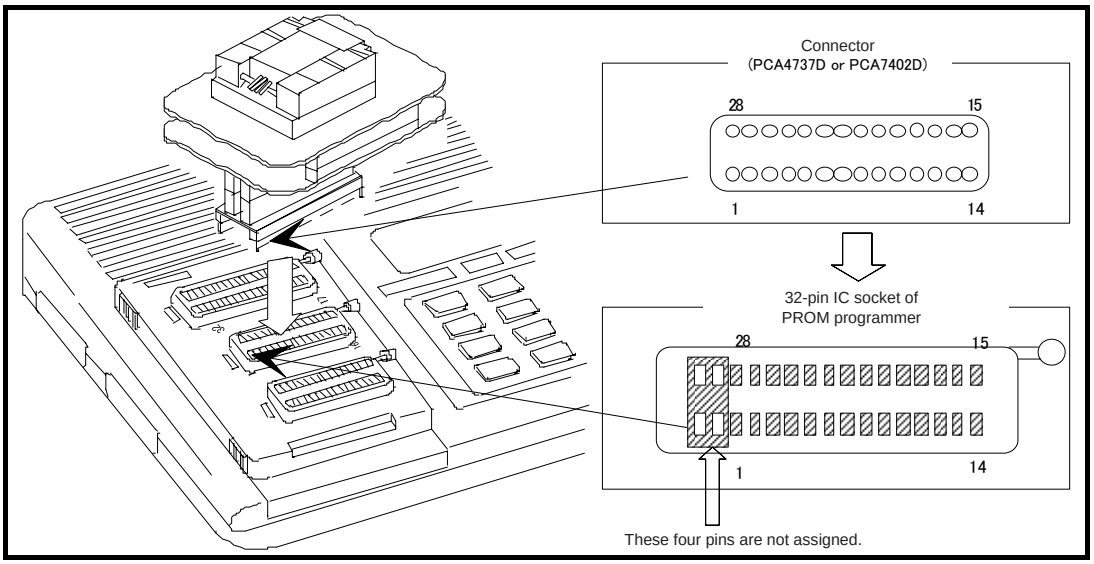


Figure 2.2 Attaching the adapter to a PROM programmer (PCA4738D or PCA7402D)

2.3.2 For the PCA4738E and PCA7402E

As shown in Figure 2.3, attach the pin No. 1 of the connector (standard-pitch 32-pin pin-header mounted) to the No. 1 pin of the IC socket of the PROM programmer.

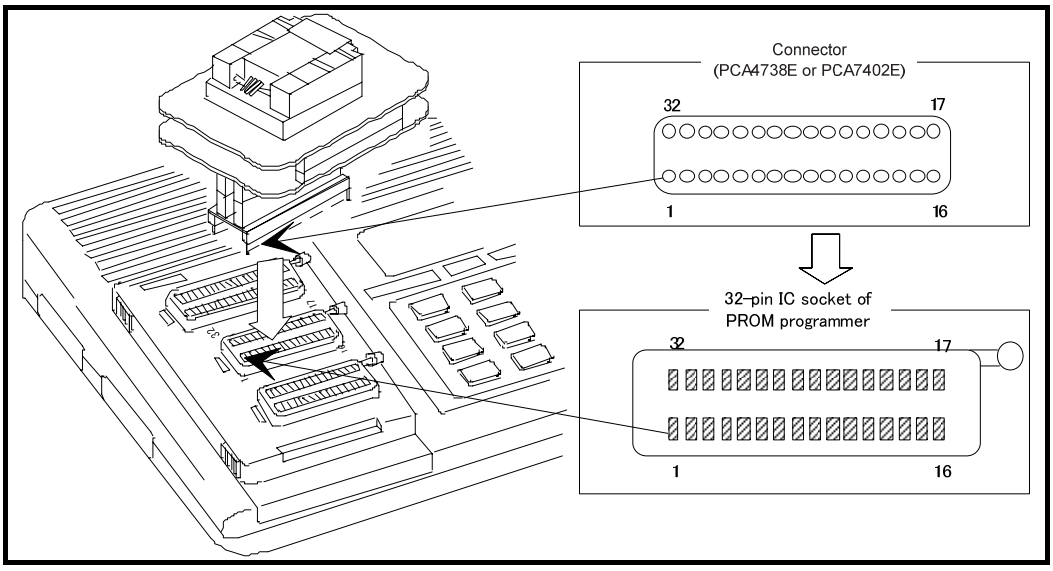


Figure 2.3 Attaching the adapter to a PROM programmer (PCA4738E or PCA7402E)

⚠ CAUTION

Be careful when attaching to the PROM programmer because an incorrect insertion can cause fatal damage to the MCU.

