TDK

Serial ATA II Compatible High-Speed Solid State Drives (SSD)SDG2A Series

Conformity to RoHS Directive

Highly Reliable 2.5" SATA II Flash Drives with TDK SATA Controller IC GBDriver RS2 Featuring AES128bit Encryption
1GB, 2GB, 4GB, 8GB, 16GB, 32GB

The TDK SDG2A Series of silicon disks for industrial use are flash drives that are compatible with SATA interface that can be used as an alternative to Hard Disk Drives (HDD), and which can meet the requirements for high-speed performance, data reliability, storage lifespan, and data security. This series features high-speed data access with an effective reading speed of 95MB/sec and writing speed of 55MB/sec, and has a powerful error-correcting ability that can be extended up to 15 bit/sector ECC resulting in excellent data reliability. These SATA drives are ideal for use in automobiles and for industrial use due their design for preventing and repairing power disconnection errors and read disturb errors. TDK's unique, advanced static ware-leveling algorithm allows for the longest storage lifespan in the industry. The SMART (Self-Monitoring, Analysis and Reporting Technology) function has also been enhanced. It is possible to acquire the number of rewrites (deletions) for all memory blocks in real time, allowing the lifespan of the SSD to be understood quantitatively. These drives use AES128bit, which is an advanced encryption standard established by the Federal Information Processing Standard (FIPS) PUB197 by the United States Department of Commerce. By using a combination of the ATA standard security function and TDK's password lock function, it is possible to prevent falsification, leakage, and unauthorized copying of private and confidential information.

FEATURES

- Equipped with TDK's proprietarily developed RS2 NAND flash memory controller IC GB Driver.
- Compatible with SATA 2.6 (Gen1: 1.5Gbps; Gen2: 3.0Gbps). High-speed access with a read speed of 95MB/sec and write speed of 55MB/sec.*1
- 8 or 15 bits/sec error-correcting ability (automatically selected by the flash memory's judgment).
- TDK's proprietary static wear leveling algorithm levels the frequency of rewriting (deleting) all the areas of the equipped flash memory and considerably improves the rewriting life of the memory.*2 (As reference, a flash memory with a 32GB capacity can be rewritten (deleted) 6.2 billion times. This is equivalent to 5-times rewriting (deleting) per second over an 40-year period.)*3
- The built-in RS2 flash memory controller IC GB Driver allows for superior system power-off durability. By using the internal SSD power locking circuit, it is possible to prevent collateral data errors.
- These drives support SMART commands. Histogram display of rewriting (deleting) frequency of all memory blocks enables memory life to be managed quantitatively. For example, it is possible to have enhanced RAS (Reliability, Analysis & Serviceability).
- Equipped with a function to set the number of total sectors which allows customization of the number of logical blocks per sector allotted to the data area. For example, with this function, decreasing the number of logical blocks can increase the possible flash memory rewriting frequency, and for applications that do not need a longer life, increasing the number of logical blocks can maximize the memory capacity. CHS parameters can also be customized, allowing for easier system implementation. *4
- Uses128-bit AES (Advanced Encryption Standard). Data is automatically encrypted and recorded to the flash memory, which prevents data leakage and falsification.
- Supports security functions based on ATA standards. Customers can set or cancel passwords. By using the AES encryption function, it is possible to prevent unauthorized copying.
- A dedicated FAE (Field Application Engineer) registration system provides fast and reliable solutions such as for system compatibility verification and customizing.
- These Solid State Drives are RoHS compliant. The components, lead terminals, etc. are all free from hazardous substances prohibited by the RoHS Directives of the EU (European Union).

*1 Dependent on flash memory connection configuration and system environment.
*2 The scope of static wear leveling execution can be customized. (Outside the scope of static wear leveling execution, dynamic wear leveling is executed).
*3 This applies to a product equipped with an SLC flash memory with a structure of 4 KB/page.
*4 Setting the number of total sectors and CHS parameters is optional.

