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.

Notice

1. All information included in this document is current as of the date this document is issued. Such information, however, is subject to change without any prior notice. Before purchasing or using any Renesas Electronics products listed herein, please confirm the latest product information with a Renesas Electronics sales office. Also, please pay regular and careful attention to additional and different information to be disclosed by Renesas Electronics such as that disclosed through our website.
2. Renesas Electronics does not assume any liability for infringement of patents, copyrights, or other intellectual property rights of third parties by or arising from the use of Renesas Electronics products or technical information described in this document. No license, express, implied or otherwise, is granted hereby under any patents, copyrights or other intellectual property rights of Renesas Electronics or others.
3. You should not alter, modify, copy, or otherwise misappropriate any Renesas Electronics product, whether in whole or in part.
4. Descriptions of circuits, software and other related information in this document are provided only to illustrate the operation of semiconductor products and application examples. You are fully responsible for the incorporation of these circuits, software, and information in the design of your equipment. Renesas Electronics assumes no responsibility for any losses incurred by you or third parties arising from the use of these circuits, software, or information.
5. When exporting the products or technology described in this document, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations. You should not use Renesas Electronics products or the technology described in this document for any purpose relating to military applications or use by the military, including but not limited to the development of weapons of mass destruction. Renesas Electronics products and technology may not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable domestic or foreign laws or regulations.
6. Renesas Electronics has used reasonable care in preparing the information included in this document, but Renesas Electronics does not warrant that such information is error free. Renesas Electronics assumes no liability whatsoever for any damages incurred by you resulting from errors in or omissions from the information included herein.
7. Renesas Electronics products are classified according to the following three quality grades: "Standard", "High Quality", and "Specific". The recommended applications for each Renesas Electronics product depends on the product's quality grade, as indicated below. You must check the quality grade of each Renesas Electronics product before using it in a particular application. You may not use any Renesas Electronics product for any application categorized as "Specific" without the prior written consent of Renesas Electronics. Further, you may not use any Renesas Electronics product for any application for which it is not intended without the prior written consent of Renesas Electronics. Renesas Electronics shall not be in any way liable for any damages or losses incurred by you or third parties arising from the use of any Renesas Electronics product for an application categorized as "Specific" or for which the product is not intended where you have failed to obtain the prior written consent of Renesas Electronics. The quality grade of each Renesas Electronics product is "Standard" unless otherwise expressly specified in a Renesas Electronics data sheets or data books, etc.

   "Standard": Computers; office equipment; communications equipment; test and measurement equipment; audio and visual equipment; home electronic appliances; machine tools; personal electronic equipment; and industrial robots.

   "High Quality": Transportation equipment (automobiles, trains, ships, etc.); traffic control systems; anti-disaster systems; anti-crime systems; safety equipment; and medical equipment not specifically designed for life support.

   "Specific": Aircraft; aerospace equipment; submersible repeaters; nuclear reactor control systems; medical equipment or systems for life support (e.g. artificial life support devices or systems), surgical implantations, or healthcare intervention (e.g. excision, etc.), and any other applications or purposes that pose a direct threat to human life.
8. You should use the Renesas Electronics products described in this document within the range specified by Renesas Electronics, especially with respect to the maximum rating, operating supply voltage range, movement power voltage range, heat radiation characteristics, installation and other product characteristics. Renesas Electronics shall have no liability for malfunctions or damages arising out of the use of Renesas Electronics products beyond such specified ranges.
9. Although Renesas Electronics endeavors to improve the quality and reliability of its products, semiconductor products have specific characteristics such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Further, Renesas Electronics products are not subject to radiation resistance design. Please be sure to implement safety measures to guard them against the possibility of physical injury, and injury or damage caused by fire in the event of the failure of a Renesas Electronics product, such as safety design for hardware and software including but not limited to redundancy, fire control and malfunction prevention, appropriate treatment for aging degradation or any other appropriate measures. Because the evaluation of microcomputer software alone is very difficult, please evaluate the safety of the final products or system manufactured by you.
10. Please contact a Renesas Electronics sales office for details as to environmental matters such as the environmental compatibility of each Renesas Electronics product. Please use Renesas Electronics products in compliance with all applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive. Renesas Electronics assumes no liability for damages or losses occurring as a result of your noncompliance with applicable laws and regulations.
11. This document may not be reproduced or duplicated, in any form, in whole or in part, without prior written consent of Renesas Electronics.
12. Please contact a Renesas Electronics sales office if you have any questions regarding the information contained in this document or Renesas Electronics products, or if you have any other inquiries.