2.4 Switch Settings

2.4.1 Switches SW1 and SW2

(1) For PCA4738S-42A and PCA4738F-42A

Set the switches SW1 and SW2 according to the output format of the MCU ports. See Table 2.2 and Figure 2.4.

Table 2.2 Switch settings (PCA4738S-42A and PCA4738F-42A)

Switch	Output format		Switch setting
SW1	P00--P03	CMOS	CMOS
		Pch	Pch
		Nch	Nch
SW2	P04--P07	CMOS	CMOS
		Pch	Pch
		Nch	Nch

(2) For all adapters except the PCA4738S-42A and PCA4738F-42A

Set the switches SW1 and SW2 according to the output format of the MCU ports. See Table 2.3 and Figure 2.4.

Table 2.3 Switch settings (all adapters except PCA4738S-42A and PCA4738F-42A)

Switch	Output format		Switch setting
SW1	P20--P23	CMOS	CMOS
		Pch	Pch
		Nch	Nch
SW2	P24--P27	CMOS	CMOS
		Pch	Pch
		Nch	Nch

2.4.2 Switch SW3

Table 2.4 Switch settings of SW3

MCU type name	Switch setting
M38103E6SS/SP/FS/FP M38114E8SS/SP/FS/FP M38174E8FS/FP M38177ECFS/FP M38185EEFS/FP	ON
Other MCUs	OFF

⚠ CAUTION

The PC4738S-42A and PCA4738F-42A do not have switch SW3.

Table 2.5 Examples of switch settings

Group	Example	SW1	SW2
7500	M37500E8	CMOS	CMOS
7510	M37510E6	CMOS	CMOS
7513	M37513EF	CMOS	CMOS
7560	M37560EF	CMOS	CMOS
3800	M38002E2	CMOS	CMOS
3802	M38022E4	CMOS	CMOS
3806	M38067E8	CMOS	CMOS
3807	M38073E4	CMOS	CMOS
3810	M38102E5	Pch	CMOS
3811	M38112E4	Pch	CMOS
3812	M38123E6	Pch	CMOS
3817	M38177EC	CMOS	CMOS
3818	M38184EA	CMOS	CMOS
3819	M38197EA	Pch	CMOS
3820	M38203E4	CMOS	CMOS
3822	M38223E4	CMOS	CMOS
3825	M38254E6	CMOS	CMOS
3826	M38267E8	CMOS	CMOS
3850	M38503E4	CMOS	CMOS
3851	M38513E4	CMOS	CMOS
3874	M38749EF	CMOS	CMOS
3880	M38802E2	CMOS	CMOS
3881	M38813E4	CMOS	CMOS
3886	M38867E8	CMOS	CMOS
3888	M38881E2	CMOS	CMOS
3890	M38903E4	Nch	Nch

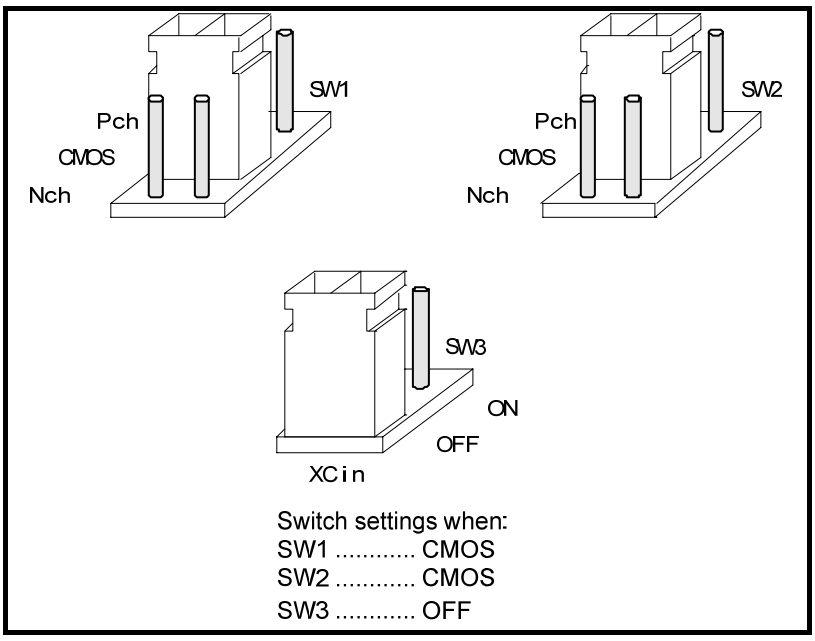


Figure 2.4 Example of switch settings

2.5 Mounting an MCU

As shown in Figures 2.5 and 2.6, insert the No. 1 pin of an MCU into the No. 1 pin of the IC socket.