MAIN APPLICATIONS

- Replacing HDDs with SSDs or building SATA RAID system.
- OS, system, and user data storage for electrical household appliances such as Blu-ray Disc players, digital TVs, and STBs.
- High-speed booting devices using OS HORM (Hibernate Once/Resume Many) functions for embedded equipment such as Windows XP Embedded.
- Storage devices requiring a high frequency of data rewriting such as POS systems and station equipment.
- Usages requiring vibration resistance, energy conservation, and compact size such as Green IT equipment, medical equipment, logistics systems, and machine tools.
- Usages requiring strict data security such as terminals for financial institutions and digital signage.

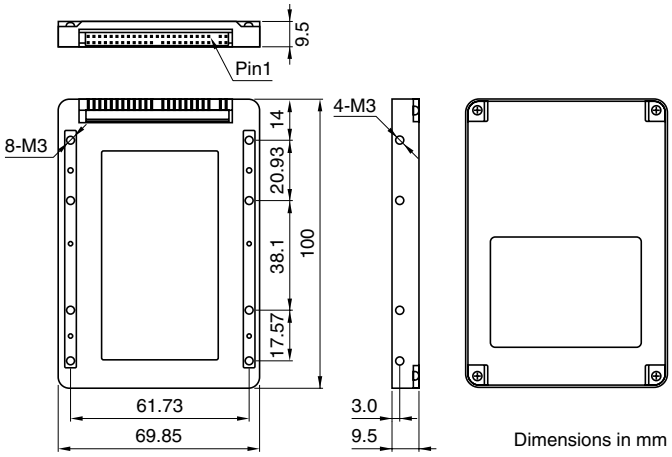
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

APPLICATION EXAMPLES

- IT equipment such as thin clients, tablet computers, and data servers.
- General vehicle-installed equipment such as car navigation systems.
- OA equipment such as multifunction printers (MFP) and business use projectors.
- Entertainment equipment such as online karaoke and amusement arcades.
- Advertisement display equipment such as electronic POPs.
- General FA equipment such as semiconductor manufacturing equipment, NC machine tools, sequencers, PLCs, panel computers, and embedded CPU boards.
- General transportation facility equipment such as automatic ticket vending and checking, and commuter pass-vending machines, train traffic control systems, automatic airline ticketing machines, and automatic check-in machines.
- Financial institution terminals such as cash registers and other POS (Point of Sales) equipment, convenient stores and kiosk terminals, and ATMs (Automated Teller Machines).
- General medical and measuring equipment such as diagnostic imaging equipment, blood analysis equipment, medical computers, and electronic medical chart systems.
- General communication broadcsting and information systems for base stations such as 3G mobile phone data communication systems.
- General security terminals and equipment such as digital signage, biometric authentication systems, room entering/ leaving management systems, and survalence cameras.
- Disaster prevention equipment such as earthquake notification systems and fire alarms for residential buildings.

SHAPES AND DIMENSIONS

2.5-inch SATA SSD



Dimensions in mm

SPECIFICATIONS

Product name		RS2 Series Serial ATA 2 Interface SSD (Solid State Drive)
Product No.		SDG2A Series
Data capacity		1GB/2GB/4GB/8GB/16GB/32GB
Size		2.5-inch SATA
Memory type		SLC (Single Level Cell) NAND Flash Memory
Controller		TDK GB Driver RS2a
Interface		Serial ATA Revision 2.6
Transfer mode		SATA Gen1: 1.5Gbps/Gen2: 3.0Gbps
Transfer speed*	Read(max.)	95MB/s
	Write(max.)	55MB/s
Error-Correcting function(ECC)		8bit/sector correction, 15bit/sector correction(1sector: 512byte)
Rewriting lifespan*		With/Without fixed area Effective blocks×50,000 times (Ex: 6.2 billion for 32GB SSD)
Vibration resistance		15G[During operation]
Impact resistance		1,500G[During non-operation]
MTBF		500,000 hours
Operating temperature		0 to +70°C[–40 to +85°C industrial option]
Ambient storage temperature		–25 to +85°C
Storage/Operation humidity		0 to 90(%) RH [No condensation]
Power supply voltage		5V±10%
Acquired standards		CE/FCC/VCCI
Environmental specifications		RoHS compliant
Country of origin		Taiwan

* For 4KByte/page flash and 4-ch Interleaved Mode