



M24LR04E-R, M24LR16E-R, M24LR64E-R Errata sheet

M24LR04E-R, M24LR16E-R and M24LR64E-R device limitations

Silicon identification

This errata sheet applies to STMicroelectronics M24LR04E-R, M24LR16E-R and M24LR64E-R dual interface EEPROM products. The devices will be referred to M24LRxxE-R throughout the document.

The full list of part numbers is shown in [Table 1](#). These parts can be identified physically by their marking or directly on the application by reading the product revision byte in I²C.

Identification by marking

Table 1. Device summary

Reference	Package	Ordering code	Internal sales type	First line marking	
				Revision 0xF	Revision 0xE and below
M24LR04E-R	TSSOP08	M24LR04E-RDW6T/2	M24LR04RDW6T2UTE	404EU	4BEUB
	MLP	M24LR04E-RMC6T/2	M24LR04RMC6T2UGE	404E	4BEB
	SO8N	M24LR04E-RMN6T/2	M24LR04RMN6T2UGE	24L04ER	24LBERB
	Bare die	M24LR04E-RUW20/2	M24LR04ERUW20/U2	N/A	N/A
M24LR16E-R	TSSOP08	M24LR16E-RDW6T/2	M24LR16RDW6T2UTE	416EU	4DEUB
	MLP	M24LR16E-RMC6T/2	M24LR16RMC6T2UGE	416E	4DEB
	SO8N	M24LR16E-RMN6T/2	M24LR16RMN6T2UGE	24L16ER	24LDERB
	Bare die	M24LR16E-RUW20/2	M24LR16ERUW20/U2	N/A	N/A
M24LR64E-R	TSSOP08	M24LR64E-RDW6T/2	M24LR64EDW6T2UTA	464EU	4FEUB
	MLP	M24LR64E-RMC6T/2	M24LR64EMC6T2UGA	464E	4FEB
	SO8N	M24LR64E-RMN6T/2	M24LR64EMN6T2UGA	24L64ER	24LFERB

Identification by I²C read

The part can be identified by reading in I²C the product revision byte included in the system area.

The product revision is the Most Significant Nibble of the byte located at address 0x911 in the system area (Device select code E2 = 1).

All the limitations described in this document have been fixed for product revision 0xE and below.

1 Product evolution

The following table gives a summary of the fix status.

Legend for [Table 2](#): A = workaround available, grayed = fixed.

Table 2. Product evolution summary

Limitation	Rev F	Rev E and below
Section 2.1: RF field drop during I²C write cycle execution	A	
Section 2.2: SetRstEEn command not functional in Addressed mode	A	

2 Limitations

2.1 RF field drop during I²C write cycle execution

Description

The M24LRxxE-R can be powered through an external V_{CC} pin or via an induced voltage generated by the RF field.

Occasionally, an RF field drop occurring during an I²C write cycle might have an impact on the M24LRxxE-R internal supply voltage. This drop can be caused either by an amplitude modulation of the RF field or a by a significant current spike on the Energy Harvesting pin (V_{OUT}). It might result in the I²C bus to be blocked or in an incomplete programming cycle.

Workaround

- Revision 0xF
It is recommended to avoid any RF activity during the execution of I²C write operations. When this not possible, please follow the recommendations below to improve your design robustness:
 - After an I²C write operation, it is recommended to check that the data programmed have been correctly updated and reprogram them if necessary.
 - When the M24LRxxE-R I²C bus is blocked (no acknowledge), the I²C master shall power-on/power-off the chip (V_{CC} pin) to regain control of the M24LRxxE-R. An optimized method to do this is to power the M24LRxx-R V_{CC} pin using a microcontroller I/O.
- Revision 0xE and below
This limitation has been corrected by a design fix that avoids blocking the I²C interface. T_Prog flag (b7 of the control register located at address 920h in system area) indicates the correct duration of the write cycle. Refer to the product datasheets for details.

2.2 SetRstEHEn command not functional in Addressed mode

Description

When the *SetRstEHEn* command is sent in Addressed mode, all M24LRxxE-R devices execute the command whatever their unique identifier (UID).

Consequently, it is not possible to address an M24LRxxE-R device individually to set or reset the Energy Harvesting.

This limitation does not prevent designers from using the Energy Harvesting command but this command must be executed in a Non-addressed mode or in Select mode.

- When the command is used in Non-addressed mode, all M24LRxxE-R devices in reader operating volume will execute the command.
- When the command is executed in Select mode, only the M24LRxxE-R previously put in select state will execute the *SetRstEHEn* command.

Workaround

- Revision 0xF
Set and reset the Energy harvesting using only Non-addressed or Select mode.
- Revision 0xE and below
This limitation has been corrected by a design fix that allows supporting the full SetRstEHEn command features. Refer to the product datasheets for details.

3 Revision history

Table 3. Document revision history

Date	Revision	Changes
23-Apr-2012	1	Initial release.
11-Feb-2013	2	Added silicon revisions 0xE and below and updated limitation descriptions accordingly.

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