



AS-M.2-2280 — Photon Series NVMe

M.2 2242 / 2280 | eNAND TLC | NVMe Gen3 & Gen4 | Up to 8TB
 Conduction Cooled | Industrial & Commercial

QUICK REFERENCE

Interface: NVMe PCIe Gen3/4 x4
 Form Factor: M.2 2242 / M.2 2280
 Capacity: 240 GB – 7,680 GB
 Temp: 0°C to +70°C (Comm.) / -40°C to +85°C (Ind.)
 Conduction Cooled: -40°C to +80°C (Tc)
 Security: AES-256 / TCG OPAL2
 DWPD: 0.98 @ 5yr (Pro Performance)

7,000 MB/s

Seq. Read — Gen4 Pro Perf.

2,000,000 hrs

MTBF

1,500 G

Shock (Op & Non-Op)

8 TB

Max Capacity

0.98 DWPD

5-Year Endurance

PRODUCT OVERVIEW



Photos for reference only

The Photon Series M.2 SSD delivers NVMe interface storage in a compact 2242 or 2280 package using 3D eNAND TLC Flash. Designed for defense, aerospace, and harsh industrial environments requiring high reliability, AES-256 hardware encryption, TCG OPAL2, fast sanitize erase, SE by H/W trigger, and conduction cooling. No special drivers required — compatible with Windows and Linux.

PERFORMANCE SPECIFICATIONS

Parameter	Specification	Notes
Sequential Read	Up to 3,480 MB/s (Pro)	Gen3 x4 1MB blocks QD8
Sequential Read	Up to 7,000 MB/s (Pro Performance)	Gen4 x4 all capacities
Sequential Write	Up to 3,000 MB/s (Pro)	Gen3 x4
Sequential Write	Up to 2,700 MB/s @ 480 GB (Pro Perf.)	Gen4
Sequential Write	Up to 5,400 MB/s @ 960 GB (Pro Perf.)	Gen4
Sequential Write	Up to 6,700 MB/s @ 1,920 GB (Pro Perf.)	Gen4
Random Read (4KB)	Up to 335K IOPS (Pro)	
Random Read (4KB)	Up to 950K IOPS (Pro Performance)	
Random Write (4KB)	Up to 280K IOPS (Pro)	
Random Write (4KB)	Up to 1,150K IOPS (Pro Performance)	
Interface	PCIe Gen3 & Gen4 x4 lanes	NVMe 1.3 compliant
OS Support	Windows • Linux	No special drivers required

CAPACITY, FLASH GRADE & ENDURANCE

Flash Grade	Capacity	TBW Endurance	Notes
TLC / eNAND TLC	240 GB – 7,680 GB (2280)	Pro: 800 TBW @ 2TB	Gen3 Pro
TLC / eNAND TLC	240 GB – 7,680 GB (2280)	3,390 TBW @ 2TB 0.98 DWPD / 5yr	Gen4 Pro Performance
TLC / eNAND TLC	960 GB – 1920 GB (2242)	1,200 TBW @ 1TB	Enterprise Option V
Enterprise (V)	2280: up to 7.68 TB	24,000 TBW @ 128K sustained write	2280 only
Enterprise (V) eNAND	160 GB – 660 GB (2242)	4,000 TBW @ 660GB	Enterprise Option V



ENVIRONMENTAL & MECHANICAL

Parameter	Commercial	Industrial
Operating Temp	0°C to +70°C	-40°C to +85°C (Tc)
Conduction Cooled	—	-40°C to +80°C (Tc)
Storage Temp	-50°C to +95°C (Tc)	-50°C to +95°C (Tc)
Humidity	5% to 95% RH, non-condensing	5% to 95% RH, non-condensing
Shock (Op & Non-Op)	1,500 G / 0.5ms	1,500 G / 0.5ms
Vibration (Operating)	10Hz to 2000Hz / 20Gp-p / 7.07 Grms	10Hz to 2000Hz / 20Gp-p / 7.07 Grms
Vibration (Non-Op)	Beyond 7.07 Grms	Beyond 7.07 Grms

RELIABILITY & DATA INTEGRITY

Parameter	Specification
MTBF	2,000,000 hours
Error Correction	Embedded EDC/ECC; Bad Block Mapping and Management
Wear Leveling	Dynamic & Static wear-leveling algorithm
Self-Test	Built-in power-up self-test; automatic self-diagnostics
Power Protection	Moderate SPOR / PLP — Sudden Power Off Recovery

SECURITY

Feature	Specification
Encryption	AES-256 bit hardware encryption
Fast Erase	NVMe Fast Erase support; TCG OPAL2
Secure Erase	SE (Secure Erase) by H/W trigger option for up to 2TB