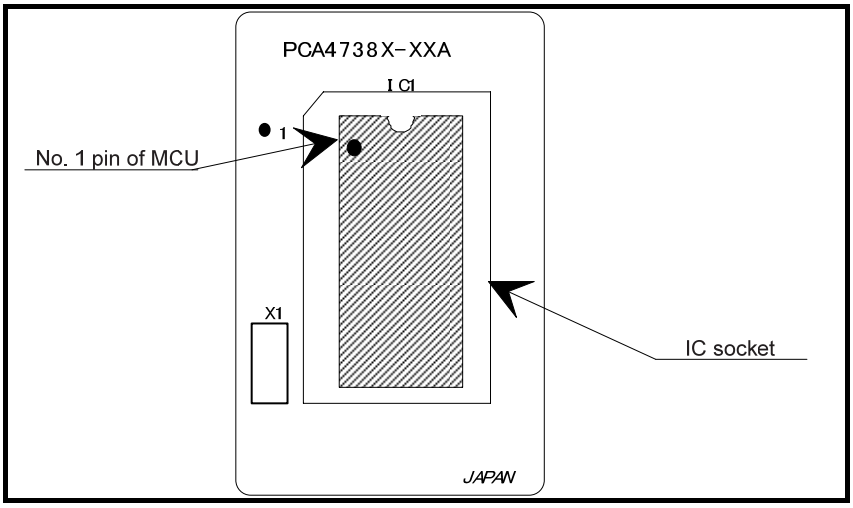


Figure 2.5 Mounting an MCU (adapters with DIP type IC socket)

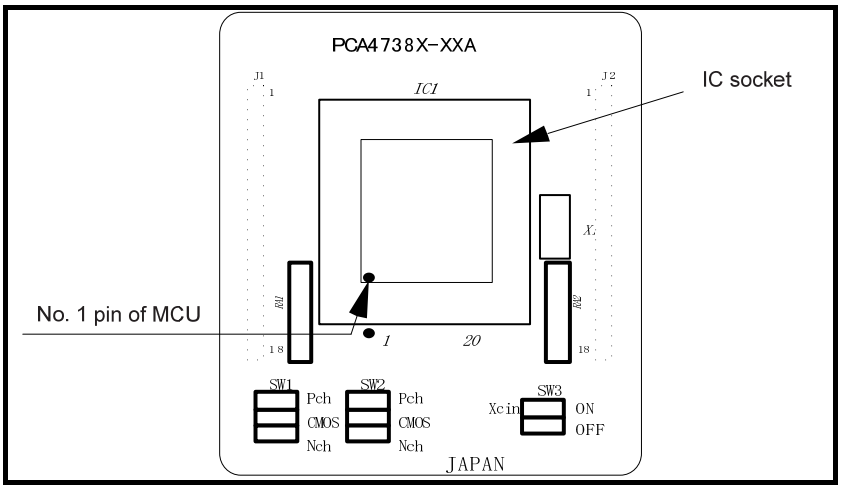


Figure 2.6 Mounting an MCU (adapters with QFP, SOP, LCC type IC socket)