(Note 1) "Renesas Electronics" as used in this document means Renesas Electronics Corporation and also includes its majority-owned subsidiaries.

(Note 2) "Renesas Electronics product(s)" means any product developed or manufactured by or for Renesas Electronics.

User's Manual

Tiny/Super Low Power E7 Emulator

Additional Document for User's Manual Notes on Connecting the H8/38602RF

Renesas Microcomputer Development Environment System
H8 Family / H8/300H Tiny Series
Tiny/Super Low Power E7 HS0007TCU01HEP8

Renesas Electronics
www.renesas.com

Rev.3.00 2006.09

a third party.

2. Renesas Technology Corp. assumes no responsibility for any damage, or infringement of any party's rights, originating in the use of any product data, diagrams, charts, programs, algorithm circuit application examples contained in these materials.
3. All information contained in these materials, including product data, diagrams, charts, program algorithms represents information on products at the time of publication of these materials, and subject to change by Renesas Technology Corp. without notice due to product improvements other reasons. It is therefore recommended that customers contact Renesas Technology Co an authorized Renesas Technology Corp. product distributor for the latest product information before purchasing a product listed herein.
   The information described here may contain technical inaccuracies or typographical errors.
   Renesas Technology Corp. assumes no responsibility for any damage, liability, or other loss from these inaccuracies or errors.
   Please also pay attention to information published by Renesas Technology Corp. by various including the Renesas Technology Corp. Semiconductor home page (http://www.renesas.com
4. When using any or all of the information contained in these materials, including product data, diagrams, charts, programs, and algorithms, please be sure to evaluate all information as a to system before making a final decision on the applicability of the information and products. Re Technology Corp. assumes no responsibility for any damage, liability or other loss resulting fr information contained herein.
5. Renesas Technology Corp. semiconductors are not designed or manufactured for use in a de system that is used under circumstances in which human life is potentially at stake. Please c Renesas Technology Corp. or an authorized Renesas Technology Corp. product distributor w considering the use of a product contained herein for any specific purposes, such as apparat systems for transportation, vehicular, medical, aerospace, nuclear, or undersea repeater use
6. The prior written approval of Renesas Technology Corp. is necessary to reprint or reproduce whole or in part these materials.
7. If these products or technologies are subject to the Japanese export control restrictions, they be exported under a license from the Japanese government and cannot be imported into a co other than the approved destination.
   Any diversion or reexport contrary to the export control laws and regulations of Japan and/or country of destination is prohibited.
8. Please contact Renesas Technology Corp. for further details on these materials or the produc contained therein.

Table 1.1 Recommended Connector

Type Number	Manufacturer	Specifications
2514-6002	3M Limited	14-pin straight type

Connect pins 2, 4, 6, 10, 12, and 14 of the user system connector to GND firmly on the
These pins are used as electrical GND and to monitor the connection of the user system
Note the pin assignments of the user system connector.

