

# ***3850 Group***

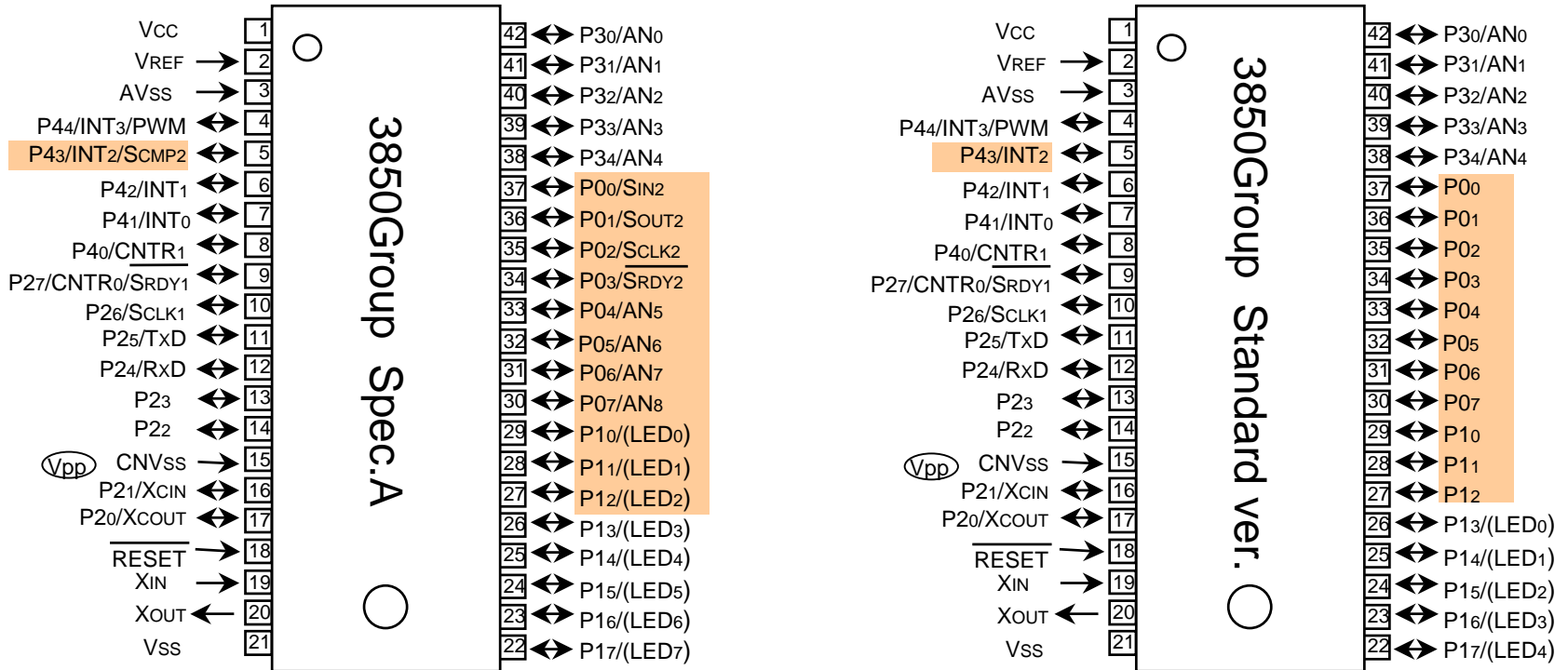
## ***Difference between Standard ver. and Spec.A***

## Difference among 3850 Groups (Spec.A and Standard ver.)

		3850Group(Spec.A)	3850 Group(standard ver.)
Related Products		M38503M2A-XXXSP/FP M38503M4A-XXXSP/FP M38504M6A-XXXSP/FP M38507M8A-XXXSP/FP M38507F8ASP/FP M38507ARLSS	M38503M2-XXXSP/FP M38503M4-XXXSP/FP M38503E4SP/FP M38503E4SS
Serial I/O		2 channels; UART/Clock synchronous X 1 Clock synchronous X 1	1 channel; UART/Clock synchronous X 1
A-D converter		Serviceable in low-speed mode	Unserviceable in low-speed mode
A-D channels		9 channels	5 channels
Large Current port		8 ports : P10-P17	5 ports : P13-P17
Software pull-up resistor		Built in (Port P0 – P4 )	–
Max.f(XIN)		12.5MHz	8MHz
ROM size		Mask: 8K,16K,24K,32K Flash: 32K PROM: –	Mask: 8K,16K Flash:– PROM:16K
Absolute maximum ratings	Vcc	-0.3 to 6.5V	-0.3 to 7.0V
	VI CNVss	-0.3 to Vcc+0.3V(Mask ROM version) -0.3 to 6.5V(Flash Memory version)	-0.3 to 13V(Mask ROM version and PROM version)

