



Automotive Serial EEPROM



Introduction to Automotive Serial EEPROM

Serial EEPROM is the most flexible type of non-volatile memory. When many parameters, heavy cycling requirements, safe data retention and high temperature mission profiles are required, EEPROM is the ideal product for high-quality and flexible parameter storage.

For the past 15 years, ST's automotive serial EEPROM has been ranked #1 offering a wide portfolio covering automotive needs and requirements. ST's Advanced Automotive series is designed to answer new automotive trends while providing increased robustness with AEC-Q100 Grade 0 qualification, PPAP Level 3 compliancy, zero-defect built-in quality and embedded Error Correction Code for safe and long-lasting data retention.

Three industry standard serial buses are supported:

- Standard I²C EEPROM
- Standard Microwire EEPROM
- Standard SPI EEPROM



The image features a yellow background with a dark blue circular logo at the top center containing the text "ST EEPROM" and three white 3D cube icons. Below the logo, three black EEPROM chips are shown: a large dual in-line package (DIP) chip, a smaller surface-mount package, and a micro-wire package. To the right, a dark blue vertical panel lists key features with corresponding icons: a circular arrow for "4 million cycles", a document icon for "Lockable page", a clock icon for "4 milliseconds", a memory card icon for "Up to 4Mb", and two thermometer icons for "125°C at 1.8 V" and "145°C at 2.5 V".

- 4 million cycles
- Lockable page
- 4 milliseconds
- Up to 4Mb
- 125°C at 1.8 V
- 145°C at 2.5 V

Thanks to an advanced proprietary manufacturing process, ST's Advanced Automotive series proposes an enlarged portfolio and offers a complete range of densities from 1 Kbit to 4 Mbits:

- Available in standard SO8N, TSSOP8 and small leadless DFN8 packages
- Temperature trends with 125 °C and 145 °C in-package solutions
- Operating from 5 V down to 1.8 V for compatibility with advanced controllers used in ADAS applications
- Ensuring fast application wake-up with 20 MHz for SPI and 1 MHz for I²C as well as data storage in 4 ms
- Supporting datalogging and event recording with 4 million E/W cycles at 25 °C (per byte) as well as over 100 million cycles per device
- Offering best-in-class retention times of 100 years at 25 °C and 50 years at 125 °C

Automotive Serial EEPROM also offer an embedded lockable identification page to identify the EEPROM device and safely store the most sensitive parameters. With a specific set of instructions, data such as traceability, serial number, as well as unique ID can be stored and locked.

IBIS and Verilog models are available in the CAD resources of [EEPROM webpages](#).

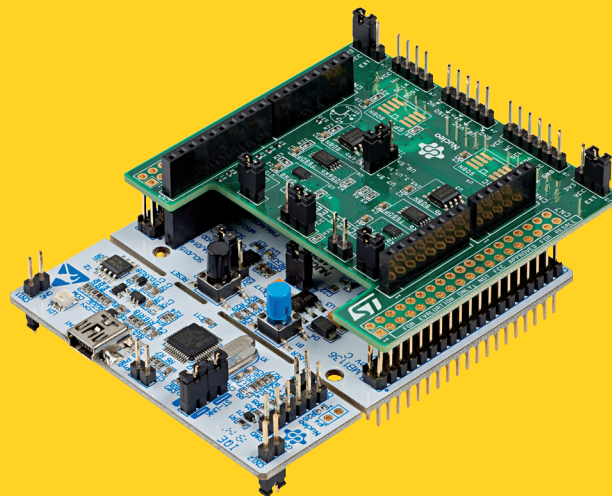
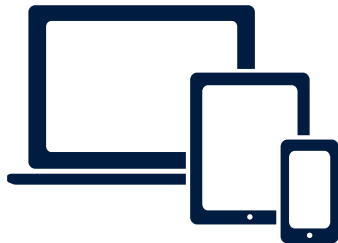
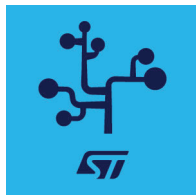
ADVANTAGES OF ST'S 10 YEARS LONGEVITY PROGRAM

ST's 10 years longevity program ensures a stable and continuous supply of specific components. This commitment guarantees product availability for a minimum of 10 years from the introduction date, safeguarding your design investments and reducing time to market. With certified devices that withstand harsh industrial environments, this program supports reliable and sustainable solutions for your long-term projects.

Find more information about [longevity program](#)



For easy product selection, download our [ST-EEPROM-FINDER](#) application for Android and iOS





Store and monitoring datas with X-NUCLEO-EEPROMA2 expansion board.

This expansion board is based on M24xx and M95xx series for STM32 Nucleo.

