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SSD350 / SSD550 Series
Industrial 3D TLC / pSLC
2.5” SATA3 SSD

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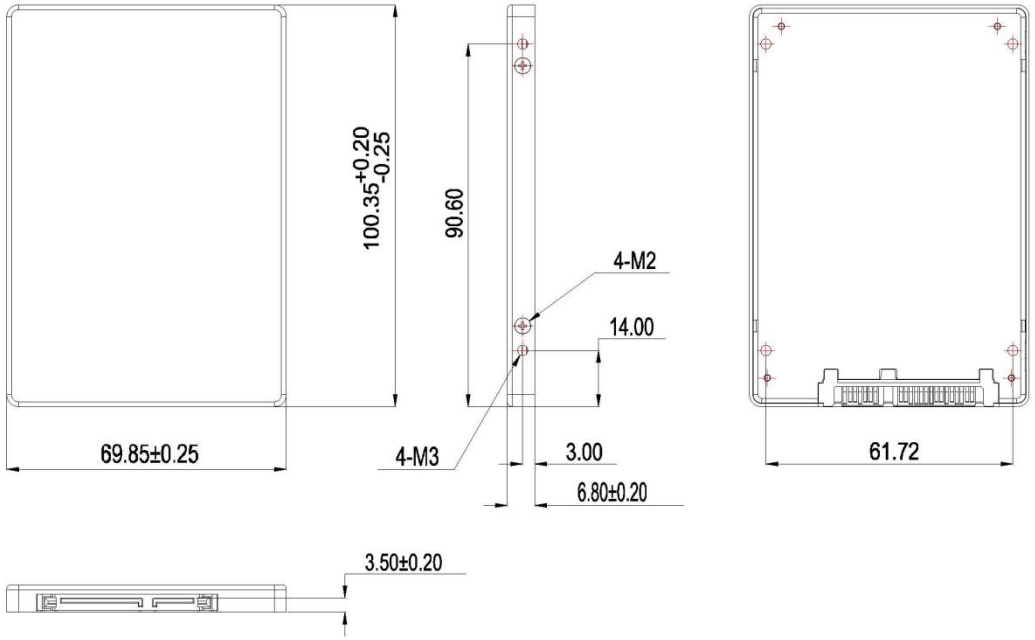
Industrial SSD350 / SSD550 Series

Silicon Power (SP), a leader in performance memory solutions, released the "SSD350/550 Series" with high-quality "3D NAND", and "Reliable power source and protection design" of this series.

The "SSD350/550 Series" is for industrial-grade use in transportation, medical, gaming applications, and more.



eature Design of Industrial 3D TLC SSD350/550 series

Reliable power source and complete protection design

- Industrial grade integrated Active PMU (power management unit) provides higher reliability of power design than traditional discrete circuit and built-in voltage detector of SSD controller.
- Complete protection design with OVP, OCP, Surge Rejection, and In-Out Short Protection to provide higher level of protection than traditional fuse design.

Dual secure design for power failure protection

- Power shielding firmware architecture protection when sensing unstable voltage and power down to stop receiving host commands
- Implement Advanced PFP with industrial grade polymer capacitors to gain more time for the data flushing process from DRAM cache to Flash, under sudden power off situations. (SSD350R/MDC350R only)

Just-In-time field service capability

- In field seamless FW update tool via USB interface to keep SSD system
- Controller bootup sequence log file download for SSD failure analysis
- On system debug port to monitor SSD behavior via JTAG or UART port

Higher Data security level

- Support AES 256-bit encryption technology and TCG Opal
- End-to-End data protection is offered by requested (2259H).

SSD Endurance Enhancement

- 3D TLC SSD350/550 Series is using an SMI SM2258H controller with LDPC ECC engine and Block/Page RAID function to guarantee 3K PE cycles endurance with 3D NAND.
- 3D TLC SSD350/550 Series with the latest Direct-To-TLC and SLC cache firmware architecture and external DRAM to achieve the optimal sustained read/write performance and the most optimized Write Amplification (<=1) to offer even better TBW endurance than 2D MLC models can offer. Furthermore pSLC model SSD550series can provide 30K PE cycles to meet high endurance requirement applications.
- 3D TLC SSD350/550 series implemented StaticDataRefresh technology to monitor the voltages and give a quick refresh as needed to keep read performance high over time and keep data integrity.
- Early weak block retirement and global wear leveling algorithm to extend SSD lifespan.

