TDK

U.DMA 6 Supported NAND-Type Flash Memory Controller GBDriver RA8

Conformity to RoHS Directive

PCMCIA, ATA Interface Type　Static Wear Leveling Function Incorporated

For Embedded Systems/General AV and In-Car Devices / Industrial CompactFlash Cards, SSDs (Solid State Drives), DOMs (Disk On Modules)

TDK GBDriver RA8 is a high-speed memory controller IC supporting Ultra DMA mode 6. It supports NAND-type flash memory structure with 2KByte/page and 4KByte/page. High-speed NAND storage systems are possible with capacities of 128MByte - 16GByte for SLC (single-level cell NAND), and with 256MByte - 32GByte for MLC (multi-level cell NAND).
Not only high-speed control, but 15bit ECC is also incorporated for error correction, providing complete data reliability in combination with an auto-recovery function and a collateral error prevention function for power failure, which are commonly incorporated in the TDK GBDriver series.
Furthermore, the newly-developed static wear leveling algorithm averages out the number of rewriting (erasing) times of all memory areas (blocks) in a NAND-type flash memory, maximizing the rewritable life span of a NAND-type flash memory. SMART information of the number of rewriting (erasing) times of all memory blocks can also be acquired for quantitative evaluation, management, and operation of the flash storage system.

FEATURES

- Supports NAND-type flash memory structure with 2KByte/page and 4KByte/page. 128MByte to 16GByte for SLC, and 256MByte to 32GByte for MLC are compatible. 60nm to 40nm process generation flash memory provided by major flash memory venders are supported.*1
- Supports PIO mode 0-6 / M.DMA mode 0-4 / U.DMA mode 0-6. Realizes 50MByte/sec read times, and 35MByte/sec write times.*2
- The TDK-unique static wear leveling function is incorporated, enabling an averaging out of the number of rewriting (erasing) times of all memory areas (blocks). The static wear leveling control range can be set manually as necessary.*3
- 15bit/sector error correction capability is incorporated (8bit- or 15bit-correction is automatically selected depending on the detected flash memory to be used).
- TDK-unique flash memory control system enhances tolerance for system power failure, allowing no collateral errors.
- Supports SMART command. Number of rewriting (erasing) times of all memory blocks can also be acquired.
- Function for setting the number of sectors for all data area is incorporated. Number of physical blocks to be assigned to data area can be increased or decreased.
- Supports a protect function conforming to the ATA standard. In addition to the existing TDK unique Write Protect/Read Protect functions, the user can set or disable the password.
- Conforms to the RoHS directives.

*1 Please contact us to confirm the Flash the Flash Memory compatibility.
*2 Speed in SLC depends on the flash memory to be used.
*3 To areas other than those set for the static wear leveling control, dynamic wear leveling control is applied.

MAIN APPLICATIONS

- Digital TV, STB, Digital camera, Camcorder, Car navigation system, Portable navigation device (PND), Car audio system, ETC terminal, Drive recorder
- Mobile internet terminal (MID), Amusement device (Video-game console, Arcade game), Communication device (Router, Terminal adapter), Broadcast equipment
- Multifunction printer (MFP), POS terminal, ATM terminal, Station service equipment, Thin client PC, Tablet PC
- Industrial equipment / Industrial embedded device, Medical equipment, Measurement equipment (Machine tool, FA panel computer, Imaging system, Medical PC)