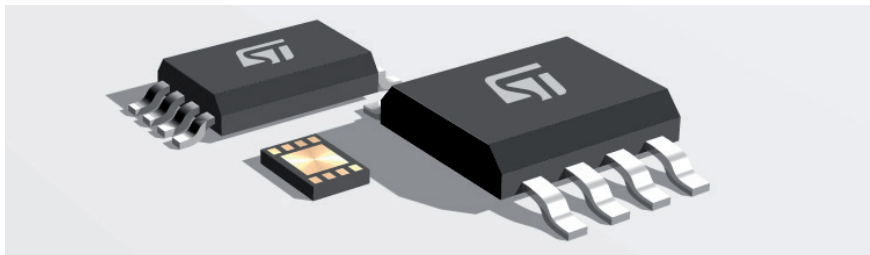
Visit st.com to discover our [X-NUCLEO-EEPROMA2](#) shield for fast prototyping.

Package options

Name	Package	Overall width (max)	Overall length (max)	Projected PCB area (mm ²)	Overall height (max)	Pitch	Weight (mg)	Number of pins/balls	Comments
S08N		5	6.2	31	1.75	1.27	80	8	-
TSSOP8		3.1	6.6	20	1.2	0.65	34	8	-
DFN8		2.1	3.1	6.5	0.8	0.5	22	8	Leadless package

All dimensions in mm

[3D package models](#) are available in the CAD resources of EEPROM webpages.



Buy Automotive Serial EEPROM - eStore

Automotive EEPROM Portfolio

SPI

All products are AEC-Q100 qualified and PPAP Level 3-compliant

Part number	Storage capacity (Kbit)	Temperature range (°C)	Power supply range (V)	Max. clock frequency (MHz) ¹	Package options ²		
					S08N	TSSOP8	DFN8
M95020-A125	2	-40 to 125	1.7 to 5.5	20	X	X	X
M95040-A125	4	-40 to 125	1.7 to 5.5	20	X	X	X
M95080-A125	8	-40 to 125	1.7 to 5.5	20	X	X	X
M95160-A125	16	-40 to 125	1.7 to 5.5	20	X	X	X
M95320-A125	32	-40 to 125	1.7 to 5.5	20	X	X	X
M95640-A125	64	-40 to 125	1.7 to 5.5	20	X	X	X
M95128-A125	128	-40 to 125	1.7 to 5.5	20	X	X	X
M95256-A125	256	-40 to 125	1.7 to 5.5	20	X	X	X
M95512-A125	512	-40 to 125	1.7 to 5.5	16	X	X	X
M95M01-A125	1024	-40 to 125	2.5 to 5.5	16	X	X	
M95M02-A125	2048	-40 to 125	2.5 to 5.5	10	X		
M95M04-A125	4096	-40 to 125	2.9 to 5.5	10	X	X	

SPI (CONT'D)

All products are AEC-Q100 qualified and PPAP Level 3-compliant

Part number	Storage capacity (Kbit)	Temperature range (°C)	Power supply range (V)	Max. clock frequency (MHz) ¹	Package options ²		
					S08N	TSSOP8	DFN8
M95020-A145	2	-40 to 145	2.5 to 5.5	10		X	
M95040-A145	4	-40 to 145	2.5 to 5.5	10		X	
M95080-A145	8	-40 to 145	2.5 to 5.5	10		X	
M95160-A145	16	-40 to 145	2.5 to 5.5	10		X	
M95320-A145	32	-40 to 145	2.5 to 5.5	10		X	
M95640-A145	64	-40 to 145	2.5 to 5.5	10		X	
M95128-A145	128	-40 to 145	2.5 to 5.5	10		X	
M95256-A145	256	-40 to 145	2.5 to 5.5	10		X	
M95512-A145	512	-40 to 145	2.5 to 5.5	10		X	
M95M01-A145	1024	-40 to 145	2.5 to 5.5	10		X	
M95M04-A145	4096	-40 to 145	2.9 to 5.5	10		X	

Notes:

1. The clock frequency value depends on the Vcc applied. The values given here are based on a 5 V supply.
2. For more options contact your nearest [ST sales office](#) or online support at [st.com](#).

All products benefit from a lockable identification page and support datalogging and event recording with 4 million E/W cycles at 25 °C, 1.2 million at 85 °C and 0.4 million at 145 °C (per byte) as well as over 100 million cycles per device.

I²C

All products are AEC-Q100 qualified and PPAP Level 3-compliant

Part number	Storage capacity (Kbit)	Temperature range (°C)	Power supply range (V)	Max. clock frequency (MHz)	Package options		
					S08N	TSSOP8	DFN8
M24C02-A125	2	-40 to 125	1.7 to 5.5	1	X	X	X
M24C04-A125	4	-40 to 125	1.7 to 5.5	1	X	X	X
M24C08-A125	8	-40 to 125	1.7 to 5.5	1	X	X	X
M24C16-A125	16	-40 to 125	1.7 to 5.5	1	X	X	X
M24C32-A125	32	-40 to 125	1.7 to 5.5	1	X	X	X
M24C64-A125	64	-40 to 125	1.7 to 5.5	1	X	X	X
M24128-A125	128	-40 to 125	1.7 to 5.5	1	X	X	X
M24256-A125	256	-40 to 125	1.7 to 5.5	1	X	X	X
M24512-A125	512	-40 to 125	1.7 to 5.5	1	X	X	X
M24M01-A125	1024	-40 to 125	2.5 to 5.5	1	X	X	
M24M02-A125	2048	-40 to 125	2.5 to 5.5	1	X		

All products benefit from a lockable identification page and support datalogging and event recording with 4 million E/W cycles at 25 °C, 1.2 million at 85 °C and 0.4 million at 145 °C (per byte) as well as over 100 million cycles per device.

