MG08 SERIES
ENTERPRISE CAPACITY HDD

Using an industry-leading[1] 9-disk design pioneered by Toshiba, the MG08 Series provides 16TB[2] of conventional magnetic recording (CMR) capacity and 7200 rpm performance. The industry-standard 3.5-inch[3] form-factor integrates easily into cloud-scale storage infrastructure, business-critical servers and storage, and File and Object storage solutions. Toshiba's precision industrial laser welding technology is put to use to seal helium inside the 9-disk mechanics. The massive 16TB capacity is delivered using proven CMR recording technology providing optimum application compatibility and data reliability. Available with either a SATA 6.0 Gbit/s or a 12.0 Gbit/s SAS interface[4], the MG08 Series models integrate easily into standard 3.5-inch drive bays to help reduce the footprint and operational burden of cloud-scale storage infrastructure, and business critical servers and storage systems.

Product image may represent a design model.

KEY FEATURES

- Industry Standard 3.5-inch 26.1 mm Height Form Factor
- Conventional Magnetic Recording (CMR) 16TB for broad compatibility
- Industry-leading 9-disk helium-sealed design for superior storage density
- 7200 rpm Performance
- 550 Total TB Transferred per Year Workload Rating[5]
- 512e or 4Kn Advanced Format Sector Technology; (512e Model) Includes Toshiba Persistent Write Cache Technology for Data-Loss Protection in Sudden Power-Loss Events
- Sanitize Instant Erase (SIE) option model available

APPLICATIONS

- Cloud-scale Sever and Storage Infrastructure
- Software-defined data center infrastructure
- File- and Object-based storage infrastructure
- Tiered Storage Infrastructure
- Workloads and Use-Cases that Benefit from High Capacity per Spindle
- Capacity-Optimized Cloud-scale and Rack-Scale Storage Systems
- Compliance Data Life-Cycle Management
- Data Center Data-Protection and Data Back-up Infrastructure

SPECIFICATIONS

Item		MG08ACA16T	MG08SCA16T
Interface		SATA-3.3	SAS-3
Formatted Capacity		16 TB	
Performance	Interface Speed	6.0 Gbit/s, 3.0 Gbit/s, 1.5 Gbit/s	12.0 Gbit/s, 6.0 Gbit/s, 3.0 Gbit/s, 1.5 Gbit/s
	Rotation Speed	7200 rpm	
	Buffer Size	512 MiB [7]	
	Maximum Sustained Data Transfer Speed [6] (Typ.)	262 MiB/s	
Logical Data Block Length	MG08xxxxxxA (fixed length)	4096 B	4096 B / 4160 B
	MG08xxxxxxE (emulation) [8]	Host:512 B, Disk:4096 B	Host:512 B, Disk:4096 B Host:520 B, Disk:4160 B
Supply Voltage	Allowable Voltage	12 V [9] ± 10 % / 5 V [9] + 10% / -7% [10]	
Power Consumption	Random Write / Read 4KB Q1 (Typ.)	7.63 W	8.12 W
	Active Idle (Idle-A)	4.00 W	4.46 W
Acoustics[11]	Active Idle (Typ.)	20 dB	

Enterprise Capacity HDD MG08 Series Product Overview
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ENVIRONMENTAL LIMITS

Item		Specification
Ambient temperature	Operating	5 °C to 55 °C (No condensation)
	Non-Operating [12] [13]	-40 °C to 70 °C (No condensation)
Relative Humidity	Operating	5 % to 90 % R.H. (No condensation)
	Non-Operating	5 % to 95 % R.H. (No condensation)
Altitude	Operating	- 305 m to 3048 m
	Non-Operating [12] [13]	- 305 m to 12 192 m
Shock [14]	Operating	686 m/s^2 { 70 G } (2 ms duration)
	Non-Operating	2,450 m/s^2 { 250 G } (2 ms duration)
Vibration [14]	Operating [15]	7.35 m/s^2 { 0.75 G } (5 to 300 Hz) 2.45 m/s^2 { 0.25 G } (300 to 500 Hz)
	Non-Operating [16]	29.4 m/s^2 { 3.0 G } (5 to 500 Hz)

RELIABILITY

Item	Specification
MTTF [17]	2 500 000 hours
Non-recoverable Error Rate	10 error per 10^{16} bits read
Load / Unload	600 000 times
Availability	24 hours/day, 7 days/week
Rated Annual Workload (Total TB Transferred per Year, R/W)	550 TB per year

MECHANICAL SPECIFICATIONS

Item	Specification
Width (Max)	101.85 mm
Height (Max)	26.1 mm
Length (Max)	147.0 mm
Weight (Max.(Typ.))	720 g (694 g)

[1] Source: Toshiba Electronic Devices & Storage Corporation, as of January, 2019 for the 3.5-inch, 26.1mm height.
[2] Definition of capacity: Toshiba defines a terabyte (TB) as 1 000 000 000 000 bytes. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1TB = 2^{40} = 1 099 511 627 776 bytes and therefore shows less storage capacity. Available storage capacity (including examples of various media files) will vary based on file size, formatting, settings, software and operating system, such as Microsoft Operating System and/or pre-installed software applications, or media content. Actual formatted capacity may vary.
[3] "3.5-inch" mean the form factor of HDDs. They do not indicate drive's physical size.
[4] Read and write speed may vary depending on the host device, read and write conditions, and file size.
[5] Workload is defined as the amount of data written, read or verified by commands from host system.
[6] The maximum sustained data rate and interface speed may be restricted to the response speed of host system and by transmission characteristics.
     1 Gbit/s = 1 000 000 000 bits/s. 1 MiB/s = 1 048 576 bytes/s
[7] A mebibyte (MiB) means 2^{20}, or 1 048 576 bytes.
[8] Read–modify-write is supported.
[9] Input voltages are specified at the HDD connector side, during HDD ready state.
[10] Make sure the value is not less than -0.3V DC (less than -0.6V, 0.1ms) when turning on or off the power.
[11] The measuring method is based on ISO 7779.
[12] Non-operating condition (except storage condition) assumes short term transportation.
[13] The range of altitude is 3048 m or less. Up to 55°C at 7620 m. Up to 40°C at 12 192 m.
[14] Vibration applied to the HDD is measured at near the mounting screw hole on the frame as much as possible.
[15] At random seek write/read and default on retry setting with log sweep vibration.
[16] At power-off state after installation
[17] TTF (Mean Time to Failure) is not a guarantee or estimate of product life; it is a statistical value related to mean failure rates for a large number of products which may not accurately reflect actual operation. Actual operating life of the product may be different from the MTTF.

Before creating and producing designs and using, customers must also refer to and comply with the latest versions of all relevant TOSHIBA information and the instructions for the application that Product will be used with or for.