



# SATA NANDrive™

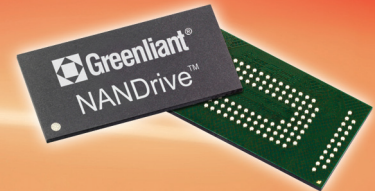
85LS Series

Product Brief

## Product Description

The SATA NANDrive™ family of embedded solid state drives (SSDs) integrate Greenliant's advanced Serial ATA controller with one or more NAND flash die in a small ball grid array (BGA) package. SATA NANDrive products have the same footprint across all capacities for backward compatibility, providing customers with a seamless transition path. The latest SATA NANDrive SSDs offer faster read/write speeds with superior data integrity and reliability for demanding, high-performance systems.

SATA NANDrive combines robust error correction capabilities with advanced wear-leveling algorithms and bad block management to extend SSD lifespan. It is available with 2-bit-per-cell (MLC) or 1-bit-per-cell (SLC) NAND to meet a variety of endurance and data retention requirements. NANDrive SSDs designed with Greenliant's EnduroSLC™ Technology can reach ultra-high write endurance of 250K+ program/erase (P/E) cycles. Compatible with many popular chipsets, SATA NANDrive is ideal for compact embedded systems that require secure, reliable and long-life data storage.



[www.NANDrive.com](http://www.NANDrive.com)

## Key Features

### Small Form Factor SATA Solid State Drive

- 14mm x 24mm 145-ball BGA package
- Supports SATA 6Gb/s, 3Gb/s and 1.5Gb/s
- ATA/ATAPI-8 compliant
- Supports 48-bit address feature set

### Multitasking Technology Increases Performance\*

- Native Command Queuing (NCQ) up to 32 commands
- Sustained Read / Write performance up to 470MB/s / 340MB/s

### Energy Efficient Power Management\*

- 3.3V and 1.0V low power supply (3.3V and 1.2V for SATA 1.5Gb/s products)
  - Supports Device Sleep Mode (DevSleep)
- \*Supported by SATA 6Gb/s products

### High Functionality Firmware

- Global advanced wear leveling maximizes product lifespan
- Configurable algorithms optimize device data retention
- Embedded flash file system (FFS) for seamless capacity upgrade with no change to host software

### Power Interrupt Data Protection

- Prevents data corruption when power is lost or unstable
- Dedicated pin (PD#) for enhanced power fail protection

### Bad Block Management

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

### Built-in ECC

- Advanced error detection and correction

### Data Security

- User-selectable protection zones
- Quick Erase and Purge commands
- Write Protect pin to prevent data overwrites

### SSD Lifespan Monitoring

- Enables SMART command-based alerts indicating the remaining product usage life
- Estimates optimal SSD capacity based upon specific application usage models

### Multiple Capacities with Same Pin-out

- 2 GB - 32 GB (SATA 1.5Gb/s products)
- 2 GB - 128 GB (SATA 6Gb/s products)
- 1mm ball spacing enables use of lower cost PCBs

### NAND and Temperature Options

- Available in MLC or SLC NAND configurations to meet various endurance requirements
- Industrial operation: -40°C to +85°C



## Applications

- Industrial PC
- Rugged handheld computer
- Set-top box
- Medical imaging and diagnostics
- Single-board computer
- Industrial automation and control
- Test and measurement equipment
- Blade server
- Gateway / Switch
- Network security
- Video surveillance
- Data logger
- Base station
- GPS and telematics
- Digital signage
- Multi-function printer

