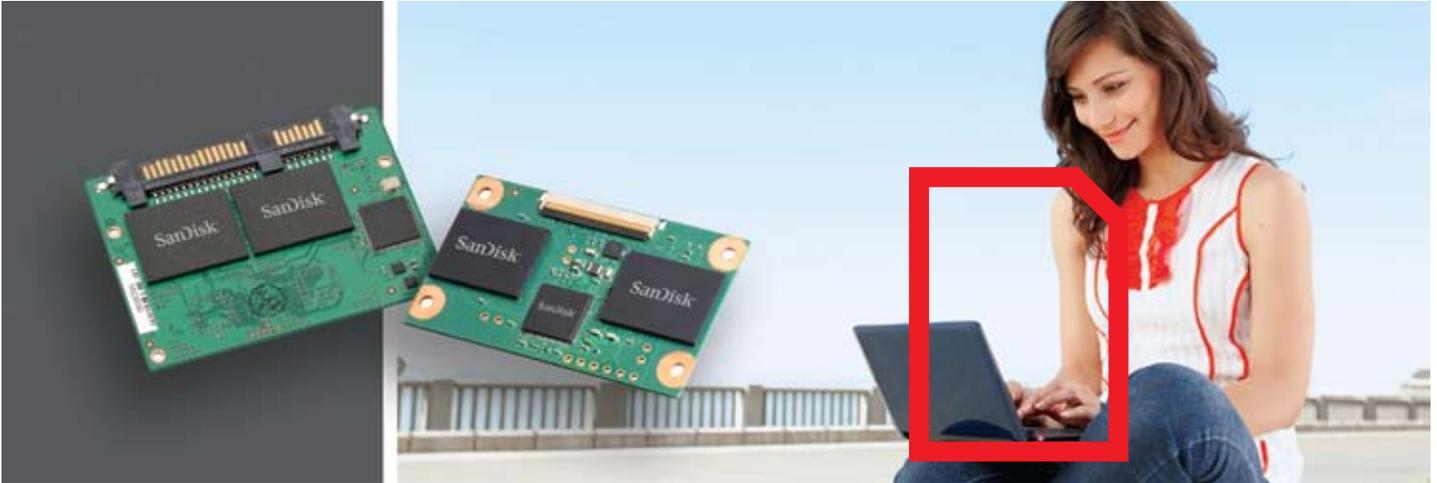


# The SanDisk® pSSD™ Modular Solid State Drive Family

Affordable, fast and light weight storage solution for netbooks



## Highlights

- Lower price than the least expensive HDD<sup>1</sup>
- 9,000 vRPM
- nCache™ providing 5x random write performance<sup>8</sup>
- Weight: up to 9g
- MTTF<sup>\*\*</sup>: Up to 2M hours<sup>10</sup>
- Capacity: 8GB, 16GB, 32GB, 64GB\*
- Interfaces: PATA, SATA
- Quiet and cool operation

Designing faster and stronger netbooks is within reach. Just choose SanDisk® pSSD™ modular solid state drive storage for your exciting new netbooks and enjoy a whole new world of designing possibilities.

By using SanDisk pSSD modular SSD you will bring all the benefits of flash to these small computing netbooks at a fraction of the cost, size and weight of a hard disk drive (HDD).

## Cost Effective and Light Weight

Purchase just the right amount of storage, 8GB, 16GB, 32GB, or 64GB\*, packed inside a memory device that is up to one-tenth the weight of the 1.8" HDD<sup>3</sup>. SanDisk's field proven, cost-effective, multi-level cell (MLC) NAND flash technology, enables competitive pricing for these low cost portable devices.

## Fast

Your users will see the difference from the moment they power up their netbooks with SanDisk pSSD modular SSD: faster machine operation.

SanDisk pSSD boots fast and keeps working at high speed, without the need to spin up into action or to seek files like a conventional HDD. SanDisk's modular SSD achieves high sustained random write performance translating to 9,000 vRPM.

In addition, nCache™ SanDisk's large non volatile write cache provides a burst performance of x5 the sustained random write, allowing the users to enjoy an enhanced user experience, without the typical stuttering found in first generation SSD modules. pSSD empties its cache during idle time, and since the cache is non-volatile there is no risk of data loss to the user.

## Rugged and Reliable

Design strong and solid netbooks that withstand the wear-and-tear of people on the go, and operate soundlessly even in environments where noise is a nuisance, such as bedrooms.

With no moving parts, SanDisk pSSD modular SSD is far more reliable than a HDD. Backed by its patented flash management technology, SanDisk brings high data integrity to its modular flash device. Dynamic bad block management, dynamic and static wear-leveling, and robust error detection and correction code (EDC/ECC) ensure data reliability.

## Power Efficient

Extend battery life of netbooks by using SanDisk pSSD modular SSD, and see a significant power savings over using a rotating HDD, a critical matter for netbook users on the go.

## Designing with SanDisk

SanDisk has a 20 year legacy of innovating industries by creating powerful new technologies that have revolutionized the world of portable computing.

