

# TOSHIBA STORAGE DEVICE DIVISION

## MK2008GAL, MK3008GAL, MK4008GAH & MK6008GAH

### HDD INSTALLATION NOTES

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#### GENERAL DESCRIPTION

Toshiba's MK2008GAL (HDD1662), MK3008GAL (HDD1642), MK4008GAH (HDD1744) and MK6008GAH (HDD1724) hard disk drives are a series of ultra-slim fast light weight 1.8 inch Winchester disk drive. The drives are ATA-6 compliant.

| SPECIFICATIONS          | MK2008GAL    | MK3008GAL    | MK4008GAH    | MK6008GAH    |
|-------------------------|--------------|--------------|--------------|--------------|
|                         | HDD1662      | HDD1642      | HDD1744      | HDD1724      |
| FORMATTED CAPACITY      | 20.0GB       | 30.0GB       | 40.0GB       | 60.0GB       |
| HEIGHT                  | 5mm          | 5mm          | 8mm          | 8mm          |
| WEIGHT                  | 1.69oz (48g) | 1.69oz (48g) | 2.08oz (59g) | 2.08oz (59g) |
| NO. OF DISKS (PLATTERS) | 1            | 1            | 2            | 2            |
| NO. OF DATA HEADS       | 2            | 2            | 4            | 4            |

#### FUNCTIONAL SPECIFICATION

| LOGICAL DRIVE<br>PARAMETERS                    | MK3008GAL                           | MK6008GAH | MK2008GAL                | MK4008GAH |
|------------------------------------------------|-------------------------------------|-----------|--------------------------|-----------|
|                                                | HDD1642                             | HDD1724   | HDD1662                  | HDD1744   |
| NO. OF CYLINDERS (user)                        | 55,728                              | 55,728    | 43,200                   | 43,200    |
| BYTES PER SECTOR                               | 512                                 |           | 512                      |           |
| BUFFER SIZE                                    | 2MB                                 |           | 2MB                      |           |
| ROTATION SPEED (±0.1%)                         | 4,200rpm                            |           | 4,200rpm                 |           |
| TRANSFER RATE INTERNAL                         | 131.1 - 283.3 Mbits/sec.            |           | 132.6 - 230.9 Mbits/sec. |           |
| NO. OF CYLINDERS (logical)                     | 16,383                              |           |                          |           |
| NO. OF HEADS (logical)                         | 16                                  |           |                          |           |
| NO. OF SECTORS/TRACK                           | 63                                  |           |                          |           |
| HOST TRANSFER RATE<br>PIO/ULTRA DMA (ATA mode) | 16.6/100MB/s                        |           |                          |           |
| SEEK TIME                                      |                                     |           |                          |           |
| AVERAGE                                        | 15ms                                |           |                          |           |
| TRACK-TO-TRACK                                 | 3ms                                 |           |                          |           |
| MAXIMUM                                        | 26ms                                |           |                          |           |
| TEMPERATURE                                    |                                     |           |                          |           |
| OPERATING                                      | 41°F - 140°F (5°C - 60°C)           |           |                          |           |
| NON-OPERATING                                  | -4°F - 149°F (-20°C - 65°C)         |           |                          |           |
| HUMIDITY                                       |                                     |           |                          |           |
| OPERATING/NON-OPERATING                        | 8 - 90% R.H. (No condensation)      |           |                          |           |
| SHIPPING                                       | 5 - 90% R.H. (No condensation)      |           |                          |           |
| WET BULB                                       | 29°C(operating)/40°C(non-operating) |           |                          |           |

**UNPACKING PROCEDURE**

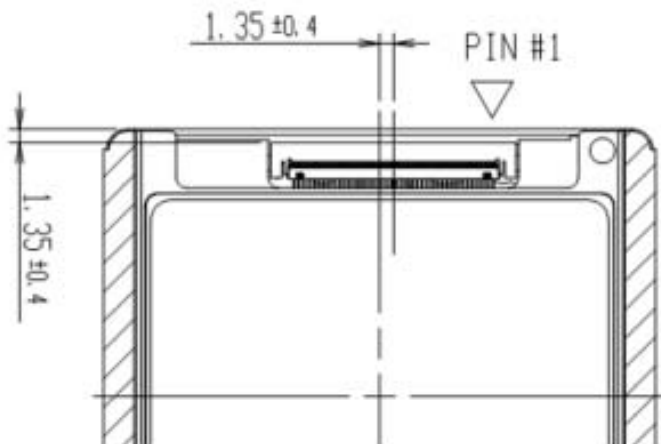
Visually inspect the shipping container prior to unpacking for any signs of damage to the container or its contents (the carrier is responsible for any damage incurred during shipment). Prior to opening the anti-static bag, it is recommended that the user ground himself with a ground strap or by touching the PC chassis or other metal object. Remove the drive from the anti-static bag and check it for damage. Save the shipping container and packing material for possible use later.

