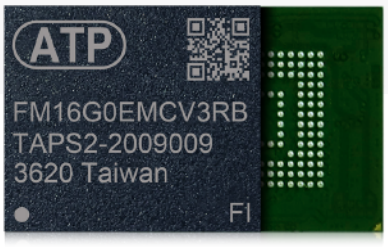
e.MMC MLC Solutions

The Global Leader in Specialized Storage and Memory Solutions



KEY FEATURES

- AEC-Q100 Grade 2 (-40°C to 105°C) Compliant*
- AEC-Q100 Grade 3 (-40°C to 85°C) Compliant*
- Ultra Low Alpha (ULA) mold compound reduces soft errors caused by alpha particles
- JEDEC e.MMC v5.1 Standard (JESD84-B51) Compliant
- 153-ball FBGA (RoHS compliant, "green package")
- AutoRefresh Technology for hot zone disturbance
- Dynamic Data Refresh for cold zone disturbance
- Enhanced Sudden Power-Off Recovery (SPOR)
- Advance Health Report
- Firmware Field Update

* May vary by product and project support

The ATP industrial e.MMC is an advanced storage solution that integrates NAND flash memory, a sophisticated flash controller, and a fast MultiMedia Card (MMC) interface in the same package. By incorporating these components in an integrated package, ATP e.MMC manages all background operations internally, freeing the host from handling low-level flash operations for faster and more efficient processing.

Smaller than a typical postage stamp, ATP e.MMC comes in a 153-ball fine pitch ball grid array (FBGA package).
The tiny footprint makes it perfectly suitable for embedded systems with space constraints but require rugged endurance, reliability and durability in harsh environments.

ATP e.MMC is built to meet the tough demands of industrial applications. As a soldered-down solution, it is secure against constant vibrations. Its industrial temperature rating means that severe scenarios from freezing cold -40°C to blistering hot 105°C will not cause adverse impact on the device or the data in it.

Compliant with the latest JEDEC e.MMC 5.1 Standard (JESD84-B51), ATP e.MMC features Command Queuing and Cache Barrier to enhance random read/write performance; High Speed 400 (HS400) DDR Mode for a bandwidth of up to 400 MB/s; and field firmware update (FFU). Cache Flushing Report ensures the data integrity on cache blocks; Data Strobe in HS400 Mode facilitates faster synchronization between the host and the e.MMC device; and, Secure Write Protection ensures that only trusted entities can protect or unprotect the e.MMC device.

It is backward compatible with previous versions (v4.41/v4.5/v5.0), supporting features such as power-off notifications, packed commands, cache, boot or replay protected memory block (RPMB) partitions, high priority interrupt (HPI), and hardware (HW) reset.

Technologies & Add-On Services	Life Monitor	Firmware-based Power Loss Protection	AutoRefresh	Advanced Wear Leveling	Dynamic Data Refresh	End-to-End Data Path Protection	Auto-Read Calibration	Secure Erase	Industrial Temperature	SiP	Vibration-Proof BGA Package	Complete Drive Test	Joint Validation
Premium	○	○	○	○	○	○	○	○	○	○	○	○	▲
Superior	○	○	○	○	○	○	○	○	○	○	○	○	▲
Value	○	○	○	○	○	○	○	○	▲	○	○	○	▲

▲: Customization option available on a project basis.

Specifications

e.MMC						
	Automotive Grade 2		Automotive Grade 3		Extended Industrial Grade	
Product Line	Premium	Superior	Premium	Superior	Premium	Superior
	E700Paa	E600Saa	E700Pia	E600Sia	E700Pa	E600Sa
Flash Type	2D MLC (pSLC mode)	2D MLC	2D MLC (pSLC mode)	2D MLC	2D MLC (pSLC mode)	2D MLC
IC Package	153-ball FBGA					
JEDEC Specification	v5.1, HS400					
Power Loss Protection Options	Firmware Based					
Operating Temperature	-40°C to 105°C		-40°C to 85°C		-40°C to 105°C	
Capacity	4 GB to 8 GB	8 GB to 16 GB	4 GB to 8 GB	8 GB to 16 GB	4 GB to 8 GB	8 GB to 16 GB
Performance						
Sequential Read/ Write up to (MB/s) (Max.)*	230 / 100					
Bus Speed Modes	x1 / x4 / x8					
ICC (Typical RMS in Read/Write) mA (Max.)	85 / 65	85 / 50	85 / 65	85 / 50	85 / 65	85 / 50
ICCQ (Typical RMS in Read/Write) mA (Max.)	60 / 45	60 / 30	60 / 45	60 / 30	60 / 45	60 / 30
Endurance and Reliability						
Endurance TBW* (Max.)	200 TB	40 TB	200 TB	40 TB	200 TB	40 TB
Reliability MTBF @ 25°C	>2,000,000 hours					
Others						
Dimensions (mm)	11.5 x 13.0 x 1.0					
Certifications	AEC-Q100, RoHS, REACH				RoHS, REACH	
Warranty	One Year					

e.MMC				
	Industrial Grade		Commercial Grade	
Product Line	Premium	Superior	Premium	Superior
	E700Pi	E600Si	E700Pc	E600Sc
Flash Type	2D MLC (pSLC mode)	2D MLC	2D MLC (pSLC mode)	2D MLC
IC Package	153-ball FBGA			
JEDEC Specification	v5.1, HS400			
Power Loss Protection Options	Firmware Based			
Operating Temperature	-40°C to 85°C		-25°C to 85°C	
Capacity	4 GB to 8 GB	8 GB to 16 GB	4 GB to 8 GB	8 GB to 16 GB
Performance				
Sequential Read/ Write up to (MB/s) (Max.)*	230 / 100			
Bus Speed Modes	x1 / x4 / x8			
ICC (Typical RMS in Read/Write) mA (Max.)	85 / 65	85 / 50	85 / 65	85 / 50
ICCQ (Typical RMS in Read/Write) mA (Max.)	60 / 45	60 / 30	60 / 45	60 / 30
Endurance and Reliability				
Endurance TBW* (Max.)	200 TB	40 TB	200 TB	40 TB
Reliability MTBF @ 25°C	>2,000,000 hours			
Others				
Dimensions (mm)	11.5 x 13.0 x 1.0			
Certifications	RoHS, REACH			
Warranty	One Year			

* All performance is collected or measured using ATP proprietary test environment, without file system overhead.

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WE BUILD WITH YOU

Product spec and its related information are subject to change without advance notice.
Please refer to www.atpinc.com for latest information

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