

Samsung V-NAND SSD PM9A3

2022 Data Sheet

Revision 1.0



LEGAL DISCLAIMER

SAMSUNG ELECTRONICS CO., LTD. RESERVES THE RIGHT TO CHANGE PRODUCTS, INFORMATION AND SPECIFICATIONS WITHOUT NOTICE.

Products and specifications discussed herein are provided for reference purposes only. All information discussed herein may change without notice and is provided on an "AS IS" basis, without warranties of any kind. This document and all information discussed herein remain the sole and exclusive property of Samsung Electronics Co., Ltd. No license of any patent, copyright, mask work, trademark or any other intellectual property right is granted under this document, by implication, estoppels or otherwise. Samsung products are not intended for use in life support, critical care, medical, safety equipment, or similar applications where product failure could result in loss of life or personal or physical harm, or any military or defense application, or any governmental procurement to which special terms or provisions may apply. For updates or additional information about Samsung products, contact your nearest Samsung representative. All brand names, trademarks and registered trademarks belong to their respective owners.

COPYRIGHT © 2022

This material is copyrighted by Samsung Electronics Co., Ltd. Any unauthorized reproductions, use or disclosure of this material, or any part thereof, is strictly prohibited and is a violation under copyright law.

TRADEMARKS & SERVICE MARKS

The Samsung logo is the trademark of Samsung Electronics Co., Ltd. All other company and product names may be trademarks of the respective companies with which they are associated.

For more information, please visit www.samsung.com/ssd and www.samsungssd.com.

To download the latest software & manuals, please visit www.semiconductor.samsung.com/consumer-storage

TECHNICAL SPECIFICATIONS

Samsung SSD PM9A3

Usage Application	Data Center, Server				
Interface	PCIe Express Gen4 x4, NVMe 1.4				
Hardware Information	Capacity ¹⁾	960GB	1.92TB	3.84TB	7.68TB
	Controller	Samsung in-house Controller			
	NAND Flash Memory	Samsung V-NAND TLC			
	Dimensions	100.20x 69.85x 7.0(mm)			
	Form Factor	2.5 inch U.2			
Performance (Up to.) ²⁾	Sequential Read	6,500 MB/s	6,800 MB/s	6,900 MB/s	6,700 MB/s
	Sequential Write ³⁾	1,500 MB/s	2,700 MB/s	4,100 MB/s	4,000 MB/s
	4KB Ran. Read (QD32)	580 KIOPS	850 KIOPS	1,000 KIOPS	1,100 KIOPS
	4KB Ran. Write (QD32)	70 KIOPS	130 KIOPS	180 KIOPS	200 KIOPS
Power Consumption ³⁾	Idle	DIPM off	3.5 W	3.5 W	3.5 W
	Active (Avg.)	Read/Write	9.5/8.0W	10.0/12.5W	11.0/13.5W
Reliability ⁴⁾	Temp.	Operating	0°C to 70°C		
		Non-Operating	-40°C to 85°C		
	Humidity		5% to 95% non-condensing		
	Shock	Non-Operating	1,500G, duration: 0.5ms, 3 axis		
	Vibration	Non-Operating	20~2,000Hz, 20G		
	MTBF		2.0 million hours		
Warranty	TBW ⁵⁾	1,752TB	3,504TB	7,008TB	14,016TB
	Period	5 year limited			
Supporting Features	TRIM (Required OS support), Garbage Collection, S.M.A.R.T				
Data Security	AES 256-bit Full Disk Encryption, TCG/Opal V2.0, Encrypted Drive(IEEE1667)				

- 1) GB: 1GB = 1,000,000,000 bytes. A certain portion of capacity may be used for system file and maintenance use, thus the actual available capacity may differ from the labeled total capacity.
- 2) Performance measurements are based on FIO 2.7 in Linux Gen4: CentOS7(Kernel 5.3.1) with 4KB (4,096 bytes) of data transfer size in Queue Depth=32 by 4 workers. Measurements were performed on a full Logical Block Address (LBA) span of the drive in sustained state. The actual performance may vary depending on use conditions and environment.
- 3) Active Read power is measured on 4 KB random read. Active Write power is measured on 4 KB random write.
- 4) All documented endurance test results are obtained in compliance with JESD218 Standards. Please visit www.jedec.org for detailed information on JESD218 Standards
- 5) TBW means Total Bytes Written.
- 6) Please refer to the detailed warranty statement here at <http://samsung.com/samsungssd>.
- 7) Warranty provides coverage for the stated time period or the TBW, whichever comes first.

PRODUCT LINEUP

Density	Model Name	Part Number
960GB*	MZ-QL296000	MZQL2960HCJR-00W07
1.92TB (1,920GB*)	MZ-QL21T900	MZQL21T9HCJR-00W07
3.84TB (3,840GB*)	MZ-QL23T800	MZQL23T8HCLS-00W07
7.68TB (7,680GB*)	MZ-QL27T600	MZQL27T6HBLA-00W07

* GB: 1GB = 1,000,000,000 bytes by IDEMA. The actual usable capacity may be less than the labeled capacity. For more information, including but not limited to the warranty provided for this product, please visit www.samsung.com/ssd and www.samsungssd.com.

Revision History

Revision Number	Description	Revision Date
1.0	Initial Release	August 2022