# Differences in Pin configuration

## Differences Spec.A and Standard Version

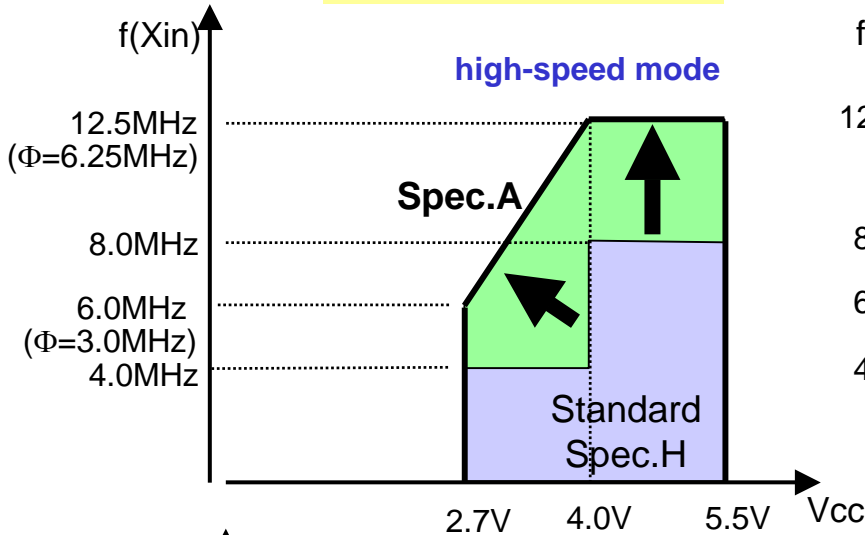


Outline : 42P2R-A/E, 42P4B

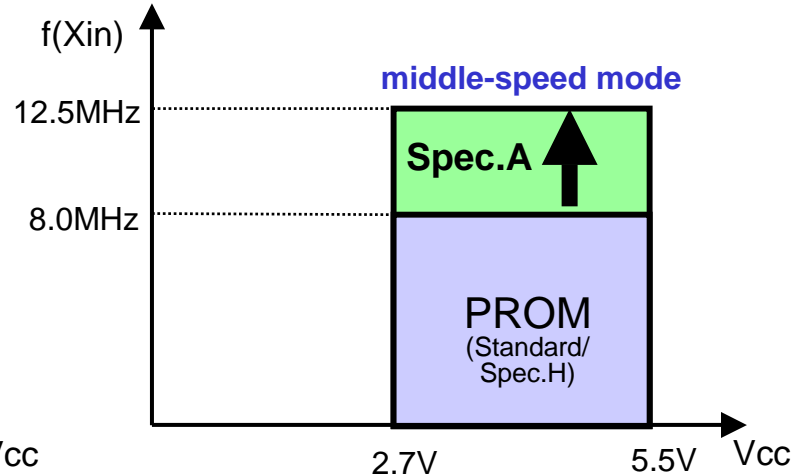
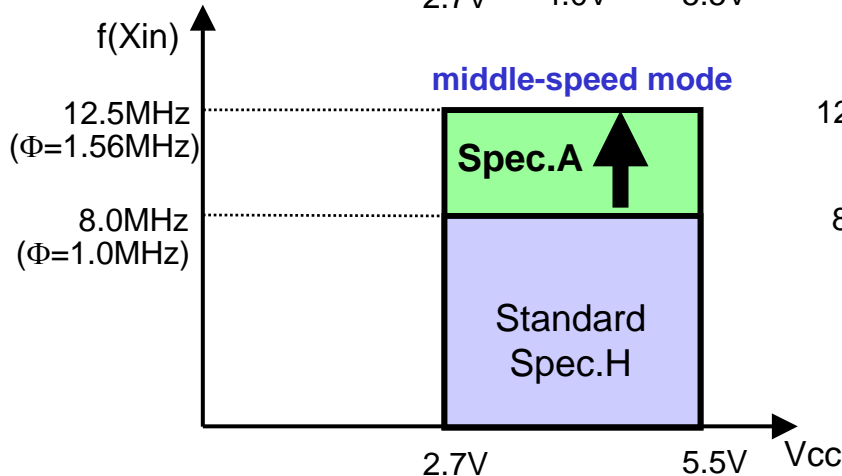
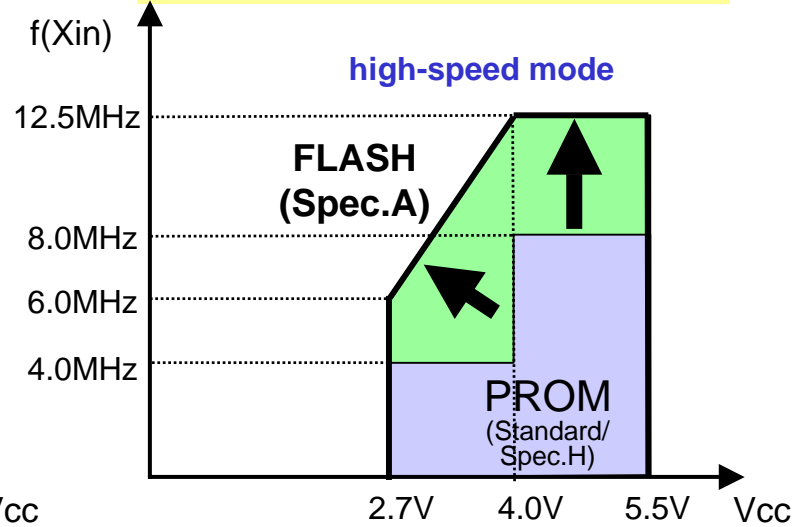
(Vpp) : Flash memory version, PROM version

