

## *Mask Set Errata 1*

# **68HC05P9 8-Bit Microcontroller Unit**

## **INTRODUCTION**

---

---

This errata provides information pertaining to the serial input-output port (SIOP) master mode initial faulty transmission applicable to the following 68HC05P9 MCU mask set devices:

- 2C28W

## **MCU DEVICE MASK SET IDENTIFICATION**

---

---

The mask set is identified by a four-character code consisting of a letter, two numerical digits, and a letter (e.g., C28W). Slight variations to the mask set identification code may result in an optional numerical digit preceding the standard four-character code (e.g., 2C28W).

## **MCU DEVICE DATE CODES**

---

---

Device markings indicate the week of manufacture and the mask set used. The data is coded as four numerical digits where the first two digits indicate the year and the last two digits indicate the work week. The date code "9115" would indicate the 15th week of the year 1991.

## **MCU DEVICE PART NUMBER PREFIXES**

---

---

Some MCU samples and devices are marked with an "SC" or "XC" prefix. An "SC" prefix denotes special/custom device. An "XC" prefix denotes device is tested but is not fully characterized or qualified over the full range of normal manufacturing process variations. After full characterization and qualification, devices will be marked with the "MC" prefix.

*Whenever contacting a Motorola representative for assistance, please have the MCU device mask set and date code information available.*

Specifications and information herein are subject to change without notice.



## SIOP MASTER MODE INPUT FAULTY TRANSMISSION

---

A design flaw has been identified that affects only the first transmission after enabling the SIOP in the master mode. Subsequent transmissions from the SIOP are correct.


This error is caused by a delay between the serial port enable (SPE) and the master mode select (MSTR) bits in the SIOP control register. If the SPE and MSTR bits are set with the same write instruction, a race condition occurs in the SIOP logic. This race condition causes the SIOP to be enabled in the slave mode before recognizing the setting of the MSTR bit. In this short period of time, the serial clock (SCK) signal is propagated throughout the SIOP logic. When the MSTR bit is finally recognized, the SCK line is pulled high. If the state of the SCK line was initially low before enabling the SIOP, then the SIOP logic will recognize a low (zero) to high (one) transition on the SCK line and transmit one bit. When the next transmission is made, which is the first true transmission by the user, a data collision will result because a transmission has already been started by the previous SCK transition. The user may also notice that the first transmission has only 7 low to high SCK transitions.

One of two things may be done to avoid this problem. The MSTR bit can be set first, and then the SIOP enabled in a subsequent write operation. An example is shown below:

```
bset    4, $0A
bset    6, $0A
```

The SCK line may also be pulled high when the SIOP is enabled. This may be done by a pull-up device or by making PB7/SCK an output line and setting it high. The pull-up device, however, does not cover the possibility of the pin being an output line driving a low signal immediately before the SIOP is enabled in the master mode. If PB7/SCK line is held high, the SPE and MSTR bits may be set at the same time, as shown below:

```
lda     #$90
sta     $0A
```

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and  are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Additional mask set erratas can be found on the World Wide Web at <http://Design-NET.com/csic/TECHSPRT/TechSprt.htm>.



**MOTOROLA**

68HC05P9MSE1