

To our customers,

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Renesas Electronics Corporation

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## H8/300H Tiny Series

### Block Transfer Using Block Transfer Instruction (EEPROM)

#### Introduction

Transfers a block of data (up to 65535 bytes) to any even-numbered address by using the block transfer instruction (EEPMOV.W).

#### Target Device

H8/300H Tiny Series

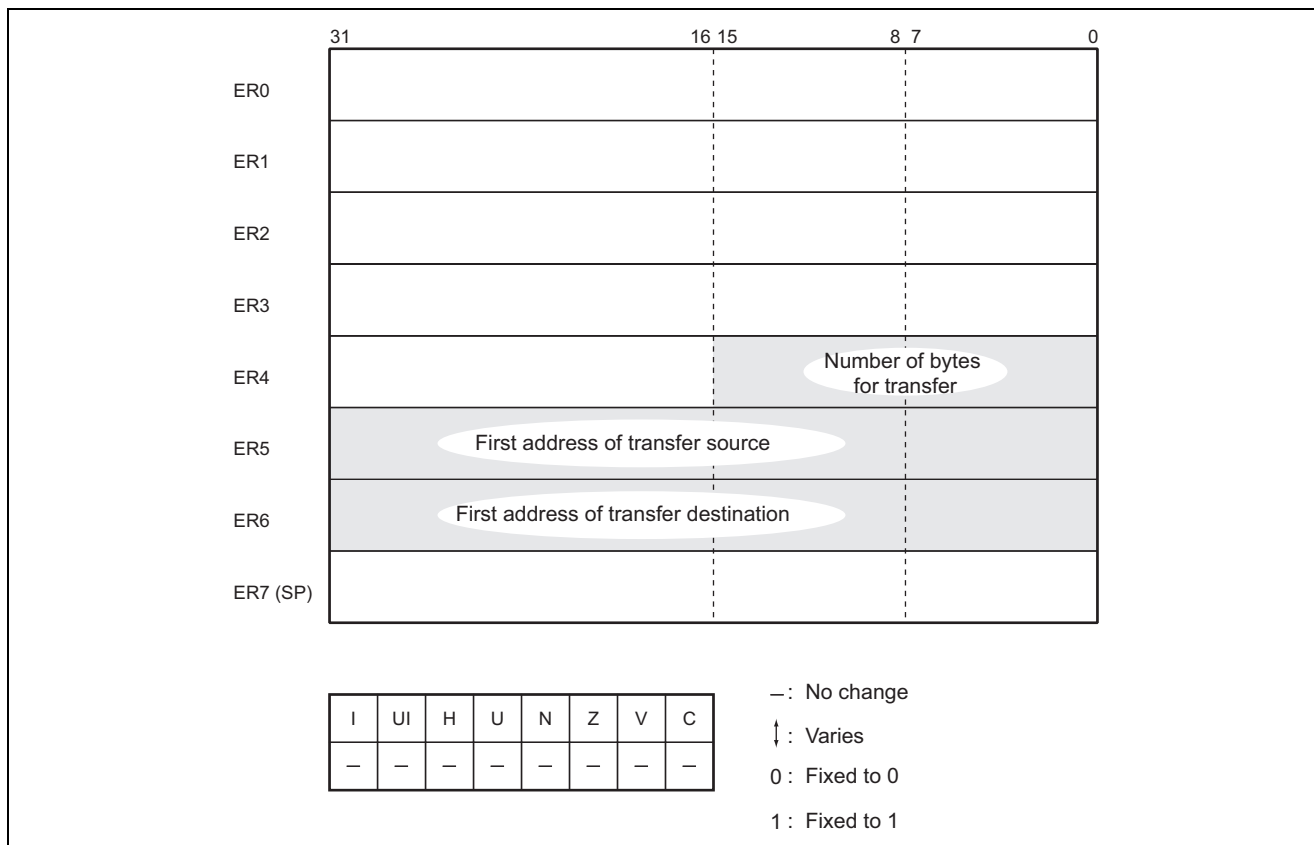
#### Contents

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### 1. Arguments

Description		Storage Location	Data Length (Bytes)
Input	First address of the transfer source	ER5	4
	First address of the transfer destination	ER6	4
	Number of bytes to be transferred	R4	2
Output	—	—	—

