

UFT3G EEPROM Pull-up Recommendations

This document provides guidance on how to adjust the pull-up resistor to enable a successful EEPROM load on the 8T49N28x, 8T49N24x and 8T49N1012 product families.

Contents

1. Issue: EEPROM Halt on UFT3G Devices	1
2. Pull-up Recommendations	1
3. Revision History	2

1. Issue: EEPROM Halt on UFT3G Devices

Symptom: A UFT3G device (8T49N28x, 8T49N24x, 8T49N1012) halts the EEPROM reads after the first 6 bytes. Instead of continuing to read the rest of the EEPROM, it starts reading from byte 0 again. This repeats until all the retries are exhausted.

Explanation: The issue occurs when additional loading on the I²C bus slows down the SDA rising edge rate to >136ns from 0 to 1.8V. The extra loading could be due to the presence of an LED, an I²C extender, an I²C level translator, or similar devices.

2. Pull-up Recommendations

Adjust the pull-up resistor on SDA using the following guidance:

- **Maximum Pull-Up Resistor Value:** Set the pull-up resistor so that the SDA pin transitions from 0 to 1.8V in less than 136ns. If the transition time is >136ns, reduce the value of the pull-up resistor.
- **Minimum Pull-up Resistor Value:** Make sure that all drivers can pull the SDA pin below 0.4V (V_{OL} minimum I²C specification). If the measured min SDA value is >0.4V, increase the value of the pull-up resistor.
- A good starting point is a 1kΩ pull-up resistor

3. Revision History

Revision	Date	Description
1.00	May 16, 2022	Initial release.

IMPORTANT NOTICE AND DISCLAIMER

RENESAS ELECTRONICS CORPORATION AND ITS SUBSIDIARIES ("RENESAS") PROVIDES TECHNICAL SPECIFICATIONS AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for developers skilled in the art designing with Renesas products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. Renesas grants you permission to use these resources only for development of an application that uses Renesas products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Renesas intellectual property or to any third party intellectual property. Renesas disclaims responsibility for, and you will fully indemnify Renesas and its representatives against, any claims, damages, costs, losses, or liabilities arising out of your use of these resources. Renesas' products are provided only subject to Renesas' Terms and Conditions of Sale or other applicable terms agreed to in writing. No use of any Renesas resources expands or otherwise alters any applicable warranties or warranty disclaimers for these products.

(Rev.1.0 Mar 2020)

Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Contact Information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit:
www.renesas.com/contact/

Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners.