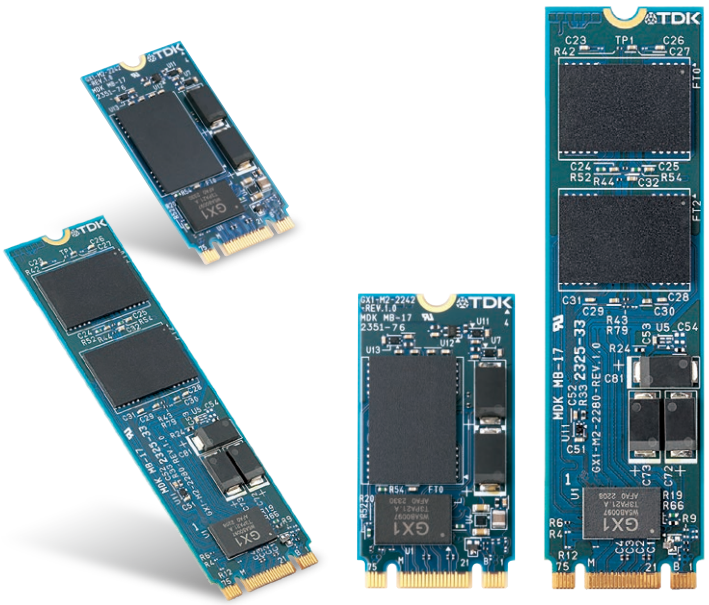
M.2 PCI Express®× NVM Express™ SNP1A series

From SATA to PCI Express® for industrial applications

In recent years, the number of SATA ports on the host CPU side has been decreasing, and demand for PCIe®/NVMe™-connected SSDs as boot devices for industrial applications is increasing.
However, most SSDs compatible with PCIe®/NVMe™ interfaces focus on transfer speed and may not be suitable for use in industrial equipment and edge computing equipment applications where reliability and stable operation are critical.
TDK's SNP1A series is an M.2 2242 / 2280 form factor SSD that is resistant to sudden power interruptions. It was developed for PCIe® using the power interruption protection circuit that has been useful in TDK's previous products for industrial applications.
In addition, TDK's SNP1A series has enhanced security measures, including not only the FW tampering prevention function, but also our proprietary security function that can prevent impersonation and protect against viruses such as ransomware.
TDK's SNP1A series of SSDs is ideal for all industrial applications.



*PCIe is a registered trademark of PCI-SIG.
NVM Express is a registered or unregistered trademark of NVM Express, Inc. in the United States and other countries.
*When using this product, please be sure to verify the operation of the product under the actual usage environment at your own responsibility and discretion.
Also, please be sure to check our latest delivery specifications for the specifications and warranties of this product.
TDK cannot guarantee this product unless it conforms to the specifications stated in the specification sheet.

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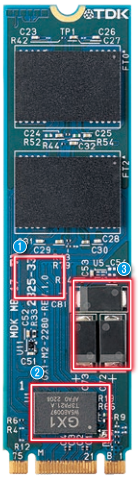
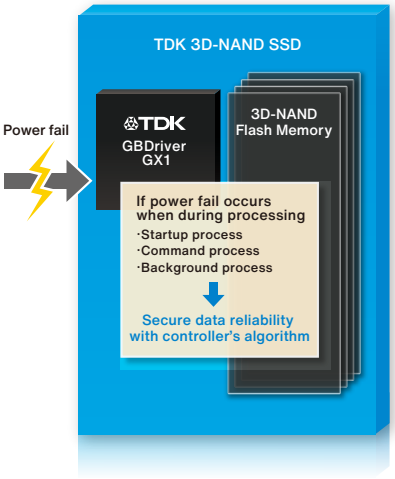
TDK's SSDs are designed with an emphasis on power interruption tolerance. The combination of the following three measures provides an overwhelming level of tolerance.

