Rev. 1.0, Aug. 2013

MZ7TE1T0HMHP-000
MZ7TE512HMHP-000
MZ7TE256HMHP-000
MZ7TE128HMGR-000

PM851 2.5" SATA 6.0Gb/s SSD

(NAND based Solid State Drive)

datasheet

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