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Product Specifications

	pSLC 2.5” SSD550R series	3D TLC 2.5” SSD350R series
Controller	SM2258H with LDPC ECC engine (120bit/1KB) and Block/Page RAID	SM2258H with LDPC ECC engine (120bit/1KB) and Block/Page RAID
DRAM	DDR3	DDR3
Capacity	32/64/128/256GB	64/128/256/512/1024GB
Dimension	100.35 x 69.85 x 6.8 mm	100.35 x 69.85 x 6.8 mm
Flash Type	pSLC (WD BiCS3)	3D TLC (WD BiCS3)
Endurance PE Cycles	30,000	3,000
Data retention	1 year @ 40°C at 90% of life	1 year @ 40°C at 90% of life
Power Requirement	DC 5V	DC 5V
Interface	SATA III/6.0Gbps	SATA III/6.0Gbps
Seq. Read (max.)	560 MB/s	520 MB/s
Seq. Write (max.)	525 MB/s	480 MB/s
Random 4K Read (max.)	95,000 IOPS	92,000 IOPS
Random 4K Write (max.)	89,000 IOPS	76,000 IOPS
Power shielding	Yes	Yes
Advanced PFP	Yes	Yes
TBW (TB)	467.8/935.6/1871.2/3742.4 TB	139/279/559/1119/2238 TB
SMART	SP Toolbox, SMART Embedded, SMART IoT	SP Toolbox, SMART Embedded, SMART IoT

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Product Specifications

	pSLC 2.5” SSD550S series	3D TLC 2.5” SSD350S series	3D TLC 2.5” SSD350E series
Controller	SM2258H with LDPC ECC engine (120bit/1KB) and Block/Page RAID	SM2258H with LDPC ECC engine (120bit/1KB) and Block/Page RAID	SM2258H with LDPC ECC engine (120bit/1KB) and Block/Page RAID
DRAM	DDR3	DDR3	DRAM-Less
Capacity	32/64/128/256GB	64/128/256/512/1024GB	64/128/256/512GB
Dimension	100.35 x 69.85 x 6.8 mm	100.35 x 69.85 x 6.8 mm	100.35 x 69.85 x 6.8 mm
Flash Type	pSLC (WD BiCS3)	3D TLC (WD BiCS3)	3D TLC (WD BiCS3)
Endurance PE Cycles	30,000	3,000	3,000
Data retention	1 year @ 40°C at 90% of life	1 year @ 40°C at 90% of life	1 year @ 40°C at 90% of life
Power Requirement	DC 5V	DC 5V	DC 5V
Interface	SATA III/6.0Gbps	SATA III/6.0Gbps	SATA III/6.0Gbps
Seq. Read (max.)	560 MB/s	520 MB/s	505 MB/s
Seq. Write (max.)	525 MB/s	480 MB/s	460 MB/s
Random 4K Read (max.)	95,000 IOPS	92,000 IOPS	48,000 IOPS
Random 4K Write (max.)	89,000 IOPS	76,000 IOPS	44,000 IOPS
Power shielding	Yes	Yes	Yes
Advanced PFP	-	-	-
TBW (TB)	467.8/935.6/1871.2/3742.4 TB	139/279/559/1119/2238 TB	97.6/195.3/390.6/781.2 TB
SMART	SP Toolbox, SMART Embedded, SMART IoT	SP Toolbox, SMART Embedded, SMART IoT	SP Toolbox, SMART Embedded, SMART IoT

SSD350/SSD550 Series Product coverage

Form Factor	NAND Flash	Series	Operation Temperature	Ordering Information	Capacity
2.5" SSD	3D NAND	SSD350SV	0 - 70°C	SPxxxGISSD355SV0	64GB ~ 1024GB
2.5" SSD	pSLC	SSD550SV	0 - 70°C	SPxxxGISSD555SV0	32GB ~ 256GB
2.5" SSD	3D NAND	SSD350RV	0 - 70°C	SPxxxGISSD355RV0	64GB ~ 1024GB
2.5" SSD	pSLC	SSD550RV	0 - 70°C	SPxxxGISSD555RV0	32GB ~ 256GB
2.5" SSD	3D NAND	SSD350EV	0 - 70°C	SPxxxGISSD355EV0	64GB ~ 512GB
2.5" SSD	3D NAND	SSD350SE	-15 - 85°C	SPxxxGISSD355SE0	64GB ~ 1024GB
2.5" SSD	pSLC	SSD550SE	-15 - 85°C	SPxxxGISSD555SE0	32GB ~ 256GB
2.5" SSD	3D NAND	SSD350RE	-15 - 85°C	SPxxxGISSD355RE0	64GB ~ 1024GB
2.5" SSD	pSLC	SSD550RE	-15 - 85°C	SPxxxGISSD555RE0	32GB ~ 256GB
2.5" SSD	3D NAND	SSD350SW	-40 - 85°C	SPxxxGISSD355SW0	64GB ~ 1024GB
2.5" SSD	pSLC	SSD550SW	-40 - 85°C	SPxxxGISSD555SW0	32GB ~ 256GB
2.5" SSD	3D NAND	SSD350RW	-40 - 85°C	SPxxxGISSD355RW0	64GB ~ 1024GB
2.5" SSD	pSLC	SSD550RW	-40 - 85°C	SPxxxGISSD555RW0	32GB ~ 256GB

