Small, robust and standard serial flash solutions

Numonyx® Forté™ is the industry's most comprehensive portfolio of serial flash memory, offering a flexible spectrum of performance features and a broad density range to deliver long-term architectural continuity for embedded designs.

CONSUMER ELECTRONICS

Numonyx® Forté™ serial flash supports all operations at 108MHz for the fast flash access time requirements of consumer electronics devices, such as DVD players.

WIRED COMMUNICATIONS

The OTP, the UID (unique ID code), the CFD (customized factory data) enable the safe storage of sensitive data that should not be modified, such as authentication codes in routers.

COMPUTING APPLICATIONS

Numonyx® Forté™ serial flash offers small parameter blocks to store frequently updated data in computing applications.

Embedded system designers today continue to seek ways to reduce board space, lower power consumption and reduce overall system costs. The five comprehensive lines of Numonyx® Forté™ serial flash can meet any of these design requirements. Numonyx, an industry leader in NOR flash memory, offers the broadest choice in industry-standard serial flash memory with densities from 512kB to 128Mb and a wide variety of package types.

Whether for code storage, code and data, or data and parameter, one of the Numonyx Forté serial flash product families is the right choice for your next design.

Forté™ N25Q (multiple I/O family)

This sector/sub-sector erase serial flash family is backward compatible with M25PX and M25P families, with the additional advantage of the QUAD I/O for dramatic performance improvement.

The Forté N25Q family offers improved operational speed over the entire supply voltage range, including 3V and low power 1.8V supply, as well as extended temperature range.

Forté™ M25PX (high performance)

This sector/sub-sector erase serial flash family, backward compatible with M25P family, is offered with the additional option of dual I/O. The M25PX family offers improved speed of operation over the entire supply voltage range, as well as the extended temperature range and an automotive grade option.

Forté™ M25P (code storage)

The M25P series offers added value to both high- and low-end applications with a standard SPI protocol, sector erase, low power consumption and small package size—enabling even smaller PCB designs. The M25P line also features an automotive grade option.

Forté™ M25PE/M45PE (page erase)

The M25PE/M45PE families offer a higher granularity and fast transfer of data and parameters. Each 256-byte page can be individually erased and programmed, with a write instruction that offers the ability to update data at the byte level. The PE family also supports EEPROM emulation command.

Versatile architectures

In product designs, one size doesn't fit all. That's why Numonyx Forté serial flash implements a versatile architecture based on a 256 byte page size. Each page of 256 bytes can be individually programmed with a write instruction that allows data updates at the byte level. Erase capabilities are enabled at the sector, sub-sector and page level for additional memory access flexibility and efficiency.

To optimize for code and data applications, Numonyx Forté serial flash offers 64kB memory sectors and each sector is subdivided into 4kB parameter blocks. The 4kB parameter blocks can be used to store small amounts of data such as chipset descriptors in PC applications, or they can be used an one 64kB memory block.

Excellent performance and reliability

As design complexity increases, performance matters. The Numonyx Forté serial flash family offers industry-leading performance with clock speeds per line at up to 108MHz. In a QUAD I/O configuration, read and write bandwidth is quadruplicated to a clock speed of 54MByte/second dramatically increasing XIP performance—to meet the most demanding application requirements and save RAM space in devices such as hard disks, multi-function printers, DVD players and digital cameras.

The Numonyx Forté serial flash lineup also supports environmental conditions with temperature ratings from -40 to +85 degrees Celsius. Endurance that delivers more than 100,000 erase/program cycles per sector and more than 20 years of data retention is coupled with solid dependability on 110nm and 65nm process technology for the quality and long-term reliability you can depend on.

Security matters

Data and code protection can be critical in a product for many reasons, from counterfeiting, to malicious code intrusion, to efficiency in manufacturing and support processes. Numonyx Forté serial flash offers multiple options to ensure both code and data are protected.

At the most fundamental level, Forté serial flash offers a 64 byte user lockable OTP (One Time Programmable) area and the option to set the memory as read only for products and applications that require a fixed code image. The memory can also be protected in flexible 64kB sectors for optimal security.

For design and manufacturing flexibility, Numonyx Forté serial flash can be write-protected through either hardware or software using a mix of volatile and non-volatile protection features, depending on application requirements.

Industry standard features and more

Numonyx Forté serial flash gives you choices. It starts with a standard SPI protocol for compatibility, supported over a range of densities from 512kB to 128Mb to meet the needs of virtually any application. Add to that support for a broad range of package types that includes SOIC8, SOIC16, MLP8, PDIP8, and TBGA24, as well as KGD and you've got an industry-leading solutions offering to meet the most demanding product design requirements.

Easy to design in with maximum flexibility

Building on product excellence, you can trust that Numonyx Forté serial flash will be pre-qualified with all industry leading chipset designs to enable seamless design-in across a broad range of applications. With standard pin-outs, Numonyx Forté serial flash also allows easy drop-in compatibility to higher densities if software requirements change.

Long-term commitment

Extended life-cycle applications need long-term supply for flexibility. To reinforce our commitment to embedded market segments, our current serial flash roadmap is long term extended and supply continuity will be offered on many products. Customers can confidently design with existing serial flash products, or newer products based on leading process technologies.

Reliable capacity for your serial flash designs is also part of our long-term customer commitment. Numonyx offers a comprehensive, global NOR flash manufacturing network, enabling safe, steady supply in a rapidly changing market. Our network includes three wafer fabrication facilities and three assembly/test sites dedicated to the production of NOR flash memory.

Numonyx serial flash memory highlights

- Single, Dual and Quad I/O SPI protocols supported
- Offered in 512kB to 128Mb densities
- Industry standard packaging: 8 and 16-pin SOIC, MLP8, PDIP8, TBGA24 and Known Good Die (KGD)
- Industry-standard command set
- 2.3-3.6V; 1.7-2.0V operations
- Fast 50MHz, 75MHz and 108MHz performance
- OTP security option
- -40º C to +85º C operating temperatures
- Auto grade products qualified to +125ºC
- Available in Pb and Pb-free packaging
- Royalty-free software support

Learn more now

Visit www.numonyx.com/serial for additional details on the Numonyx Forté serial flash solutions.

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