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)

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RENESAS TECHNICAL UPDATE

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Renesas Technology Corp.

Product Category	LCD driver		Document No.	TN-PLC-A005A/E	Rev.	1.00
Title	Supplementary explanation on deep-standby cancellation sequence		Information Category	Technical Notification		
Applicable Product	R63400, 61503A, R61503B, R61508, R61507, R61509, R61504, HD66781, HD66781S	Lot No. All	Reference Document			

This letter provides supplementary explanation and instruction on deep-standby function.

Our datasheets state that "Low" CS signals must be inputted six times in order to cancel deep-standby mode. However they do not provide enough information on other interface control signals. This letter is to add explanation on how to deal with them.

LSI's operation is not defined until finishing inputting CS signals six times. In order to avoid write operation by WR signal and read operation by RD signal during this period, we ask for your system(s) to be designed so that WR and RD signals are set at "High" level. RS signal may be either "High" or "Low" because it is selection signal of index register and write-in data.
Data signals may be either any data input status or HiZ status.

When canceling deep-standby mode by inputting CS signals six times while writing data at the same time, it is possible that index register is accessed resulting in undesirable write-in operation and then LSI's malfunction.

If your system design makes it difficult to input CS signal independently (for example, inputting WR signal synchronized with CS signal), please make sure to follow charts below in canceling deep-standby mode.

Instruction on deep-standby cancellation setting (When the system do not allow independent CS "Low" signal input)

(1) 16-/18- bit interface mode

Cancel deep-standby mode by writing index data of "0000h" six times when RS signal is "Low". Wait 1ms or more between 2nd and 3rd index write.

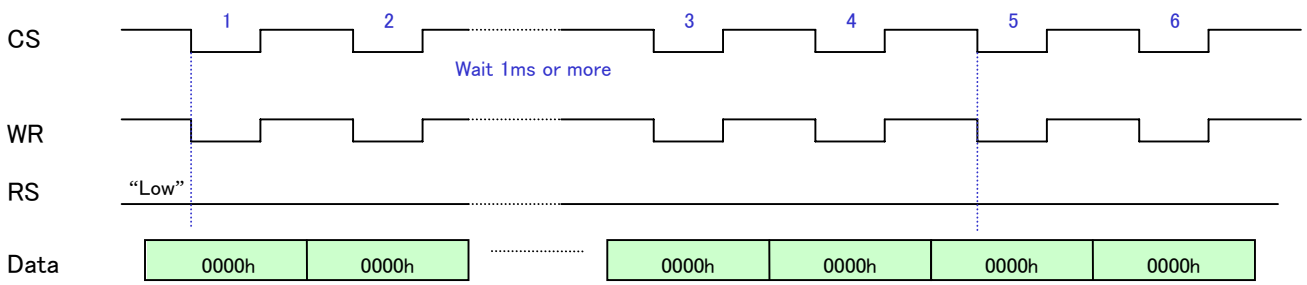

Figure 1 Signal input timings when canceling deep-standby mode (16 bit interface mode)

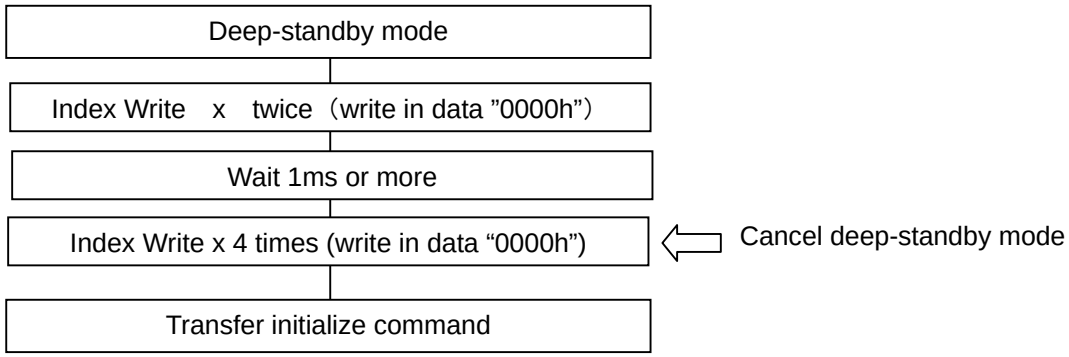

Figure 2 Sequence for exiting deep-standby mode (16 bit interface mode)

(2) 8-/9-bit interface mode

Cancel deep-standby mode by writing bus data "00h" five times and then writing bus data "FFh" once. Make sure to write in "00h" four times consecutively as the transfer synchronization process. Wait 1ms or more between 2nd and 3rd write-in operation.

