SMART Modular Technologies®

Slim SATA

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SMART Modular Technologies' Slim SATA commercial and industrial-grade embedded SATA modules are solid state drive products and supports the server, storage cache/accelerators, networking and data communications OEM markets. The small form factor, low power consumption, and fast data throughput are major advantages of the SMART's Slim SATA module over traditional rotating hard disk drives (HDDs).

The mechanical dimensions of the Slim SATA modules are compatible with both standoff and card guide mounting methods and are fully MO- 297A compliant. Utilizing an industry standard SATA interface and connector, Slim SATA modules easily integrate into a host system without any special BIOS modifications or additional device drivers.

The X10 is SMART's latest Slim SATA module with enterprise class features, including end-to-end data protection and over provisioning for better endurance. The Slim SATA XL+ is designed for industrial applications with lower capacity needs, ranging from 8GB to 64GB.

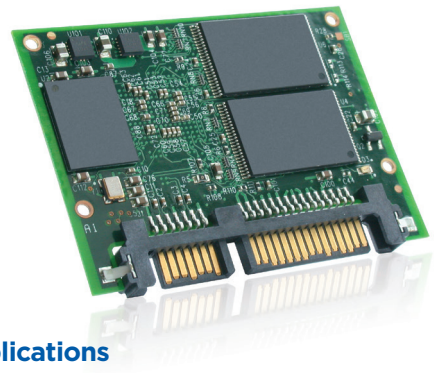
SMART's Slim SATA modules are offered with either multi-level cell (MLC) or single-level cell (SLC) NAND flash. They provide enhanced reliability by incorporating onboard error detection and correction and static wear leveling algorithms, providing reliable operation over the product life. The SATA Slim modules support self-monitoring analysis and reporting technology (S.M.A.R.T.), which reduce field failures and unscheduled service maintenance. By providing an accurate forecast of the expected lifespan, S.M.A.R.T. technology enables reliable monitoring applications that can efficiently guarantee 24/7 service availability.

Features & Benefits

- Advanced error detection/correction circuitry for superior data reliability
- Support for 48-bit LBA addressing for larger transfer sizes
- ATA and SATA interface power management support
- Native Command Queuing (NCQ) sup- port with a maximum queue depth of 32
- Zero seek time

Product Family Overview

	Capacity	Performance Sequential
Slim SATA X10		
MLC - MO297A	60GB to 480GB	530 MB/s Read (max) 380 MB/s Write (max)
Slim SATA XL+		
SLC- MO297A	8GB to 64GB	510MB/s Read (max) 140MS/s Write (max)



Applications

- NAS / SAN storage systems
- x86 server-storage appliances
- Distributed scale-out cloud servers
- Telecom, networking routers and switches
- ATCA compute blades
- Industrial control
- Single board computers for defense, gaming and industrial control applications
- Printers

Specifications

	Slim SATA XL+	Slim SATA X10
Performance		
	SLC	**MLC**
Host Interface Rate (maximum)	6.0Gbps	
Number of Flash Channels	4	4
Capacities	8GB to 64GB	60GB to 480GB
Sequential Read (maximum)	510MB/s	530MB/s
Sequential Write (maximum)	140MB/s	>380MB/s
Random Read (maximum)	46K IOPS	>80K IOPS
Random Write (maximum)	27K IOPS	>88K IOPS
Reliability		
Data Reliability	< 1 Non-Recoverable Error in 10^{15}bits read	
Data Retention	10 years >90% life remaining 1 year at the end of life	
Endurance	85TB per GB in capacity (SLC)	2.8TB per GB in capacity (MLC)
Error Correction /Error Detection (BCH)	Up to 68 bits per 1 KByte for SLC	Up to 75 bits per 2 KByte for MLC
Environmental		
Shock – Non-Operating	1500 *g* half-sine, 0.5 msec, 1 shock along each axis, X,Y,Z in each direction	
Shock – Operating	50 *g* half sine, 11 msec, 3 shocks along each axis, X,Y,Z in each direction	
Vibration – Operating	16.4 *g* rms 10-2000Hz, 3 axes	
Operating Temperature	C-temp: 0°C to 70°C (MLC only) I-temp: -40°C to 85°C (SLC only)	
Storage Temperature	-40°C to 85°C (SLC and MLC)	
Humidity	5% to 95% relative humidity	
Altitude	24,384 m [80,000 ft]	
Physical		
	Standard	
Length	39.80 mm	
Width	54.00 mm	
Height	4 mm	

Contact information

Corporate Headquarters/North America: T: (+1) 800-956-7627 • T: (+1) 510-623-1231 • F: (+1) 510-623-1434 • E: info@smartm.com

Customer Service: T: (+1) 978-303-8500 • E: customers@smartm.com

Latin America: T: (+55) 11 4417-7200 • E: sales.br@smartm.com

EMEA: T: (+44) 7825-084427 • E: sales.euro@smartm.com

Asia/Pacific: T: (+65) 6678-7670 • E: sales.asia@smartm.com

For more information, please visit: **www.smartm.com**

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