

Target

SAMSUNG SSD PM991a

Specification (PCIe® NVMe™ M.2 22x30)

Datasheet *For General*

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Revision History

<u>Revision No.</u>	<u>History</u>	<u>Draft Date</u>	<u>Remark</u>	<u>Edited by</u>	<u>Reviewed by</u>
0.1	1. Initial issue	Nov. 17. 2022	Target	S.M.Lee	Yongsunk Yun

PART NUMBER	CAPACITY ¹⁾	LBA COUNT ²⁾
MZ9LQ128HCHQ-00B00	128GB	250,069,680
MZ9LQ256HBJD-00B00	256GB	500,118,192
MZ9LQ512HBLU-00B00	512GB	1,000,215,216
MZ9LQ1T0HBLB-00B00	1024GB	2,000,409,264

FEATURES	ENVIRONMENTAL SPECIFICATIONS
<ul style="list-style-type: none"> · PCIe® Gen.3 8Gb/s Interface, up to 4 Lanes · Compliant with PCI Express® Base Specification Rev. 3.0 · Compliant with PCI Express® M.2 Specification Rev 1.1 · Compliant with NVM Express™ specification Rev. 1.4 · Power Saving Modes: <ul style="list-style-type: none"> - Supporting APST - Supporting L1.2 Mode · Support Admin & NVM Command Set · RoHS Compliant 	<ul style="list-style-type: none"> · Temperature <ul style="list-style-type: none"> - Operating⁴⁾ 0 °C to 70 °C - Non-operating -40 °C to 85 °C · Humidity (non-condensing) <ul style="list-style-type: none"> - Non-operating 5 ~ 95 % · Linear Shock (0.5ms duration with 1/2 sine wave) <ul style="list-style-type: none"> - Non-operating 1,500 Gpeak · Vibration <ul style="list-style-type: none"> - Non-operating (20~2000Hz) 20 Gpeak

DRIVE CONFIGURATION	POWER SPECIFICATIONS
<ul style="list-style-type: none"> · Capacity 128/256/512/1024 GB · From Factor M.2 22x30 · Interface PCI Express Gen.3 x4 · Bytes per Sector 512 Bytes 	<ul style="list-style-type: none"> · Supply Voltage 3.3 V ± 5% · Voltage Ripple/Noise (max.) 100 mV p-p · Active⁵⁾ (Typ, RMS) <ul style="list-style-type: none"> - Read 3.4 W - Write 3.0 W · Idle⁶⁾ (Typ.) 45 mW · Sleep⁶⁾ (Typ) 5 mW

PERFORMANCE SPECIFICATIONS ³⁾	PHYSICAL DIMENSION
<ul style="list-style-type: none"> · Data Transfer Rate (128KB) <ul style="list-style-type: none"> - Sequential Read (128GB) Up to 2000 MB/s (256GB) Up to 2050 MB/s (512GB) Up to 2200 MB/s (1024GB) Up to 2300 MB/s - Sequential Write (128/256GB) Up to 1100 MB/s (512GB) Up to 1200 MB/s (1024GB) Up to 1250 MB/s 	<ul style="list-style-type: none"> · Width 22.00 ± 0.15 mm · Length 30.00 ± 0.15 mm · Height Max. 2.38 mm · Weight Max. 4.0 g
<ul style="list-style-type: none"> · Data I/O Speed (4KB) <ul style="list-style-type: none"> - Random Read (128/256GB) Up to 195K IOPS (512/1024GB) Up to 200K IOPS - Random Write (128/256/512GB) Up to 210K IOPS (1024GB) Up to 220K IOPS 	<p><u>Specifications are subject to change without notice.</u></p> <p>1) 1MB = 1,000,000 Bytes, 1GB = 1,000,000,000 Bytes, Unformatted Capacity. User accessible capacity may vary depending on operating environment and formatting.</p> <p>2) 1 Sector = 512 Bytes, Max. LBA count represents the total user addressable sectors in LBA count mode and calculated by IDEMA rule</p> <p>3) Actual performance may vary depending on use conditions and environment. Performance measurements based on TurboWrite technology.</p> <p>4) Measured by SMART Temperature. Proper airflow recommended</p> <p>5) Active power is measured on sequential write and read.</p> <p>6) Idle Power is measured on PS3 (L1.2 Enable) and Sleep Power is measured on PS4 (L1.2 Enable). Actual measurements result may vary depending on use conditions and environment.</p>

RELIABILITY SPECIFICATIONS
<ul style="list-style-type: none"> · Uncorrectable Bit Error Rate < 1 sector per 10¹⁵ bits read · MTBF 1.5 Million Hours