BGAE340 │ eMMC │ 153-ball/100-ball

SMART's BGAE340 eMMC is an embedded memory solution that combines 2D-MLC NAND Flash Memory, an embedded MMC (MultiMediaCard) controller, and advanced firmware in a small BGA (Ball Grid Array) package that provides a stable, yet cost effective high-density embedded storage.

SMART's BGAE340 eMMC is compliant to eMMC v5.1 specifications and is available in the standard JEDEC 0.5mm pitch, 153-ball BGA package, as well 1.0mm pitch, 100-ball BGA package. eMMC can simplify system design because of the widely adopted JEDEC® eMMC standard interface in host system chipsets and operating system software driver support.

Features & Benefits

- Compliant to JEDEC v5.1 Standard
- Industrial Temp (-40°C to +85°C) & Wide Temp (-40°C to +105°C)
- Supports Write Protect and Secure Write Protection
- Supports eMMC Device Health Report

Applications

- Factory Automation
- IIoT
- Medical Devices
- Networking Appliances
- POS Terminals
- RFID Scanners
- Single-Board Computers
- Telecom Infrastructure

Product Family Overview

Form Factor	Capacity	Sequential Performance
BGAE340 (MLC)	8GB to 16GB	Up to 285MB/s Read Up to 94MB/s Write
BGAE340 (pSLC)	2GB to 4GB	Up to 250MB/s Read Up to 65MB/s Write

Specifications (BGAE340 MLC)

	BGAE340 MLC | 100-ball
NAND Type	MLC
Performance	
Host Interface Rate (maximum)	eMMC v5.1 (HS400)
Capacities	8GB to 16GB
Sequential Read (maximum)	Up to 285MB/s
Sequential Write (maximum)	Up to 94MB/s
Random Read (maximum)	Up to 7290 IOPS
Random Write (maximum)	Up to 2387 IOPS
Reliability	
Endurance	16GB: 40 TBW
(Sequential Workload)	8GB: 20 TBW
Data Retention	10 years
Error Correction	BCH
Power	
Input Voltage	3.3V ± 10%
Environmental	
Operating Shock	1500 g half-sine, 0.5 msec, 1 shock along each axis, X, Y, Z in each direction
Operating Vibration	20G 80-2000Hz, 1.52mm 20-80Hz, 3 axis
Operating Temperature	Industrial: -40°C to +85°C Wide: -40°C to 105°C
Storage Temperature	-40°C to +85°C (for I-Temp) -40°C to +105°C (for W-Temp)
Physical	
Length	14 mm
Width	18 mm
Height	2.45 mm

Ordering Information (BGAE340 MLC)

Part Number	Density
BGAE340 MLC | eMMC | 100-ball **Industrial Operating Temperature (-40°C to +85°C)**	
SPQ8GH2AHI01	8GB
BGAE340 MLC | eMMC | 100-ball **Wide Operating Temperature (-40°C to +105°C)**	
SP9QAGH2AHW01	16GB
SP9Q8GH2AHW01	8GB

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Specifications (BGAE340 pSLC)

	BGAE340 pSLC | 153-ball	BGAE340 pSLC | 100-ball
NAND Type	pSLC	
Performance		
Host Interface Rate (maximum)	eMMC v5.1 (HS400)	
Capacities	2GB to 4GB	
Sequential Read (maximum)	Up to 250MB/s	
Sequential Write (maximum)	Up to 65MB/s	
Random Read (maximum)	Up to 10000 IOPS	
Random Write (maximum)	Up to 2000 IOPS	
Reliability		
Endurance	4GB: 100 TBW	
(Sequential Workload)	2GB: 50 TBW	
Data Retention	10 years	
Error Correction	BCH	
Power		
Input Voltage	3.3V ± 10%	
Environmental		
Operating Shock	1500 g half-sine, 0.5 msec, 1 shock along each axis, X, Y, Z in each direction	
Operating Vibration	20G 80-2000Hz, 1.52mm 20-80Hz, 3 axis	
Operating Temperature	Industrial: -40°C to +85°C Wide: -40°C to +105°C	
Storage Temperature	-40°C to +85°C	
Physical		
Length	11.5 mm	14 mm
Width	13 mm	18 mm
Height	1 mm	2.45 mm

Ordering Information (BGAE340 pSLC)

Part Number	Density
BGAE340 pSLC | eMMC | 153-ball **Industrial Operating Temperature (-40°C to +85°C)**	
SPM8GH2AHI11	4GB
SP9M4GH1AHI11	2GB
BGAE340 pSLC | eMMC | 100-ball **Industrial Operating Temperature (-40°C to +85°C)**	
SPQ8GH2AHI11	4GB
SPQ4GH1AHI11	2GB
BGAE340 pSLC | eMMC | 153-ball **Wide Operating Temperature (-40°C to +105°C)**	
SPM8GH2AHW11	4GB

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For more information, please visit: **www.smartm.com**

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Headquarters/North America:
T: (+1) 800-956-7627 • T: (+1) 510-623-1231
F: (+1) 510-623-1434 • E: info@smartm.com

Latin America:
T: (+55) 11 4417-7200 • E: sales.br@smartm.com

Asia/Pacific:
T: (+65) 6678-7670 • E: sales.asia@smartm.com

EMEA:
T: (+44) 0 7826-064-745 • E: sales.euro@smartm.com

Customer Service:
T: (+1) 510-623-1231 • E: customers@smartm.com