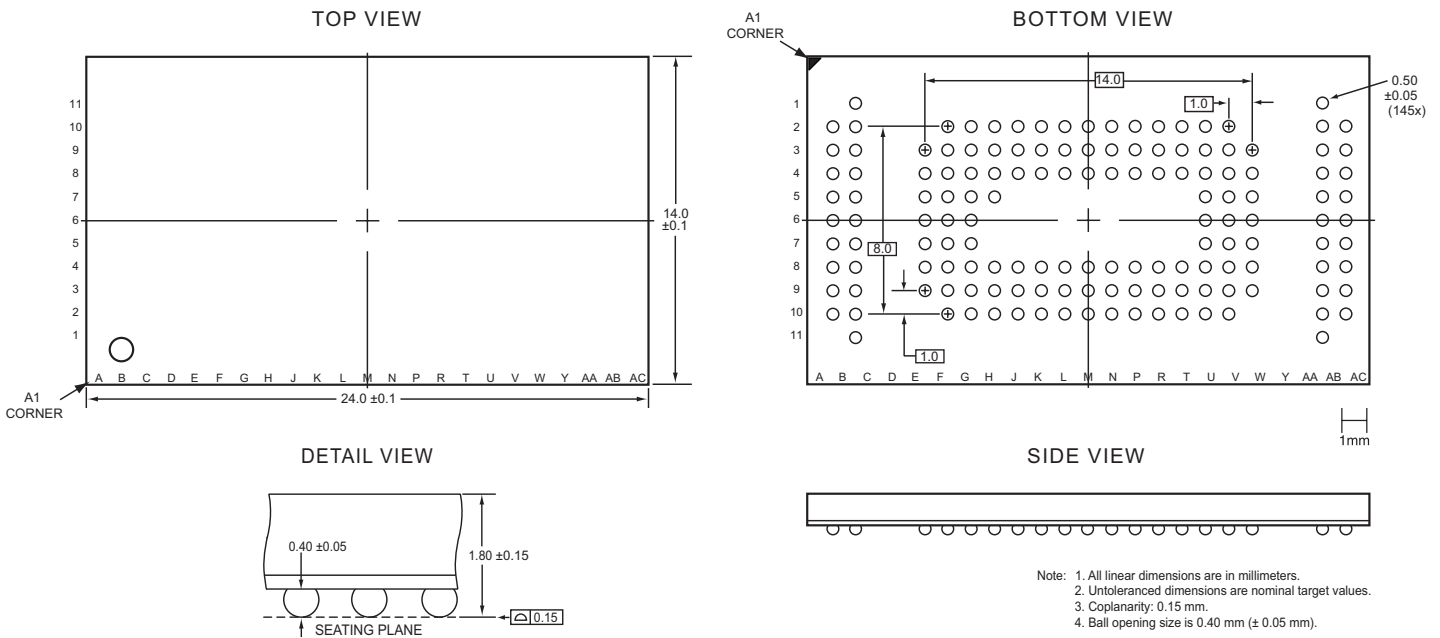
### Greenliant

3970 Freedom Circle, Suite 100  
Santa Clara, CA 95054 USA  
Tel: 1-408-200-8000  
Fax: 1-408-200-8099

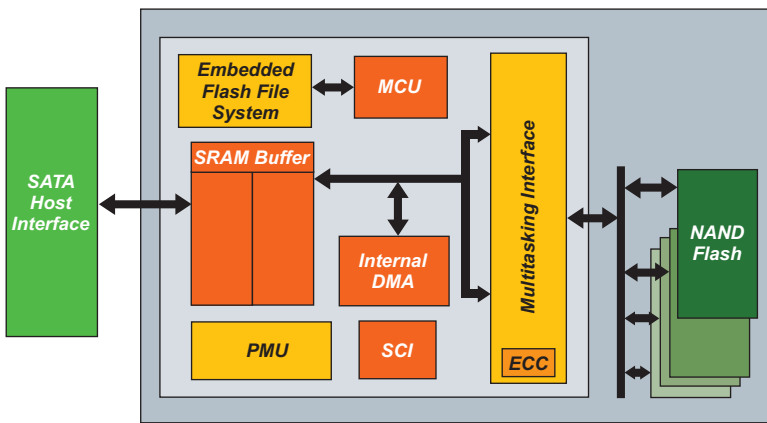
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## SATA NANDrive Package Diagrams

145-ball BGA package  
 FZJ is 14mm x 24mm x 1.95mm  
 LFJ is 14mm x 24mm x 1.55mm  
 LBJ is 14mm x 24mm x 1.40mm  
 Pb-free (RoHS compliant)



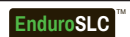
## SATA NANDrive Block Diagram



## Product Lineup

85LS Series SATA NANDrive				
SATA Interface	Product Series / Capacity	Package (145-ball)	NAND Configuration / Endurance	Temperature Range
1.5Gb/s	2 GB – 32 GB	14 x 24 x 1.95mm FBGA	1-bit-per-cell SLC NAND / 60K P/E cycles	Industrial -40°C to +85°C
6Gb/s	<b>EX</b> 2 GB - 128 GB	14 x 24 x 1.40mm LFBGA /	1-bit-per-cell SLC NAND / 50K, 100K, 250K P/E cycles*	
	<b>MX</b> 8 GB - 128 GB	14 x 24 x 1.55mm LBGA	2-bit-per-cell MLC NAND / 5K P/E cycles	

\*Designed with Greenliant's advanced EnduroSLC Technology 250K, or higher, endurance offered up to 64GB



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**NANDrive FAQs:** [www.greenliant.com/nandrive-faqs](http://www.greenliant.com/nandrive-faqs)

**Long-Term Availability:** [www.greenliant.com/support/#LTA-program](http://www.greenliant.com/support/#LTA-program)

For more information, contact your Greenliant representative: [www.greenliant.com/sales](http://www.greenliant.com/sales)



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