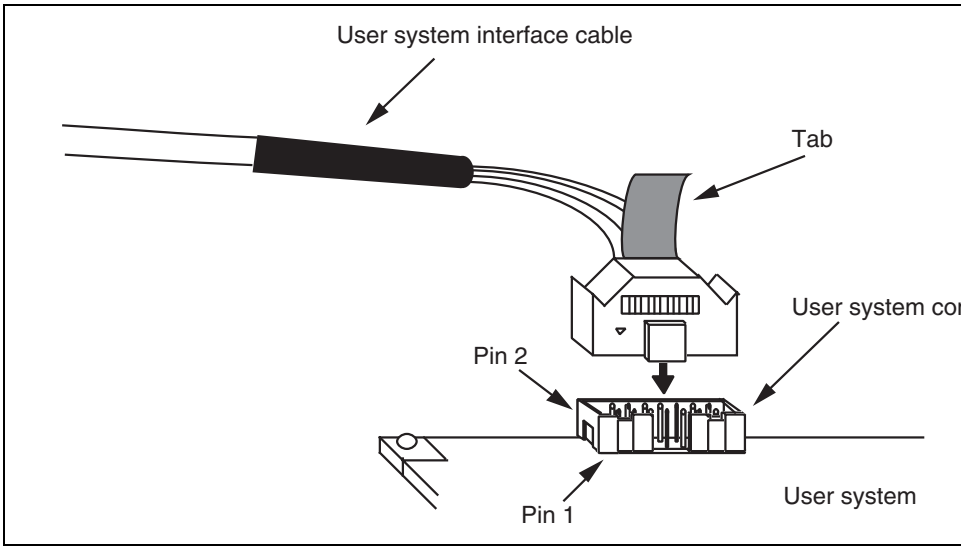
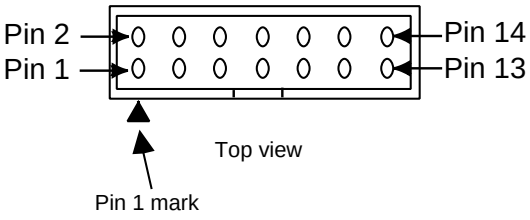


Figure 1.1 Connecting the User System Interface Cable to the User Syste



5	E7_1
6	Vss
7	NMI# *
8	Vcc
9	N.C.
10	Vss
11	E7_0
12	Vss
13	RES#*
14	Vss

Note:
The symbol (#) means that the signal is

Figure 2.1 Pin Assignments of the Connector

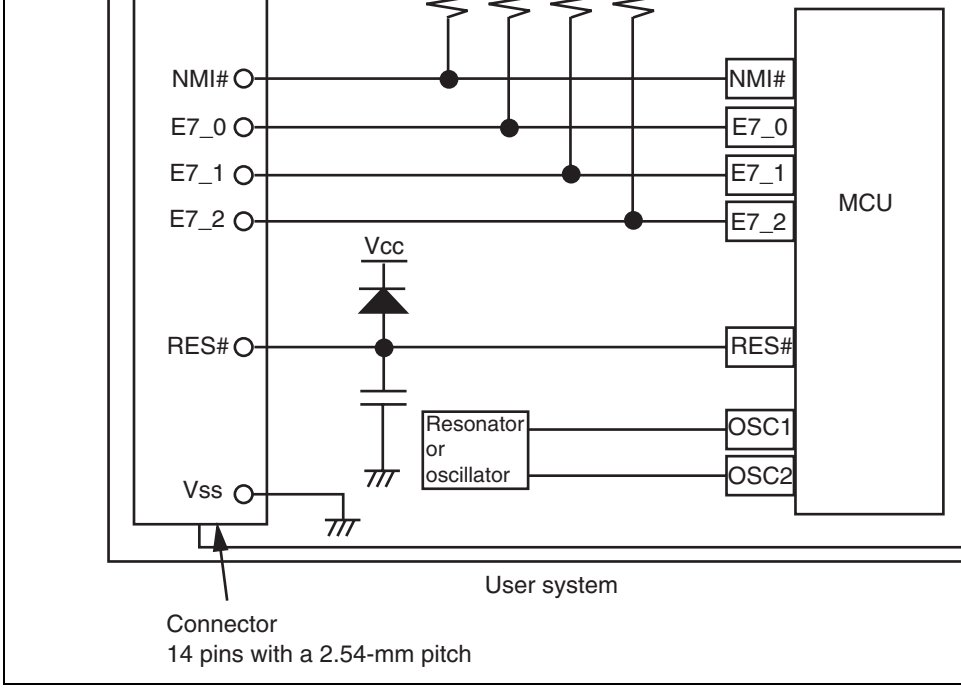


Figure 3.1 Example of Emulator Connection

2. The NMI# signal is used for forced break control by the emulator. Connect t emulator and MCU pins directly. In debugging without forced break control the mode with the HEW. Then, when the user logic is connected with the op collector output buffer, the NMI# pin can be used in the user system (howeve power-on, the NMI# pin is used by the emulator).

