

Apacer

The Most **Reliable**
Storage For Industries

PV22D-M280



Overview

PV22D-M280

Tailor-made Rugged PCIe Solutions for Rugged Applications

Apacer PV22D is a series of rugged, defense-grade PCIe solid-state drives and modules specifically designed for rugged applications to protect highly sensitive data with M.2 2280 mechanical dimensions. Supporting the super-fast PCIe Gen3 x4 interface and NVMe 1.3 specifications and built with a powerful PCIe controller, Apacer PV22D delivers outstanding performance in data transfer, reaching up to 221,000/266,000 and 1,710/1,685 MB/s in IOPS and sequential read/write. Utilizing 3D NAND for higher capacity up to 1920GB and providing more power efficiency than 2D NAND, PV22D is implemented with LDPC (Low Density Parity Check) ECC engine to extend SSD endurance and increase data reliability.

Incorporating hardware-based AES 256-bit encryption and Smart Read Refresh™, Apacer PV22D not only offers high performance, reliability and data security, but also extends the expected operational lifetime multiplied by Global Wear Leveling. Data integrity and stability of data transmission can be further guaranteed by DataDefender™, ensuring that products are protected from power disruptions and can function smoothly even in harsh environments. Moreover, the level of protection against data loss increases with DataRAID™ to provide fault tolerance and improve data availability in the event of a drive failure.

Multiple Protection Technologies that Safeguard Sensitive Data

In addition to the aforementioned built-in implementations, Apacer PV22D provides a wide range of optional solutions and cutting-edge technologies featuring multiple approaches to protection, including TCG Opal 2.0/SED, Instant Keychange, MIL Erase, Digital Destruction and Write Protect. These security features can be triggered either via software or hardware methods, except TCG Opal 2.0 which can only be activated via software commands. With these technologies available for employment, mission-critical data is safeguarded against unauthorized access at all times and no data will be compromised as Apacer PV22D adheres to MIL compliance standards.



Withstood 8 Tough US DoD Military Standard Tests

Apacer PV22D-M280 is a combination of the latest firmware, software and hardware technologies that guarantee that rugged solutions are perfectly customized and engineered for customers' requirements. With protective technologies and robust design, Apacer PV22D provides the highest standard of reliability – whether in terms of data security, data integrity and data protection. The US Department of Defense has a complex series of MIL standards. Apacer rugged series has passed their tests that cover:

1. **Shock**
2. **Vibration:** Reaches the highest requirements of MIL-STD 810G 514.6 for Fixed Wing Jet Aircraft.
3. **Humidity**
4. **High/Low Temp.**
5. **Thermal Shock:** Exposes components to high and low temperatures that cycle rapidly.
6. **Altitude:** Simulates the effects of high pressure in an aircraft flying at 80,000 feet.
7. **Salt Fog:** Uses a five percent salt spray to simulate accelerated corrosion in a relatively slow airflow environment.
8. **Radiation:** Simulates the full-spectrum interference environment that heat and sunlight can create.



Shock

MIL-STD-202G MIL-STD-883K

Vibration

MIL-STD-810G

Humidity

MIL-STD-810G
Method 507.5

High/ Low Temp.

