TOSHIBA

TOSHIBA AMERICA INFORMATION SYSTEMS
STORAGE DEVICE DIVISION
IRVINE, CALIFORNIA

MK5002MPL (HDD1232)
1.8-INCH HARD DISK DRIVE
USER MANUAL

Rev 02

11/2006

TOSHIBA

CONTENTS

TOSHIBA

INTRODUCTION – MK5002MPL (HDD1232) HARD DISK DRIVE

General Features

- 1.8" sized drive
- 1 Platter
- 5.007 Gigabytes*
- 5mm High
- 15ms Average Seek Time
- ATA(1 - 5) Interface
- Ultra66 Supported
- 256KB Buffer
- Rotational speed of 3,990rpm
- MTTF 300,000 Hours
- 68-pin ATA and PC Card ATA Interface

**Toshiba defines a megabyte (MB) as 1,000,000 bytes and a gigabyte (GB) as 1,000,000,000 bytes.*

TOSHIBA

SETUP – MK5002MPL (HDD1232) HARD DISK DRIVE

***Caution**: Your Hard Disk Drive is a precision device and even a small drop onto any surface can cause damage. Electronstatic discharge can also damage the drive. You should ground yourself prior to handling the drive.*

Figure 1. MK5002MPL Side View

Installation Notes

- Do not apply any force to the top cover, except the screw areas on top cover. Maximum force to the specified area is 2N
- Locate PC Card Type II slot and gently slide in drive until it locks into place.

important Note: Disconnect power from your computer system before beginning installation

TOSHIBA

USING THE HARD DISK DRIVE – MK5002MPL (HDD1232) HARD DISK DRIVE

Backing up Data Files

To avoid data loss, regularly back up the data files on the hard disk drive.

TOSHIBA

SPECIFICATIONS –MK5002MPL (HDD1232) HARD DISK DRIVE

General

Model	MK5002MPL (HDD1232)
Interface	ATA-1/2/3/4/5 (68-pin PC Card ATA

Functionality

Formatted Capacity	5.027GB*
Rotational Speed	3,990rpm
Avg. Rotational Latency	7.52/ms
Spin-up Time	3sec (typical)
Buffer	256Kb
Seek Time	
Average	15
Maximum	26
Internal Transfer Rate	93 ~ 125 Mbits/sec (max)
Host Transfer Rate	
Ultra DMA mode	66.7Mbytes/sec
PIO Mode	16.6Mbytes/sec
Interleave Factor	1:1

**Toshiba defines a megabyte (MB) as 1,000,000 bytes and a gigabyte (GB) as 1,000,000,000 bytes.*

Internal Drive Characteristics

Number of Disks	1
Number of Data Heads	2
Track Density (TPI)	1,638 (41.6k)
Logical Cylinders	10,390
Logical Heads	16
Logical Sectors/track	63
Bytes per Sector	512
Logical Blocks (LBA)	9,818,530

Reliability

Preventative maintenance	None
Non-recoverable read errors	1 error per 10^{13} bits read

Electrical

Voltage	5V 5% 3.3V 5%

Power Consumption

	3.3V	5V
Start	1.2W typ	1.9W typ
Seek	1.3W typ	2.0W typ
Read	1.2W typ	1.9W typ
Write	1.3W typ	2.0W typ
Sleep	0.5W typ	0.10W typ
Energy Consumption Efficiency	0.10W/GB avg	0.16W/GB avg

Shock

Operating	1,960m/s^2 (200G)(2msec)
Non-Operating	9,800m/s^2 (1000G)(1msec)

Physical

Height	0.2 (5.0mm)
Width	2.13" (54.0mm)
Depth	3.37" (85.6mm)
Weight	.94oz (55g) typ

Regulatory

The drive satisfies the following standards:

Underwriters Laboratories (UL)	1950
Canadian Standard Association (CSA)	C22.2 No. 950
TUV Rheinland	EN 60 950
EMC - EN50081-1	EN50081-1: 1992 EN55022: 1994 Class B EN61000-3-2: 1995 EN61000-3-3: 1995
EMC - EN50082-1	EN61000-4-2: 1995 EN61000-4-3: 1998 ENV50204: 1995 EN61000-4-4: 1995 EN61000-4-5: 1995 EN61000-4-6: 1996 EN61000-4-11: 1994

DRIVE CONNECTORS –MK5002MPL (HDD1232) HARD DISK DRIVE

Figure 1. MK5002MPL HDD - INTERFACE CONNECTOR

Interface Connector

Drive Side Connector	MCD-D50 Series by DDK Connectors
Recommended Host Side Connector	MCD-D50 Series by DDK Connectors

Interface Signals

DRIVE INTERFACE SIGNALS			
PIN	**SIGNAL**	**PIN**	**SIGNAL**
1	RESET	2	GROUND
3	DD 7	4	DD 8
5	DD 6	6	DD 9
7	DD 5	8	DD 10
9	DD 4	10	DD 11
11	DD 3	12	DD 12
13	DD 2	14	DD 13
15	DD 1	16	DD 14
17	DD 0	18	DD 15
19	GROUND	20	OPEN
21	DMARQ	22	GROUND
23	DIOW/STOP	24	GROUND
25	DIOR/ -DMARDY HSTROBE	26	GROUND
27	IORDY/ -DMARDY/- DSTROBE	28	CSEL
29	DMACK	30	GROUND
31	INTRQ	32	IOCS16
33	DA1	34	PDIAG
35	DA0	36	DA 2
37	CS0	38	CS1
39	DASP	40	GROUND
41	3.3V (LOGIC)	42	3.3V (MOTOR)
43	GROUND	44	RESERVED
Note: Symbol () in front of signal indicates negative logic.			