

10,500 RPM

## 2.5-Inch SAS AL13SE Series Hard Disk Drive

**TOSHIBA**  
Leading Innovation >>>

*High Capacity, 6 Gb/s SAS*

*Interface Enterprise HDD for*

*Mission-Critical Server and*

*Storage Applications*



AL13SEB900

AL13SEB600

AL13SEB450

AL13SEB300

The Toshiba AL13SE series of 2.5-inch 6 Gb/s SAS interface hard disk drives offer enterprise-class performance in capacities ranging from 900GB<sup>1</sup> to 300GB.

The AL13SE is the first 10,000 RPM class model enterprise drive from Toshiba to achieve 900GB capacity and is also the first of Toshiba's 10,000 RPM drives to employ a dual-stage head positioning actuator that provides additional performance gains, including a 32% increase in sustained transfer rate.

Designed for even the most demanding mission-critical applications, the AL13SE series features an operating reliability rating of 2,000,000 power-on hours<sup>2</sup>, a 25% increase over prior-generation drives. System compatibility is also assured through usage of the industry-standard 512 byte sector size.

In keeping with Toshiba's leadership in power efficiency design, the AL13SE Series uses Supported Enhanced Power Condition State technology to lower RPM idle speed.

The AL13SE series drive is designed to support enterprise applications where reliability, high capacity, and performance are required. Specific applications include mid-range volume servers, mainstream storage arrays, blade and rackmount servers, and other mission-critical, power-conscious, data-intensive systems.

- Up to 900GB<sup>1</sup> of Storage Capacity
- Enhanced Power Condition State Technology
- 6 Gb/sec SAS
- 64MB Cache Buffer

# Hard Drive

# 10,500 RPM

## 2.5-Inch SAS Enterprise Hard Disk Drives

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	AL13SEB300	AL13SEB450	AL13SEB600	AL13SEB900
<b>Series Overview</b>				
Drive Capacity	300GB <sup>1</sup>	450GB <sup>1</sup>	600GB <sup>1</sup>	900GB <sup>1</sup>
Drive Interface	SAS 2.0			
RoHS Compliant	Yes			
Transfer Rate to Host	6 Gb/sec			
<b>Performance</b>				
Track-to-track Seek	0.2ms typ. (Read), 22ms typ. (Write)			
Average Seek Time	3.7ms typ. (Read), 4.1 ms typ. (Write)			
Rotational Speed	10,500 RPM			
Average Latency	2.8 ms			
Buffer Size	64MB			
<b>Power Requirements</b>				
Voltage	5V (+/- 5%), 12V (+/- 5%)			
Spin up (start) Power	12V (=/-5%) @ 1.65A (peak) 3.0A (peak < 100us) 1.5V (+/-5%) @ 1.1A (peak)			
Power Idle (Ready)	4.0 watts (max.)			
<b>Physical Size</b>				
Dimensions (W) x (D) x (H)	69.85 mm (2.75") x 100.45 mm (3.95") x 15 mm (0.59")			
Weight	220 g, or less			
<b>Environmental</b>				
Temp - Operating	5° to 55°C (41° to 131°F)			
Temp - Non-Operating	-40° to 70°C (-40° to 158°F)			
Humidity - Operating	5% to 95% RH			
Humidity - Non-Operating	5% to 95% RH			
Vibration - Operating	(0.6mm) 5 to 20 Hz / 9.8 m/s <sup>2</sup> (1.0G) 20 to 300 Hz			
Vibration - Non-Operating	(3.1mm) 5 to 20 Hz / 49 m/s <sup>2</sup> (5.0G) 20 to 300 Hz			
Shock - Operating	980 m/s <sup>2</sup> (100G) 1ms			
Shock - Non-Operating	3,920 m/s <sup>2</sup> (400G) 1ms			
Altitude - Operating	-1,000 to 10,000 ft			
Altitude - Non-Operating	-1,000 to 40,000 ft			
<b>Acoustics</b>				
Acoustics (Ready)	30dB			
<b>Reliability</b>				
Mean Time Between Failures (MTBF)	2,000,000 hours			
Component Life	5 years POH			
<b>Warranty</b>				
Limited Warranty	5 years (from date of purchase)			

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<sup>1</sup>One Gigabyte (1 GB) means 10<sup>9</sup> = 1,000,000,000 bytes using powers of 10. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1 GB = 2<sup>30</sup> = 1,073,741,824 bytes, and therefore shows less storage capacity. Available storage capacity will also be less if the computer includes one or more pre-installed operating systems, pre-installed software applications, or media content. Actual formatted capacity may vary.

<sup>2</sup>MTTF 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.

Subject to Change: While Toshiba has made every effort at the time of publication to ensure the accuracy of the information provided herein, product specifications, configurations, prices, system/component/options availability are all subject to change without notice. Product image may represent design model.

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