POWER CONSUMPTION

Mode	M.2-2280	M.2-2242
Active	Up to 5.7W	Avg. 2.5W; Max 4W
Idle	0.3W	0.6W (ideal)

PHYSICAL DIMENSIONS

Configuration	Dimensions & Weight
M.2-2280 Standard	80 L × 22 W × 3.8 H mm max; ≤10 g
M.2-2280 Conduction Cooled (with H/S)	80 L × 36.5 W × 12.6 H mm; 60 g
M.2-2280 Conduction Cooled (without H/S)	80 L × 36.5 W × 8.6 H mm; 53 g
M.2-2242	42 L × 22 W × 2.3 mm — single side population for up to 2TB

APPLICATIONS

Defense & Aerospace	Industrial & Security
<ul style="list-style-type: none"> Industrial & Commercial PC / Tablet Systems Defense Factory Automation Navigation, Infotainment Smart Terminals Telecomm Hub / Switch 	<ul style="list-style-type: none"> Airborne Systems Rugged Computer Security, HLS — Homeland Security High-Speed Data Recording Video Surveillance, JPEG2000 Capture JBOD, NAS, SAN, RAID

ORDERING INFORMATION

P/N Structure: ASC[kk]M2[8;4]-[cccc]NAET[y][xnn] - Consult factory for allowable combinations.

Part Number	Description
ASCN2M28-0240NAET2	M.2-2280 240 GB eNAND TLC NVMe Gen3 C-Temp PRO
ASCN2M28-0480NAET2	M.2-2280 480 GB eNAND TLC NVMe Gen3 C-Temp PRO
ASCN2M28-0960NAET2	M.2-2280 960 GB eNAND TLC NVMe Gen3 C-Temp PRO
ASCN2M28-1920NAET2	M.2-2280 1920 GB eNAND TLC NVMe Gen3 C-Temp PRO
ASZNB2M28-0240NOET200F	M.2-2280 240 GB eNAND OPAL NVMe Gen4 ePLP I-Temp MIL Coated PRO Performance
ASZNB2M28-0480NOET200F	M.2-2280 480 GB eNAND OPAL NVMe Gen4 ePLP I-Temp MIL Coated PRO Performance
ASZNB2M28-0960NOET200F	M.2-2280 960 GB eNAND OPAL NVMe Gen4 ePLP I-Temp MIL Coated PRO Performance
ASZNB2M28-1920NOET200F	M.2-2280 1920 GB eNAND OPAL NVMe Gen4 ePLP I-Temp MIL Coated PRO Performance
ASZG4M28-3840NOET200F	M.2-2280 3840 GB eNAND TLC OPAL NVMe Gen4 ePLP I-Temp MIL Coated PRO
ASZG4M28-7680NOET200F	M.2-2280 7680 GB eNAND TLC OPAL NVMe Gen4 ePLP I-Temp MIL Coated PRO
ASZG3M24-1000NNHT906F	M.2-2242 1000 GB eNAND TLC NVMe Gen3 ePLP I-Temp MIL Coated Single Side
ASZG3M24-2000NNHT906F	M.2-2242 2000 GB eNAND TLC NVMe Gen3 ePLP I-Temp MIL Coated Single Side
ASZG3M24-3840NNHT900F	M.2-2242 3840 GB eNAND TLC NVMe Gen3 ePLP I-Temp MIL Coated Dual Side
ASZG3M24-0160NNHV906F	M.2-2242 160 GB eNAND pTLC High DR NVMe Gen3 ePLP I-Temp MIL Coated Single Side MIL Coated
ASZG3M24-0330NNHV906F	M.2-2242 330 GB eNAND pTLC High DR NVMe Gen3 ePLP I-Temp MIL Coated Single Side MIL Coated
ASZG3M24-0660NNHV906F	M.2-2242 660 GB eNAND pTLC High DR NVMe Gen3 ePLP I-Temp MIL Coated Single Side MIL Coated
Ordering example: ASZNB2M28-1920NOET2	M.2-2280 1920 GB eNAND OPAL NVMe Gen4 ePLP I-Temp PRO Performance

Options: kk: Gen3 (G3); Gen4 (G4/NBN2); C/I-Temp (C/Z); ePLP (NN>LN); AES256 OPAL (NA>NO); H/W SE (E>H); MIL Coat (x0F); Enterprise (T>V); CC (xDx): Single sided MIL Coated (x6F); Conduction Cool & MIL Coated (x63). Consult factory for allowable P/N combinations.