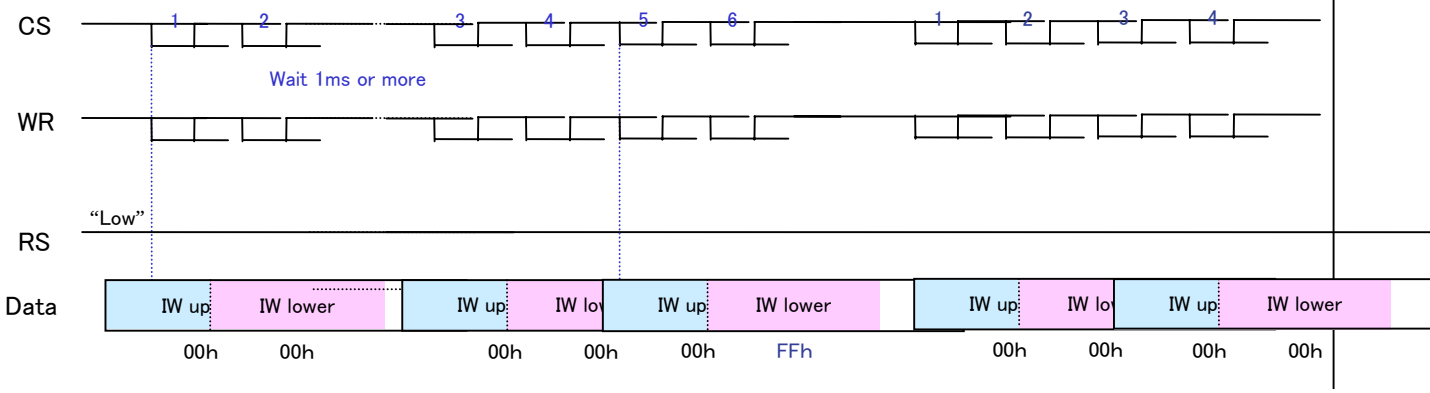

Figure 3 Signal input timings when canceling deep-standby mode (8 bit interface mode)

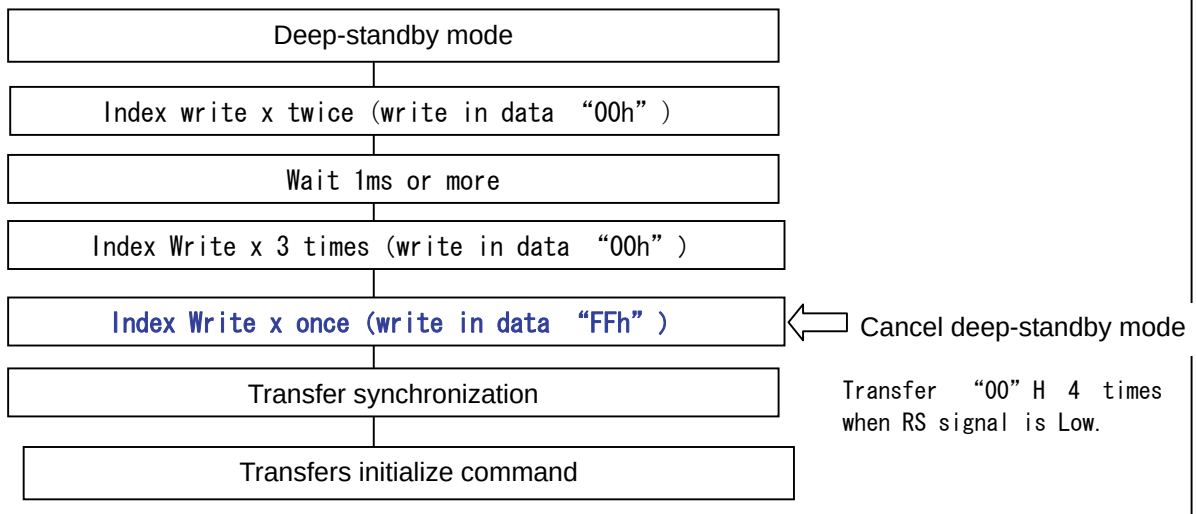

Figure 4 Sequence for exiting deep-standby mode (8 bit interface mode)