

## We are Driving Ahead

Advancing automotive innovation with high-density, high-performing flash-based storage.

### KIOXIA Automotive e-MMC: Ultra-Reliable High-Density Memory Ready for Life on the Road

Today's car makers are under pressure to deliver vehicles that are safer, smarter, and cleaner. Multimodal sensing, high-speed connectivity, telematics, X-by-wire, and powertrain electrification are key technologies needed to satisfy the demands of buyers and legislators.

Moreover, in the cabin, driver and passengers expect access to the same connected services, delivered to the same high standards as if they were connected to their home or office network.

With the resulting multitude of sensing, computing control and infotainment systems on-board, the latest models must handle vast quantities of data. And the challenge is growing. Ultimately, full self-driving vehicles are expected to generate and consume about four terabytes of data per hour, including mapping and the feed from sensors such as radar, lidar, and multiple cameras.

### Reliable e-MMC Storage for Data-Intensive Driving from KIOXIA

These relentless trends are raising demand for high-performance memories to sustain the numerous computing and storage subsystems on-board the vehicle. Requirements include not only high density and fast interface speeds, but also faultless reliability over a wide temperature range.

KIOXIA's Automotive e-MMC (Embedded MultiMedia Card) managed Flash memory meets the needs of automotive applications. The devices satisfy AEC-Q100 Grade 2 requirements and are specified over a wide temperature range from -40°C to 105°C. Combined with high shock and vibration resistance, KIOXIA e-MMC delivers outstanding reliability in extreme environments and operating conditions.

## Fast, Easy, and Energy Efficient



Leveraging KIOXIA's **BICS FLASH™** 3D technology, which stacks several Flash layers in each die and several dies in each package, the devices pack up to 64GB of NAND Flash in a compact BGA footprint. With low power consumption another valuable attribute, they are ideal for today's space-constrained and increasingly energy-conscious automotive applications.

Featuring the industry-standard JEDEC e-MMC 5.1 interface, which supports data speed of up to 400MB/s, the devices integrate built-in control functionality including bad block management, wear leveling and error correction code (ECC) support. These built in features enable KIOXIA Automotive e-MMC to simplify development and relieve load on the host processor, ensuring a more responsive application for a superior end-user experience.

### Key features of KIOXIA Automotive e-MMC:

- JEDEC-compliant e-MMC interface version: 5.1
- Maximum data rate: 400 MB/s
- Supply voltages: VCC 2.7V to 3.6V; VCCQ 1.70V to 1.95V, 2.7V to 3.6V
- Operating temperature: -40°C to 105°C
- Package size:
  - 11.5mm x 13.0mm x 1.0mm (8GB)
  - 11.5mm x 13.0mm x 1.2mm (16GB-64GB)
- Supports PPAP (to ensure consistent production of quality parts)
- Low failure rate
- Extended Product Change Notices (PCNs) and assured longevity of support
- Special automotive features: enhanced solder ball reliability, over-temperature protection

Find out more about KIOXIA's automotive e-MMC device portfolio [here](#)

## KIOXIA

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