⚠ CAUTION

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

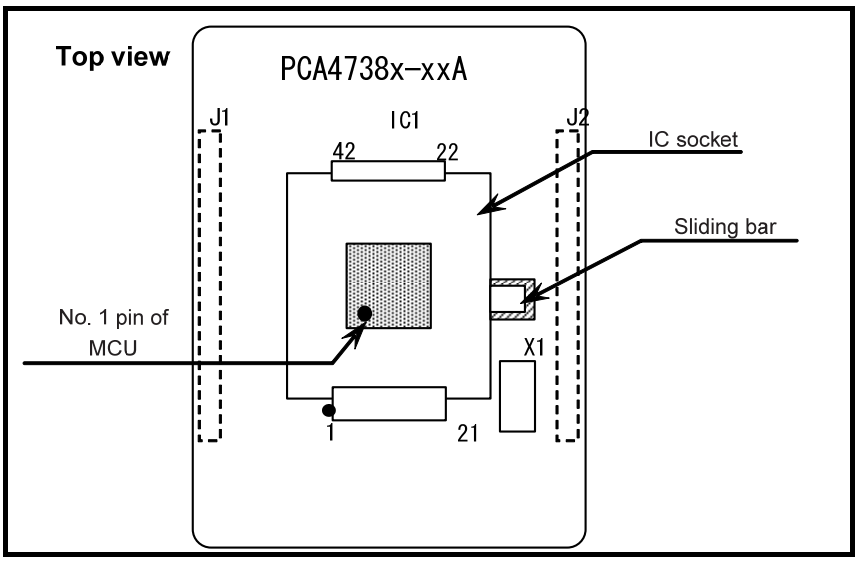


Figure 2.7 SOP Version IC Socket

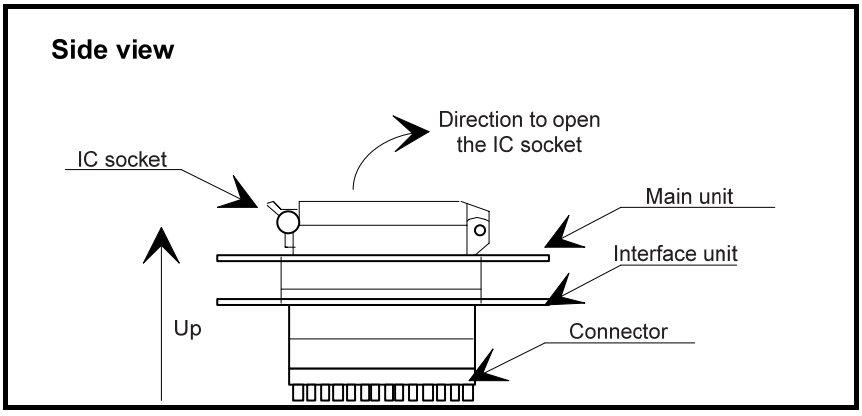


Figure 2.8 Opening and closing the IC socket

⚠ CAUTION

Caution to Be Taken for SOP Version IC Socket:

SOP version IC sockets (mounted on the PCA4738F-42A) have a sliding bar in the middle of the board. Be sure to keep the bar to the side of the diagonally shaded area imprinted on the board (factory-setting). An improper setting will cause fatal damage to the MCU due to faulty connections.

Caution to Be Taken for Handling an MCU:

Do not directly touch the contact in the IC socket and the connector pins of this product because dirt may cause a faulty connection. When not using this product, attach the connector pins of this product to the conductive sponge as it was shipped from the factory.

Caution to Be Taken for Opening and Closing the IC Socket:

When opening and closing the IC socket, hold the adapter horizontally as shown in Figure 2.8. Otherwise the inside of the IC socket may become damaged and cause a faulty connection.

2.6 Setting the Programming Area

To write the program into an MCU, be sure to set the programming area. And also, specify its device of the PROM programmer. The lists of programming areas and device are shown in Tables 2.6 to 2.9. Make note of the fact that the MCU whose ROM is 32 KB or less has two devices applicable. For the MCUs not listed in Tables 2.6 to 2.9, refer to each MCU's user's manual.

Table 2.6 List of programming areas and devices -38000 Series (PCA4738D or PCA7402D connector)

MCU type name		ROM size	PROM programmer		ROM area of MCU
MCU	Applicable MCU		Device	Programming area	
M38XXXE2	M38002E2 M38802E2 M38881E2	About 8 KB	M5M27C256A	6080h--7FFDh	E080h--FFFDh
M38XXXE3	Currently not available	About 12 KB		5080h--7FFDh	D080h--FFFDh
M38XXXE4	M38002E4 M38022E4 M38073E4 M38112E4 M38203E4 M38223E4 M38813E4 M38903E4	About 16 KB		4080h--7FFDh	C080h--FFFDh
M38XXXE5	M38102E5	About 20 KB		3080h--7FFDh	B080h--FFFDh
M38XXXE6	M38063E6 M38123E6 M38254E6	About 24 KB		2080h--7FFDh	A080h--FFFDh
M38XXXE7	Currently not available	About 28 KB		1080h--7FFDh	9080h--FFFDh
M38XXXE8	M38004E8 M38027E8 M38067E8 M38184E8 M38207E8 M38257E8 M38267E8	About 32 KB		0080h--7FFDh	8080h--FFFDh

