

Spansion® e.MMC Flash Memory for Embedded Platforms

e.MMC Managed NAND Flash Memory from the Embedded Market Leader

Spansion e.MMC products are tailored for embedded platforms. These products complement Spansion's NOR and SLC NAND product offerings. The integrated controller on Spansion e.MMC products perform complex flash management, error correction and wear leveling to reduce the complexities that come with designing in a NAND solution. The controller and its custom Spansion firmware boost the overall performance and quality of the product.

Spansion e.MMC products come with tools, collateral and qualification data that will simplify design cycles and expedite time to market. They also offer features such as direct boot, configurability of pseudo-SLC and MLC partitions, protection from power loss, and health monitoring.

Spansion's e.MMC product portfolio is compatible with the JEDEC e.MMC 4.51 (JESD84-B451) specifications. They are available in 8GB and 16GB densities, and 153 ball VFBGA (0.5mm ball pitch) and 100 ball LBGA (1.0mm ball pitch) package options. These products are qualified and tested through stringent processes to meet Spansion's world class quality requirements.

Information on product availability can be found in the Spansion Product Selector Guide.

KEY FEATURES

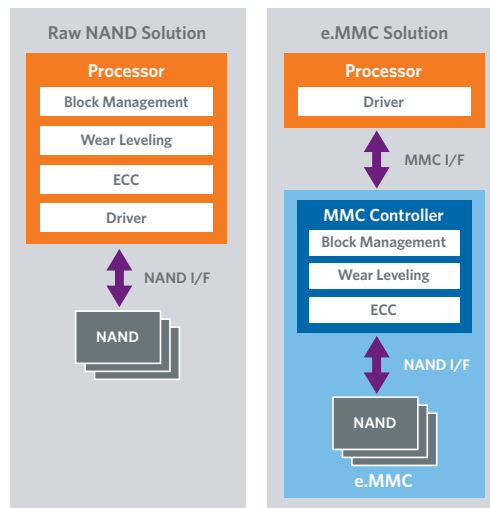
- 8GB - 16GB Densities
 - e.MMC 4.51 compliant (JESD84-B451)
 - Power Supply
 - 3.3V Core
 - 3.3V/1.8V IO
 - Industry Standard Packages
 - 153 ball VFBGA (0.5mm ball pitch)
 - 100 ball LBGA (1.0mm ball pitch)
 - Temperature Options
 - Embedded (-25°C to +85°C)
 - Industrial (-40°C to +85°C)
 - Sequential Performance
 - Read up to 125MB/sec
 - Write up to 20MB/sec
- *Based on 16GB configuration

SUITABLE APPLICATIONS

- Consumer
- Industrial
- Medical
- Networking
- Printers

e.MMC BENEFITS

- Integrated flash management
- JEDEC standard packages
- JEDEC standard interface
- Optimized read and write performance
- Configurable into pseudo-SLC or MLC partitions



DATASHEET SUMMARY

→ Compatibility

- e.MMC 4.51 compliant (JESD84-B451)
- Backwards compatible with previous e.MMC specifications

→ Density

- 8GB / 16GB

→ Supply Voltage

- Vccq: 1.7V-1.95V or 2.7V-3.6V
- Vcc: 2.7V-3.6V

→ Operating Temperature Range

- Embedded: -25°C to +85°C
- Industrial: -40°C to +85°C

→ Package Options

- 153-ball VFPGA (13 mm x 11.5 mm x 1.0 mm)
- 100-ball LBGA (18 mm x 14 mm x 1.4 mm)

→ Electronic Signature

- Manufacturing ID: 01h

→ Data Bus Width

- 1 bit, 4 bit, 8 bit

→ Clock Frequency

- 52 MHz (SDR or DDR modes), 200 MHz (SDR mode)

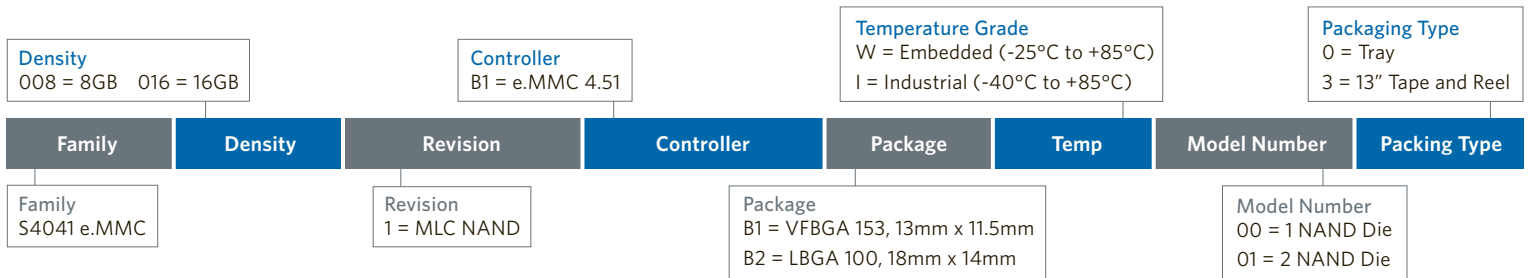
→ Key Supported Features

- Boot Operation
- Partition Management
- Boot Area Partition
- Replay Protected Memory Block (RPMB)
- Sleep (CMD5)
- Sanitize
- Trim
- High Priority Interrupt
- Background Operation
- Hardware Reset
- HS200
- Health Monitoring
- Field Firmware Update

→ Performance

- Sequential Read (MB/s): 125
- Sequential Write (MB/s): 20
- Random Read (IOPS): 6500
- Random Write (IOPS): 1400
- *Based on 16GB device. Bus in x8 I/O and HS200 modes
- Boot time – Maximum 150ms latency for the first data stream

ORDERING PART NUMBER GUIDE



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