Product brief

SEMPER™ NOR Flash Memory

The industry's safest and most reliable NOR Flash for automotive, industrial, and communications

Overview

SEMPER™ NOR Flash memory provides the high-performance and critical safety features needed for automotive, industrial, and communications applications. It is architected and designed for functional safety, making it the industry's first ASIL-B compliant and ASIL-D ready NOR Flash. Infineon endurance flex architecture enables individual partitions to be configured for 1+ million program/erase cycles or 25 years data retention at a wide range of temperatures (-40°C to +125°C).

JEDEC xSPI-compatible interface

› 12-pin interface
› x1 and x8 boot options
› Octal
› HYPERBUS™

Infineon endurance flex architecture

› Flexible memory partitioning
› 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 Program

Key applications

› Automotive instrument clusters
› Advanced Driver Assistance Systems (ADAS)
› Communications
› Industrial

www.infineon.com/SEMPER

Features

Density
› 256 Mb, 512 Mb, 1 Gb, 2 Gb, 4 Gb

Voltage
› 1.8 V, 3.0 V

Interface
› Quad SPI
› xSPI (Octal)
› xSPI (HYPERBUS™)

Performance
› xSPI: 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 µA
› Standby: 11 µA

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
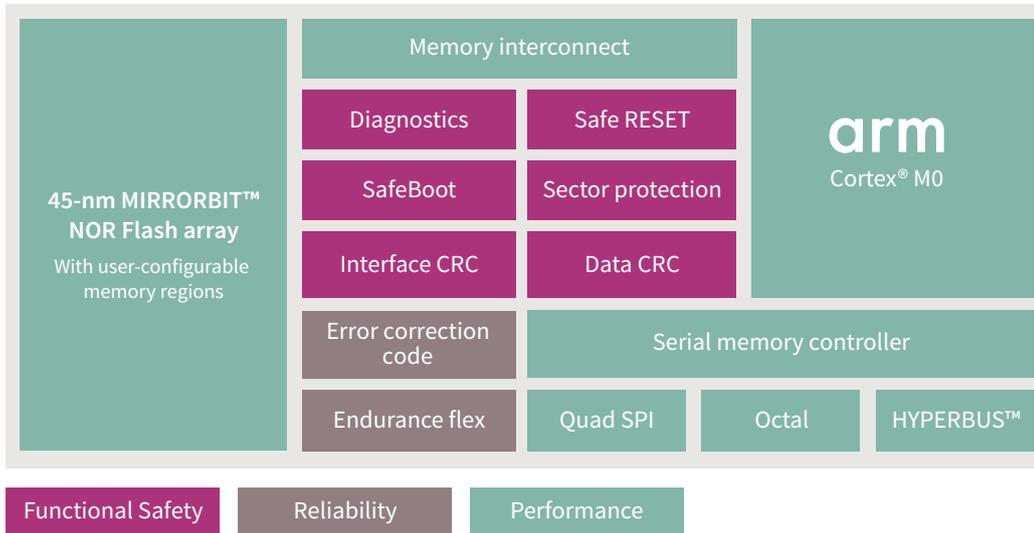› Industrial Plus: -40°C to 105°C
› Industrial: -40°C to 85°C

Package
› 24-ball BGA (6 x 8 mm)
› 24-ball BGA (8 x 8 mm)
› 16-pin SOIC (300 mil)
› 8-contact WSON (6x8 mm)
› KGD (contact factory)

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SEMPER™ NOR Flash family architecture

45-nm MIRRORBIT™ NOR Flash array — With user-configurable memory regions	Memory interconnect		arm Cortex® M0
	Diagnostics	Safe RESET	
	SafeBoot	Sector protection	
	Interface CRC	Data CRC	
	Error correction code	Serial memory controller	
	Endurance flex	Quad SPI	Octal	HYPERBUS™

Functional Safety · Reliability · Performance

Our innovative NOR Flash solutions enable new emerging applications.

Segment	Applications					
Automotive	Autonomous drive systems	Instrument clusters	Battery management	Camera system	Infotainment	Gateway
Industrial	Solar inverters	Service robots	PLC	HMI	Medical equipment	Satellites
Communications	Acceleration cards	Server board controllers	4G / 5G radio	Small / pico cell	Enterprise router / switch	Baseband systems

To learn more about safe and reliable NOR Flash products, visit www.infineon.com/memories

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