MIL-STD-810G Method 501.5
MIL-STD-810G Method 502.5

Thermal Shock

MIL-STD-810G Method 503.5
Procedure I-C

Altitude

MIL-STD-810G
Method 500.5

Salt fog

MIL-STD-810G
Method 509.5

Radiation Test

MIL-STD-810G Method 505.5
procedur 2

Feature

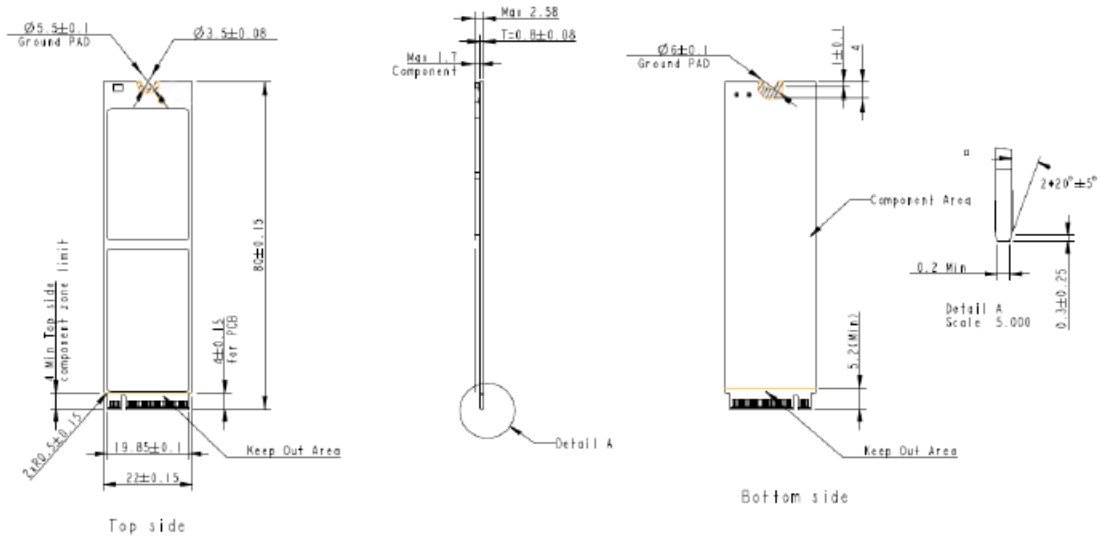
- PV22D rugged series
- Supports TCG Opal 2.0 / AES 256-bit encryption
- Global Wear Leveling
- Power Failure Management
- SMART Read Refresh™
- S.M.A.R.T.
- NVMe Secure Erase
- TRIM
- Hyper Cache Technology
- Over-ProvisioningCore
- CoreGlacier™ heatsink technology
- Nano Coating / Conformal Coating / 30µ Gold Finger (optional)

Specifications

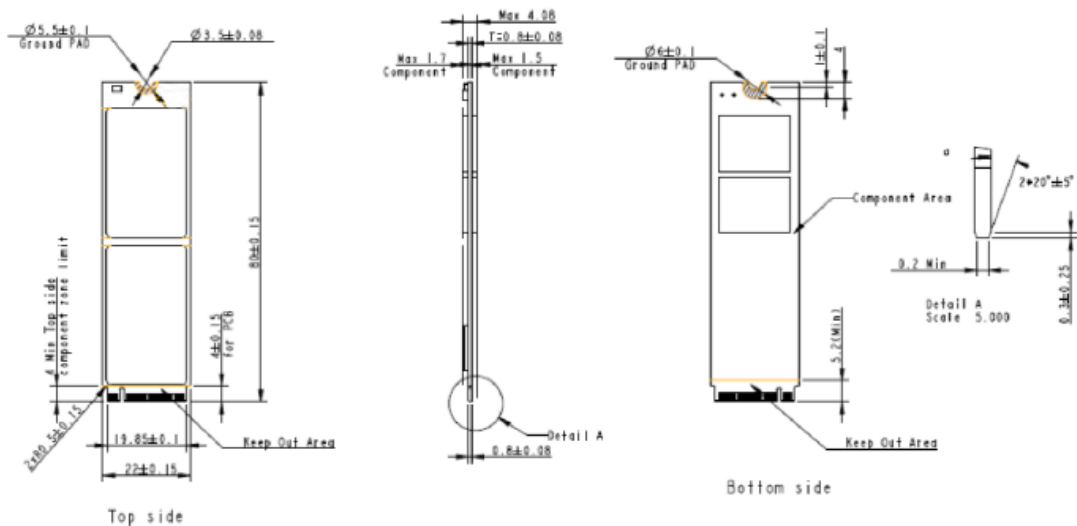
Model	PV22D-M280
Interface	PCIe Gen3 x4
Connector	M.2 M Key
Form Factor	M.2 2280-D5-M Key
NAND Flash Type	3D TLC
Capacity	M.2 2280 Single side, M key: 120 GB M.2 2280 Double side, M key: 240/480/960/1920 GB
External DRAM	No
Sustained Read Performance (MB/sec)	Up to 1710
Sustained Write Performance (MB/sec)	Up to 1685
ECC Engine	Low-Density Parity-Check (LDPC) Code
IOPS (4K Random Write)	266K
Standard Operating Temperature (°C)	0 ~ + 70
Wide Temperature (°C)	-40 ~ + 85
Storage Temperature (°C)	-55 ~ + 100
Thermal sensor	Yes
Shock	MIL-STD-202G, Condition A MIL-STD-883K, Condition B
Vibration	MIL-STD-810G, Method 514.6, Procedure I, Category 24 MIL-STD-810G, Method 514.6, Procedure I, Category 7
Operating Voltage	3.3V±5%
Power Consumption	Low Power PS4 (L1.2): < 5.5mW / Idle mode: 250 mA
Dimension (L x W x H)	Single side: 22.00 x 80.00 x 2.58 (mm) Double side: 22.00 x 80.00 x 4.08 (mm)
MTBF (hours)	>5,000,000

Mechanical Specification

Single Side



Double Side



Unit: mm

For more information,
contact your Apacer representative

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