Greenliant®

Product Description

The SATA 2.5" ArmourDrive™ family consists of high-reliability, industrial solid state drives (SSDs) in a wide selection of capacities and endurance specifications. To better address customer needs, the 89 Series is available with 1-bit-per-cell (SLC), 2-bit-per-cell (MLC) or 3-bit-per-cell (TLC) 3D NAND configurations. ArmourDrive SSDs designed with Greenliant's EnduroSLC™ Technology can reach ultra-high write endurance of 250K+ program/erase (P/E) cycles. Operating at extreme temperatures, SATA 2.5" ArmourDrive is ideal for applications requiring removable data storage able to withstand the most demanding environments.

The 89 Series implements advanced NAND flash management technology to preserve data integrity and extend SSD lifespan. Built in the standard 2.5" form factor and backed by Greenliant's technical support, SATA 2.5" ArmourDrive gives industrial, computing, security, video and networking customers added flexibility when selecting reliable, hot-swappable solid state storage for embedded systems.

Key Features

2.5" Form Factor SATA SSD
- 100mm x 69.85mm x 7.00mm
- SATA 6Gb/s, 3Gb/s and 1.5Gb/s
- Compliant with SATA Revision 3.2
- Supports 48-bit address feature set

High Performance
- Sequential Read / Write performance up to 550MB/s / 530MB/s
- Native Command Queuing up to 32 commands
- DRAM for better sustained performance (select PX Series SSDs)

Data Security
- Secure Erase for quick data wipe/factory reset
- AES-256 / TCG OPAL hardware encryption (select PX Series SSDs)

Pre-programmed Firmware
- Field-upgradeable firmware to add new features and enhance device performance
- Configurable algorithms optimize data retention based on the usage model
- Embedded FFS enables seamless capacity upgrade with no change to host software

Advanced Flash Management
- Dynamic and static wear leveling algorithms maximize product lifespan
- Supports TRIM commands to remove invalid data which is no longer in use

Bad Block Management
- Replaces bad blocks with spare blocks in the NAND flash to prevent uncorrectable errors

SSD Lifespan Monitoring
- Supports SMART command-based alerts indicating the remaining useful product life

Built-in ECC
- Uses advanced bit error detection and correction optimized for 3D NAND
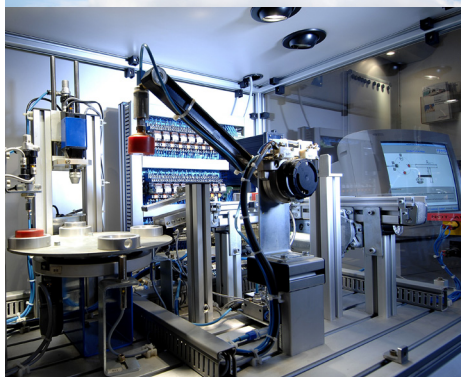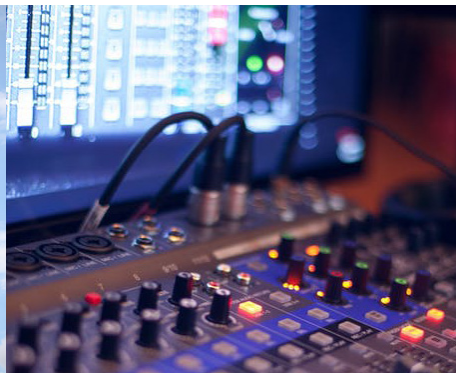
Power Interrupt Data Protection
- Helps prevent data loss during power failures

Wide Range of Capacities
- SLC (EX Series): 16 GB - 256 GB
- MLC (MX Series): 32 GB - 128 GB
- TLC (PX Series): 32 GB - 3.84 TB

Industrial and Commercial Temperatures
- Industrial operation: -40°C to +85°C
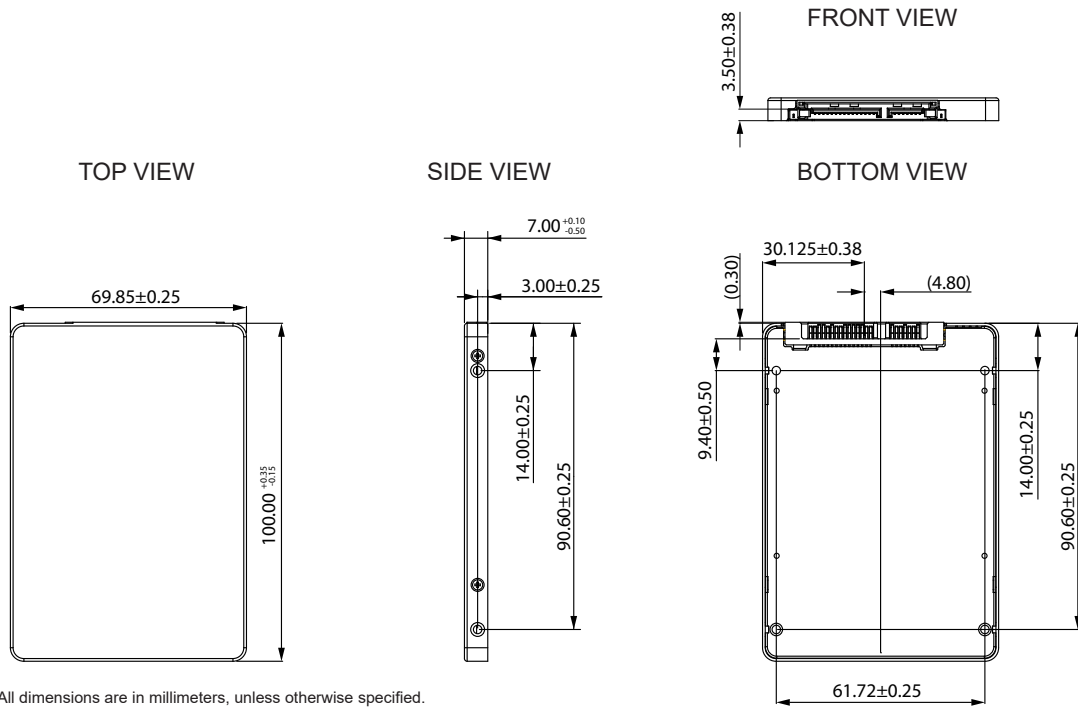- Commercial operation: 0°C to +70°C

