

Robust, reliable and cost-efficient memory solution for embedded applications

Industrial and Automotive Grade 3D NAND e.MMC Series EM-30



Made in Germany

EM-30 / EM-36 e.MMC

Swissbit has extended its range of miniaturized storage solutions with the launch of its EM-30 series with an e.MMC 5.1 standard interface. The BGA device uses industrial grade 3D-NAND and is available in capacities from 4 to 512 GB. With the new series, Swissbit has responded to the increasing demands of embedded systems for ultra-small, vibration-resistant designs with escalating memory capacity requirements.

In addition to durability and a temperature range of -40 up to +105 °C, the EM-30 also offers additional features over and above the e.MMC standard. These include a remote secure firmware update option and an extended lifetime expectation, making the EM-30 product series ideal for a wide range of applications.

Key Benefits

- Designed and tested for robustness, reliability and integrity for both device and data
- Latest 3D NAND technology for reduced TCO over an extended product life cycle
- Boot area partitioning, RPMB, general purpose partitioning and user data area
- Extended cross temperature stability range from -40°C to 105 °C
- Compliant to AEC-Q100 Grade 2, IATF 16949 and ISO 27001
- Advanced firmware features to keep data and device safe in critical conditions

EM-30

Product Series



About Swissbit

Swissbit AG is the leading European manufacturer of storage, security and embedded IoT solutions for demanding applications. As trusted partner Swissbit empowers the digital and connected world by reliably storing and protecting data in industrial, security and IoT applications.

Predictable service life, data refresh and reliability

EM-30 devices offer the option to access detailed information on device health such as write cycles and internal resources via standard access to the e.MMC registers without the need for special access methods or drivers.

In addition, similar to large SSDs, the EM-30 firmware supports automatic background data refresh of read-only areas

that for instance occur with boot media. This feature coupled with strong error correction, ensures that data availability is always highly reliable, even if the data has not been accessed under prolonged periods of exposure to high temperatures. A further special feature is the increased protection against data corruption in the event of sudden power loss.

Flexible configuration

The EM-30 devices can be partitioned into several TLC and pSLC segments for boot area, RPMB, general purpose partitions and user data area. If the maximum possible endurance of the NAND is required, Swissbit offers an EM-36 variant preconfigured to 100% pSLC. These types are also now available in capacities between 5 and 80 GB.

	EM-30	EM-36
Form factor	153b BGA, 0.5mm pitch, 11.5 x 13mm 100b BGA, 1.0mm pitch, 14.0 x 18mm	
Interface	JEDEC e.MMC 5.1	
Flash Type	3D TLC	3D pSLC / enhanced mode
Density Range	4 GB to 512 GB	5 GB to 80 GB
Operating temperature	Industrial: -40 to 85°C Automotive -40 to 105°C	
Performance	Sequential Read/Write up to 330 / 250 MB/s Random Read/Write: up to 4,500 / 2,900 IOPS	
Endurance	Up to 4150 TBW (enhanced mode)	
Operating Voltage	V _{CC} 2.7-3.6V V _{CCQ} 1.7-1.95V or 2.7-3.6V	

Key Applications

- Embedded systems and PLCs
- Automotive: Infotainment, ADAS, instrument cluster, video recording
- EV charging
- HMI/POS/POI terminals
- Factory/industrial automation
- Routers and switches
- Internet of Things applications
- Medical systems



Automotive
temperature grade:
-40..105°C



AEC – Q100
Grade 2 certified

eMMC for Automotive

Applications such as ADAS/AV, infotainment, data recorder or instrument cluster fuel the demand for compute scalability resulting in high bandwidth and low latency. Autonomous driving requires seamless/real-time stream of an ever-increasing amount of data exchange between the vehicle and cloud services. OEMs are facing new challenges where Swissbit is a reliable partner.

(1) Decoupling of software from the hardware and serviceability across the entire lifecycle of a vehicle.

(2) No safety without security: Functional safety as defined by the ISO 26262 requires OEMs to demonstrate effective cybersecurity risk mitigation mechanisms as defined in the ISO 21434. Hardware based security solutions can enable OEMs to protect data and devices and comply to standards up to ASIL D.

Swissbit EM-30 is manufactured and tested in-house the Swissbit APATS (advanced packaging and test) facility and under full supply chain control.

Automotive Applications

- Advanced driver assistance systems (ADAS)
- Autonomous driving platforms
- Infotainment systems
- Drive video recorder
- Motor Vehicle Event Data Recorder (MVEDR)
- Navigation
- Instrument cluster
- Dashcam
- Driver monitoring system (DMS)
- EV charging
- Fleet management

Swissbit Locations



Europe

Headquarters Switzerland

Tel. +41 71 913 03 00
sales@swissbit.com

Site Berlin, Germany

Office Munich, Germany

Office Konstanz, Germany

Office Düsseldorf, Germany

USA

Office Westford, MA

Tel. +1 978-490-3252
salesna@swissbit.com

Office Denver, CO

Office Silicon Valley, CA

Asia

Tokyo, Japan

Tel. +81 3 6258 0521
sales-japan@swissbit.com

Greater China

salesasia@swissbit.com

Taipei City, Taiwan

Tel. +886 912 059 197
salesasia@swissbit.com



www.swissbit.com