

Hitachi Microdrive® 3K8

HARD DISK DRIVES



8GB and 6GB | 3600 RPM | ATA-4 | CE-ATA | ATA on MMC

High-capacity hard drives for mobile phones & ultra-portable CE devices

Highlights

- > First 1.0-inch hard drive footprint reduction
- > 8GB & 6GB capacities for the smallest devices
- > New ZIF connectors
- > PATA, CE-ATA or ATA on MMC interfaces available
- > Twice the shock protection
- > Nearly 40% lower power consumption

Consumer devices

- > Mobile phone
- > Portable Digital Audio (MP3)
- > Portable Digital Video (DVC)
- > Portable Digital Assistant (PDA)
- > Digital Photography (DSC)
- > Other handheld applications

Bigger and better, but smaller, too

Hitachi announces the new Microdrive 3K8 1.0-inch hard drive, featuring a dramatically-reduced footprint for integration in mobile phones and ultra-miniature CE devices. With a maximum capacity of 8GB, this 3600RPM drive will hold 33% more than its predecessor. Available for embedded designs only, the 3K8 is the first Hitachi Microdrive to use a ZIF connector and is offered with PATA, CE-ATA or ATA on MMC interface support. With significantly reduced power consumption and twice the shock protection, Hitachi has engineered this drive to withstand the rigors of the most frequently handled devices. The Microdrive 3K8 is ideally suited for mobile phones, offering the best blend of capacity, size, performance and value with

Features and benefits

	Feature / Function	Benefits
Capacity	8GB maximum capacity	* 4,000 songs
	6GB option	* 2 hours DV quality MPEG-2 video, or 10 hours MPEG-4 video
		* 8,000 digital photos
Size	40 x 30 x 5.0 mm 13g	High-capacity HDD about the size of a domino 20% smaller & lighter
Reliability	400G operating shock ** 2000G non-operating shock	Exceptional ruggedness to withstand tougher handling and improve portability
	Extra Sensory Protection (ESP) 2000G operating shock **	Softens the impact of a fall / drop Makes every shock a non-operating shock
Interface	PATA	Supports legacy applications
	CE-ATA	Simpler interface with reduced pin count
	ATA on MMC	Facilitates migration from MMC
Performance	Sustained data rate up to 10.0 MB/sec	Faster transfer for less run time

* Actual storage may vary depending on the compression rate applied.

** Operating shock with ESP option is 2000G.

minimal impact on talk time to enable the newest feature-rich converged devices.

Innovative technology for increased ruggedness

Hitachi has implemented a drop sensor on the Microdrive 3K8, called Extra Sensory Protection™ (ESP). Designed to detect a minimum 4-inch vertical fall, ESP immediately retracts the read/write heads, turning a potential crash into a soft landing. This optional feature is available in 1Q06 on all models of the 3K8. Hitachi has also designed two shock isolation systems (drive corner bumpers) that significantly increase shock protection – one supports the small profile of the Microdrive 3K8 in a CE device, and the other supports the 3K8 in a CF-II footprint. These bumpers offer improved drive and device ruggedness. Microdrive 3K8 delivers on Hitachi's commitment to technology leadership and satisfies the storage demands of converged, handheld devices.

Hitachi quality, support and service

Hitachi Microdrive products are built on a mature architecture with more than five years of field-proven reliability. Designed to the highest quality standards, Microdrives are backed by the Hitachi hallmark of excellence. Hitachi provides worldwide technical support and CE integration services to enable global customers to bring their products to market quickly.

Hitachi Microdrive® 3K8

Hitachi Global Storage Technologies

Product Model names	Microdrive 3K8 HMS361008M5CE00 HMS361006M5CE00	Microdrive 3K8 HMS361008M5CA00 HMS361006M5CA00	Microdrive 3K8 HMS361008M5CM00 HMS361006M5CM00
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Specifications Configuration Available by special bid

	PATA	CE-ATA	ATA on MMC
Interface	PATA	CE-ATA	ATA on MMC
Capacity (GB) ¹	8 / 6	←	←
Sector size (bytes)	512	←	←
Disks	1	←	←
Areal density (Gbits/sq.inch, max)	119	←	←
Performance			
Data buffer (KB) ²	128	←	←
Rotational speed (RPM)	3600	←	←
Latency average (ms)	8.33	←	←
Media transfer rate (Mbits/sec)	68 - 131	←	←
Interface transfer rate (MB/sec, max)	33 Ultra DMA mode-2	13	←
Sustained data rate (MB/sec)	5.1 - 10.0	←	←
Seek time (read, typical)			
Average (ms)	12	←	←
Track to track (ms)	1	←	←
Full track (ms)	24	←	←

Reliability			
Error rate (non-recoverable)	< 1 per 1.0 E 13 bits transferred	←	←
Load/unload cycles	300,000	←	←

Power			
Requirement	+3.3VDC (+5% / -15%)	← ³	←
Current (read/write)	190mA	180mA	←
Current (peak)	310mA	←	←

Physical Size			
Height (mm)	5.0 / ±0.1	←	←
Width (mm)	40 / ±0.2	←	←
Depth (mm)	30 / +0.0 / -0.4	←	←
Weight (g, typical)	13	←	←

Environmental Characteristics			
Operating			
Temperature ⁴	5° to 60° C	←	←
Shock (half sine wave) ⁵	400 G (2 ms)	←	←
Random Vibration (RMS)	0.67 G (5 to 500 Hz)	←	←
Altitude	-300 to 3048m	←	←
Acoustics (Bels, Idle (Typical))	1.8	←	←
Non-operating			
Ambient temperature	-40° to 70° C	←	←
Shock (half sine wave)	2000 G (1 ms)	←	←
Random Vibration (RMS)	3.01 G (5 to 500 Hz)	←	←
RoHS Compliant ⁶	Yes	←	←



How to Read the Microdrive Model Number

HMS361008M5CE00 = 8GB

- H = Hitachi
- M = Microdrive
- S = Standard
- 36 = 3600 RPM
- 10 = Reserved
- 08 = Capacity this model - 8GB (06 = 6GB)
- M = Generation code
- 5 = 5mm z-height
- CE = ZIF connector PATA interface (CA = CE-ATA, CM = ATA on MMC)
- 0 = Reserved
- 0 = Reserved

For more information:

- Internet:
 - > www.hitachigst.com/microdrive
 - > www.hitachigst.com (Main Web site)
 - > www.hitachigst.com/vpp (Reseller Web site)
- Technical Support E-mail:
 - > support_usa@hitachigst.com (N. America)
 - > support_ap@hitachigst.com (Asia Pacific)
 - > support_uk@hitachigst.com (EMEA and UK)

- Technical Support Phone Numbers:
 - > 1 888 426-5214 (N. America)
 - > 65 6840 9595 (Asia Pacific)
 - > 44 20 7133 0032 (EMEA and UK)
 - > 49 6929 993601 (Germany)

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¹ GB equals one billion bytes when referring to hard drive capacity; accessible capacity may be less.
² Total SRAM is 348KB, 208KB used for firmware.
³ CE-ATA Class A device with extended voltage tolerance
⁴ Measured at top cover
⁵ Specification is without ESP feature
⁶ RoHS refers to the European Union Directive 2002/95/EC on the restriction of certain hazardous substances in electrical and electronic equipment.