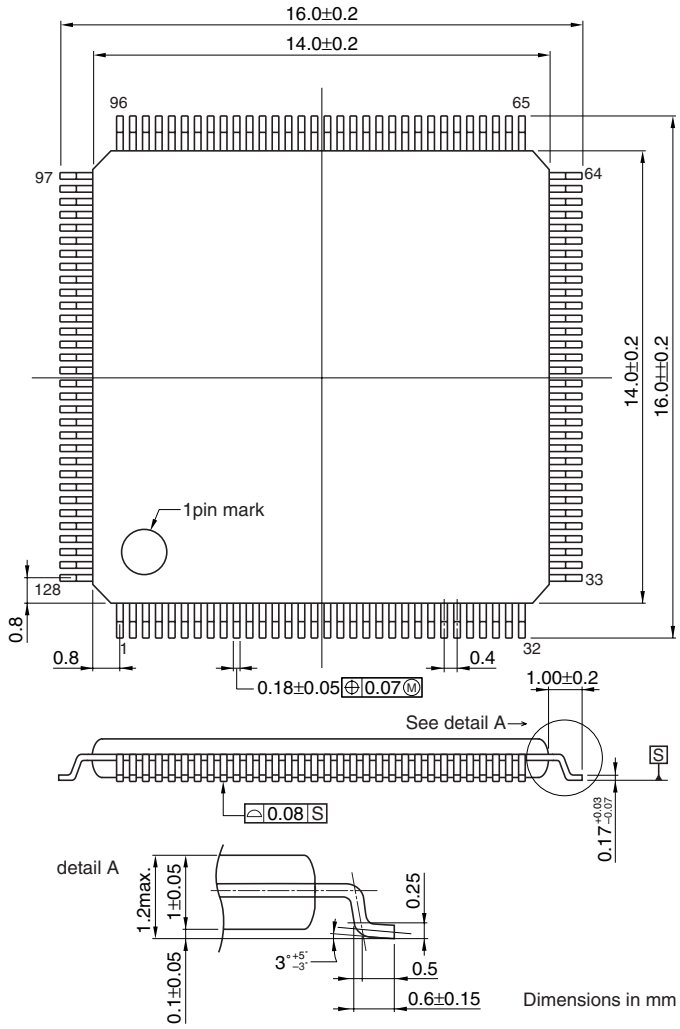
APPLICATION EXAMPLES

- For NOR-type flash memory or for replacing HDD (Hard Disk Drive) with SSD (Solid State Drive)
- For OS / system / user data storage for home information appliance (digital TV, STB (Set Top Box)) and car navigation system
- Boot device for equipment in which Windows XP or Linux is embedded
- For storage device in which data is rewritten frequently, such as a POS system, station service equipment, and security system
- For storage device for which resistance to vibration, electric power saving, and downsizing are required (medical equipment, physical distribution system, industrial equipment)
- Memory device (Industrial CF (CompactFlash) Card, SSD, DOM (Disk On Module))

• 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.

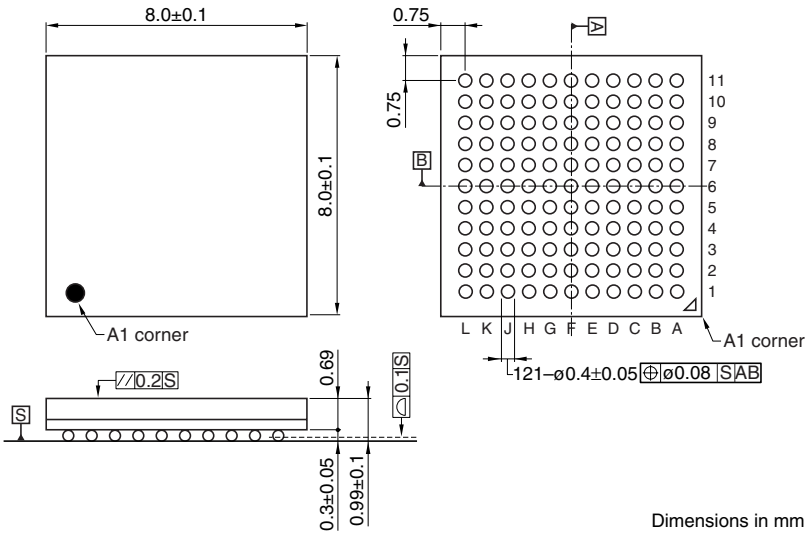
SHAPES AND DIMENSIONS

TQFP 128pin Single Chip 14mm×14mm, pin-pitch 0.4mm



Dimensions in mm

VFBGA121pin Single Chip 8mm×8mm, ball-pitch 0.65mm



Dimensions in mm

SPECIFICATIONS

HOST I/F	PIO mode0-6	
	Multiword DMA mode0-4	
	Ultra DMA mode0-6	
Power specifications	I/O	3.3V (2.7 to 3.6V)
	Core	1.5V (1.35 to 1.65V)
System clock		33MHz
Temperature ranges	Operating	–40 to +85°C
	Storage	–65 to +150°C

• All specifications are subject to change without notice.