



Toshiba Memory Europe Adds BiCS FLASH To Lineup of e-MMC Ver. 5.1 Compliant Embedded Flash Memory Products

Offers an optimal solution for storing high-volume data cost-efficiently

Düsseldorf, Germany, 27th February 2019 – Toshiba Memory Europe GmbH today announced a range of four new JEDEC e-MMC (Embedded MultiMediaCard) Ver. 5.1 compliant embedded flash memory products for consumer applications. The new products integrate Toshiba Memory's 15nm BiCS FLASH™ 3D flash memory and a controller in a single package. All of the new products support the command queuing and secure write protection functions, specified as an option in the standard.

Available in capacities ranging from 16 gigabyte (GB) to 128GB^[1], Toshiba's new e-MMC devices support sequential read and write speeds that are up to 52% faster than the corresponding speeds of Toshiba's previous e-MMC devices^[2].

e-MMC combines highly efficient NAND flash memory with an integrated controller and enhanced memory management. It offers an optimal solution for applications where higher data volumes need to be stored in a cost-efficient way. e-MMC remains an important solution for many modern applications and Toshiba Memory's new products will enable all applications to have access to the latest flash technology.

Housed in a small 153-ball FBGA package measuring just 11.5mm x 13.0mm x 0.8mm, the new products are able to work across the temperature range -25°C to +85°C. They offer bus widths of x1 / x4 / x8 and require 3.3V for the memory core and 1.8V for the interface logic.

The company will continue to reinforce its market-leading position by delivering a broad, high-performance product lineup, including for applications that continue to need e-MMC as an embedded memory solution.

The new devices will begin sampling in March 2019 with mass production starting during Q3, 2019.

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Notes:

[1] Product density is identified based on the density of memory chip(s) within the Product, not the amount of memory capacity available for data storage by the end user. Consumer-usable capacity will be less due to overhead data areas, formatting, bad blocks, and other constraints, and may also vary based on the host device and application. For details, please refer to applicable product specifications.

[2] Comparisons made between the new BiCS3 128GB e-MMC (THGAMRT0T43BAIR) and prior 15nm 128GB e-MMC (THGBMHT0C8LBAIG).

About Toshiba Memory Europe GmbH

We, Toshiba Memory Europe GmbH, are European business of Toshiba Memory Corporation. Our company offers a broad product line of flash memory products, including SD Cards, USB flash drives, and embedded memory components, in addition to solid state drives (SSD). Our company maintains offices in Germany, France, Spain, Sweden and the United Kingdom. President is Masaru Takeuchi.

For more information on the full range of our memory and SSD products please visit:

<https://business.toshiba-memory.com/>; www.toshiba-memory.com

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