Greenliant™
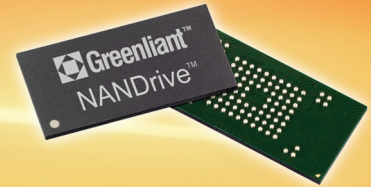
Product Description

The NANDrive™ family consists of high-performance, fully-integrated embedded solid-state drives. These products integrate an ATA controller and one or more NAND flash die in a multi-chip package. NANDrive products are well suited for solid-state mass storage in embedded and portable applications because they offer new and expanded functionality while enabling cost-effective designs. This product family also includes additional security features to protect confidential information stored in the flash memory.

PATA NANDrive products provide complete IDE hard disk drive functionality and compatibility in a small BGA package for easy, space-saving and cost-effective mounting to a system motherboard. These products are a perfect solution for applications requiring smaller and more reliable data storage. Their built-in microcontroller and flash file management firmware replace the need for host-side Flash File System (FFS) and Memory Technology Driver (MTD) software.

www.NANDrive.com

Key Features

Industry's Smallest ATA Solid-state Drive
- 12 x 24mm LBGA package
- 14 x 24mm LBGA/BGA package

Industry Standard ATA/IDE Bus Interface
- Host Interface: 8- or 16-bit access
- Supports up to PIO Mode-6
- Supports up to multi-word DMA Mode-4
- Supports up to ultra DMA Mode-6

Standard Memory Bus Interface
- Host Interface: 8- or 16-bit access
- Supports up to PIO Mode-6

Multi-tasking Technology Increases Performance
- Fast, Sustained Read Performance (Flash to Host), up to 50 MB/sec
- Fast, Sustained Write Performance (Host to Flash), up to 39 MB/sec

Pre-programmed Firmware in Embedded SuperFlash®
- Implements advanced wear leveling to maximize product lifespan
- Configurable algorithms support global and group wear leveling
- Executes industry standard ATA/IDE commands
- Embedded flash file system for seamless capacity upgrade with no change to host software

Robust Power Down Protection
- Prevents data corruption when power is lost or unstable

S.M.A.R.T. Commands
- Enables alerts indicating the remaining product life

Expanded Data Protection
- WP_PD# pin configurable by firmware for prevention of data overwrites
- Added data security through user-selectable protection zones and security erase/purge commands

Built-in ECC
- Uses advanced hardware engine to correct ECC errors

Multiple Densities with the same Ball-print
- 512 MB, 1 GB, 2 GB, 4 GB, 8 GB, 16 GB, 32 GB

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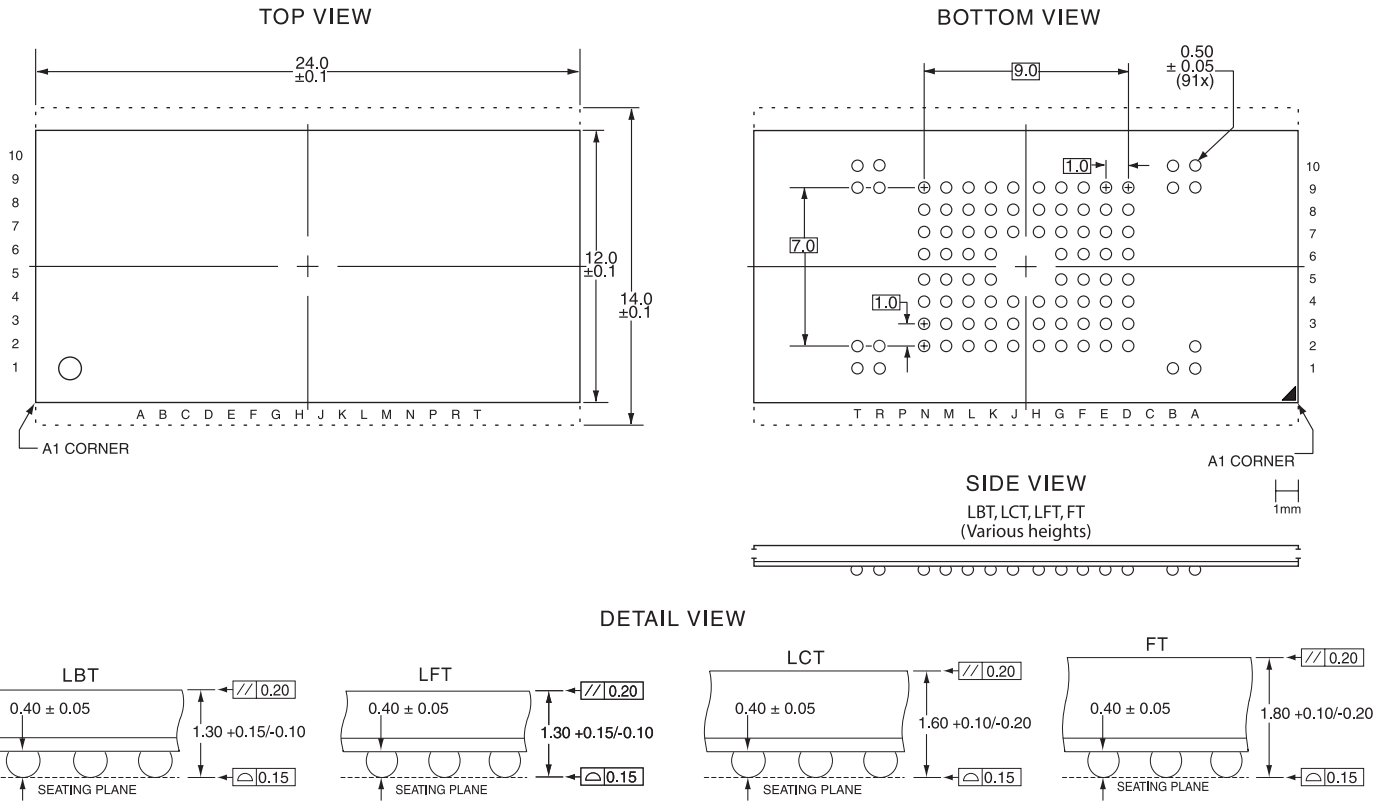- Industrial operation: -40°C to +85°C

