

> MN SERIES NAS HDD

Toshiba MN series of 3.5-inch^[1] 7,200 rpm hard disk drives (HDD) deliver up to 14 TB^[2] of storage capacity, making it suitable storage solution for home and SOHO NAS applications. To address the demanding requirements, these HDDs provide enterprise class 1,000,000 hour MTTF, 180 TB/year^[3] workload rating and support for 24/7 power-on operation. The MN series also features rotational vibration (RV) sensors which automatically detect and compensate for transient vibrations to deliver consistent performance in multi-bay storage enclosures.



> KEY FEATURES

- Up to 14 TB Capacity (model line-up also includes 12 TB, 10 TB, 8 TB, 6 TB and 4 TB)
- 7,200 rpm Performance
- SATA 6.0 Gbit/s^[4] Interface
- MTTF of 1,000,000 hours^[5]
- 180 total TB Transferred per Year Workload Rating
- Rotational Vibration (RV) Sensors for Great Scalability and Good Performance
- 24/7 operation

> APPLICATIONS

- Home and SOHO NAS
- Small business server and storage
- Archiving and data back-up
- Private cloud storage

> SPECIFICATIONS

Item		MN07ACA14T	MN07ACA12T
Interface		SATA-3.3	
Formatted Capacity		14 TB	12 TB
Performance	Interface Speed	6.0 Gbit/s, 3.0 Gbit/s, 1.5 Gbit/s	
	Rotation Speed	7,200 rpm	
	Buffer Size	256 MiB ^[6]	
	Max Data Transfer Speed (Sustained)	248 MiB/s Typ.	242 MiB/s Typ.
Logical Data Block Length		HOST: 512 B, DISK: 4,096 B ^[7]	
Supply Voltage	Allowable Voltage	12 V ^[8] ± 10 % / 5 V ^[8] ± 5% ^[9]	
Power Consumption	Operating ^[10]	6.77 W Typ.	6.49 W Typ.
	Active Idle	4.54 W Typ.	4.28 W Typ.
Acoustics ^[11] (Sound Power)	Active Idle	20 dB Typ.	
	Seek	35 dB Typ.	

Item		MN06ACA10T	MN05ACA800	MN05ACA600	MN04ACA400
Interface		SATA-3.3			SATA-3.1
Formatted Capacity		10 TB	8 TB	6 TB	4 TB
Performance	Interface Speed	6.0 Gbit/s, 3.0 Gbit/s, 1.5 Gbit/s			
	Rotation Speed	7,200 rpm			
	Buffer Size	256 MiB ^[6]	128 MiB		
	Max Data Transfer Speed (Sustained)	237 MiB/s Typ.	230 MiB/s Typ.	205 MiB/s Typ.	185 to 195 MiB/s Typ.
Logical Data Block Length		HOST: 512 B, DISK: 4,096 B ^[7]			HOST: 512 B DISK: 512 B or 4,096 B ^[7]
Supply Voltage	Allowable Voltage	12 V ^[8] ± 10 % / 5 V ^[8] + 10% / - 5% ^[9]	12 V ^[8] ± 10 % / 5 V ^[8] ± 5% ^[9]		
Power Consumption	Operating ^[10]	9.92 W Typ.	9.2 W Typ.	10.1 W Typ.	9.6 W Typ.
	Active Idle	7.22 W Typ.	6.2 W Typ.	6.7 W Typ.	5.2 W Typ.
Acoustics ^[11] (Sound Power)	Active Idle	34 dB Typ.	33 dB Typ.		30 dB Typ.
	Seek	35 dB Typ.	35 dB Typ.		34 dB Typ.

➤ ENVIRONMENTAL LIMITS

Item		MN07ACA14T MN07ACA12T	MN06ACA10T	MN05ACA800 MN05ACA600 MN04ACA400
Temperature	Operating (ambient)	-		
	Operating (surface)	5 °C to 60 °C	0 °C to 65 °C	
	Non-Operating (ambient)	- 40 °C to 70 °C ^[15]		
Humidity	Operating	5 % to 90 % R.H. (No condensation)		
	Non-Operating	5 % to 95 % R.H. (No condensation)		
Shock	Operating	686 m/s ² { 70 G } (2 ms duration)		
	Non-Operating	2,450 m/s ² { 250 G } (2 ms duration)		
Vibration ^[12]	Operating ^[13]	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 ^[14]	29.4 m/s ² { 3.0 G } (5 to 500 Hz)	49 m/s ² { 5 G } (5 to 500 Hz)	
Altitude	Operating	- 305 m to 3,048 m (5 °C to 55 °C ambient)	- 305 m to 3,048 m	
	Non-Operating	- 305 m to 12,192 m ^[15]	- 305 m to 12,192 m	

[1] "2.5-inch" and "3.5-inch" mean the form factor of HDDs or SSDs. They do not indicate drive's physical size.

[2] Definition of capacity: Toshiba defines a megabyte (MB) as 1,000,000 bytes, a gigabyte (GB) as 1,000,000,000 bytes and 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 1GB = 2³⁰ = 1,073,741,824 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] Workload is defined as the amount of data written, read or verified by commands from host system.

[4] Read and write speed may vary depending on the host device, read and write conditions, and file size.

[5] MTTF (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.

[6] A kibibyte (KiB) means 2¹⁰, or 1,024 bytes, a mebibyte (MiB) means 2²⁰, or 1,048,576 bytes, and a gibibyte (GiB) means 2³⁰, or 1,073,741,824 bytes.

[7] Read-modify-write is supported.

[8] Input voltages are specified at the HDD connector side, during HDD ready state.

[9] Make sure the value is not less than -0.3V DC (less than -0.6V, 0.1ms) when turning on or off the power.

[10] Operating watt is measured using 80% random read/write and 20% performance idle.

[11] The measuring method is based on ISO 7779.

[12] Vibration applied to the HDD is measured at near the mounting screw hole on the frame as much as possible.

[13] At random seek write/read and default on retry setting with log sweep vibration.

[14] At power-off state after installation.

[15] The range of altitude is 3 048 m or less. Up to 55 °C at 7,620 m. Up to 40 °C at 12,192 m.

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