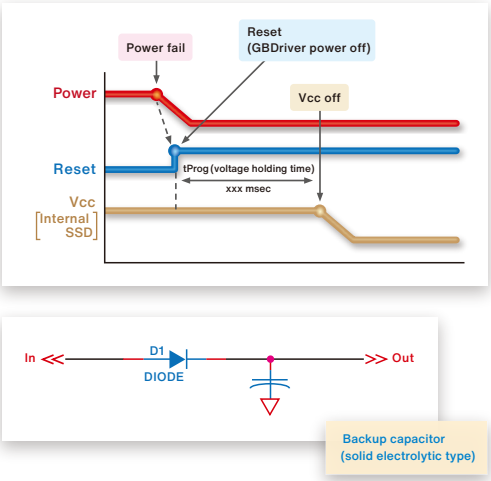
1 DRAM-less design



2 GBDriver GX1 algorithm (firmware)



3 Power backup circuit (on PCB)



GENERAL INFORMATION

TYPE	M.2 2242 / 2280 (B&M Key)	
INTERFACE	PCI Express® Base Specification Revision 3.1a (8.0GT/s, ×2)	
INTERFACE COMMAND	NVM Express™ Revision 1.4(or 2.0) command set	
CONNECTOR	75 pin. Edge B & M k ey	
OUTLINE DIMENSIONS	22×42mm / 22×80mm	
SERIES	SNP1A	
CONTROLLER TYPE	TDK GBDriver GX1	
FLASH TYPE	3D -pSLC (SLC mode)	3D - TLC (TLC mode)
CAPACITY RANGE	20GB ～ 640GB	60GB ～ 1920GB
DATA RETENTION	10 years @ life begin	1 year @ life end
ENDURANCE	30,000 P/E Cycles *Flash Block Level	3,000 P/E Cycles *Flash Block Level

TEMPERATURE

OPERATING TEMPERATURE	Commercial: 0°C to +70°C	Industrial: -40°C to +85°C
STORAGE TEMPERATURE	Commercial: -25°C to +85°C	Industrial: -40°C to +85°C

PERFORMANCE

Read (max.)	Read: 1700MB/sec
Write (max.)	Write: 1200 MB/sec

ROBUSTNESS

MTBF	≥ 2,000,000 hours
SHOCK	1500G,0.5ms
VIBRATION	20G,10-2000Hz
HUMIDITY	0 to 90 % RH (No condensation)

ELECTRICAL DATA

VOLTAGE	3.3 V ± 5 %
POWER CONSUMPTION (*RT)	2600mW max (4ch 4way mode) 50 mW max (Sleep)

FEATURE LIST

FEATURES & TOOLS	- In-House Designed Controller - SLC Cache, LDPC-ECC - DRAM-less Design - Power Fail Data Safety - Power Back-up Circuit - Global static wear leveling	- SMART (life monitor) - Cyclic auto refresh function - Thermal throttling function - Write-protected area setting tool (on request) - AES 256 bit encryption, TCG-OPAL (on request) - TDK original security function (on request)

	Capacity[GB]	3D-pSLC(SLC mode)	Capacity[GB]	3D-TLC(TLC mode)
TDK Standard Part Number	20	SNP1A020GKMACA**O**0ESA0	60	SNP1A060GKLACA**O**0ESA0
	40	SNP1A040GKMBCA**O**0ESA0	120	SNP1A120GKLBCA**O**0ESA0
	80	SNP1A080GKMDCA**O**0ESA0	240	SNP1A240GKLDCA**O**0ESA0
	160	SNP1A160GKMECA**O**0ESA0	480	SNP1A480GKLECA**O**0ESA0
	320	SNP1A320GKMECA**O**0ESA0	960	SNP1A960GKLECA**O**0ESA0
	640	SNP1A640GKMFCAA0ESA0	1920	SNP1A1R9TKLFCAA0ESA0

C : 0~70℃ ⇒ **W** : -40~85℃ **O** : type 2242 ⇒ **A** : type 2280 (Also, 320GB and 960GB need to change **E** ⇒**F**.)