Full Coverage of SMART Toolbox

SMART Toolbox Utility program for Windows & Linux

- Utility application which monitors the health and status of SP flash products

SMART Embedded application

- Application including C++ compiler development environment which offers seamless device integrations (Windows and Linux Ubuntu/Yocto Embedded OS)
- Intel x86 CPU, ARM-based CPU (ATMEL, NXP iMX, etc..) Raspberry Pi)

SMART IoT service

- Cloud service with alarm and notifications which monitors and analyzes the health and status of SP Flash products inside the connected devices.

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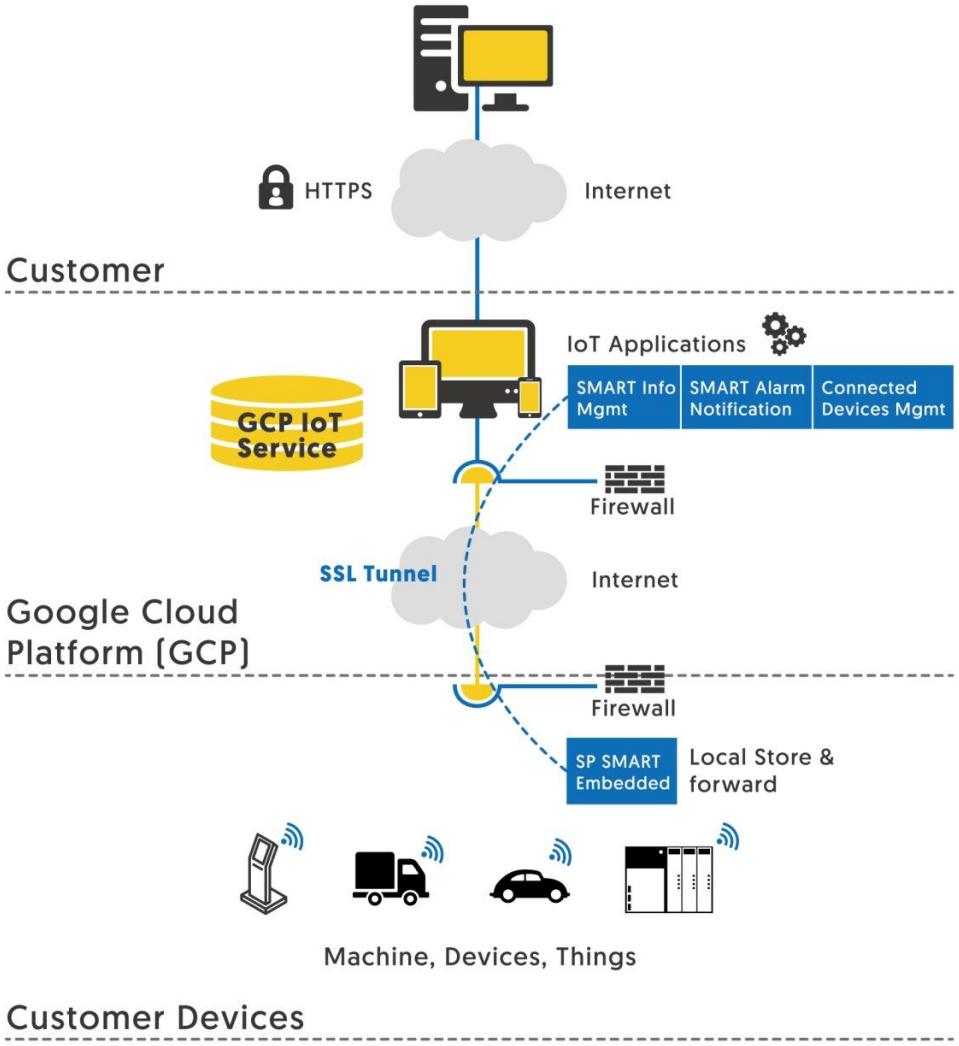
Architecture of SP SMART IoT

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