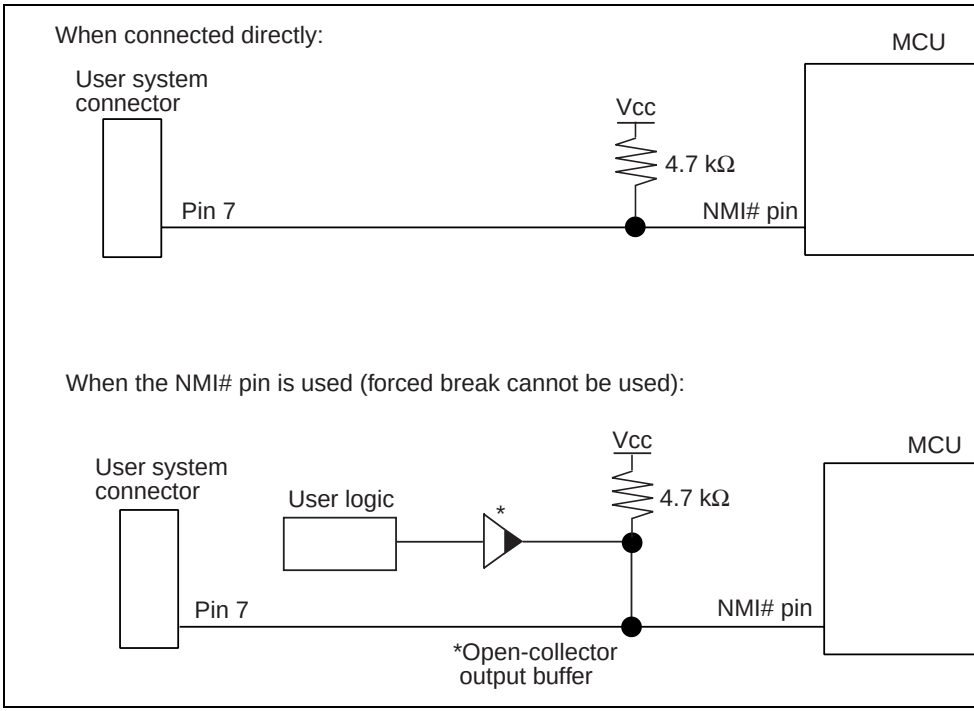


Figure 3.3 Connection of Emulator and NMI# Pin

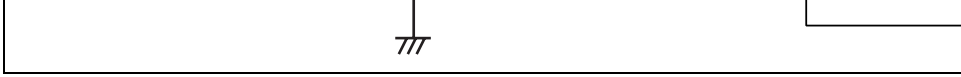
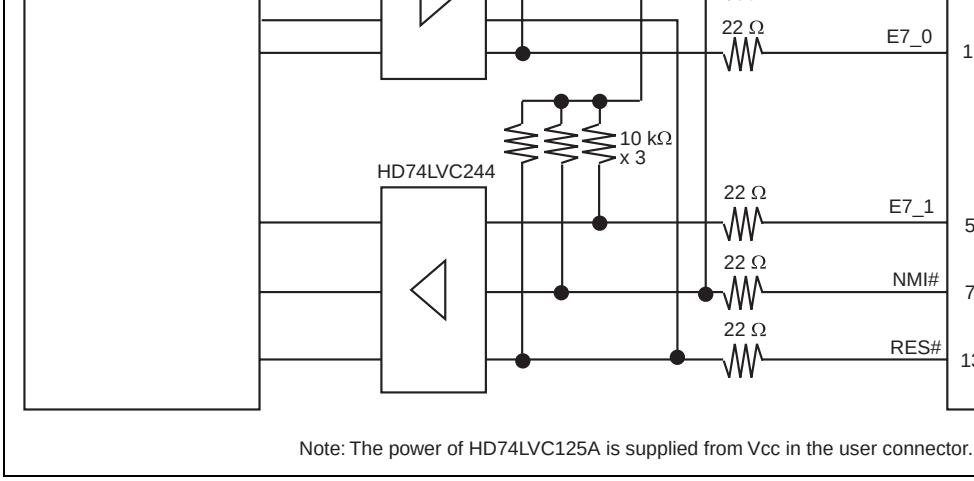


Figure 3.4 Example of a Reset Circuit

4. Connect Vss and Vcc with the Vss and Vcc of the MCU, respectively.
5. Connect nothing with N.C.
6. The input voltage, Vcc, must be connected to the user system Vcc (power su
   The amount of voltage permitted to input to Vcc must be within the guarant
   of the microcomputer.
7. Refer to the hardware manual for the recommended capacitance of the capa
   is connected to the RES# pin.
8. Use of the internal oscillator circuit is available in the H8/38602RF. Howev
   resonator or an oscillator must be connected to OSC1 and OSC2 pins when
   emulator is connected.