Table 2.7 List of programming areas and devices - 75xx Group (PCA4738D or PCA7402D connector)

MCU type name		ROM size	PROM programmer		ROM area of MCU
MCU	Applicable MCU		Device	Programming area	
M375XXE2	Currently not available	About 8 KB	M5M27C256A	6080h--7FFDh	E080h--FFFDh
M375XXE3		About 12 KB		5080h--7FFDh	D080h--FFFDh
M375XXE4		About 16 KB		4080h--7FFDh	C080h--FFFDh
M375XXE5	M37500E5	About 20 KB		3080h--7FFDh	B080h--FFFDh
M375XXE6	M37510E6	About 24 KB		2080h--7FFDh	A080h--FFFDh
M375XXE7	Currently not available	About 28 KB		1080h--7FFDh	9080h--FFFDh
M375XXE8	M37500E8	About 32 KB		0080h--7FFDh	8080h--FFFDh

Table 2.8 List of programming areas and devices - 38000 Series (PCA4738E or PCA7402E connector)

MCU type name		ROM size	PROM programmer		ROM area of MCU
MCU	Applicable MCU		Device	Programming area	
M38XXXE2	Currently not available	About 8 KB	M5M27C101	E080h--FFFDh	E080h--FFFDh
M38XXXE3		About 12 KB		D080h--FFFDh	D080h--FFFDh
M38XXXE4	M38503E4 M38513E4	About 16 KB		C080h--FFFDh	C080h--FFFDh
M38XXXE5	Currently not available	About 20 KB		B080h--FFFDh	B080h--FFFDh
M38XXXE6	M38504E6 M38514E6	About 24 KB		A080h--FFFDh	A080h--FFFDh
M38XXXE7	Currently not available	About 28 KB		9080h--FFFDh	9080h--FFFDh
M38XXXE8	M38867E8	About 32 KB		8080h--FFFDh	8080h--FFFDh
M38XXXE9	Currently not available	About 36 KB		7080h--FFFDh	7080h--FFFDh
M38XXXEA	M38184EA M38197EA	About 40 KB		6080h--FFFDh	6080h--FFFDh
M38XXXEB	Currently not available	About 44 KB		5080h--FFFDh	5080h--FFFDh
M38XXXEC	M38067EC M38127EC M38177EC M38198EC M38199EC M38227EC	About 48 KB		4080h--FFFDh	4080h--FFFDh
M38XXXED	Currently not available	About 52 KB		3080h--FFFDh	3080h--FFFDh
M38XXXEE	M38185EE	About 56 KB		2080h--FFFDh	2080h--FFFDh
M38XXXEF	M38079EF M38259EF M3826AEF M38749EF	About 60 KB		1080h--FFFDh	1080h--FFFDh

Table 2.9 List of programming areas and devices - 75xx Group (PCA4738E or PCA7402E connector)

MCU type name		ROM size	PROM programmer		ROM area of MCU
MCU	Applicable MCU		Device	Programming area	
M375XXE2	Currently not available	About 8 KB	M5M27C101	E080h--FFFDh	E080h--FFFDh
M375XXE3		About 12 KB		D080h--FFFDh	D080h--FFFDh
M375XXE4		About 16 KB		C080h--FFFDh	C080h--FFFDh
M375XXE5		About 20 KB		B080h--FFFDh	B080h--FFFDh
M375XXE6	M37527E6	About 24 KB		A080h--FFFDh	A080h--FFFDh
M375XXE7	Currently not available	About 28 KB		9080h--FFFDh	9080h--FFFDh
M375XXE8		About 32 KB		8080h--FFFDh	8080h--FFFDh
M375XXE9		About 36 KB		7080h--FFFDh	7080h--FFFDh
M375XXEA		About 40 KB		6080h--FFFDh	6080h--FFFDh
M375XXEB		About 44 KB		5080h--FFFDh	5080h--FFFDh
M375XXEC		About 48 KB		4080h--FFFDh	4080h--FFFDh
M375XXED		About 52 KB		3080h--FFFDh	3080h--FFFDh
M375XXEE		About 56 KB		2080h--FFFDh	2080h--FFFDh
M375XXEF	M37513EF M37560EF	About 60 KB		1080h--FFFDh	1080h--FFFDh

2.7 Recommended PROM Programmers

The PROM programmers listed in Table 2.10 are recommended for the adapters. 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 types of PROM programmer, please contact the manufacturer to confirm whether it can be used for your product.