**HANDLING AND MOUNTING CONSIDERATIONS**

- Installation and mounting of these drives is specific to the application environment.
- Handle drive only by the edges. When handling or mounting, take care not to apply any pressure to the top cover.
- Avoid subjecting the drive to excessive shock. Do not drop the drive, even a small distance onto a tabletop or other hard surface can damage drive. When mounting the drive, do so in such a fashion that the drive will be isolated from excessive shock.
- Do not mount in an environment where the temperature of the drive’s top cover will exceed 65°C. (During operation, the temperature of the top cover can rise 15°C above ambient).
- Do not disassemble, modify or repair drive.
- A rattle heard when the drive is moved is normal and not a sign of failure.

**INTERFACE CONNECTOR**

|                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Drive Side Connector                                                                                                                                                                                                                                                                                                                               | DDK Ltd, FF19A-40B-R11b                                                                                                                                                                              |
| Recommended host side FPC                                                                                                                                                                                                                                                                                                                          | 1. Width: 20.50 ±0.07mm<br>2. Thickness:0.20 ±0.03mm<br>3. Length: 90mm (max)<br>4. Impedance: Typical 50ohm<br>5. Plating: Gold over Nickel plating (note 1)<br>6. Adhesive: Heat-hardened adhesive |
| Connector Durability (note 2)                                                                                                                                                                                                                                                                                                                      | 20 times                                                                                                                                                                                             |
| FPC Holding force (note 3)                                                                                                                                                                                                                                                                                                                         | Typ: 17[N] Min: 5[N]                                                                                                                                                                                 |
| * Do not pull out FPC with the connector locked.<br>* Do not lock without FPC<br>Notes:<br>1. To avoid Sn whisker<br>2. In horizontal direction with FPC of 0.20mm in thickness and with the same connector and FPC<br>3. In horizontal direction with FPC of 0.20mm in thickness and with the same connector and FPC after pulling out repeatedly |                                                                                                                                                                                                      |



**FIGURE 1 – INTERFACE CONNECTOR**

### **DEVELOPER SUPPORT**

Toshiba Storage Device Division (SDD) the industry pioneer in small form factor storage supports developers who are looking for small form factor HDD's that deliver the unbeatable combination of high-performance and high-capacity storage. Toshiba HDD's can be found “under the hood” of some of today's hottest portable products. If you are interested in discussing your product application with us please contact us.

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## **CONNECTOR CABLING INFORMATION**

The following table describes all of the pins on the Task File Interface:

| PIN | SIGNALS                      | PIN | SIGNALS        |
|-----|------------------------------|-----|----------------|
| 1   | RESERVED                     | 2   | RESERVED       |
| 3   | - RESET                      | 4   | GROUND         |
| 5   | DD7                          | 6   | DD8            |
| 7   | DD6                          | 8   | DD9            |
| 9   | DD5                          | 10  | DD10           |
| 11  | DD4                          | 12  | DD11           |
| 13  | DD3                          | 14  | DD12           |
| 15  | DD2                          | 16  | DD13           |
| 17  | DD1                          | 18  | DD14           |
| 19  | DD0                          | 20  | DD15           |
| 21  | GROUND                       | 22  | DMARQ          |
| 23  | GROUND                       | 24  | - DIOW<br>STOP |
| 25  | -DIOR<br>-HDMARDY<br>HSTROBE | 26  | GROUND         |
| 27  | IORDY<br>-DMARDY<br>DSTROBE  | 28  | GROUND         |
| 29  | DMACK                        | 30  | INTRQ          |
| 31  | DA1                          | 32  | - PDIAG/-CBLID |
| 33  | DA0                          | 34  | DA2            |
| 35  | -CS0                         | 36  | -CS1           |
| 37  | - DASP                       | 38  | +3.3V          |
| 39  | +3.3V                        | 40  | RESERVED       |

Note: “-“ in front of signal name indicates negative logic.