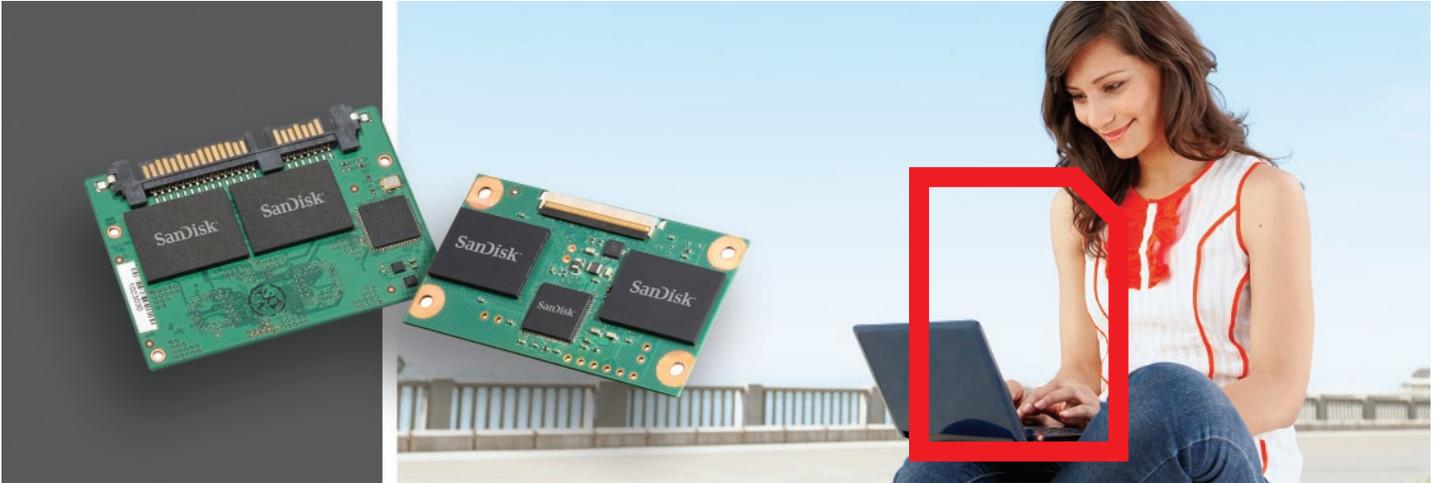


# The SanDisk® pSSD™ Modular Solid State Drive Family

Affordable, fast and light weight storage solution for netbooks



## Highlights

- Lower price than the least expensive HDD<sup>1</sup>
- 9,000 vRPM
- nCache™ acceleration technology providing 5x burst of random write performance<sup>2</sup>
- Weight: up to 9g
- MTTF<sup>\*\*</sup>: Up to 2M hours<sup>3</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>4</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™<sup>2</sup> acceleration technology, 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. SanDisk 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	Half 1.8", miniPCle	Half 1.8", miniPCle
	Connector	ZIF, LIF, miniPCle	Standard SATA, uSATA, miniPCle
High Performance	vRPM <sup>5</sup>	9000	9000
	Sequential read <sup>6</sup>	70MB/s <sup>6</sup>	70MB/s <sup>6</sup>
	Sequential write <sup>6</sup>	70MB/s <sup>6</sup>	70MB/s <sup>6</sup>
	Sustained 4K random write	100 IOPs <sup>7</sup>	100 IOPs <sup>7</sup>
Highly reliable & durable	Burst 4K random write	550 IOPs <sup>7</sup>	550 IOPs <sup>7</sup>
	MTTF**	Up to 2,000,000 hours	Up to 2,000,000 hours
	Operating shock	1000G	1000G
	Operating vibration	15G	15G
Small and light weight	LDE <sup>8</sup>	36.5TBW (64GB)	36.5TBW (64GB)
	More features	- SMART feature supported - Security and password protection - No preventive maintenance	- SMART feature supported - Security and password protection - No preventive maintenance
	Size	54mm x 32mm x 2.7mm (8, 16GB) 54mm x 32mm x 4.3mm (32, 64GB)	54mm x 39mm x 4mm (Half 1.8") 50.95mm x 30mm x 4mm (miniPCle)
	Weight	4.7g (8GB), 5.5g (16-32GB), 7.1g (64GB)	7g (8-16GB), 7.5g (32GB), 9g (64GB)
Low power consumption	DC supply	3.3V±5%	5V ±5%
	Sleep mode (typical)	15mW	100mW <sup>10</sup>
	Active power (typical)	0.5W	0.8W
	Average power (typical) <sup>9</sup>	0.15W	0.3W <sup>10</sup>
Environmental Specifications	Operating temperature	0°C to +70°C	0°C to +70°C
	Storage temperature	-25°C to +85°C	-25°C to +85°C
	Acoustic noise	0dB	0dB

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**SanDisk**<sup>®</sup>

\* The logical capacity conforms with the IDEMA HDD standard. See [www.idema.org](http://www.idema.org) for details. 1GB = 1,000,000,000 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. nCache™ acceleration technology is a large Non Volatile Write Cache, a unique feature in pSSD-P2 and S2 that improves random write performance and ensures an improved user experience. Studies show that modern operating systems mostly access the storage device using 4k access blocks. The cache is filled during these small write commands and emptied during idle time when the host is not accessing the drive, with no risk of data loss. For a typical everyday use, the write performance that the users see is the nCache™ (burst) high performance, and not steady state (sustained) pSSD performance. Based on IOMeter 4K random write test.
3. Based on Parts Stress Analysis, in accordance with the Telcordia Special Report SR- 332.
4. Weight of second generation pSSD varies from 5.3 grams - 9 grams, depending upon capacity. This is compared to the weight of 1.8 HDD MK6006GAH MK3006GAL, which weighs 51-62 grams.
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.  $vRPM = 50 / ((0.5 / 4k\text{B random read IOPS}) + 0.5 / 4k\text{B random write IOPS})$
6. Based on TestMetrix benchmark performance may be lower depending on host device. 1 megabyte (MB) = 1 million bytes.
7. Based on IOMeter 2003.12.16 benchmark measurements.
8. 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.
9. While running MobileMark and average (typical) power
10. Assumes HIPM (Host Initiated Power Management) is enabled.

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