Table 2.10 Recommended PROM programmers

Manufacturer	Type name	Device		Programming voltage (Vpp)
Advantest Corporation	TR4943	M5L27256 mode (Mitsubishi)	Write-byte	12.5[V]
	R4945	M5M27C256A mode (Mitsubishi)		
		M5M27C101 mode (Mitsubishi)		
	R4945A	M5M27C256A mode (Mitsubishi)		
		M5M27C101 mode (Mitsubishi)		

* TR4943, R4945 and R4945A are products of Advantest Corporation.

3. Troubleshooting (Action in Case of an Error)

Be sure to check the following before seeking technical support.

3.1 Errors That Occur When Writing to PROM

3.1.1 When Newly Purchased

Cause	Check point	See page
Programming adapter	Is the correct connector selected?	15
	Is the adapter attached to the correct position of the PROM programmer?	16
	Are the switches on the adapter set correctly?	17
	Is the MCU attached to the correct position?	19
PROM programmer	Is the area specification set correctly?	21-22
	Is the correct device selected?	15, 23
Contact failure	The IC socket of the PROM programmer may be stained. The socket needs replacing.	-

3.1.2 Previously Written Normally

Cause	Check point	See page
Programming adapter	Is the correct connector selected?	15
	Is the adapter attached to the correct position of the PROM programmer?	16
	Are the switches on the adapter set correctly?	17
	Is the MCU attached to the correct position?	19
PROM programmer	Is the area specification set correctly?	21-22
	Is the correct device selected?	15, 23
Contact failure	The IC socket of the PROM programmer may be stained. The socket needs replacing.	-
	The connector with which the PROM programmer contacts may be stained. Clean it with alcohol, etc.	-

3.1.3 MCU Does Not Function Normally

In the case that the program operates normally on the emulator, but when the MCU that has normally been written is attached the same program does not function normally:

(1) Is the offset address specified correctly when copying data into the PROM programmer?

(2) In the emulator, NOPs are often inserted in the area where the program has not been read, therefore the program happens to appear functioning normally even though it may have gone wild. Check your program again.

(3) The emulator and the actual MCU may differ in characteristics. Consult the user's manual of the emulator to check for differences in characteristics again.

⚠ CAUTION

Caution to Be Taken for Mass Programming

This product is a development supporting unit for use in your program development and evaluation stages. Therefore, it is not designed for mass-programming in mass production.

Increased frequency of use causes programming failure due to the wear-out or dirt, etc. on the following parts:

(1) Wear-out or dirt on the contact in the IC socket of this product

(2) Wear-out or dirt on the contact of the PROM programmer's socket

Replacing the PROM programmer's socket may ease the problem.

3.2 Other Precautions

3.2.1 About Recommended PROM Programmers

Not all PROM programmers available on the market can be checked to see if they function properly. There are several PROM programmers that we have verified to function properly. These products are listed as recommended PROM programmers in the user's manual. Other PROM programmers may also be used providing that you verified them to function properly.
Note: No matter which type of PROM programmer you use, it is necessary to verify completion of programming by executing screening, etc. that are stipulated for each microcomputer used.

3.2.2 About Reading Out of the Device Identification Code*1

Please do not use the PROM programmer's device identification code readout function. Using this function may break down the MCU. The device identification code is included in EPROM to indicate the manufacturer code and device code; it is not included in the MCU.

*1 Depending on PROM programmer manufacturers, this may be referred to by another name (e.g. ID code).

3.3 How to Request for Support

After checking the items in "3 Troubleshooting", fill in the text file which is downloaded from the following URL, then send the information to your local distributor.
http://tool-support.renesas.com/eng/toolnews/registration/support.txt

For prompt response, please specify the following information:

(1)Contact address
- Company name
- Department
- Responsible person
- Phone 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

PCA4738x-xxA
User's Manual

Publication Date: Oct 01, 2010 Rev.2.00

Published by: Renesas Electronics Corporation

Edited by: Microcomputer Tool Development Department 2
Renesas Solutions Corp.

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R20UT0273EJ0200
(Previous Number:
REJ10J0076-0100Z)