Note: The power of HD74LVC125A is supplied from Vcc in the user connector.

Figure 3.5 Interface Circuit in the Emulator (Reference)

ER0 to ER6	H’0000
ER7 (SP)	H'FF80
CCR	H’80

2. Low-Power Mode

   During a user program break, the CPU operating frequency is forced to a system clo
   high-speed operation.

3. RES# Signal

   The MCU signals are only valid during user program execution started with clicking
   or STEP-type button. During a user program break, the RES# signal is not sent to th

Note: Do not start user program execution or access the memory while control input s
(RES#) is being low. A TIMEOUT error will occur.

4. System Control Register

   In the emulator, the internal I/O registers can be accessed from the [IO] window. Ho
   careful when accessing the system control register. The emulator saves the register
   the system control register at a break and returns the value when the user program is
   Since this is done during a break, do not rewrite the system control register in the [IO
   window.

5. Memory Access during Emulation

   If the memory contents are referenced or modified during emulation, realtime emula
   cannot be performed because the user program is temporarily halted.

9. The power consumed by the MCU can reach several milliamperes. This is because t
power supply drives one HD74LVC125A to make the communication signal level m
user-system power-supply voltage. The power consumed rises little during user prog
execution since the emulator does not perform communication; it rises more during a

10. Program Area for the Emulator
Do not access a part of areas in the flash memory or the internal RAM since the emu
program uses these areas. If the contents of the program area for the emulator are ch
the emulator will not operate normally. In this case, restart the emulator with the Do
emulator firmware mode.

Table 4.2 Program Area for the E7 Emulator

MCU Name	Program Area
H8/38602RF	Flash memory: H'4000 to H'4FFF
	Internal RAM: H'F780 to H'FB7F
	Vector, etc.: H'0002 to H'000F, H'0018 to H'0019, H'4FF8 to H'

11. The emulator uses a two-word stack pointer for values stored on a user program brea
Therefore, the stack area must accept two-word addresses.

12. Do not use an MCU that has been used for debugging.
If the flash memory is rewritten many times, data may be lost due to retention proble
the emulator has been left for a few days and the data will be erased. If an error mes
displayed, exchange the MCU for a new one.

Be sure to initialize the following internal I/O registers by the user program since the
initialized by selecting [Debug] – [Reset CPU] or using the RESET command:
SYSCR1, SYSCR2, IEGR, IENR1, and IRR1

16. Step Execution of the SLEEP Instruction

    When the interrupt mask bit (I) in the condition code register (CCR) is 1, do not perf
    execution of the SLEEP instruction. If the step execution is performed and not finis
    correctly, restart the emulator.

17. Use of the internal oscillator circuit is available in the H8/38602RF. However, a reso
    an oscillator must be connected to OSC1 and OSC2 pins when the emulator is conne

18. Processing at Emulator Activation

    When the emulator is activated, the watchdog timer is not active; the operation of the
    differs from that of the actual MCU.

19. Hardware Break Functions

    - In the H8/38602RF E7 emulator, conditions of Break Condition 1,2 can be set. T
      lists the items that can be specified.

20. Restriction on Software Write Enable (SWE) Bit

    If the SWE bit is set to 1 during execution of the user program, a communication tim
    will occur. Do not set this bit to 1.

dialog box.

Table 4.4 Conditions Set in [Break condition] Dialog Box

	Condition		
Dialog Box	Address Bus Condition	Data Condition	Read or Write Condition
[Break condition 1]	O	O	O
[Break condition 2]	O	X	X

Note: O: Can be set by checking the radio button in the dialog box.