### 2. Changes to Internal Registers and Flags



### 3. Programming Specifications

Program memory (bytes)
4
Data memory (bytes)
0
Stack (bytes)
0
Number of cycles
262148
Re-entrant
Yes
Relocatable
Yes
Interrupts during execution
No

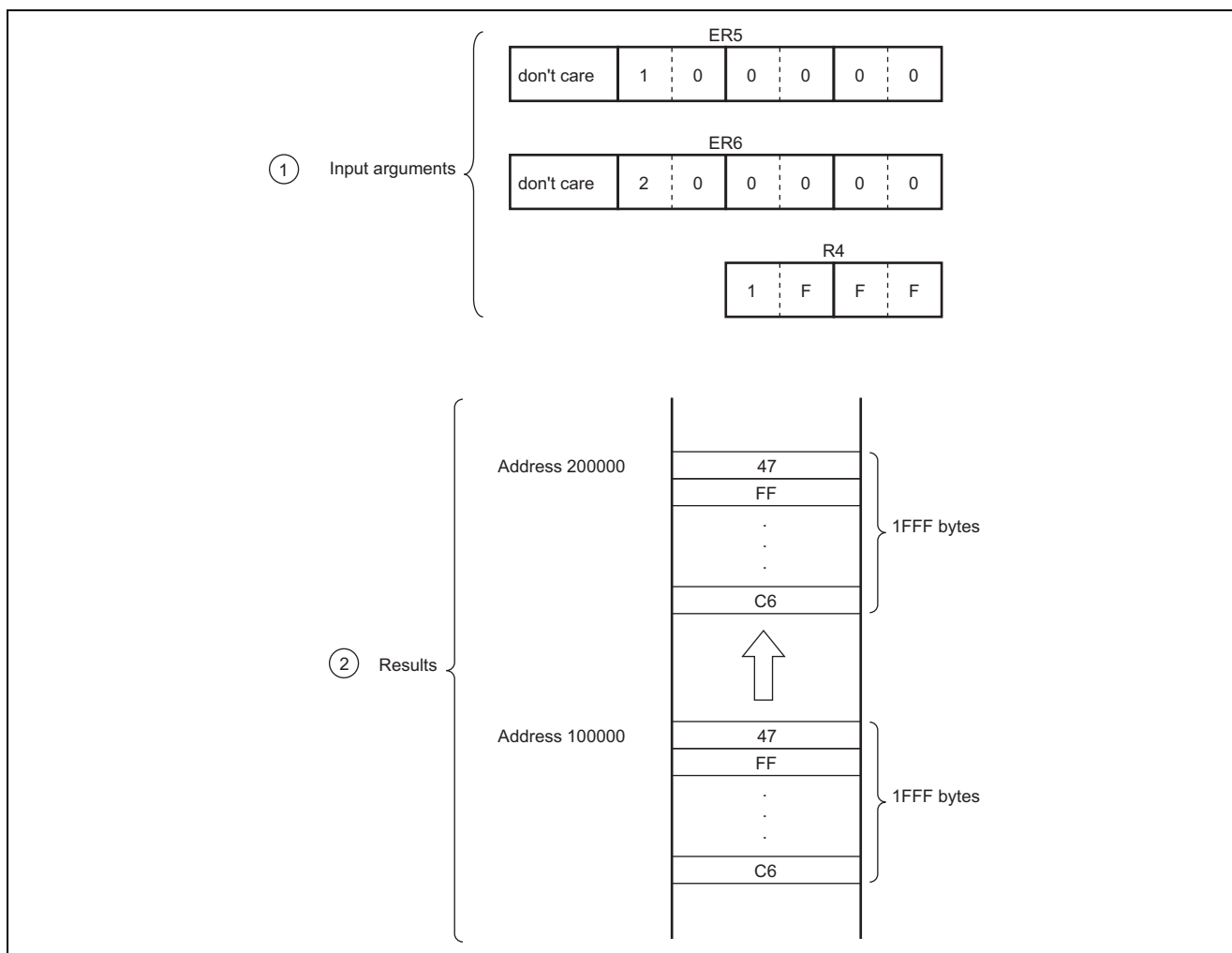
### 4. Note

The number of cycles given in the programming specifications is the value when H'FFFF bytes are transferred.

### 5. Description

#### 5.1 Description of Functions

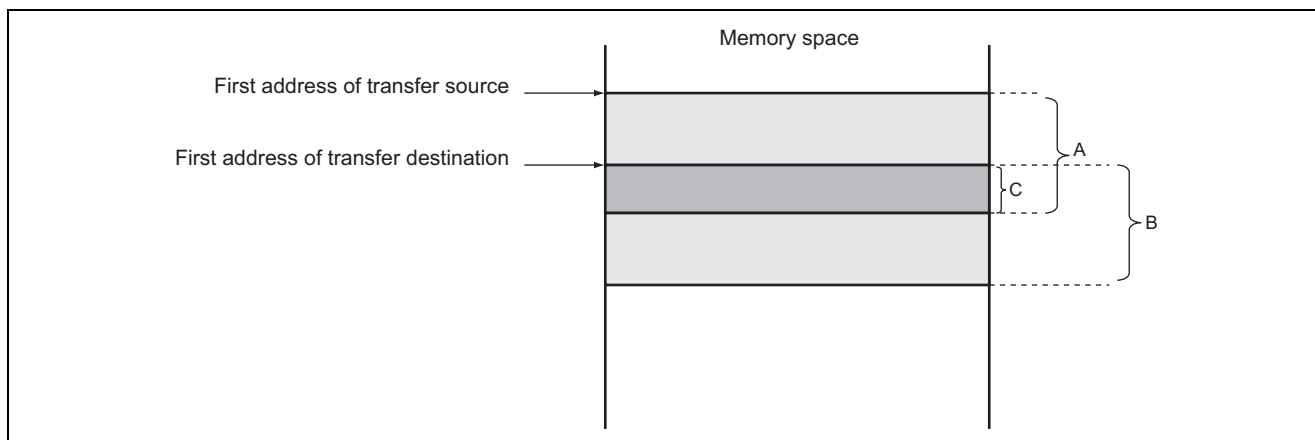
- The arguments are as follows:  
 ER5: Set the first address (even address) of the transfer source.  
 ER6: Set the first address (even address) of the transfer destination.  
 R4: Set the number of bytes to be transferred.
- The following figure illustrates the execution of the EEPROM subroutine.  
 When the input arguments are set as shown, the data at the transfer source is transferred, as a block, to the transfer destination.



**Figure 1 Example of EEPROM Execution**

### 5.2 Usage Notes

1. Since R2 is 2 bytes, set data within the range  $H'0001 \leq R2 \leq H'FFFF$ .
2. Interrupts cannot be detected while EEPROM is being executed.
3. Set the input arguments so that the block of data at the transfer source (area A in the figure) and the block of data at the transfer destination (area B) do not overlap. When there is an overlap, as shown in the figure, the source data for transfer in the area of overlap (area C) will be lost.



**Figure 2 Block Transfer with Overlapping Data**

### 5.3 Description of Data Memory

No data memory is used by EEPROM.

### 5.4 Example of Usage

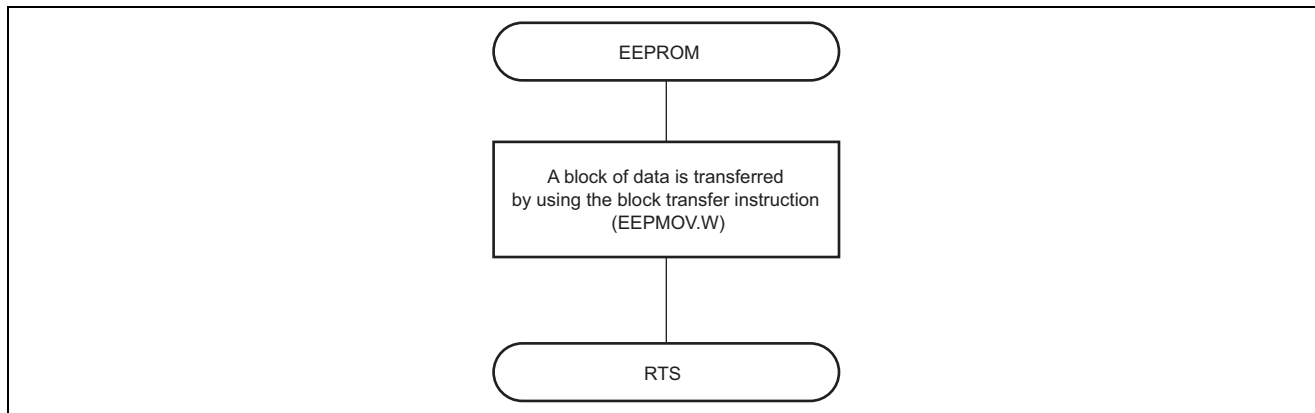
After setting the first address of the transfer source, the first address of the transfer destination and the number of bytes to be transferred, call the EEPROM subroutine.

WORK1	. RES. L 1	.....	Reservation of the data memory area for setting of the first address of the transfer source by the user program.
WORK2	. RES. L 1	.....	Reservation of the data memory area for setting of the first address of the transfer destination by the user program.
WORK3	. RES. W 1	.....	Reservation of the data memory area for setting of the number of bytes to be transferred by the user program.
MOV. L	@WORK1, ER5	.....	Sets the first address of the transfer source specified in the user program as an input argument.
MOV. L	@WORK2, ER6	.....	Sets the first address of the transfer destination specified in the user program as an input argument.
MOV. W	@WORK3, R4	.....	Sets the number of bytes to be transferred specified in the user program as an input argument.
.	.	.	.
.	.	.	.
.	.	.	.
JSR    @EEPROM		.....	Subroutine call of EEPROM

### 5.5 Principle of Operation

The block transfer instruction (EEPMOV.W) is used.

### 6. Flowchart



### 7. Program Listing

```

1      1      ;*****
2      2      ;*
3      3      ;*      NAME      :      EEPROM      (EEPROM)      *
4      4      ;*
5      5      ;*****
6      6      ;*
7      7      ;*      ENTRY      :      ER5      (SOURCE ADDRESS)      *
8      8      ;*
9      9      ;*
10     10     ;*      RETURNS      :      NOTHING      *
11     11     ;*
12     12     ;*****
13     13     ;
14     14     .CPU      300HA
15     15     .SECTION A,CODE,LOCATE=H'001000
16     16     EEPROM .EQU      $      ;Entry point
17     17     EEPMOV.W
18     18     RTS
19     19     .END

**** TOTAL ERRORS      0
**** TOTAL WARNINGS    0
  
```

Note: The program listing included in this application note assumes compilation under the option for the advanced mode of H8/300H CPU. If you use this sample program with an H8/300H Tiny Series product, make the following change to the program code:

.CPU 300HA → .CPU 300HN



## Revision Record

Rev.	Date	Description	
		Page	Summary
2.00	Feb.28.06	—	Format has been changed from Hitachi version to Renesas version.

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