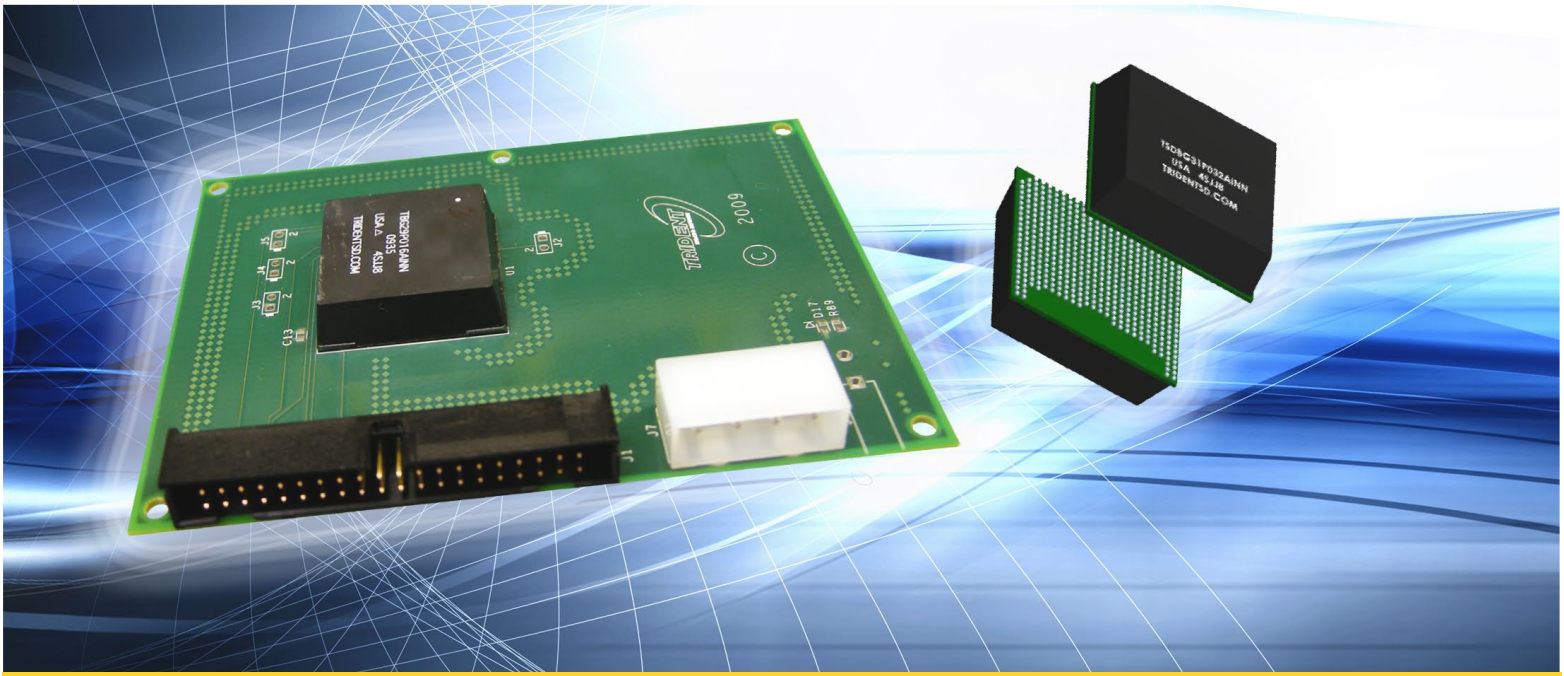
TCS Space & Component Technology

IDE BGADrive® - Solid State Drive



Features

- Available now in 16GB and 32GB
- ATA-6 standard compatible in True-IDE Mode
- Fast ATA transfer rates supporting PIO mode 6, MDMA mode 4, UDMA mode 4 in True-IDE Mode
- JEDEC standard 22 x 22 BGA with 1.27mm pitch
- Operates with either +3.3 or +5 VDC ±10%
- Automatic power-down and sleep modes
- Industrial grade SLC NAND Flash
- High-reliability eutectic Sn-Pb BGA solder balls
- Meets Mil-Std-810 shock and vibration requirements
- Integrated ECC and CRC detect and correct up to 4 random bytes per 512-byte sector
- No device driver development required (completely compatible with standard ATA drivers)

TCS Space & Component Technology now offers IDE BGADrive®, a Solid State Drive (SSD) in an ultra-rugged ball-grid-array package of only 31mm x 31mm. A standard IDE / PATA interface allows ease of software integration — for many operating systems, no driver development is required.

