Silicon Power
INDUSTRIAL

Industrial 3D TLC NAND
M.2 2260 SSD

MDB350S SERIES

SATA III	6.0 Gbit/s
SLC Cache	3D NAND

PRODUCT FEATURES

- 3D NAND Flash Technology
- Global Wear Leveling and Early weak block retirement
- TRIM, NCQ, DEVSLP, ATA Security Feature Set supported
- Lifetime Enhancements
- Direct-to-TLC and SLC Cache enhancement to ensure the optimized WAF
- Block/Page RAID function to ensure data recovery
- StaticDataRefresh to keep data integrity
- Reliable Industrial grade integrated Active PMU and complete protection design with OVP, OCP, Surge rejection and Short protection
- External DRAM to achieve the optimal sustained read/write performance
- Power shielding firmware architecture to ensure power failure resilience
- AES256 Encryption and TCG Opal 2.0 compliant (by request)
- SP SMART Toolbox
- SP SMART Embedded and SMART IoT service (by request)

PRODUCT SUMMARY

MDB 350S Series

- Capacities: 64GB, 128GB, 256GB, 512GB
- Form Factor: M.2 2260 SATA Solid State Drive (60 mm x 22 mm x 3.5 mm)
- Compliance: SATA Revision 3.1 - 6 Gbit/s (3 Gbit/s and 1.5 Gbit/s backward compatible)
- Command Sets: Supports ATA/ATAPI-8 and ACS-2
- Performance :

	64GB	128GB	256GB	512GB
Sequential Read (MB/s max.)	340	520	520	520
Sequential Write (MB/s max.)	165	370	480	480
Random 4K Read (IOPS max.)	23000	45000	78000	75000
Random 4K Write (IOPS max.)	13000	26000	54000	86000

*Actual performance may vary based on the specific model and capacity

- Operating Temperature Range :

  Normal: 0 °C to 70 °C
  Extended: -15 °C to 85 °C (by request)
  Wide: -40 °C to 85 °C (by request)

- Storage Temperature Range: -55 °C to 95 °C
- Operating Voltage: 3.3 V ± 10%
- Power Consumption :

Unit: mA	64GB	128GB	256GB	512GB
Read (active)	420	500	510	520
Write (active)	400	510	565	580
Stand-by	110	110	110	110

*Actual performance may vary based on the specific model and capacity

(Unit: mA)

- Data Retention @40 °C: 10 Years @ Life Begin; 1 Year @ Life End
- Endurance in Tera Bytes Written (TBW)

  TBW is estimated by formula TBW= (Capacity x PE Cycles)/ (WAF x2). Assumption of guard band for the wear leveling is 2.

	64GB	128GB	256GB	512GB
TBW (guard band factor 2)	93	187	374	748

(Unit: TB)

- Mechanical (IEC-60068) :

  Vibration: 15G, 10 ~ 2001Hz
  Drop: 76cm
  Shock: 1,500G@0.6ms

- LDPC ECC with up to 120 bit correction per 1 KByte page to ensure reliable 3K PE cycles
- Mean Time Between Failure: > 2,000,000 hours
- Data Reliability: Non-recover Read (UBER) $\leq 10^{-16}$
- Serious quality control and assurance
  - 100% NAND Flash screening
  - High endurance product design with 3D TLC and pSLC product offerings
  - Implement high/low temperature dynamic burn-in in each lot production to monitor production quality to meet design specification
  - Reliability criteria compliant with international standards IEC-60068/61000

* Information might be changed or updated without notice.

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