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Product Fact Sheet

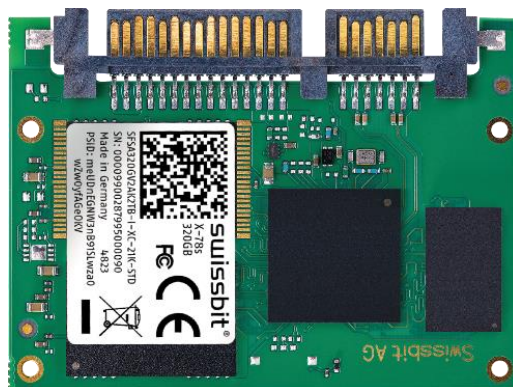
Industrial SLIM SATA SSD (M0-297)

X-78s Series

SATA Gen3 – 6.0 Gbit/s, 3D pSLC

Industrial Temperature Grade

Date: February 18, 2025
Revision: 1.00



Product Fact Sheet

X-78s Series



Product Summary

- **Capacities:** 32 GBytes, 64 GBytes, 160 GBytes, 320 GBytes
- **Form Factor:** JEDEC M0-297 Slim SATA (54 mm x 39 mm x 4 mm)
- **Compliance:** SATA Gen3 – 6 Gbit/s (Gen2 – 3 Gbit/s and Gen1 – 1.5 Gbit/s backward compatible)
- **Command Sets:** Supports ATA/ATAPI-8 and ACS-2
- **Performance:**
 - Read Performance: Sequential Read up to 560 MBytes/s, Random Read 4K up to 70,500 IOPS
 - Write Performance: Sequential Write up to 490 MBytes/s, Random Write 4K up to 85,900 IOPS
- **Operating Temperature Range¹:** Industrial: -40 °C to 85 °C
- **Storage Temperature Range:** -40 °C to 85 °C
- **Operating Voltage:** 5 V ± 10% (3.3 V available upon request)
- **Power (Max):** Read (Active): 2.6 W; Write (Active): 3.2 W; Idle: 460 mW
- **Data Retention:** 10 Years @ Life Begin; 1 Year @ Life End
- **Endurance in TeraBytes Written (TBW) @ Max Capacity²:** Sequential Workload ≥ 34,300; Client Workload ≥ 25,300; Enterprise Workload ≥ 5,600
- **Shock/Vibration:** 1,500 *g* / 50 *g*
- **LDPC ECC** with up to 165 bit correction per 1 KByte page
- **NAND Flash Technology:** Triple-Level Cell (TLC) 3D NAND Flash in pSLC Mode
- **Mean Time Between Failure (MTBF):** > 2,000,000 hours
- **Data Reliability:** < 1 non-recoverable error per 10¹⁶ bits read

Product Features

- Dynamic and Static Wear Leveling
- Subpage Mode Flash Translation Layer (FTL)
- Active Data Care Management: Adaptive Read Refresh
- Lifetime Enhancements
 - Dynamic Bad Block Remapping
 - Write Amplification Reduction
- On-Board Power Fail Protection
- TRIM and NCQ Support
- ATA Security Feature Set Support
- DEVSLP Compatible
- In-Field Firmware Update
- Enterprise-Grade Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.)
- 15 µinch Gold-Plated Connector
- End-to-End (E2E) Data Protection
- AES256 Encryption
- TCG OPAL 2.0 Compliant
- Life Cycle Management
- Controlled "Locked" BOM
- RoHS-6 Compliant
- Swissbit Device Manager (SBDM) Tool and SDK (on request)

Why Swissbit?

Swissbit is focused on the design, development, manufacture, and support of leading edge memory and storage solutions for the worldwide OEM/ODM marketplace. As a global supplier, Swissbit recognizes and addresses the higher level of application requirements of today's industrial, Netcom, and automotive customers by providing best-in-class products and services, with uncompromised attention to driving overall value and quality.

¹ Adequate airflow is required to ensure the temperature, as reported in the S.M.A.R.T. data, does not exceed 110 °C (industrial temperature drive) and 95 °C (commercial temperature drive) respectively.