

# PM851 2.5" SATA 6.0Gb/s SSD

(NAND based Solid State Drive)

## datasheet

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# 1.0 General Description

The NSSD(Nand based Solid State Drive) of Samsung Electronics fully consists of semiconductor devices using NAND Flash Memory which provide high reliability and high performance for a storage media.

The NSSD doesn't have any moving parts such as platter(disk) and head media, which provides a better solution in a notebook PC and Tablet PC for a storage device providing higher performance, reduced latencies, and a low power consumption in a small form factor. The NSSD could also provide rugged features in industrial PC with an extreme environment with a high MTBF.

For easy adoption, the NSSD has the same host interface with Hard Disk Drives and has a same physical dimension.

**•Density**

- 128/256/512GB/1TB is available

**•Form Factor**

- 2.5" Type (100.20±0.25 x 69.85±0.25 x 6.80±0.20)mm  
 \*For the thickness size, drive label thickness was included

**•Host interface**

- Serial ATA interface of 6.0Gbps  
 - Fully complies with ATA/ATAPI-7 Standard (Partially Complies with ATA/ATAPI-8)  
 - Power Saving Modes: DIPM (Partial / Slumber mode)  
 - Support NCQ : Up to 32 depth  
 - Synchronous Signal Recovery

**•Performance**

- Host transfer rate : 600MB/s  
 - Sequential Read : Up to 540MB/s (256/512GB/1TB),  
 Up to 530 (128GB)  
 - Sequential Write : Up to 410 (512GB/1TB),  
 Up to 270MB/s (256GB) ,Up to 140MB/s(128GB)  
 \* Actual performance may vary depending on use conditions and environment

\* Notes :

1. Performance measured using CrystalDiskMark 3.1
2. Measurements are performed on whole LBA range
3. Write cache enabled
4. 1MB/sec = 1,048,576 bytes/sec was used in sequential performance

**•Power Consumption**

- Active : Typical 250mW (@512GB)  
 - Idle : Typical 50mW (@512GB)  
 - DEVSLP : Typical 2mW (@512GB)  
 (\*Typical DEVSLP power is average power by measuring 15pcs of 512GB SSDs randomly selected.)  
 \* Active power is measured during execution of Mobilemark 2007 in Windows7 with ISRT 11.7  
 \*\* DIPM enabled value  
 \*\*\* Environment  
 - System : Intel Core i5-3210M@2.50Ghz, DDR3 4GB  
 - OS : Windows 7 x64(script : Autoconfig 2.4.1)

**•Temperature**

- Operating : 0°C to 70°C  
 \*Measuring at the center of module's top

**•Shock**

- Shock : 1500G, duration 0.5ms, Half Sine Wave  
 - Vibration : 20G, 10~2000Hz, Sinusoidal, 20min/axis(X,Y,Z)  
 \* Applicable only for cased product

**•MTBF**

- 1,500,000 Hours

**•Weight**

- 1TB : Max 54g  
 - 512GB : Max 51g  
 - 128/256GB : Max 45g

**•NSSD Functional Block Diagram**

