

# TOSHIBA STORAGE DEVICE DIVISION

## MK2004GAL & MK4004GAH HDD INSTALLATION NOTES

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### GENERAL DESCRIPTION

Toshiba's MK4004GAH (HDD1524) and MK2004GAH (HDD1422) hard disk drives are ultra-slim fast 1.8 inch Winchester disk drives. The drives are ATA compliant.

SPECIFICATIONS	MK4004GAH	MK2004GAL
	HDD1524	HDD1422
FORMATTED CAPACITY	40.0GB	20.0GB
HEIGHT	8mm	5mm
WEIGHT	2.18 ounces (62grams)	1.8 ounces (51grams)
NO. OF DISKS (PLATTERS)	2	1
NO. OF DATA HEADS	4	2

### FUNCTIONAL SPECIFICATION

LOGICAL DRIVE PARAMETERS	MK4004GAH/MK2004GAL
	HDD1524/HDD1422
NO. OF CYLINDERS (user)	38,160
BYTES PER SECTOR	512
BUFFER SIZE	2MBytes
ROTATION SPEED (±0.1%)	4,200rpm
TRANSFER RATE (INTERNAL):	125.5 - 253.1 Mbits/Sec
NO. OF CYLINDERS (logical)	16,383
NO. OF HEADS (logical)	16
NO. OF SECTORS/TRACK	63
HOST TRANSFER RATE	
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°F)
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)

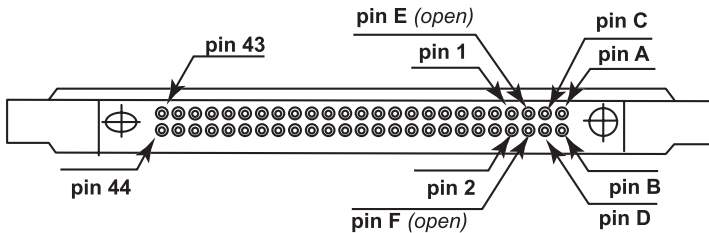
## UNPACKING PROCEDURE

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.
- The MK2004GAL and MK4004GAH do not use a standard ATA connector cable (see Drive Connectors/Pin-out section for additional information.)

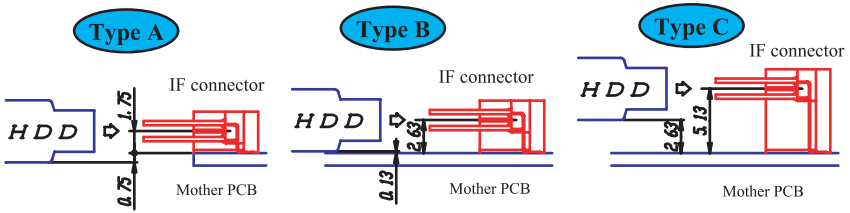
## INTERFACE CONNECTOR



**FIGURE 1 – INTERFACE CONNECTOR JUMPERS**

JUMPER	P28	DRIVE
No Jumper	-	Master Drive
C-D Jumper	-	Slave Drive
B-D Jumper	LOW	Master Drive
B-D Jumper	HIGH	Slave Drive
A-B Jumper	-	Prohibit
A-C Jumper	-	Prohibit

Three (Type A, B and C) Interface Connectors are available from Fujikura America Inc./DDK Connector Division To contact them call 408/988-7485 or visit their website at (<http://www.ddkconnectors.com>).



**FIGURE 2 – CONNECTORS A, B & C**



**FIGURE 3 – INTERFACE CONNECTOR**

### **TECHNICAL SUPPORT**

Should you require technical support, contact your computer distributor. If your distributor is unable to answer your questions, have them call Toshiba Storage Device Division Technical Support, on your behalf.

TOSHIBA - STORAGE DEVICE DIVISON  
TECHNICAL SUPPORT - 503/615-4364  
[toshibatech@teleplan.com](mailto:toshibatech@teleplan.com)

You can also visit Toshiba's web site at: <http://www.sdd.toshiba.com>

## CONNECTOR CABLING INFORMATION

PIN	SIGNALS	PIN	SIGNALS
1	-RESET	2	GROUND
3	DD7	4	DD8
5	DD6	6	DD9
7	DD5	8	DD10
9	DD4	10	DD11
11	DD3	12	DD12
13	DD2	14	DD13
15	DD1	16	DD14
17	DD0	18	DD15
19	GROUND	20	OPEN
21	DMARQ, -DIOW	22	GROUND
23	STOP	24	GROUND
25	-DIOR	26	GROUND
	-DMARDY		
	HSTROBE		
27	IORDY	28	CSEL
	-DMARDY		
	-DSTROBE		
29	DMACK	30	GROUND
31	INTRQ	32	-IOCS16
33	DA1	34	- PDIAG/-CBLID
35	DA0	36	DA2
37	-CS0	38	-CS1
39	DASP	40	GROUND
41	+ 3.3V (LOGIC)	42	+ 3.3V (MOTOR)
43	GROUND	44	RESERVED

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