Our storage devices empower thousands of products by hundreds of global manufacturers to deliver better end-user experiences. SanDisk is a trusted leader in flash memory with many NAND flash technology patents.

**SanDisk®**

SanDisk pSSD Modular Solid State Drives Features and Specifications			
Module Name		pSSD-P2	pSSD-S2
Interface		PATA UDMA6	SATA II 3Gb/s
Capacity (GB)*		8, 16, 32, 64	8, 16, 32, 64
Characteristics	Form Factor Connector	Half 1.8", miniPCle ZIF, LIF, miniPCle	Half 1.8", miniPCle Standard SATA, uSATA, miniPCle
High Performance	vRPM <sup>5</sup> Sequential read <sup>2</sup> Sequential write <sup>2</sup> Sustained 4K random write Burst 4K random write	9000 70MB/s <sup>2</sup> 70MB/s <sup>2</sup> 100 IOPs <sup>7</sup> 550 IOPs <sup>7</sup>	9000 70MB/s <sup>2</sup> 70MB/s <sup>2</sup> 100 IOPs <sup>7</sup> 550 IOPs <sup>7</sup>
Highly reliable & durable	MTTF** Operating shock Operating vibration LDE <sup>6</sup> More features	Up to 2,000,000 hours 1000G 15G 36.5TBW (64GB) - Unlimited read cycles - SMART feature supported - Security and password protection - No preventive maintenance	Up to 2,000,000 hours 1000G 15G 36.5TBW (64GB) - Unlimited read cycles - SMART feature supported - Security and password protection - No preventive maintenance
Small and light weight	Size Weight	54mm x 32mm x 2.7mm (8, 16GB) 54mm x 32mm x 4.3mm (32, 64GB) 4.7g (8GB), 5.5g (16-32GB), 7.1g (64GB)	54mm x 39mm x 4mm (Half 1.8") 50.95mm x 30mm x 4mm (miniPCle) 7g (8-16GB), 7.5g (32GB), 9g (64GB)
Low power consumption	DC supply Sleep mode (typical) Active power (typical) Average power (typical) <sup>4</sup>	3.3V ±5% 1mW 1W 0.2W - 0.3W	5V ±5%, 3.3V ±5% 90mW <sup>9</sup> 1.5W 0.3W - 0.4W <sup>9</sup>
Environmental Specifications	Operating temperature Storage temperature Acoustic noise	0°C to +70°C -25°C to +85°C 0dB	0°C to +70°C -25°C to +85°C 0dB
Warranty		3 years Limited Warranty 3 years - in regions not recognizing Limited.	3 years Limited Warranty 3 years - in regions not recognizing Limited.
OS Support		Windows® XP, Linux, Windows Vista®, Win 7, Win 7 Mobile	Windows® XP, Linux, Windows Vista®, Win 7, Win 7 Mobile

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\* 1 gigabyte (GB) = 1 billion bytes. Some capacity not available for data storage.

\*\* The MTTF calculation does not take into account the disk endurance limitation. For the disk endurance, please refer to the endurance section in the product specification.

1. Lower price than the least expensive HDD in certain capacities.
2. Based on TestMetrix benchmark performance may be lower depending on host device. 1 megabyte (MB) = 1 million bytes.
3. Weight of second generation pSSD varies from 5.3 grams - 9 grams, depending upon capacity. This is compared to the eight of the weight of 1.8 HDD MK6006GAH MK3006GAL, which weighs 51-62 grams.
4. While running MobileMark and average (typical) power
5. vRPM (virtual Revolutions Per Minute) - a metric to compare SSD performance in client PCs with the HDD and with other SSDs. vRPM answers the question how fast would a HDD have to spin in order to deliver the same performance as a SSD in a client PC.  $vRPM = 50 / ((0.5 / 4K \text{ random read IOPS}) + 0.5 / 4K \text{ random write IOPS})$
6. LDE (Long-term Data Endurance) - an industry metric, introduced by SanDisk, that quantified how much data can be written to an SSD in its lifespan expressed in terabytes written (TBW). Data is written using typical PC transfer size distribution of writes, written at a constant rate over the life of the SSD and data is retained for at least 1 year upon LDE exhaustion. Typical client PC user writes 4GB/day, Based on SanDisk internal measurements.
7. Based on IOMeter 2003.12.16 benchmark measurements.
8. nCache™ is a large Non Volatile Write Cache, a unique feature in pSSD-P2 and S2 that improves random write performance and ensure an improved user experience. Studies show that modern operating systems mostly access the storage device using 4k access blocks. pSSD-P2 and S2 include a non-volatile write cache which is used to accumulate these small writes at high speed, with no risk of data loss. The cache is filled during small write commands and emptied during idle time when the host is not accessing the drive. For a typical everyday use, the write performance that the users see is the nCache™ (burst) performance, and not steady state (sustained) pSSD performance. Based on Iometer 4K random write test.
9. Assumes HIPM (Host Initiated Power Management) is enabled.
10. Based on Parts Stress Analysis, in accordance with the Telcordia Special Report SR- 332.

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