MICROWIRE

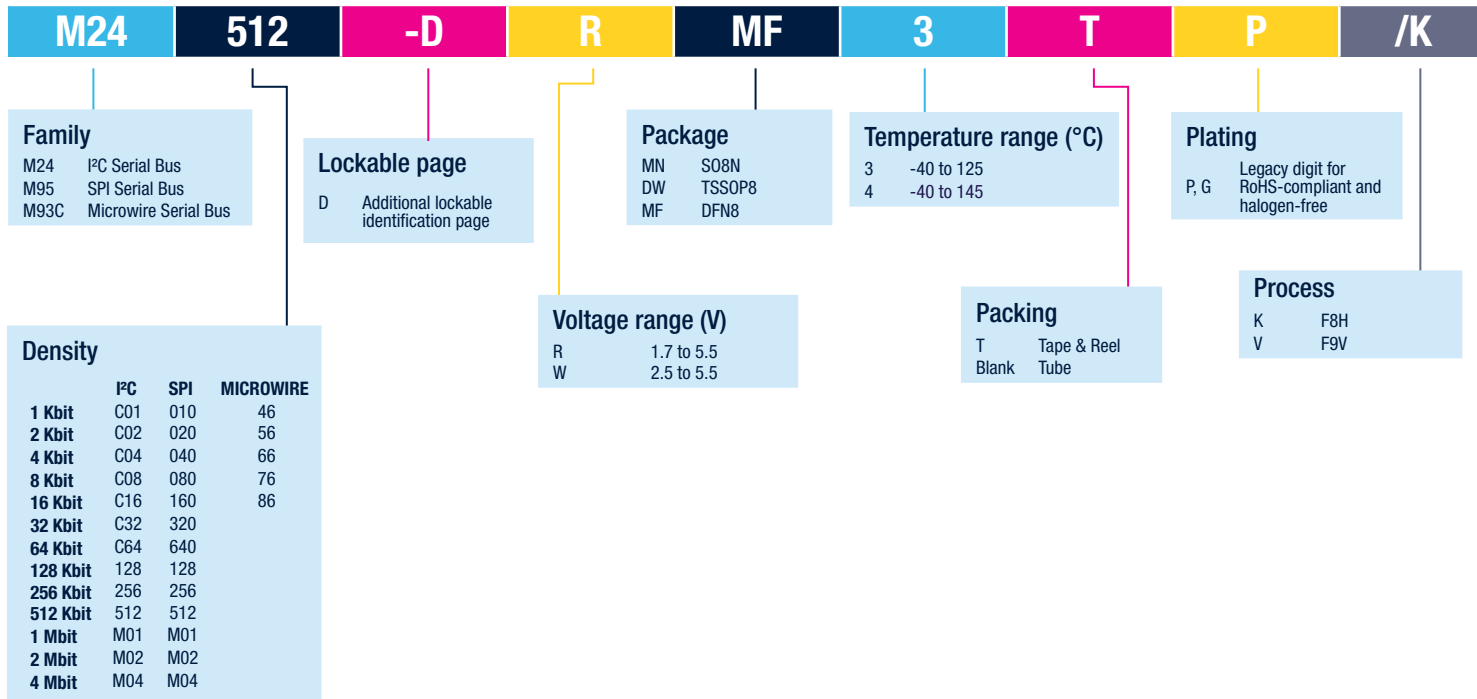
All products are AEC-Q100 qualified and PPAP Level 3-compliant

Root part number	Storage capacity (Kbit)	Temperature range (°C)	Power supply range (V)	Clock frequency max (MHz)	Package options		Specific features
					S08N	TSSOP8	
M93C46-A125	1	-40 to 125	1.8 to 5.5	2	X	X	8- or 16-bit organization
M93C56-A125	2	-40 to 125	1.8 to 5.5	2	X	X	8- or 16-bit organization
M93C66-A125	4	-40 to 125	1.8 to 5.5	2	X	X	8- or 16-bit organization
M93C76-A125	8	-40 to 125	1.8 to 5.5	2	X	X	8- or 16-bit organization
M93C86-A125	16	-40 to 125	1.8 to 5.5	2	X	X	8- or 16-bit organization

All products support datalogging and event recording with 4 million E/W cycles at 25 °C, 1.2 million at 85 °C and 0.4 million at 145 °C (per byte) as well as over 100 million cycles per device.

Please check for up-to-date information on our website www.st.com/advautoeeprom

Ordering Information



Notes

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