Applications

— *Blade server*
— *Gateway / Switch*
— *Multi-function printer*
— *Aviation*
— *Base station*
— *Industrial automation & control*
— *Broadcasting*
— *Infotainment*
— *Navigation*
— *Digital signage*
— *Transportation*
— *Security / Surveillance*
— *Network-attached storage*
— *Data logger*
— *Healthcare*
— *Test & measurement*

Greenliant Systems
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Santa Clara, CA 95054 USA
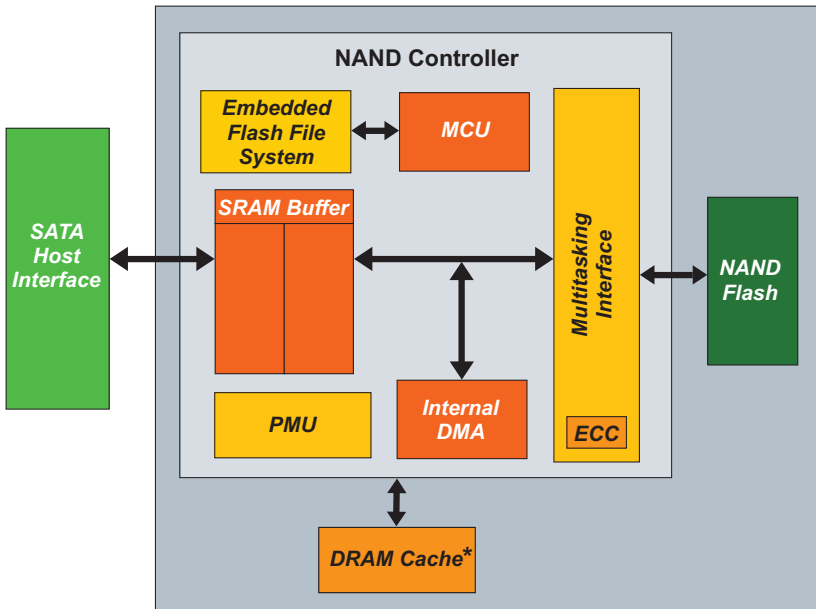Tel: 1-408-200-8000
Fax: 1-408-200-8099

www.Greenliant.com

SATA 2.5" ArmourDrive Board Diagrams

100mm x 69.85mm x 7.00mm
Pb-free (RoHS compliant)

FRONT VIEW

3.50±0.38

TOP VIEW

69.85±0.25

100.00 +0.35 -0.15

Note: All dimensions are in millimeters, unless otherwise specified.

SIDE VIEW

7.00 +0.10 -0.50

3.00±0.25

14.00±0.25

90.60±0.25

BOTTOM VIEW

30.125±0.38

(0.30)

(4.80)

9.40±0.50

14.00±0.25

90.60±0.25

61.72±0.25

SATA 2.5" ArmourDrive Block Diagram

NAND Controller

- Embedded Flash File System
- MCU
- SRAM Buffer
- Multitasking Interface
- PMU
- Internal DMA
- ECC
- SATA Host Interface
- NAND Flash
- DRAM Cache*

*DRAM available on select PX Series products

Product Lineup

89 Series SATA 2.5" ArmourDrive			
Product Series / Capacity	DRAM	NAND Configuration / Endurance	Temperature Range
EX 16 GB - 256 GB	No	1 bit per cell (3D SLC) / 50K, 100K, 250K P/E cycles*	Industrial -40°C to +85°C
MX 32 GB - 128 GB	No	2 bits per cell (3D MLC) / 5K P/E cycles	Industrial -40°C to +85°C
PX 32 GB - 1 TB	Yes	3 bits per cell (3D TLC) / 3K P/E cycles	Industrial -40°C to +85°C
PX 240 GB - 3.84 TB	Yes	3 bits per cell (3D TLC) / 3K P/E cycles	
PX 128 GB - 2 TB	Yes		Commercial 0°C to +70°C

*Designed with Greenliant's advanced EnduroSLC Technology 250K, or higher, endurance offered up to 128GB

EnduroSLC™

EX and MX Series planned for production in 3Q19

ArmourDrive FAQs: www.greenliant.com/armourdrive-faqs

For more information, contact your Greenliant representative: www.greenliant.com/sales

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  GLS89SQ001T3-C-BD400   GLS89SQ002T3-C-BD400   GLS89SQ512G3-C-BD400   GLS89SQ256G3-C-BD400   GLS89SQ128G3-C-BD400   GLS89SP001T3-I-BZ400   GLS89SP032G3-I-BZ400   GLS89SP256G3-I-BZ400   GLS89SP128G3-I-BZ400   GLS89SP512G3-I-BZ400   GLS89SP064G3-I-BZ400   GLS89SQ1T923-I-CD401   GLS89SQ240G3-I-CD401   GLS89SQ3T843-I-CD401   GLS89SQ480G3-I-CD401   GLS89SQ960G3-I-CD401