

**HDD**

> **AL14SEBxxEx SERIES**  
**ENTERPRISE PERFORMANCE HDD**

The AL14SEBxxEP/EQ Enterprise Performance HDD models combine the performance of 10,500rpm spindle speed with capacities up to 1800 GB in a compact, power efficient 2.5-inch form factor. Engineered for mission critical IT applications, the AL14SEBxxEP/EQ models support 12.0 Gbit/s SAS and support Advanced Format sector technology (512 emulation or 4K native formats) to support the latest operating environments while delivering sustained transfer rates reaching 225 MiB/s.



> **KEY FEATURES**

- Industry Standard 2.5-inch 15mm Height Form Factor
- 1800 GB, 1200 GB, 900 GB and 600 GB Capacity Models
- 10,500 rpm Rotational Performance or low latency
- 4Kn or 512e Advanced Format Sector Technology
- Dual-Port 12.0 Gbit/s SAS Interface
- Toshiba Persistent Write Cache Technology for Improved Performance and Data Integrity
- MTTF of 2,000,000 hours
- 24/7 Mission Critical Workload Performance and Data Reliability

> **APPLICATIONS**

- Tier-1 Mission-Critical Servers and Storage Arrays
- Hybrid and Mainstream Storage Arrays
- Mid-Range Volume Servers
- Blade and Rack mount Servers
- Edge Servers and Content Delivery Infrastructure

> **MAIN SPECIFICATIONS**

Model Number		AL14SEB18EP	AL14SEB12EP	AL14SEB09EP	AL14SEB06EP
		AL14SEB18EQ	AL14SEB12EQ	AL14SEB09EQ	AL14SEB06EQ
Interface		SAS-3.0 (12.0 Gbit/s , 6.0 Gbit/s , 3.0 Gbit/s , 1.5 Gbit/s )			
Formatted Capacity		1.8 TB	1.2 TB	900 GB	600 GB
Performance	Interface Speed	12.0 Gbit/s Max.			
	Rotation Speed	10,500 rpm			
	Average Latency Time	2.86 ms			
	Buffer Size	128 MiB			
Logical Data Block Length	HOST	AL14SEBxxEP	4,096 / 4,160 / 4,192 / 4,224 B		
		AL14SEBxxEQ	512 B / 520 B / 524 B / 528 B ( emulation )		
	DISK	4,096 / 4,160 / 4,192 / 4,224 B			
Supply Voltage	Allowable Voltage	5 V ± 5 % 12 V ± 5 %			
Power Consumption	Low Power Idle	4.0 W Typ.			

> **RELIABILITY**

Model Number	AL14SEBxxEx
Non-recoverable Error Rate	10 errors per 10 <sup>17</sup> bits read

## > MECHANICAL SPECIFICATIONS

Model Number	AL14SEBxxEx
Height	15.0 mm ± 0,5 mm Max.
Width	69.85 mm ± 0.25 mm Max.
Length	100.45 mm Max.
Weight	230 g Max.

## > ENVIRONMENTAL LIMITS

Item	Specification	
Temperature	Operating	5 °C to 55 °C
	Non-Operating	- 40 °C to 70 °C
Humidity	Operating	5 % to 95 % R.H. (No condensation)
	Non-Operating	5 % to 95 % R.H. (No condensation)
Shock	Operating	980 m/s <sup>2</sup> { 100 G } ( 1 ms duration )
	Non-Operating	3,920 m/s <sup>2</sup> { 400 G } ( 2 ms duration )
Vibration	Operating	9.8 m/s <sup>2</sup> { 1.0 G } ( 20 to 300 Hz )
	Non-Operating	49 m/s <sup>2</sup> { 5.0 G } ( 20 to 300 Hz )
Altitude	Operating	-305 m to +3,048 m { -1,000 to +10,000 feet }
	Non-Operating	-305 m to +12,192 m { -1,000 to +40,000 feet }

## > ENVIRONMENTAL FEATURE

Model Number	AL14SEBxxEx
RoHS	Compatible

Product image may represent a design model.

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.

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 1,073,471,824 bytes.

Toshiba Semiconductor & Storage Products Company defines "RoHS-Compatible" products as products that either (i) contain no more than a maximum concentration value of 0.1% by weight in Homogeneous Materials for lead, mercury, hexavalent chromium, polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs) and of 0.01% by weight in Homogeneous Materials for cadmium; or (ii) fall within any of the application exemptions set forth in the Annex to the RoHS Directive (Directive 2011/65/EC of the European Parliament and of the Council of 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment). "Homogeneous Material" means a material of uniform composition that cannot be mechanically disjointed (meaning separated, in principle, by mechanical actions such as unscrewing, cutting, crushing, grinding and/or abrasive processes) into different materials. Examples of "Homogeneous Materials" would be individual types of plastics, ceramics, glass, metals, alloys, paper, board, resins and coatings.

Toshiba Semiconductor & Storage Products Company defines halogen-free and antimony-free SSD and HDD products as those meeting all of the following requirements: (a) containing bromine (Br) and chlorine (Cl) at no more than 900 parts per million (ppm) by weight for each element, and containing bromine and chlorine in an aggregate amount not exceeding 1500 ppm by weight; and (b) containing no more than 1000 ppm antimony (Sb) by weight. For the avoidance of doubt, Halogen-Free/Antimony-Free SSD or HDD products may not be entirely free of bromine, chlorine, or antimony, and may contain other element of the halogen family.

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

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

Energy Consumption Efficiency: Energy consumption efficiency is calculated based on power consumption divided by formatted capacity, as defined by Japanese law.