



## DuraFlash™

# BGAE240 | eMMC | 153-ball/100-ball

SMART's DuraFlash BGAE240 eMMC is an embedded memory solution that combines NAND Flash memory, an embedded MMC (MultiMediaCard) controller, and advanced firmware in a small BGA (Ball Grid Array) package that provides stable, yet cost effective high-density embedded storage.

SMART's BGAE240 eMMC solution is available in the standard JEDEC 0.5mm pitch, 153-ball package, as well as an eMMC interposer module which has a footprint and pin-out compatible with the JEDEC Standard 1.0mm pitch, 100-ball package. The 100-ball package offers a solution with large ball pitch and ball diameter which enables lower cost PCB designs, simplifies PCB routing with wider metal traces, resulting in better thermal dissipation.



### Features & Benefits

- Compliant to JEDEC v5.0 Standard
- Capacities from 8GB to 64GB
- Pre-Configurable to pSLC Enhanced Storage Media Mode
- Industrial Temp (-40°C to +85°C)
- VCC = 3.3V and VCCQ = 3.3V or 1.8V

### Applications

- Factory Automation
- Medical Devices
- Networking Appliances
- POS Terminals
- RFID Scanners
- Single-Board Computers
- VoIP

### Product Family Overview

Capacity	Sequential Performance
<b>BGAE240   eMMC   153-ball</b>	
4GB to 64GB	Up to 270MB/s Read; Up to 95MB/s Write
<b>BGAE240   eMMC   100-ball</b>	
4GB to 64GB	Up to 270MB/s Read; Up to 95MB/s Write

## Specifications

	BGAE240   153-ball	BGAE240   100-ball
NAND Type	MLC	
<b>Performance</b>		
Host Interface Rate (maximum)	eMMC v5.0	
Capacities	4GB to 64GB	
Sequential Read (maximum)	270 MB/s	
Sequential Write (maximum)	95 MB/s	
Random Read (maximum)	5.3K IOPS	
Random Write (maximum)	1.2K IOPS	
<b>Reliability</b>		
Data Retention	10 years	
Error Correction	BCH	
<b>Power</b>		
Input Voltage	3.3V ± 5%	
<b>Environmental</b>		
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	
<b>Physical</b>		
Length	11.5 mm	14 mm
Width	13 mm	18 mm
Height	1 mm	2.45 mm

## Ordering Information

Part Number	Density
<b>BGAE240   eMMC   153-ball</b> <b>Industrial Operating Temperature (-40°C to +85°C)</b>	
SH9MCGP1ATI01	64GB
SH9MBGP1ATI01	32GB
SH9MAGP1ATI01	16GB
SH9M8GP1ATI01	8GB
SH9M4GP1ATI01	4GB
<b>BGAE240   eMMC   153-ball</b> <b>Wide Operating Temperature (-40°C to +105°C)</b>	
SH9MBGP1BTW01	32GB
SH9MAGP1BTW01	16GB
SH9M8GP1BTW01	8GB
SH9M4GP1BTW01	4GB
<b>BGAE240   eMMC   100-ball</b> <b>Industrial Operating Temperature (-40°C to +85°C)</b>	
SH9QCGP1ATI01	64GB
SH9QBG1ATI01	32GB
SH9QAGP1ATI01	16GB
SH9Q8GP1ATI01	8GB
SH9Q4GP1ATI01	4GB
<b>BGAE240   eMMC   100-ball</b> <b>Wide Operating Temperature (-40°C to +105°C)</b>	
SH9QBG1BTW01	32GB
SH9QAGP1BTW01	16GB
SH9Q8GP1BTW01	8GB
SH9Q4GP1BTW01	4GB



For more information, please visit: [www.smartm.com](http://www.smartm.com)

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