

Customer Service Note

Micron 95nm Legacy 256Mb and 512Mb DRAM Component Update

Introduction

This customer service note describes a potential issue in certain legacy products that, under certain usage conditions over extended time periods, may result in the inability of a small percentage of the devices to properly power on after a power cycle event. The issue affected a limited subset of 95nm DDR1 and DDR2 products manufactured before December 2010. As has been previously discussed publicly, Micron has worked proactively over the past few years with infrastructure customers affected by a relatively small number of product failures arising from the issue described herein under specific usage conditions.

Affected Products

- 95nm, 256Mb, DDR1, rev-K-based DIMMs and components (manufactured before December 2010) (referred to herein as "T36A")
- 95nm, 512Mb, DDR1, rev-F-based DIMMs and components (manufactured before December 2010) (referred to herein as "T37Z")
- 95nm, 512Mb, DDR2, rev-D-based DIMMs and components (manufactured before December 2010) (referred to herein as "U37Y")

Description

The root cause of the Micron memory component failure over time in certain use conditions is the degradation of a single transistor on the silicon chip. On a small percentage of die, under these conditions, this degradation may contribute to the inability of the memory device to properly power on after a power cycle event. No abnormal data corruption issues during live operation have been noted to date.

Usage Conditions

Based on current understanding of the issue, reported customer experiences to date, and internal testing, there are certain use conditions that can lead to a moderately elevated failure rate over time. Failure rates appear to have been elevated in network infrastructure applications where the component is powered on for long periods of time (after which failure may occur upon a power cycle event). High frequency of power cycles and low operating temperatures might also contribute to an elevated failure rate.

Estimated Field Failure Rate

Based on known RMAs and customer reports to date, component failure rates have been very low. The DPM rates listed below are based on Micron's failure analysis testing for all components that have been returned to Micron for failure analysis by all customers. Other unreturned/un-validated failures may exist.

T36A <100 defects per million

T37Z <20 defects per million

U37Y <5 defects per million

Micron's failure analysis and customer return data to date indicates that the highest incidence of failure occurred after 2–3 years of use. Note that all semiconductor devices have an inherent rate of failure over time. The rate of failure of a semiconductor device is affected by environmental and system conditions under which the device is used.

Corrective Action

Micron replaced the transistor in question with one that does not degrade prematurely under these use conditions. Micron has been shipping these modified products since December 2010, with no known failures due to premature transistor degradation noted in the modified components.

The Micron products discussed in this customer service note were sold with the express requirement that they could not be used in critical components. If you or your customers used such products in violation of these terms, you should undertake efforts to mitigate any risks caused by any such violation.

For Further Information:

Please contact your Micron sales representative for specific manufacturing date codes by part types.

Micron's Quality and Reliability Team is available to answer any additional technical questions you may have regarding the affected products. Your Micron sales representative can help arrange a telephonic conference with our Quality and Reliability Team.

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Revision History

Rev. A	1/15
• Initial release	