

To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

Send any inquiries to <http://www.renesas.com/inquiry>.

To all our customers

Regarding the change of names mentioned in the document, such as Hitachi Electric and Hitachi XX, to Renesas Technology Corp.

The semiconductor operations of Mitsubishi Electric and Hitachi were transferred to Renesas Technology Corporation on April 1st 2003. These operations include microcomputer, logic, analog and discrete devices, and memory chips other than DRAMs (flash memory, SRAMs etc.) Accordingly, although Hitachi, Hitachi, Ltd., Hitachi Semiconductors, and other Hitachi brand names are mentioned in the document, these names have in fact all been changed to Renesas Technology Corp. Thank you for your understanding. Except for our corporate trademark, logo and corporate statement, no changes whatsoever have been made to the contents of the document, and these changes do not constitute any alteration to the contents of the document itself.

Renesas Technology Home Page: <http://www.renesas.com>

Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

HITACHI SEMICONDUCTOR TECHNICAL UPDATE

Classification of Production	Memory		No	TN-M62-112A/E	Rev	1
THEME	SRAM: Notes on Usage	Classification of Information	1. Spec change 2. Supplement of Documents ③ Limitation of Use 4. Change of Mask 5. Change of Production Line			
PRODUCT NAME	All 4-Mbit fast SRAM C-mask products	Lot No.	Reference Documents	Hitachi IC memory datasheets ADE-203-1196B(Z)/1198B(Z)/1199B(Z)/ 1200C(Z)/1294D(Z)/1202C(Z)/1263A(Z) /1283A(Z)/1304A(Z)/1305A(Z)	Effective Date	
		All Lots			Permanent	

As the operating speeds of SRAM products rise, securing the various design margins is becoming more difficult. Accordingly, there is an increasing possibility of noise from the input-signal or power-supply lines acting as an obstacle to the normal operation of SRAM products. To prevent malfunctions in 4-Mbit fast SRAM (C-mask) products, please note the following points.

1. Announcement

In executing a write-with-verify operations with a 4-Mbit fast SRAM (C-mask) product, incorrect data may be read because of noise, etc., even when the data has been written correctly (see figure 1 and note 1). This problem does not arise with a further read operation. If you are having problems of the type described or your project may be subject to such problems, refer to the points below for the appropriate countermeasures.

2. Countermeasures

Please apply countermeasures (1) and (2) below according to your situation.

- (1) Avoid executing the read for verification in the same cycle as the write operation it follows. Verify the written data after inputting an address or switching the /CS signal.
- (2) Please ensure that your design is not subject to adverse effects because of distortion or skewing of the Din input waveform (figure 2). Drive /WE low (write) after determining the data on Din (see figure 3).

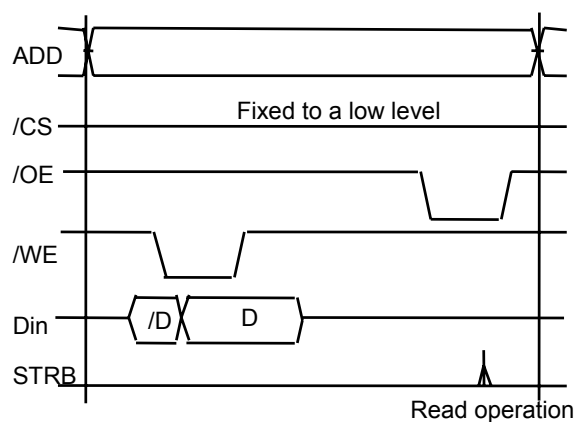


Figure 1. Write Verify Timing

*1: Write verify : After data is written within the same address cycle, perform data-read operation.

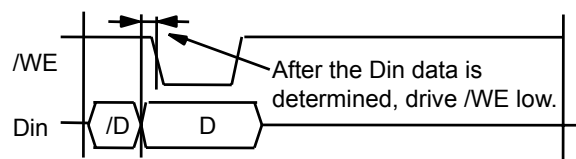


Figure 3 Write Verify Timing (Countermeasure Applied)

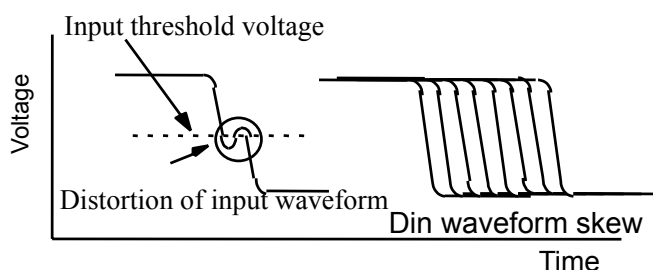


Figure 2 Din Input Waveform