Table 4.5 lists the combinations of conditions that can be set by the BREAKCON
SET command.

Table 4.5 Conditions Set by BREAKCONDITION_SET Command

	Condition		
Channel	Address Bus Condition (<addropt> option)	Data Condition (<dataopt> option)	Read or Write Condition (<r/wopt> opti
Break condition 1	O	O	O
Break condition 2	O	X	X

Note: O: Can be set by the BREAKCONDITION_SET command.

Tiny/Super Low Power E7 Emulator
Additional Document for User's Manual
Notes on Connecting the H8/38602RF

Publication Date: Rev.1.00, March 24, 2004
Rev.3.00, September 12, 2006
Published by: Sales Strategic Planning Div.
Renesas Technology Corp.
Edited by: Customer Support Department
Global Strategic Communication Div.
Renesas Solutions Corp.

© 2006. Renesas Technology Corp., All rights reserved. Printed in Japan.

Renesas Technology Corp. Sales Strategic Planning Div. Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan

RENESAS SALES OFFICES

http://www.renesas.com

Refer to "**http://www.renesas.com/en/network**" for the latest and detailed information.

Renesas Technology America, Inc.
450 Holger Way, San Jose, CA 95134-1368, U.S.A
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

Renesas Technology (Shanghai) Co., Ltd.
Unit 204, 205, AZIACenter, No.1233 Lujiazui Ring Rd, Pudong District, Shanghai, China 200120
Tel: <86> (21) 5877-1818, Fax: <86> (21) 6887-7898

Renesas Technology Hong Kong Ltd.
7th Floor, North Tower, World Finance Centre, Harbour City, 1 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2730-6071

Renesas Technology Taiwan Co., Ltd.
10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology Singapore Pte. Ltd.
1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001

Renesas Technology Korea Co., Ltd.
Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> (2) 796-3115, Fax: <82> (2) 796-2145

Renesas Technology Malaysia Sdn. Bhd
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510

Colophon 6.0

Tiny/Super Low Power E7 Emulator
Additional Document for User's Manual
Notes on Connecting the H8/38602RF

Renesas Electronics Corporation
1753, Shimonumabe, Nakahara-ku, Kawasaki-shi, Kanagawa 211-8668 Japan

REJ10B0145-0300

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for 16-bit Microcontrollers - MCU ***category:***

Click to view products by Renesas ***manufacturer:***

Other Similar products are found below :

MB90F036APMC-GSE1 MB90F342CASPMC-GSE1 MB90F345CESPMC-GE1 MB90F349CAPFR-GSE1 MB90F428GCPFR-GSE1 MB90F462APFM-GE1 MB90F462APMC-G-SNE1 MB90F497GPF-GE1 MB90F546GSPFR-GE1 MB90F947APFR-GS-SPE1 MB96F346RSBPMC-GS-N2E2 MB96F683RBPMC-GSAE1 R5F11BGEAFB#30 DF3026XBL25V S912ZVFP64F1VLL R4F24268NVRFQV R5F107DEGSP#X0 R5F11B7EANA#U0 R5F21172DSP#U0 M30622F8PGP#U3C MB90092PF-G-BNDE1 MB90F335APMC1-G-SPE1 MB90F342CASPFR-GS-N2E1 MB90F345CAPFR-GSE1 MB90F543GPF-GE1 MB90F546GSPF-GE1 MB90F568PMCR-GE1 MB90F594APFR-GE1 MB90F882ASPMC-GE1 MB96F346RSAPQCR-GS-N2E2 MB96F387RSBPMC-GSE2 MB96F387RSBPMC-GS-N2E2 MB96F395RSAPMC-GSE2 MB96F623RBPMC1-GSE1 MB96F646RBPMC-GSE1 XE167F96F66LACFXUMA1 MB96F696RBPMC-GSAE1 MB96F018RBPMC-GSE1 MB90F962SPMCR-GE1 MB90F867ASPFR-GE1 MB90F543GPF-G-FLE1 MB90F345CESPF-GE1 M30290FCHP#U3A DF2239FA20IV HD64F3672FPV R5F104AEASP#V0 R5F100BCANA#U0 R5F100BFANA#U0 S9S12H256J2VFVER R5F100ACASP#V0