

## MCP7940N Family Silicon Errata

The MCP7940N family devices that you have received conform functionally to the current Device Data Sheet (DS20005010J), except for the anomalies described in this document.

The silicon issues discussed in the following pages are for devices listed in [Table 1](#). The silicon issues are summarized in [Table 2](#).

The errata described in this document will be addressed in future revisions of the MCP7940N silicon.

**TABLE 1: AFFECTED PART NUMBERS**

| Part Number |
|-------------|
| MCP7940N    |

**Note:** This document summarizes all silicon errata issues from all revisions of silicon, previous as well as current. Only the issues indicated in the last column of [Table 2](#) apply to the current silicon revision.

**Note:** For more information on identifying the product date code, refer to the Packaging Information section of the product data sheet or contact your local Microchip sales office.

**TABLE 2: SILICON ISSUE SUMMARY**

| Issue Number | Issue Summary                                         | Affected Date Codes <sup>(1, 2)</sup> |
|--------------|-------------------------------------------------------|---------------------------------------|
|              |                                                       | All                                   |
| 1            | Date incrementing at noon.                            | X                                     |
| 2            | Spurious Minute-Match or Hour-Match Alarm Interrupts. | X                                     |
| 3            | Date value changing on month or year write.           | X                                     |
| 4            | Day of week register value changing after write.      | X                                     |

**Note 1:** Only those issues indicated in the last column apply to the current silicon revision.

**2:** The date codes are presented in YYWW format.

## Silicon Errata Issues

**Note:** This document summarizes all silicon errata issues from all revisions of silicon, previous as well as current. Only the issues indicated by the shaded column in the following tables apply to the current silicon revision.

### 1. Issue: Date Increment

When operating in 12-hour mode (RTCHOUR<6> is set), if the application loads an hour value before 12:00 PM while the oscillator is running, then the date and day of week may increment at 12:00 PM. When this occurs, the month and year will also increment according to the normal rollover rules. The date will increment again at 12:00 AM.

#### Work around

Disable the oscillator by ensuring both the ST and EXTOSC bits are cleared, and wait for the OSCRUN bit to clear before loading the new hour value.

#### Affected Silicon Revisions

|     |
|-----|
| All |
| X   |

### 2. Issue: Spurious Minute-Match or Hour-Match Alarm Interrupts

When using an alarm to match on minutes (ALMxMSK<2:0> = 001) or hours (ALMxMSK<2:0> = 010) and digital trimming is being used to slow down the time (TRIMVAL<6:0> > 0 and SIGN = 0), spurious alarm interrupts may occur at incorrect minutes or hours.

#### Work around

If possible, avoid using digital trimming (TRIMVAL= 0x00). Otherwise, when an alarm interrupt occurs, read the RTCMIN and RTCHOUR registers and confirm that the minutes and hours match the desired values for the alarm.

#### Affected Silicon Revisions

|     |
|-----|
| All |
| X   |

### 3. Issue: Date Value Changing on Month or Year Write

When writing a new value in the Year, Month or Date registers, the Date register value may change unexpectedly.

#### Work around

If any of the Date, Month or Year values need to be changed, write new Date, Month and Year values in that order (this write can be a continuous or discontinuous operation). Then, write Date value again. The ST bit can remain set during this operation or it can be cleared and set again afterward.

#### Affected Silicon Revisions

|     |
|-----|
| All |
| X   |

### 4. Issue: Day of Week Value Changing After Write

If the RTCWKDAY register is written while the oscillator is stopped, it is possible that the value will read back as a different value after the oscillator is started.

#### Work around

After writing to the RTCWKDAY register, read the value back after the oscillator is started to confirm it is correct and, if necessary, rewrite it.

#### Affected Silicon Revisions

|     |
|-----|
| All |
| X   |

## APPENDIX A: DOCUMENT REVISION HISTORY

### **Revision F (02/2025)**

Added Silicon Issue 2 (Spurious Minute-Match or Hour-Match Alarm Interrupts).

### **Revision E (06/2022)**

Added Silicon Issue 3 (Date Value Changing unexpectedly).

### **Revision D (10/2018)**

Added Silicon Issue 4 (Day of Week Register Value Changing After Write).

### **Revision C (02/2018)**

Added Silicon Issue 3 (Date Value Changing on Month Write).

### **Revision B (12/2015)**

Added Silicon Issue 2 (Spurious Alarm Interrupts When Matching on Minutes).

### **Revision A (04/2014)**

Initial release of this document.

## Microchip Information

### Trademarks

The “Microchip” name and logo, the “M” logo, and other names, logos, and brands are registered and unregistered trademarks of Microchip Technology Incorporated or its affiliates and/or subsidiaries in the United States and/or other countries (“Microchip Trademarks”). Information regarding Microchip Trademarks can be found at <https://www.microchip.com/en-us/about/legal-information/microchip-trademarks>.

ISBN: 979-8-3371-0476-8

### Legal Notice

This publication and the information herein may be used only with Microchip products, including to design, test, and integrate Microchip products with your application. Use of this information in any other manner violates these terms. Information regarding device applications is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications. Contact your local Microchip sales office for additional support or, obtain additional support at [www.microchip.com/en-us/support/design-help/client-support-services](http://www.microchip.com/en-us/support/design-help/client-support-services).

THIS INFORMATION IS PROVIDED BY MICROCHIP "AS IS". MICROCHIP MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, RELATED TO THE INFORMATION INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTIES RELATED TO ITS CONDITION, QUALITY, OR PERFORMANCE.

IN NO EVENT WILL MICROCHIP BE LIABLE FOR ANY INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL, OR CONSEQUENTIAL LOSS, DAMAGE, COST, OR EXPENSE OF ANY KIND WHATSOEVER RELATED TO THE INFORMATION OR ITS USE, HOWEVER CAUSED, EVEN IF MICROCHIP HAS BEEN ADVISED OF THE POSSIBILITY OR THE DAMAGES ARE FORESEEABLE. TO THE FULLEST EXTENT ALLOWED BY LAW, MICROCHIP'S TOTAL LIABILITY ON ALL CLAIMS IN ANY WAY RELATED TO THE INFORMATION OR ITS USE WILL NOT EXCEED THE AMOUNT OF FEES, IF ANY, THAT YOU HAVE PAID DIRECTLY TO MICROCHIP FOR THE INFORMATION.

Use of Microchip devices in life support and/or safety applications is entirely at the buyer's risk, and the buyer agrees to defend, indemnify and hold harmless Microchip from any and all damages, claims, suits, or expenses resulting from such use. No licenses are conveyed, implicitly or otherwise, under any Microchip intellectual property rights unless otherwise stated.

### Microchip Devices Code Protection Feature

Note the following details of the code protection feature on Microchip products:

- Microchip products meet the specifications contained in their particular Microchip Data Sheet.
- Microchip believes that its family of products is secure when used in the intended manner, within operating specifications, and under normal conditions.
- Microchip values and aggressively protects its intellectual property rights. Attempts to breach the code protection features of Microchip product is strictly prohibited and may violate the Digital Millennium Copyright Act.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of its code. Code protection does not mean that we are guaranteeing the product is “unbreakable”. Code protection is constantly evolving. Microchip is committed to continuously improving the code protection features of our products.