# Improvement of Operating Frequency Characteristics in 3850 Groups

## Mask version



## Flash/PROM version



## Notes on converting Standard ver. into Spec.A (1)

- There are additional registers in Spec.A as following table. These are used for additional function in Spec.A, software pull-up resistor, Serial I/O2 and an increase of analog input pin number .

When not using the additional functions in Spec.A, take the following (1) or (2)

- Don't write any data to the additional registers(or bit). (Keep the initial state after releasing Reset)
- Write the initial state to the additional registers(or bit) after releasing Reset

### Additional Registers in Spec.A

Address	Spec.A	Standard Version
0012 <sub>16</sub>	Port P0P1P2 pull-up control register	–
0013 <sub>16</sub>	Port P3 pull-up control register	–
0014 <sub>16</sub>	Port P4 pull-up control register	–
0015 <sub>16</sub>	Serial I/O2 control register1	Reserved
0016 <sub>16</sub>	Serial I/O2 control register2	Reserved
0017 <sub>16</sub>	Serial I/O2 register	Reserved
0037 <sub>16</sub>	Analog input selection register	–
003A <sub>16</sub> bit4	Serial I/O2/INT3 interrupt source selection bit	Reserved

- If in the program for Standard ver. any data have been not written to the addresses corresponding to the Spec.A's additional registers, this program can be used for Spec.A as it is (not requiring to change program codes).

## Notes on converting Standard ver. into Spec.A (2)

2. In Spec.A , Serial I/O2 interrupt request bit and enable bit are combined with those of INT3.  
 Interrupt source can be selected by the Serial I/O2/INT3 interrupt source bit.  
 When the Serial I/O2/INT3 interrupt source bit is “0”(initial state),interrupt source is INT3. This is the same as Standard version.

Address(Register name)	Spec.A	Standard Version
003C16 bit4 (Interrupt request register 1)	Serial I/O2/INT3 interrupt request bit	INT3 interrupt request bit
003E16 bit4 (Interrupt control register 1)	Serial I/O2/INT3 interrupt enable bit	INT3 interrupt enable bit
003A16 bit4 (Interrupt edge selection register)	Serial I/O2/INT3 interrupt source bit 0:INT3 interrupt 1: Serial I/O2 interrupt	Reserved (Don't write “1” to this bit)

## Notes on converting Standard ver. into Spec.A (3)

3. Spec.A's emulator MCU is M38507ARLSS which is under development.  
When not using the additional functions, it is possible to develop program using M38517RSS
4. In Spec.A, the built-in pull-up resistors can be used for termination of unused pins.
5. There are differences in electric characteristics, operation margin, noise immunity and noise radiation between Spec.A and Standard version due to the difference in the manufacturing processes.  
When manufacturing an application system with Standard version switching to use of Spec.A, please perform sufficient evaluations for the commercial samples of Spec.A Mask ROM version.

To our customers,

---

## Old Company Name in Catalogs and Other Documents

---

On April 1<sup>st</sup>, 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 1<sup>st</sup>, 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.