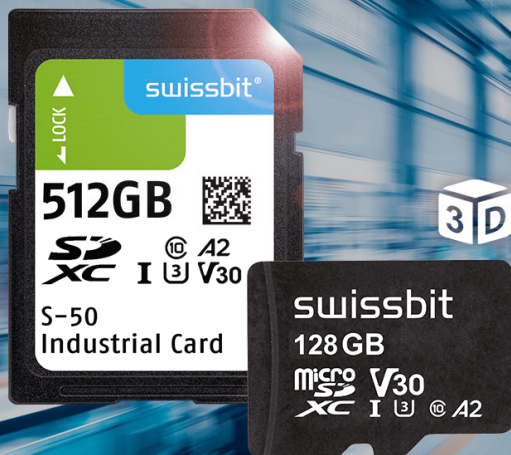swissbit®

High Reliability 3D TLC SD Memory Cards for Industrial Applications

Made in Germany

High-speed write performance even under extreme circumstances and workloads

Key Benefits

- Compliant to SD 6.1 specifications and SDHC/SDXC high speed mode, UHS-I

- Speed class 10/U3/V30/A2

- Temperature stability across the entire Industrial Temperature Range –40°C to 85°C and Extended Temperature Range –25°C to 85°C

- Optimized for random write performance and small random write endurance as found in industrial data logging applications

- Advanced power-off reliability technology

With "high reliability" at their core, the S-50 and S-56 series integrate state-of-the-art technologies, making them the first choice for demanding applications. Swissbit accomplishes this by combining leading-edge industrial grade 3D TLC NAND technology with a powerful controller and firmware optimized for maximum reliability.

Maximum reliability is also ensured by 120bit LDPC error correction, full page fail protection, read disturb management, background data refresh, data recovery following a sudden power loss, and sophisticated static and dynamic wear leveling. A molded SiP package with gold contacts completes the feature set, providing optimal protection against high mechanical stress and environmental influences even in harsh environments.

The SD and microSD cards are available in capacities ranging from 4 to 512 GB.

The S-50 and S-56 series provide all the prerequisites for their intended applications in areas such as data logging, IPCs, HMI units, POS/POI terminals, and medical and surveillance applications. For example, all cards are designed for temperatures ranging from -40 to +85 °C and optimized to tolerate temperature fluctuations between read and write operations across the entire specified temperature range. This reduces servicing intervals and lowers the total cost of ownership (TCO).

Swissbit of course continues to offer a 3D pSLC mode option with its S-56 series, which is particularly well-suited for applications requiring extensive recording of small data blocks or constant high workloads. Along with capacities ranging from 4 to 64 GB (S-56) and 4 to 32 GB (S-56u), the pSLC versions provide up to ten times the longevity and up to twice the speed.

With the range of high reliability SD and microSD cards, Swissbit provides its customers with the greatest possible choice and planning security – as well as the perfect opportunity to switch from legacy NAND technologies such as 2D MLC or SLC to the latest 3D TLC generation.

Key Applications

- Data logging
- Industrial PCs
- HMI units
- POS / POI
- Medical systems
- Transportation

	S-50 (u)	S-56(u)
Type	SD Memory Card (SDHC / SDXC)	
Interface Data Transfer Mode	SD 6.1, UHS-I, speed class 10/U3/V30/A2 High reliability type	
Outline Dimensions	32 x 24 x 2.1 mm	
Flash Type	3D NAND TLC	3D NAND pSLC
Density Range	S-50: 16 – 512 GB / S-50u: 16 – 128 GB	S-56: 4 – 64 GB / S-56u: 4 – 32 GB
Data Retention	10 years @ life begin | 1 year @ life end	
Endurance	3k P/E Cycles	S-56: 30k P/E Cycles S-58: 60k P/E Cycles
Operating Temperature	Extended: -25°C to +85°C Industrial: -40°C to +85°C	
Storage Temperature	-40°C to +85°C	
Performance	Seq. Read / Write up to 97 / 60 MBs Random 4K Read / Write up to 4,570 / 1,940 IOPS	Seq. Read / Write up to 97 / 90 MBs Random 4K Read / Write up to 2,190 / 1,360 IOPS
Voltage	2.7 -3.6 V	

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.