SD Card TDK Develops SD Card and MicroSD Card Series Optimised for Industrial Applications

- Support for rewrite life monitoring, integrated SLC NAND, max. 16 GB capacity
- SD/SDHC cards and microSD cards compliant with SDA specification 2.0 for improved power interruption tolerance

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Today TDK Corporation announced the development of a new series of SD/SDHC cards and microSD cards for industrial applications.

The new MMGBA Series of SD/SDHC cards and MUGBA Series of MicroSD cards offer high durability, advanced error correction and a lifetime monitoring function, making them well suited to industrial applications in which reliability and long service life are important features.

SD and microSD are memory card standards established by the SD Association, and SD and microSD card are increasingly finding uses in industrial equipment, in addition to digital consumer equipment. Products designed for such uses must meet demanding requirements not only with regard to data reliability but also in terms of durability, data security, and reliability monitoring.

TDKs expertise in developing NAND modules for products such as NAND flash memory controllers, CompactFlash (CF) cards, and solid-state drives (SSD) has enabled it to develop the advanced features in the new MMGBA/MUGBA series. The new SD and micro SD cards from TDK offer design engineers significantly improved reliability when compared to ordinary SD cards.

The TDK product uses high-speed, high-durability Single Level Cell (SLC) NAND type flash memory instead of the Multi Level Cell (MLC) type NAND flash memory commonly found in SD cards. Global static wear leveling achieves high-performance distributed writing, and storage life meets the requirements of industrial equipment characterised by high usage frequency and long service periods.

In addition, the rewrite life monitoring function that is highly valued by users of TDK's CF cards and SSDs has also been implemented in the MMGBA and MUGBA Series. Tolerance for power interruptions - which is another requirement for the industrial sector - has been strengthened, and a powerful error correction function that can be expanded to 16-bit ECC further elevates data reliability to previously unheard-of levels.

The MMGBA series and MUGBA series will be available from August.

Note: The SD and microSD logos are trademarks of SD-3C, LLC.

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Main applications

 SD/SDHC card or MicroSD card slots which require long service life, extended storage duration and advanced error correction.

Main features

1. Host Interface

Compliant with SDA specification Ver 2.0, SDHC Class 10 (4 GB and higher, 2 GB and lower: SD Class 6) Realizes high-speed access: 19 MB/sec read access, 15 MB/sec write access (Data are for reference only; measured with Crystal Disk Mark 2.1. Actual results will depend on system environment.)

2. Single Level Cell (SLC) NAND Type Flash Memory

3. Global Static Wear Leveling

TDK's global static wear leveling algorithm counts the number of times each memory block is rewritten (erased) and replaces blocks uniformly. Static blocks such as OS/FAT are also periodically leveled, which drastically improves the lifespan of the installed flash memory. The 8 GB type for example supports 1.5 billion rewrite cycles. Even at a rate of 5 rewrites per second, this equates to an expected service life of 10 years.

4. Power Interruption Tolerance Algorithm

Using technology developed for NAND type flash memory controllers, CF cards, and SSDs, a proprietary algorithm reduces the risk of collateral data errors such as corruption of data other than the data being written if power is interrupted when writing data.

5. Error Correction

Far surpassing the regular error correction requirements for SLC NAND type flash memory (4-bit, 8-bit/1KB ECC), the TDK cards incorporate 16-bit/1-KB ECC, making them notably more robust.

6. SDA Compliant Content Protection CPRM Capability

7. Life Monitoring Function

The life diagnosis tool TDK SMART provides information about the rewrite (erase) status of all memory blocks, thereby facilitating maintenance and allowing setting-based management of expected service life and replacement timing

8. Solution Support

TDK has independently developed and marketed the GBDriver series of NAND Flash memory controllers since 2000 and provides technical support to customers in Japan and overseas backed up by its advanced proprietary technologies. This includes dispatch of field application engineers and support for implementation of the reliability monitoring function, which are vital services especially in the embedded systems market.

9. Environmental Considerations

The product complies with the EU RoHS directive (2002/95/EC) of July 2006 for the restriction of hazardous substances.

About TDK Corporation

TDK Corporation is a leading electronics company based in Tokyo, Japan. It was established in 1935 to commercialize ferrites, a key material in electronic and magnetic products. TDK's current product line includes passive components, magnetic application products as well as energy devices, flash memory application devices, and others. TDK today focuses on demanding markets in the areas of **TDK** Corporation



information and communication technology and consumer, automotive and industrial electronics. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2012, TDK posted total sales of USD 9.9 billion and employed about 79,000 people worldwide.

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