Applications

— *Set-top box / Net-top box*
— *GPS and telematics*
— *In-vehicle infotainment*
— *Video conferencing*
— *Tablet PC / Smartbook / Netbook*
— *Multi-function printer*
— *Point of Sale terminal*
— *VoIP system / PBX*
— *Wireless base station*
— *Router / Gateway / Switch*
— *Server / Network-attached storage*
— *Industrial PC / Single-board computer*
— *Ultrasound and medical imaging*
— *Industrial automation & control*
— *Test & measurement instrumentation*
— *Video surveillance / ID terminal*

Greenliant Systems
3970 Freedom Circle, Suite 100
Santa Clara, CA 95054 USA
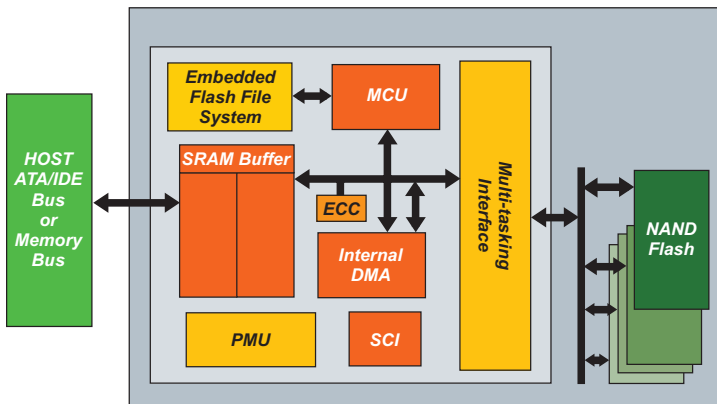Tel. (408) 200-8000
Fax (408) 200-8099

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Package Diagrams

LBT, and LCT are 12 x 24 mm body
LFT and FT are 14 x 24 mm body

TOP VIEW

24.0
±0.1

10 9 8 7 6 5 4 3 2 1

12.0
±0.1

14.0
±0.1

A B C D E F G H J K L M N P R T

A1 CORNER

BOTTOM VIEW

9.0

0.50
± 0.05
(91x)

1.0

7.0

1.0

T R P N M L K J H G F E D C B A

10 9 8 7 6 5 4 3 2 1

A1 CORNER

SIDE VIEW
LBT, LCT, LFT, FT
(Various heights)

1mm

DETAIL VIEW

LBT
0.40 ± 0.05
// 0.20
1.30 +0.15/-0.10
0.15
SEATING PLANE

LFT
0.40 ± 0.05
// 0.20
1.30 +0.15/-0.10
0.15
SEATING PLANE

LCT
0.40 ± 0.05
// 0.20
1.60 +0.10/-0.20
0.15
SEATING PLANE

FT
0.40 ± 0.05
// 0.20
1.80 +0.10/-0.20
0.15
SEATING PLANE

NANDrive Block Diagram

HOST ATA/IDE Bus or Memory Bus

Embedded Flash File System

MCU

SRAM Buffer

ECC

Internal DMA

PMU

SCI

Multi-tasking Interface

NAND Flash

Product Lineup

85 Series PATA NANDrive		
Capacity	Temp. Range	Package
512 MB	Industrial	12 x 24 x 1.4mm LBGA
1 GB	Industrial	12 x 24 x 1.4mm LBGA
2 GB	Commercial	12 x 24 x 1.4mm LBGA
2 GB	Industrial	14 x 24 x 1.9mm LBGA
4 GB	Commercial	14 x 24 x 1.4mm LBGA
4 GB	Industrial	14 x 24 x 1.9mm LBGA
8 GB	Commercial	14 x 24 x 1.4mm LBGA
8 GB	Industrial	14 x 24 x 1.9mm BGA
16 GB	Commercial	14 x 24 x 1.9mm BGA
32 GB	Commercial	14 x 24 x 1.9mm BGA

Greenliant™

For more information please contact your local Greenliant Sales Representative.
See the "Sales" page of www.Greenliant.com for complete listings.