

CYPRESS

# SEMPER™ NOR FLASH MEMORY

The Industry's Safest and Most Reliable NOR Flash Memory Solution for Automotive and Industrial Applications.



## INTRODUCTION

The Semper™ NOR Flash Memory Family is Cypress' newest high-performance, safe, and reliable NOR Flash memory solution that integrates critical safety features for automotive and industrial systems. With Semper Flash, Cypress introduces the industry's first ASIL-B Compliant and ASIL-D Ready NOR Flash Memory. Cypress also introduces its new EnduraFlex™ Architecture, which enables superior endurance of 1+ million program/erase cycles and data retention of 25 years at extreme temperatures (-40° C to +125° C).

## JEDEC xSPI COMPATIBLE

- 12-pin interface
- x1 and x8 Boot options
- HyperBus Interface
- Octal Interface

## INTRODUCING ENDURAFLEX™

- Endurance: 1+ million program/erase cycles
- Data Retention: 25 years

## FUNCTIONAL SAFETY

- ISO 26262 ASIL-B Compliant
- ISO 26262 ASIL-D Ready
- ECC
- SafeBoot
- Data Integrity Check & Interface CRC
- Advanced Sector Protection (ASP)
- FMEDA & Safety Manual

## AEC-Q100 AUTOMOTIVE QUALIFIED

- PPAP Support
- Product Longevity Support

## PERFORMANCE

- HyperBus: 400 MB/s Read Bandwidth
- Octal: 400 MB/s Read Bandwidth
- Quad SPI: 102 MB/s Read Bandwidth
- Program Time: 0.485 ms
- Erase Time: 773 ms

## LOW POWER

- Deep Power Down: 1.3  $\mu$ A
- Standby: 11  $\mu$ A

## INTERFACE TYPE

- Quad SPI
- HyperBus
- Octal

## TEMPERATURE RANGE

- Automotive Grade 1: -40°C to 125°C
- Automotive Grade 2: -40°C to 105°C
- Automotive Grade 3: -40°C to 85°C
- Industrial Plus: -40°C to 105°C
- Industrial: -40°C to 85°C

## DENSITY

- 256 Mb
- 512 Mb
- 1 Gb
- 2 Gb
- 4 Gb

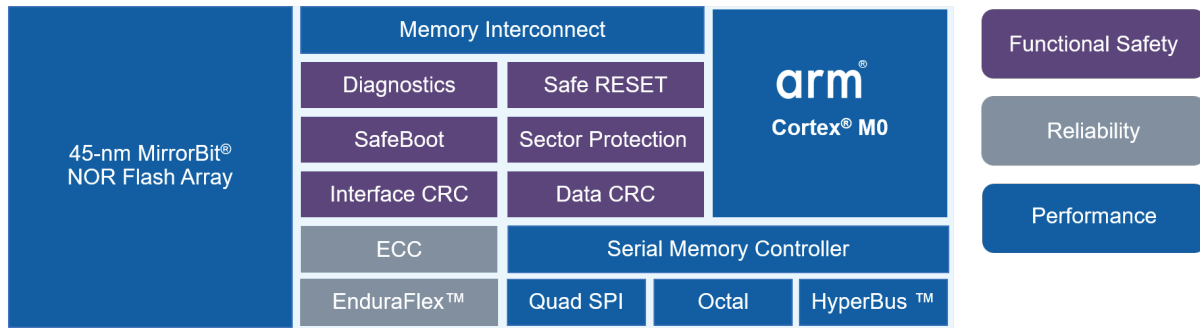
## SUPPLY VOLTAGE

- 1.8V
- 3.0V

## PACKAGES

- 24-ball BGA (6x8 mm)
- 24-ball BGA (8x8 mm)
- 16-pin SOIC (300 mil)
- 8-contact WSON (6x8 mm)
- KGD (Contact Factory)

## BLOCK DIAGRAM



Semper Flash Memory Architecture Block Diagram

## KEY APPLICATIONS

- Automotive Instrument Clusters
- Advanced Driver Assistance Systems (ADAS)
- Networking Communications
- Industrial

## SEMPER FLASH MEMORY PORTFOLIO

Family	Voltage	256Mb	512Mb	1Gb	2Gb	4Gb
Quad SPI	1.8V	S25HS256T	S25HS512T	S25HS01GT	S25HS02GT	S25HS04GT
	3.0V	S25HL256T	S25HL512T	S25HL01GT	S25HL02GT	S25HL04GT
HyperBus Interface	1.8V	S26HS256T	S26HS512T	S26HS01GT	S26HS02GT	S26HS04GT
	3.0V	S26HL256T	S26HL512T	S26HL01GT	S26HL02GT	S26HL04GT
Octal Interface	1.8V	S28HS256T	S28HS512T	S28HS01GT	S28HS02GT	S28HS04GT
	3.0V	S28HL256T	S28HL512T	S28HL01GT	S28HL02GT	S28HL04GT

	256Mb	512Mb	1Gb	2Gb	4Gb
Packages	24-ball BGA (6x8mm) 16-pin SOIC (300 mil) 8-contact WSON (6x8mm)		24-ball BGA (8x8mm) 16-pin SOIC (300mil)	24-ball BGA (8x8mm)	
Temperature Grade	Automotive Grade 1: -40°C to 125°C Automotive Grade 2: -40°C to 105°C Automotive Grade 3: -40°C to 85°C Industrial Plus: -40°C to 105°C Industrial: -40°C to 85°C				



**GET STARTED NOW**

For more details, visit: [www.cypress.com/Semper-Flash](http://www.cypress.com/Semper-Flash)

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