The controller architecture is based on a 32-bit RISC processor and connects directly to two, four or eight NAND flash memory devices (2 per channel). A powerful direct flash access (DFA) mechanism handles the data transfer tasks, including the two flash memory concurrent-access channels. Acting independently as a hardware accelerator, the DFA mechanism provides a significant performance advantage.

An on-chip ECC and CRC unit generates the required code bytes for error detection and correction of up to four random bytes per 512 Byte data sector. Code byte generation during write operations, as well as error detection during read operation, is implemented on the fly without any speed penalty. An advanced static wear-leveling algorithm not only maximizes the usable life of the media, but also incorporates software routines which optimize the spread of cells addressed to reduce chances of data errors arising from parasitic coupling or floating-gate-to-floating-gate noise.

The BGADrive® supports mobile applications with automatic power-saving states, and power-fail management. Designed and manufactured in the USA at AS9100-certified facilities, the Trident's SSDs are the unquestioned reliability leaders among high-performance, rugged SSDs.

Applications

- Single-board computers in military settings
- Ruggedized computers / notebooks — mobile and system-based
- Data recorders for extreme environments
- Ultra-portable and hand-held devices
- Ruggedized PDAs, military logistics
- Security / surveillance networks / image processing
- Wearable computers
- UAVs, UUVs
- Defense / Aerospace
- Miniature network appliances
- Embedded / Industrial
- Medical instrumentation
- Transportation equipment
- Outdoor / Mobile applications for telecoms, IT systems, utilities

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TCS TeleCommunication Systems
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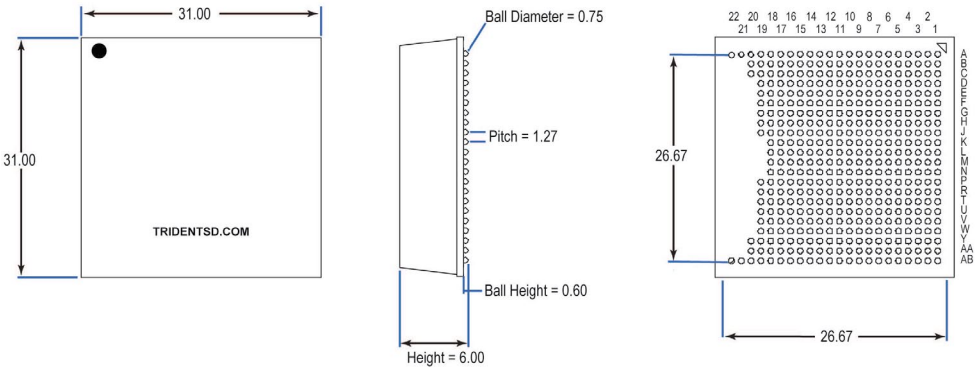
Specifications	
Performance	
Capacity	16GB, 32GB
Sustained Read (32GB)	Up to 42 MB/s
Sustained Write (32GB)	Up to 27 MB/s
Random Read, 1MB blocks (32GB)	Up to 40 MB/s
Random Write, 1MB blocks (32GB)	Up to 14 MB/s
Power	
Input Voltage	+5VDC ± 10% or +3.3VDC ± 10%
Read Max (32GB)	0.85 W at +5VDC
Write Max (32GB)	0.90 W at +5VDC
Standby Power (32GB)	<0.05 W at +5VDC
Reliability	
Bit Error Rate	< 1 non-recoverable error in 10^{14} bits read
Error Detection / Correction	Up to 4 random byte errors detected and corrected in 512 byte sector
Data Retention	> 10 years
Endurance	> 100,000 writes
Wear-Leveling	Proprietary algorithms
Environment	
Operating Temperature	-40°C to +85°C
Storage Temperature	-50°C to +95°C
Temperature Cycle	JEDEC JSDSTD22-A104 (-40°C to +85°C); 200 cycles minimum
Temperature Humidity Bias (THB)	JEDEC JESD22-101 (85°C / 85%RH) for 1,000 hours
Altitude	> 80,000 feet
Humidity	5% to 95% relative humidity, non-condensing
Shock	1,500G at 0.5ms
Vibration	16.3G minimum RMS
Mechanical	
Dimensions (mm)	JEDEC Standard BGA (31mm x 31mm with 22 x 22 ball array and pitch = 1.27mm)



Product Information and Specifications subject to change without notice. DS-TSDXBGP-A